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FOREWORD



A stylized, handwritten signature in black ink that reads "Cherian". The signature is fluid and cursive, with a long horizontal line extending from the end of the name.

Vijaya Cherian,
Editorial Director

The number of players vying for young eyeballs online has increased in the last year, and OTT is the industry's new blue-eyed boy. First, we had the regional OTT players. Then the traditional broadcasters announced their OTT offerings; then some of the international video streaming services jumped on the bandwagon; and now, Netflix has come to town. So the buzzwords these days all centre around OTT players, MCNs, binge viewing, trend-jumping millennials, the need for personal engagement and offering the viewer flexibility in terms of pricing, bundles and recommendations that are based on what they have viewed thus far.

With so much going on around OTT in the region, we have ensured that our introduction to the Pro50 this year focuses on this much talked-about topic and a survey that A.T. Kearney did within the region. The analyst's report, which was written exclusively for our readers, touches upon the most recent developments in the region while also giving us a deeper understanding of the TV and OTT trends in the market.

With all of the buzz around OTT, it is easy to think that linear television belongs to the dinosaur age and traditional equipment is no longer valid. We are tempted to think that everything is now happening in the cloud and at the click of a button, you can launch a channel online with all the bells and whistles while not owning any of that infrastructure.

That may be true in theory, but for its accurate deployment at this point in time, many variables must work in your

favour. You must have a visionary CTO in your company, who also has the clout and the courage to tinker with all of the new toys that have not been tried, tested and deemed a standard yet by the powers that be; you must have equipment that can be seamlessly integrated with new technologies; and you must have a management that is willing to take that risk.

Our top 50 companies is a good indication of where most of the revenue for the industry is still coming from and if you ask me, 90% of it is being generated from the buying and selling of traditional equipment. Traditional players still make up a large volume of players in the industry although this time, we have some entrants that are operating in the new space as well.

No doubt, with time, all of this will change; but that time has not yet come. We still don't have public cloud services in the region and we don't have a large volume of high-quality Arabic content. Content development and cloud solutions are still in their infancy here. But the MENA TV and film industry is evolving rapidly and we expect to see big changes in the coming months. In most cases, companies also seem to be gearing up for this change. Most of the products and services offered by companies in the Pro50 this year afford greater flexibility and an openness to accommodate future scalability and expansion to multiple platforms. But I'll let you see it for yourself. Welcome to our fifth edition!

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CONTENTS

Introduction

- 4 Pay TV in the MENA Region: Situations, Trends and Outlook

Consultants

- 16 Master Media

Distributors

- 22 Amaranthine Trading LLC
- 26 On-Air Asia

IPTV

- 32 Exterity
- 36 Infomir

Manufacturers

- 42 Aspera, an IBM company
- 46 Aveco
- 50 Avid
- 54 Brainstorm Multimedia
- 58 Datavideo
- 62 Fischer Connectors
- 66 Hitachi Kokusai Electric Turkey
- 70 JVCKENWOOD
- 74 Lawo
- 78 Miller Tripods
- 82 Newtec
- 86 Panasonic
- 90 Riedel Communications
- 94 Rohde & Schwarz
- 98 Sennheiser Middle East
- 102 SGL
- 106 Utah Scientific
- 110 Verimatrix

OB Services

- 116 Al Aan Media Services

Satellite

- 122 ABS
- 126 APT Satellite
- 130 AsiaSat
- 134 Eutelsat
- 138 Gazprom Space Systems, JSC
- 142 HorizonSat
- 146 M-Three Satcom
- 150 STN PLC

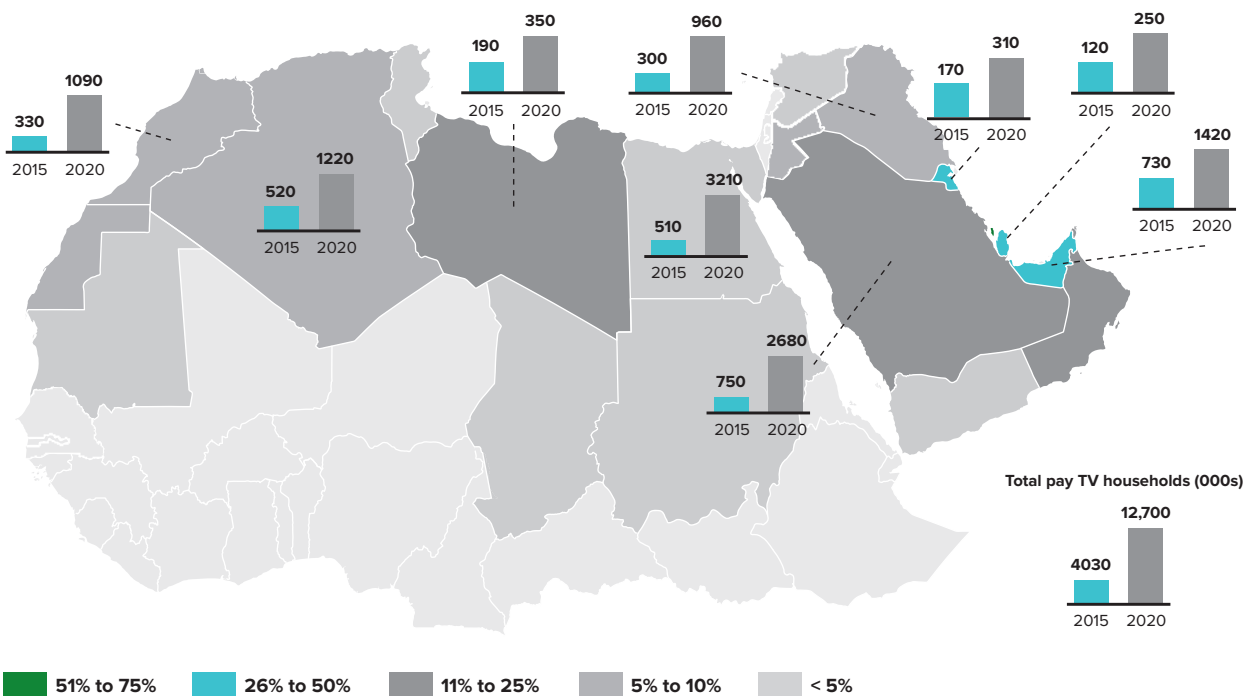
Service Providers

- 156 ABS Network
- 160 Amagi
- 164 Erstream
- 168 NorthTelecom
- 172 PCCW Global
- 176 U-TO Solutions (I) Pvt. Ltd.
- 180 Vectracom

Systems Integrators

- 186 Al Futtaim Technologies
- 190 Aret Video and Audio Engineering
- 194 BFE Studio und Medien Systeme GmbH
- 198 Broadcast Solutions GmbH
- 202 Broadcast Systems Arabia
- 206 GloCom
- 210 HEAT for Engineering and Technology
- 214 INC System Integrations
- 218 Systems Design
- 222 Tek Signals/Qatar Signals Systems
- 226 TSL

PAY TV IN MENA: SITUATION, TRENDS AND OUTLOOK

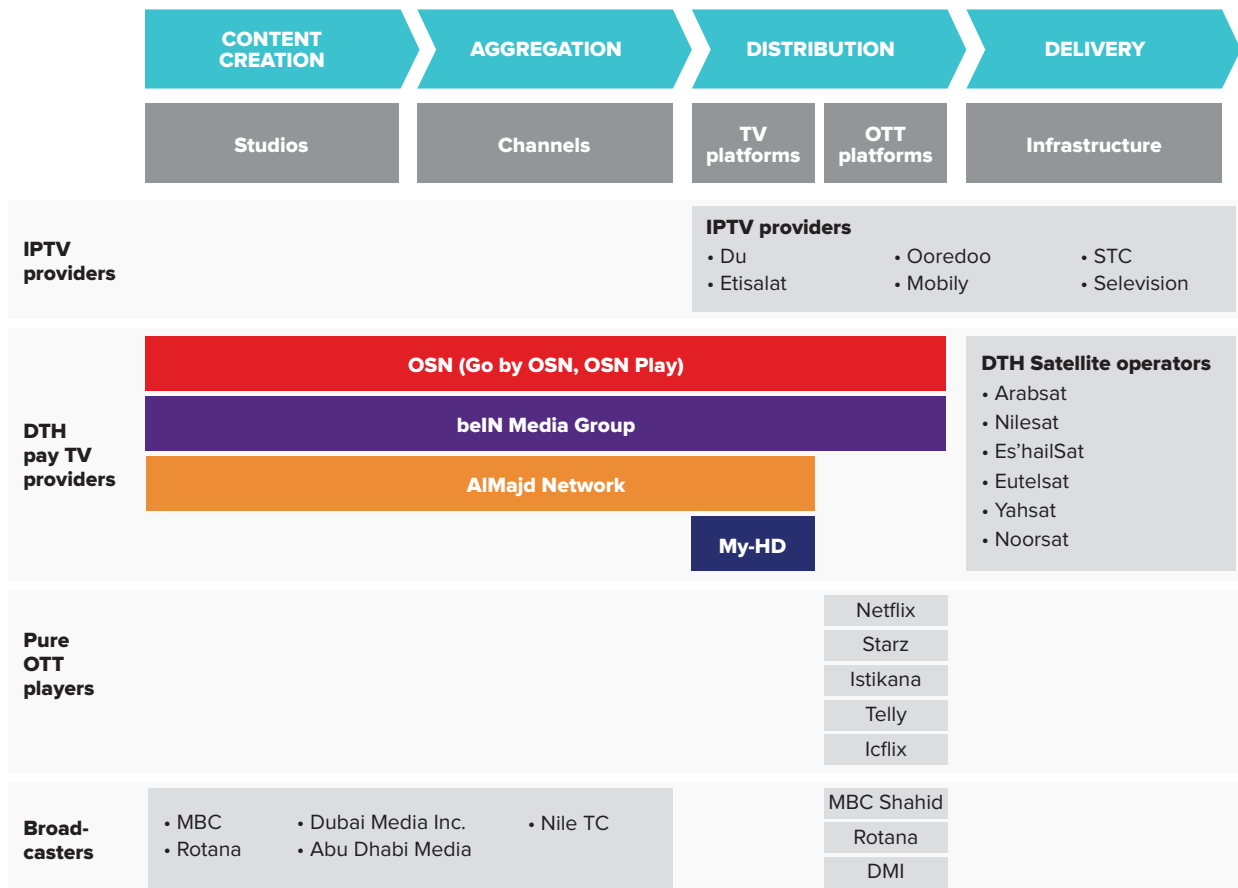


MENA Pay TV Penetration (current versus 2020)

The MENA TV sector is going through a massive transition. The last 12 months have seen major developments that are shaking up the market. beIN added entertainment content to its platform. OSN

responded by expanding its content deals and launching three new entertainment channels. Netflix has arrived in the region (earlier than people expected) to join Starz as the second major international OTT player. These moves – and ongoing

rumours of further major developments – look set to transform a TV market that has until now been relatively stable and dominated by free-to-air DTH broadcasting. This could potentially herald a more prominent role for pay TV.



Sources: Company Information; A.T.Kearney analysis.

Television Market Landscape – Selection of Operators Across the Value Chain

The above-mentioned operators clearly see the market potential. While the overall pay TV market is predicted to continue growing at a rapid pace to a total subscriber base of more than 12 million by 2020 from four million today, this will still represent less than 20% of all TV households. In comparison, pay TV penetration in many South and Southeast Asian countries is above 60%.

beIN’s entry into entertainment is likely to provide a significant boost to the sector. While in the short run it can result in intense competition with OSN as both platforms go all out to acquire content and

consumers, this will eventually help grow the overall subscriber base.

At the same time, there have been several commercial moves in OTT by icflix, MBC, Telly and others to drive up subscriber bases through distribution deals and product innovation. While the impact of the arrival of Netflix is still uncertain, it will provide an impetus to players to review and enhance their proposition. Overall, pay TV operators will have to navigate an increasingly competitive and complex market, dynamic consumer behaviour, evolving content trends and disruption to distribution and delivery channels.

Competitive Dynamics – Competition Heating Up

The competitive landscape in pay TV is changing dramatically with new growth strategies by DTH operators, some IPTV players changing their models and an increase in the number of pure OTT players. The first question centres on the future of DTH. For OSN and beIN, low penetration levels combined with their unique ability to provide a regional footprint suggest growth potential. Recognised brand names, established sales and distribution networks and long-term content agreements are likely to enable

the incumbent players to maintain their leadership. Research conducted by AT Kearney shows that DTH will continue to capture 60-70% of pay TV revenues in the region in the coming five years, albeit with variances across markets (Qatar, for instance, is likely to see more growth in IPTV driven by Ooredoo's Mozaic expansion). However, competition for both subscribers and content rights will pose an ongoing threat to the ARPU and margins of DTH operators.

IPTV is expected to support the growth of the overall market and simultaneously provide a degree of competition to DTH. IPTV platforms have been largely content redistributors but recent moves show they are keen to capture a greater share of value through expanding their VoD library, starting their own linear channels, launching multiscreen offers or strategic partnerships. Saturation in telecom subscriber growth will mean that telecom operators look to broadband and triple/quadruple play services to drive growth. With an established business model and cash flows from their core telecom business, these operators could potentially mount a challenge to DTH, although this will be concentrated in urban areas with the required fibre infrastructure.

Batelco's new IPTV service in partnership with OSN, Ooredoo's launch of the Mozaic GO app and Etisalat's 4K set-top box supported by a dedicated 4K channel and enhanced VOD library are indicative of this trend. Aggressive investments in acquiring content rights to protect and grow the broadband subscriber base, as is being done by IPTV operators in some other markets may also be a possibility. For example, in

Pay TV operators will have to navigate an increasingly competitive and complex market, dynamic consumer behaviour, evolving content trends and disruption to distribution and delivery channels

the UK, telecom operator BT has spent approximately \$1.5 billion for a share of the domestic English Premier League football rights over three seasons starting in 2016 (70% above the previous period). This is on top of another \$1.5 billion spent by BT for exclusive UK rights to broadcast the Champions League and Europa League. BT's target audience is their three million superfast broadband subscribers who most likely represent the segment of multiscreen video consumers.

Saturation in telecom subscriber growth and revenue pressure will mean that telecom operators look to broadband and triple/quadruple play services to drive growth. With strong similarities to pay TV and healthy cash flows from their core business, they pose a potential challenge to DTH. Having said that, any content-driven IPTV play will be limited by the economics of their fibre infrastructure and the broader issue of the MENA region being a single market for content rights. Thus the role of telecom operators is likely to remain largely focused on distribution and local partnerships.

The other big question centres on OTT, given the entry of Netflix. Owing to the MENA's high rate of technology adoption,

OTT video penetration is likely to grow significantly. The MENA OTT market is crowded, with both regional pure OTT players such as icflix, Telly, Istikana, and Cinemoz competing with global players Starz and Netflix. With few of these players able to invest in original Arabic content, rival services from broadcasters' and pay TV operators' standalone OTT services, and rising competition for ever more expensive content rights, the market is unlikely to be able to sustain such a large number of pure OTT operators.

For DTH players, OTT could result in some cannibalisation as certain subscribers switch to a lower-cost OTT-only service. The impact of this will largely be felt at the low end of the pay TV market, whereas higher-end subscribers will continue to pay for a premium service. The net result will be a continued bipolarisation of the pay TV market in terms of price and the content and user experience that comes with that price.

Netflix and OTT

The entry of Netflix has arguably been the most talked about event in TV in a long while not just in the MENA region but also worldwide. With a presence in 190 countries and a total investment of \$6 billion in content earmarked for 2016 (including 600 hours of original content), Netflix is making bold moves to transform the TV market and possibly break down decades-old models and barriers. However, while it presents an attractive proposition to specific customer segments in the MENA region, the offering is not yet sufficiently attractive to draw the majority of pay TV subscribers away from their regular packages and short-term growth

is likely to be constrained. Long-term success in the region will depend on how Netflix addresses certain challenges:

- Netflix’s MENA content library is still limited compared to its service in other regions. Approximately 20% of the total U.S. catalogue is available as of now and due to pre-existing licensing agreements with OSN, some premium in-house productions such as *House of Cards* are not available on the MENA Netflix. More generally, attracting a large user base to the extent seen in the U.S. and other success markets will need substantial investment in both developing local content (which it has done in markets like France) and in expanding existing rights deals (while facing the challenge of content owners increasingly prioritising their own OTT platforms).
- Other OTT services such as Starz, Icflix, Istikana, Shahid, Telly and pay TV multiscreen offerings have been available in MENA for some time and

most have distribution partnerships and local content deals in place.

- Certain distinctive characteristics of most of the MENA region (low willingness to pay for content, high mobile data costs, minimal credit card penetration and high content piracy) present a challenge compared to many of its existing, more mature markets.
- Netflix was already present in the region prior to 2016, with many subscribers to U.S. or other versions of Netflix through VPNs (estimates put the number in the UAE alone at over 200,000). This reduces the potential for subscriber growth on its native MENA service, which has significantly less content than the U.S. or other services accessible over VPN.

More broadly, OTT video does change the game by opening up new ways of competing for eyeballs. Whereas historically “content is king”, in an online environment, operators can compete effectively by focusing on factors such as

customer experience, content curation, and big data-driven personalisation. Netflix’s success is partly due to its ability to offer accurate recommendations based on a user’s viewing preferences and an easy-to-use interface.

This means that the market for OTT services is evolving along two axes: Content vs. Experience and Mainstream vs. Targeted. At one end of the spectrum, we have specialist community services such as Stylehaul and Machinima targeting specific verticals (in this case fashion and online video gaming) with mainly short-form content hosted on a third party like YouTube. At the other end are mass aggregators with premium long-form content on their own portal, such as Hulu. The strategy adopted affects the potential reach (global vs. regional or even local), monetisation model (ad vs. subscription vs. hybrid), and approach to content rights management.

While the Mass Aggregator and Social Video Centre models are prevalent in the

Top 10 Arabic shows - expat Arabs	Broadcaster	Top 10 Arabic shows - Emiratis	Broadcaster
Bab Al Hara	MBC	Shabeh Al Reeh	Al Emarat
Ramez Wakel Al Gaw	MBC	Shabayet Al Carton	Dubai Al Oula
Ostaz Wa Raes Qesm	MBC	Sawalef Tafash 3	Dubai Al Oula
Selfie	MBC	Ramez Wakel Al Gaw (9.30pm slot)	MBC
Omna Rowayhet Alyana	MBC	Shabayet Al Carton	Sama Dubai
Alf Lelah We Lelah	MBC	Sawalef Tafash 2	Sama Dubai
Ramez Wakel Al Gaw (4am slot)	MBC	Law Enny Aaraf	AD Media
Horof Wa Olof	MBC	Al Rawy	Sama Dubai
Alo Fayez	MBC	Fi Aynayha Oghnia	Sama Dubai
Ramez Wakel Al Gaw (4.30am slot)	MBC	Selfie	MBC

Source: *tview*.

Top 10 Arab language shows in UAE in Ramadan 2015 – Expat Arabs and Emiratis

MENA region, there is certainly scope for other approaches. With the high appetite for short-form video content as evidenced by world-leading YouTube consumption, there is a strong outlook for local digital multichannel networks (MCNs). An example of this is Saudi-based U-turn Entertainment, a Mass Digital MCN with over 50 channels on YouTube, nearly 500K subscribers, and over 26 million views. Lumink, another Middle East MCN, even saw its animation, *Masameer*, make the transition from YouTube to Saudi broadcast TV.

Consumer Landscape – Complex with Strong Fundamentals for a Shift to OTT

The MENA region is highly complex and diverse given the number of ethnic groups, languages and differences in income levels across the region. This means that operators targeting the mass market need to address multiple factors including content preferences, viewing platforms and modes of payment.

The differences in content preferences even within countries highlight the importance of segmentation, rather than following a pan-Arab or pan-MENA model. An overview of the top 10 rated TV shows during Ramadan in the UAE (typically the period with the highest viewership for TV during the year) reveals considerable differences between local and expat Arabs. Over Ramadan 2015 only two of the top 10 shows in the UAE were common between expat Arabs and Emiratis. It goes without saying that non-Arab expats from various other parts of the world, which also make up significant segments in the UAE market, had viewing profiles.

The market for OTT services is evolving along two axes: Content vs Experience and Mainstream vs Targeted. At one end of the spectrum, we have specialist community services such as Stylehaul and Machinima...at the other end are mass aggregators with premium long-form content such as Hulu

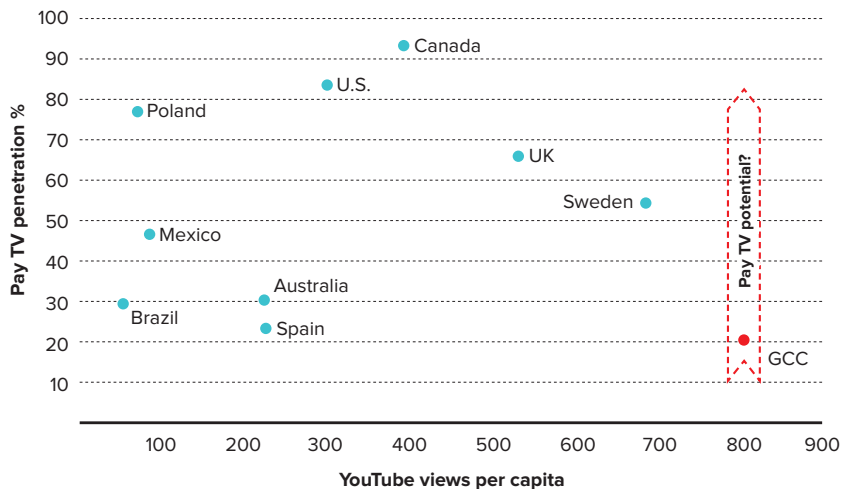
Content Sourcing

Sourcing content to target such a diverse number of segments is a challenge for mass market operators and requires strategic thinking. MBC's tie-up with global production house Anonymous is one way to complement its considerable in-house Arabic production capabilities

with content that is already proven in other markets and can be localised (for example, an Arabic version of *True Detective*). This type of deal also helps MBC to hedge itself against risks stemming from the global trend of rising content costs.

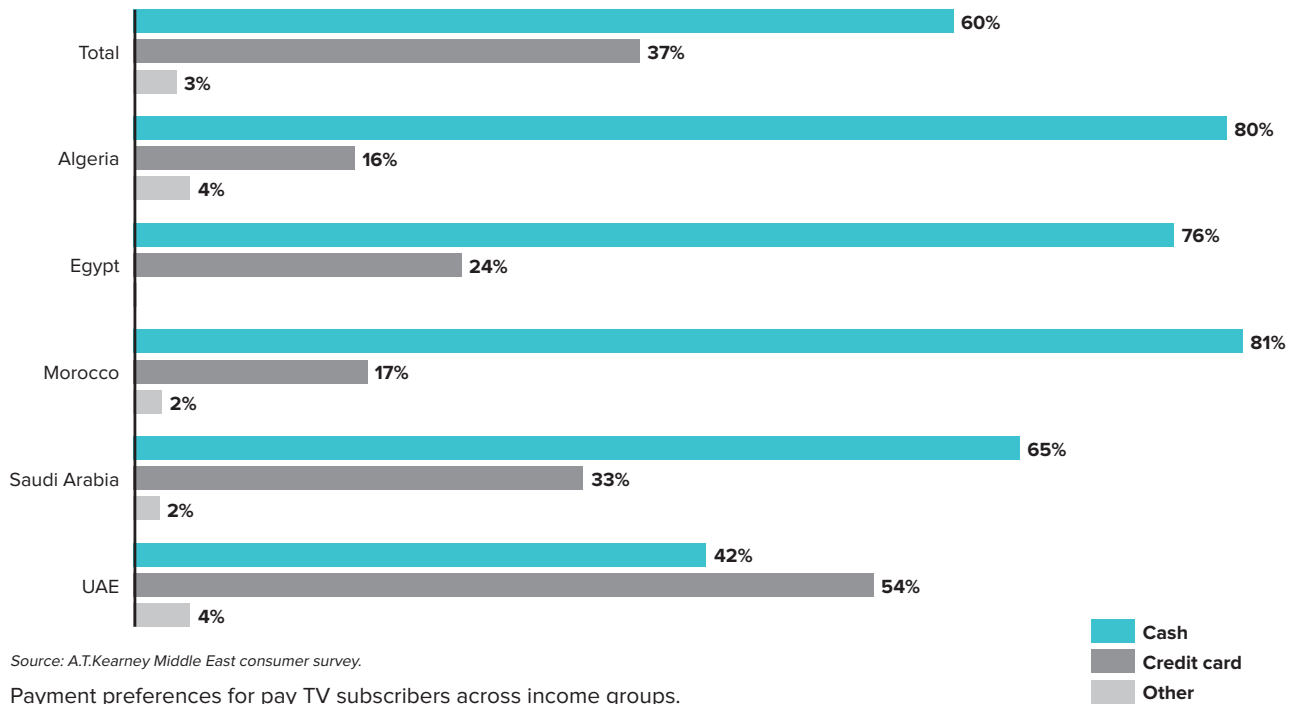
A further approach in content source is to innovate on content rights acquisition. In Indonesia, the Bakrie Group acquired, dubbed and brought to Indonesia two Indian TV series, *Mahabharata* and *Mahadeva*. The idea was that the historical and cultural elements of these series would also appeal to the Indonesian market. While the programming cost represented less than 5% of the total broadcaster's budget, the shows attained audience shares of close to 20% and the broadcaster went on to create spinoff reality shows riding on the popularity of some of the storylines and lead characters.

The mode of viewing is also shifting with GCC countries leading the world in some areas. Although TV consumption remains high, with daily viewership



Sources: vidstatsx.com; Citi Research; ComScore; BMI Digital India; A.T Kearney analysis.

Comparison of YouTube views vs pay TV penetration of GCC with other countries.



exceeding three hours in the biggest markets like KSA and Egypt, this masks the fundamental shifts at play. The demographics of the region are a major factor driving change. The GCC region, for example, has very young demographics with a median age below 30. Such consumers clearly have a strong affinity towards on-demand content on mobile devices. At the same time, smart device penetration is enabling this. Saudi Arabia and the UAE are two of the top three countries in the world in smartphone penetration. Tablets, in particular, are eating into traditional primetime TV viewership and the UAE ranks number one worldwide in tablet consumption in the bedroom with 50% of the consumers admitting to doing so regularly.

What this translates to is expected high demand for short-form and non-linear content, which in turns supports

the potential for a wide range of both international and local OTT services. Today, the GCC countries are amongst the heaviest consumers of YouTube worldwide with Saudi Arabia ranked number one.

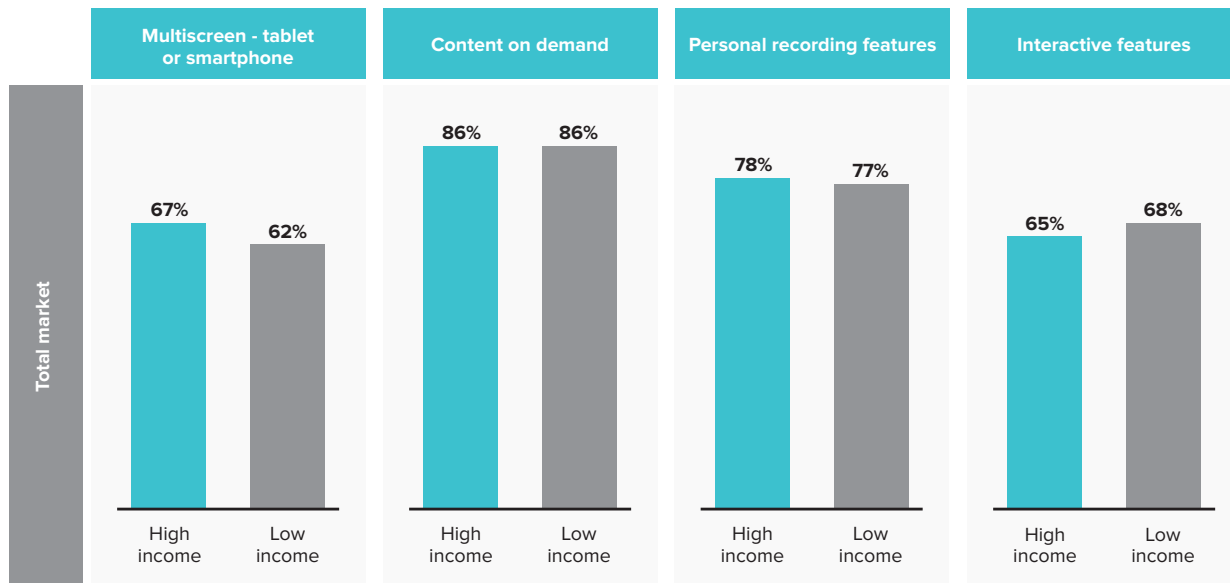
A third factor to navigate in pay TV is the need to address payment preferences in a region with a strong bias towards cash. A recent survey found that in North Africa over 75% of consumers prefer to pay for pay TV with cash, while even in the GCC, there is a substantial number of people with this preference. Credit card penetration is low and even those with credit cards frequently have a reluctance to use them. Bank account penetration is also low and banking direct debits are not permitted in many countries. These structural factors risk limiting pay TV growth, both offline and online. There is a need to simplify the payment process

to help accelerate pay TV adoption and again, we are seeing OTT providers taking the lead in this through payment partnerships with telecom operators. This is discussed further below.

Go-to-market – Innovation Required

DTH growth in other markets clearly shows that beyond content, finding the right go-to-market model in terms of targeted product design, attractive and differentiated pricing, and strong distribution and customer service can go a long way in raising penetration levels. The most important for pay TV operators is finding the right model to balance high-end premium subscription services with low-end packages on the other that will draw in consumers who currently use free-to-air only or cheap pirated services.

Malaysian DTH operator Astro is a success case. Astro successfully introduced



Source: A.T. Kearney Middle East consumer survey.

Percentage of respondents who rated the feature as 'very important' or 'somewhat important' for a pay TV service

a new low-end prepaid subscription product without cannibalising its premium service. Launched in 2012, NJOI is a prepaid service offering a basic bouquet of 23 FTA channels with another 20 pay channels offered à la carte. In 2015, NJOI contributed to 85% of Astro's subscriber growth and accounted for 16% of Astro's total pay TV base. Astro's penetration of Malaysian TV households grew from 47% before NJOI's launch to 63% today. Going forward, NJOI is expected to contribute substantially to subscriber growth as the company aims to reach 80% of Malaysia's TV base by 2020. Notably, NJOI did not lead to overall ARPU decline, as Astro simultaneously expanded its range of high-end services. This bi-polarisation is likely to be increasingly common in pay TV markets.

Determining which additional value-add services to offer in high versus low-end packages is a key decision for pay TV operators. One common misconception is

that such services reside exclusively in the high end of the market. Research in MENA suggests that lower-income consumers place equally high importance on services such as content on demand, multiscreen viewing facilities, personal recording, interactivity, catch-up, etc.

Making these services widely available will be increasingly important especially to traditional pay TV operators facing the risk of losing the lower end of the market to OTT substitutes that often have stronger capabilities in digital value-added services and can compete on experience without relying on expensive premium content. Again, partnerships can play a role in retaining a degree of control over these services without needing to invest in technology development and new capabilities. Beamy, for example, provides a live second-screen experience including background information on the show and its cast as well as social and e-commerce

features for viewers while watching on the big screen. It entered into several partnerships with pay TV operators and broadcasters, including Sky, NBCU and Viacom.

Distribution and Delivery – Partnerships Key to Navigate the New Environment

Platforms and broadcasters alike need to keep pace with the various technological changes dictated by shifting consumer preferences and ensure that their distribution strategy maximises market reach. This increases the importance of partnerships, where players can use one another's capabilities to build an efficient go-to market approach and maximise reach.

For example, DTH can provide excellent pan-regional reach and content but is limited in its ability to provide triple-play services. Similarly, IPTV and telco operators have vast amounts of consumer data and are

used to handling large payment volumes on a daily basis but do not have their core skills in content acquisition and management. OTT platforms possess significant consumer analytics skills, the basis of design of their entire customer experience. But these do not have physical distribution outlets, large customer bases or significant financial resources. Broadcasters have highly capable teams managing content rights and advertising but being traditionally B2B businesses do not have commercial capabilities in consumer sales and service.

The most obvious area of partnerships we see emerging is between telecom operators and OTT providers. Netflix partnered with broadband providers in its expansion outside of the U.S., for example Vodafone in Germany, Orange in Spain and SingTel in Singapore. In cash markets with low credit card penetration, partnerships with telecom providers can bring other benefits, especially providing OTT subscribers with simple payment options such as direct

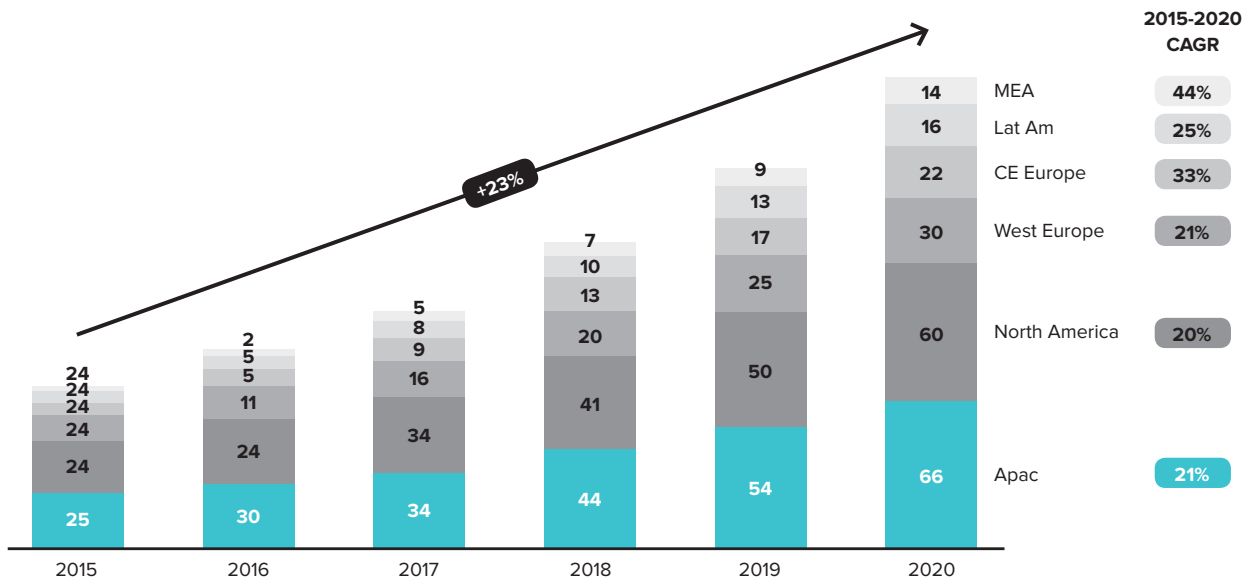
For the telecom operators providing IPTV delivery perhaps the biggest challenge they face is managing the growth in traffic. IP traffic in the Middle East and Africa region is expected to increase sevenfold by 2020 to 14 petabytes per month – the fastest growth rate globally

carrier billing. With an increasing number of broadcasters launching OTT services, partnerships such as those between Viva and MBC, and between du and Starz Play will become ubiquitous, especially as micro packages with daily or even hourly validity could be introduced to satisfy consumer demand for snacking content with a pay-

per-view model.

Another notable partnership trend is the emergence of hardware players integrating OTT services such as Humax set-top boxes launched with Icflix bundles. Hardware partnerships with further potential are those similar to LG providing prepaid Netflix subscriptions along with a bundle of streaming channels such as BuzzFeed, Wired and Vogue preloaded on new TVs.

Satellite operators are also key partners in the ecosystem and will be keen to ensure the continued dominance of DTH delivery as the market changes. Arabsat, Nilesat and Yahsat are the three main MENA satellite operators and will continue to work to reinforce their partnerships with leading pay TV operators and broadcasters to ensure that the most watched content is on their hotspots. At a global level, the SAT>IP alliance between Eutelsat, SES and Hispasat aims to accelerate the adoption of SAT>IP in the satellite industry and push this technology to the consumer market with



Source: Cisco VNI, A.T.Kearney .

Global Internet Traffic forecasts by region: 2015-2020

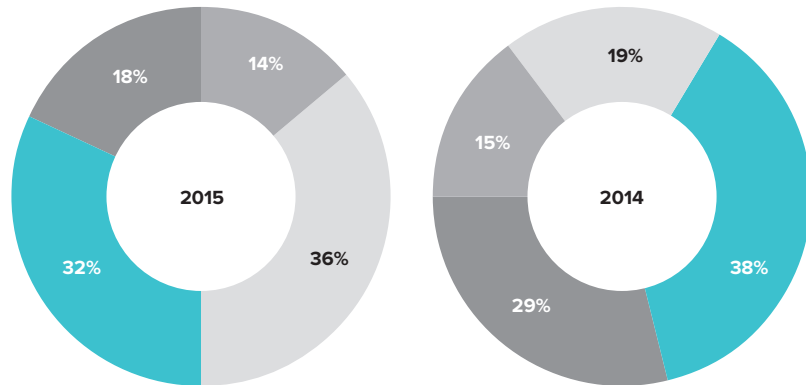
the promise of transmitting live content simultaneously across multiple devices in the home with superior picture quality. This will help DTH to offset certain advantages that IPTV offers, such as signal quality and native interactive and on-demand capabilities.

For the telecom operators providing IPTV delivery, perhaps the biggest challenge they face is managing the growth in traffic. IP traffic in the Middle East and Africa region is expected to increase sevenfold by 2020 to 14 petabytes per month – the fastest growth rate globally. This will be driven by video, which will account for over 80% of global internet traffic by 2020.

Working in partnership with content delivery networks to deliver this unmanaged traffic while preserving the quality of their own managed IPTV services will be critical.

Conclusions and Outlook

The MENA pay TV market is going through a transitional period with strong potential but an uncertain outlook. Who the winners will be is unclear and is borne out in our recent survey of industry executives on the likely winners in an OTT environment. With strong market



Source: A.T.Kearney Middle East TV Executives survey (2014,2015).
 Survey of industry executives on predicted winners in an OTT environment

growth potential, this does not need to be a zero-sum game but rather presents good prospects for all players in uncertain but exciting times. Consumers can also look forward to greater choice and quality.

There is no single recipe in this environment, however, we see five key principles critical for success:

- Innovate on packaging, while considering the underlying trend of market bi-polarisation.
- Think broadly about what content is, what can be appealing and where

it can be sourced from, keeping in mind the vast language, ethnic, social and economic differences between consumer segments in MENA.

- Consider the user experience as a differentiator rather than just relying on content.
- Use partnerships to strengthen position and fill skill and resource gaps.
- Build a strong internal operating model to use agility, efficiency and data management capabilities as a source of advantage.



This piece was authored by Laurent Viviez (l), Partner, Christophe Firth (c), Principal and Ajay Jayaraman (r), Consultant, at A.T. Kearney Dubai.

CABSAT 2016 TO DRIVE 'TRANSFORMATIVE' MENA ENTERTAINMENT MEDIA MARKET

The 22nd edition of CABSAT - the leading platform for broadcast, production, content delivery, digital media and satellite sectors across the Middle East, Africa and South Asia (MEASA) - will continue to drive disruptive innovation and monetisation opportunities across the MENA filmed and audio entertainment media market.

CABSAT 2016 has more than 15,000 regional and international visitors involved in the creation, management, distribution and monetisation of content to explore pioneering products, technologies and regional investment avenues. The tailored event is an opportunity for industry professionals to test, use and experience the latest equipment in the broadcast, satellite communication, content delivery and electronic media industries.

With the Middle East and Africa filmed and audio entertainment media market undergoing a fascinating transformation, forecasts by the global analyst division of Pricewaterhousecoopers' Strategy&, predict entertainment and media spend will reach US\$66 billion by 2018. In this lucrative environment, CABSAT provides a tailored experience for industry experts to engage, strategise and debate future market trends.

Leading the CABSAT 2016 agenda are the rise of time-shifted or 'binge' viewing, on Video on Demand (VOD) platforms and the mass



▶ Andrew Pert, CABSAT Show Director.

regional adoption of internet-driven content delivery platforms, including Internet Protocol Television (IPTV), TV delivered over broadband and Over The Top (OTT) methods - content streamed directly to handheld devices, game consoles and SMART TVs connected to broadband.

In a region where more than 900 free-to-air TV channels serve the Arab world, satellite distribution still accounts for over 80 percent of the regional market. Despite being relatively new options, IPTV and OTT already contribute nearly 20 percent of regional content delivery platforms, thereby providing new opportunities for broadcasters and PayTV operators to monetise content via an emerging post-TV market.

"The accelerated adoption of mobile technology across the region has created tremendous and transformative opportunities across multiple media platforms," says Trixie

LohMirmand, Senior Vice President, Exhibitions & Events Manager, DWTC. "As international media companies and investors consider their global expansion strategies, MENA warrants new consideration and CABSAT provides a strategic entry-point."

With more than 950 local, regional and international exhibitors, the event boasts the all-new Content Marketplace - a dedicated content market for TV and film content creators. Its focus is buying, selling and co-production opportunities for Arabic and international content. Partners include Dubai Studio City TV and Film Commission, Dubai Film, VIACOM, Zee TV, Fox, MBC Group, NBC Universal and many regional broadcast pavilion organisers including the Nigerian Broadcast Commission.

The CABSAT Content Marketplace is supported by Selevision, a leading Saudi-based technology

and service provider for the global broadcast industry, and multi-platform entertainment company which delivers premium content to MENA customers via Video On Demand services.

"Just as Selevision has evolved, so have viewers in the region," says Dr Raed Khusheim, CEO, Selevision. "We are committed to bringing a new and personalised viewing experience to consumers through Selevision's entertainment services and, for this, we are proud to partner with CABSAT and the new Content Marketplace."

CABSAT 2016 also has a rebranded conference called the Content Congress - held under the theme 'The Future of Television in a Connected World' - and meetings programme dubbed the 'Red Carpet Lounge'.

The show also features expanded certified Post-Production trainings, CEO Roundtables, an Aerial Robotics & Drone zone, the Content Delivery Hub, a live Hackathon competition to develop apps for the next-generation viewing experience, and CABSAT Connect - a dedicated C-level evening network event.

The Satellite Hub held in partnership with the GVF, will focus on key technical trends and major satellite issues and challenges across the satellite communications industry.

Visit www.cabsat.com or www.cabsat.com/marketplace to find out more.

MIDDLE EAST PRODUCTION & BROADCAST

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TOP 50 COMPANIES YOU NEED TO KNOW

Consultants

▶ Master Media



QUALITY ADVICE AND SUPPORT IN BROADCAST MEDIA

In the fast growing and continuously evolving media and broadcasting market, the need for improved, efficient supportive systems is essential. It was within this competitive background that Master Media was created. Master Media operates globally with a concerted focus on the Middle East, Africa and West Asia regions.

Master Media was formed by Hasan R. Sayed Hasan, an award-winning executive with more than 20 years of experience in the broadcast media industry. Master Media's team has been on the forefront of utilising and implementing the latest and upcoming technologies in setting up and managing leading broadcasting networks

and facilities, or establishing and managing the regional businesses of top international broadcasting manufacturers and solution providers.

Backed by this superior skill and knowhow, Master Media works to identify solutions for improved efficiencies that will benefit its customers. The company is noted for its ability to help clients with the transition to new 'technology-enabled' business initiatives and to ensure that this is carried out smoothly and cost-effectively.

Diverse Portfolio of Work

Master Media delivers a varied portfolio of consultancy and professional services to the media production and broadcasting

industry, from consultancy on setting up a TV channel, media production or broadcasting facility, to training and technical or operational assistance.

Technology Procurement Management:

Master Media manages RFPs and tenders from requirements development through vendor selection and contract negotiation to completion and delivery. In-house executives help clients choose systems or manage services either directly with suppliers or in support of the client's procurement team.

Technology Architecture and Solution Design:

This covers Facility Planning and Analysis,



▶ Hasan R. Sayed
Hasan, Managing
Director (left) with
Hassan Ghoul,
Senior Partner.

Budget Preparation, Architectural and Electro-Mechanical Systems Review, Site Survey and Analysis and Technology and Systems Analysis.

Systems Design: Automation and Control Systems, Video and Audio Systems, Media Management Systems, Networking Systems, Satellite and Communication Systems.

Documentation: Workflow Diagrams, Operation Manuals, Schematic Diagrams, AutoCAD Drawings and Floor Plans.

Projects Delivery:

Master Media supplies a complete and comprehensive range of Programme and Project Management services. Specialised teams help clients manage project lifecycle and the company's involvement is wholly dependent on a client's specific requirements. In effect, this can move from part-time assistance to full project ownership.

Human Capital Services:

Master Media's range of recruitment services includes the executive search and selection for senior management, both permanent and interim, and the recruitment of complete operational and technical teams for start-up organisations and broadcasters. Moreover, the company provides an expert mix of creative talent on short, medium and long-term placement services especially on project-basis.

Support crew look into various aspects of training covering among others, training plan development, technical, editorial, production and operational training and systems philosophy and familiarisation.

Dedicated and experienced teams with decades of experience in global broadcast and media organisations, deploy a wide range of technical, creative and operational knowhow in their specialist respective fields, supplying provisional backing on first production and or 'on-air' support and ongoing operational support.

Business Development Support:

With expertise and network and a deep understanding of the Middle East's media market, Master Media provides strategic advice and business development support to international companies (in media, entertainment and professional AV domains), who are interested or planning to enter this market. The company has supported a number of international players in successfully building their presence in the region.

Virtual Reality Studios

Master Media is now leading the way with an innovative initiative through venturing into Virtual Reality production services and content development. In 2015, Master Media and RealVision came together to bring a new flavour of cinematic Virtual Reality content with the short movie Dirrogate- A Cinematic VR novel, a mix of CG and live action in stereoscopic 360, a first in VR globally. The 2D version of the film can be watched on YouTube on www.youtube.com/watch?v=QmAzVq4Qngc

Master Media also provides Virtual Reality Production Services capitalising on its expertise in high-end VR and stereoscopic 3D production and technologies. Such services can range from producing a simple 360 video as a second-screen clip for a TV production, an immersive video for a heritage site, to a sophisticated long-form VR film.



Master Media is a member of various international professional associations.

Select projects and clients

Master Media’s clients include a variety of regional and international media entities. Some of the projects undertaken and clients served over the last few years include:

Public Authority for Radio & TV- Oman
Operational Assistance

Master Media provides technical and operational assistance to Oman TV. For two years, a team of broadcast technology and operations personnel has supported Oman TV in their migration to a new large high-end HD tapeless facility.

www.part.gov.om

Al-Arab News Channel
Broadcast Technology & Operations Consultancy and Project Management

Master Media provided Al Arab News channel with Broadcast Technology & Operations Consultancy services including technology architecture and design, procurement management (tender development and vendor selection), and overall programme management and launch support.

www.alarabtv.net

Urdu 1- Pakistan
Technology and Operations Consultancy and Launch Support

Master Media provided consultancy to launch the Urdu1 TV channel, which in a few weeks of its launch was rated as the top watched entertainment channel in Pakistan. Master Media supported the launch covering project management and procurement management including the selection of technology systems and service providers.

www.urdu1.tv

Channel92- Pakistan
Technology Consultancy

Master Media provided technology consultancy and advisory services to Channel92’s senior management in preparation for the launch of this new TV entrant into the broadcasting scene. Channel92 is a News channel targeting the Pakistan market with its headquarters in Lahore and newsgathering operations across the country.

www.channel92.tv

Ericsson Broadcast & Media Services
Market Entry Strategy Development and Implementation

Master Media advised Ericsson Broadcast & Media Services with a market entry strategy into the Middle East, then provided specialist support to help EBMS implement this strategy and build a presence in the region.

www.ericsson.com

Adstream
Market Entry Advisory Services

Adstream is an international media company that develops powerful solutions that streamline advertising campaign processes. Master Media acted as advisor to Adstream in the Middle East while the company was setting up its regional offices.

www.adstream.com

Youtoo Technologies
Market Entry Advisory Services

Youtoo set up operations in the Middle East in the Dubai Media City, under the name Youtoo Middle East. Master Media provided advisory services for Youtoo in addition to recommendations regarding

Youtoo’s overall business strategy and direction in the region.

www.youtootech.com

Fly Studio
Business Development Support

Fly Studio, a Montreal- based Canadian creative post-production company, is renowned for its resourcefulness and creativity, attracting film, projections, TV and advertising clients from around the globe.

Master Media helped Fly Studio break into the Middle East broadcast market by actively supporting their business development efforts in the region. And in a short period of time, Fly Studio were able to secure many successful contracts for channel branding and creative projects with major regional TV broadcasters.

www.flystudio.com

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consultancy . support . outsourcing



our commitment, your achievements

www.master-media.tv

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TOP 50 COMPANIES YOU NEED TO KNOW

Distributors

- ▶ Amaranthine Trading LLC
- ▶ On-Air Asia



TOTAL CINEMATOGRAPHY SOLUTIONS

Amaranthine Trading LLC is the representative of top quality brands of cinematography and broadcasting equipment.

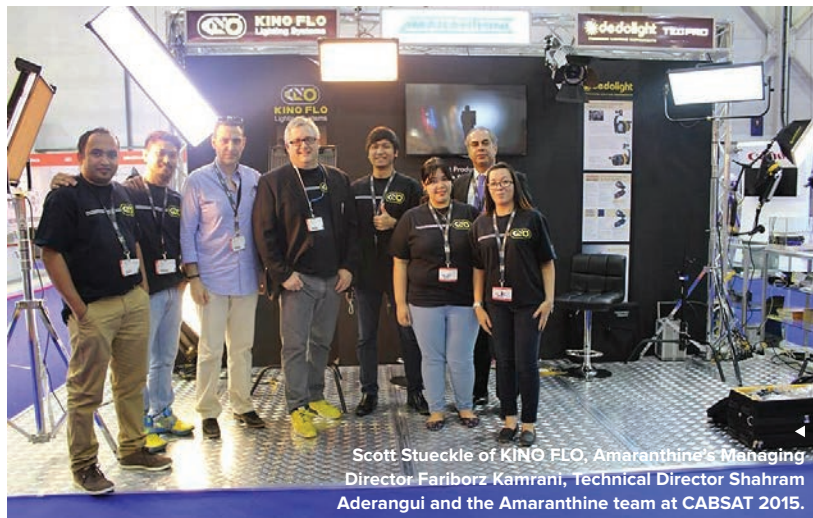
The company is the authorised representative in the Middle East, GCC, Iraq, Pakistan and Afghanistan for Arri. A world-renowned brand, Arri is a leading manufacturer of filmmaking and broadcasting equipment, lighting systems, photography accessories and digital intermediate systems to the most advanced digital cinematography cameras in the world such as the Alexa, Alexa Mini as well as the most advanced documentary style camera – the Amira.

Amaranthine also proudly represents DEDO WEIGERT FILM GmbH, manufacturers of the versatile range of Dedolight equipment. Dedolight is considered by professionals as the most ground-breaking lighting system when it comes to precision lighting needed in both motion picture and TV productions.

Amaranthine also represents Kino Flo, the designer of unique fluorescent lighting systems for motion picture, TV and commercial production. The versatile fixtures and proprietary True Match full spectrum lamps have distinguished Kino Flo as the leading innovator of creative lighting solutions. The company offers partial and total solutions for small-to

large-size TV and film production studios based on formats and budgets provided by clients.

Some of the established names from the Amaranthine stable include Aaton Cantar audio recorders, Anton Bauer professional batteries and chargers, Assimilate Scratch colour grading software, Angenieux lenses, Audio Limited audio transmitter/



Scott Stueckle of KINO FLO, Amaranthine's Managing Director Fariborz Kamrani, Technical Director Shahram Aderangui and the Amaranthine team at CABSAT 2015.



Amaranthine Trading LLC Partners



ARRI at CABSAT 2015.



ARRI ALEXA MINI Serial No.001 and the men behind the award-winning *Definitely Dubai* film, Babak Amini of Eclipse Production and Shahram Aderangui.



Sharjah Media Corporation and their team receiving the complete set of ARRI Alexa XT.

receivers, Bebob on-board batteries, Cine-Project large venue cinema screening, Cinetics motorised stabilisers, DVS digital video and DI systems, Easyrig portable camera support systems, chargers and camera accessories, Elation professional lighting accessories, Flowcine high-quality camera accessories, Kupo grips, BNC click, Merging Technologies digital audio and video workstations, Nagra audio recorders, OConnor camera support systems, Panther cranes and dollies, Sanken microphones, Schneider filters, Schoeps professional high-end microphones, Symbiosis professional video tools, Transvideo LCD monitors, Philips, Osram and GE Lighting, among others.

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KINO FLO and DEDOLIGHT at CABSAT 2015.



DynamicDrivePool


ON AIR ASIA

DYNAMIC TOOLS FOR EFFICIENT WORKFLOW

On-Air Asia is the leading Asia-Pacific and Middle East distributor for the ultimate post-production, broadcast and TV workflow tools covering ingest, edit while ingest, digital delivery, networking, MAM/PAM, storage, archive and 4K playout. And for the first time in the Middle East, they sweep the ingest and playout server market with a smart trio of market leading products - the mxfsPEEDRAIL by MOG, the CUBA HDP 4K playout server by Pace Media and the DDP - Dynamic Drive Pool - award-winning Ethernet based SAN shared storage.

Highlighting them in Dubai, others include the FileCatalyst for accelerated and secure file transfer, networking products from Brocade and Myricom, MAM/PAM from Etere and Focal Point Server, archive by Archiware and NEO (Tandberg) and a few others.

On-Air Asia's CEO Elvin Jasarevic, has

over two decades of technical experience as video specialist in the broadcast TV and film industry. His previous role was as technical director at Dreamtek Ltd. London, a company certified as one of the first Apple solutions experts for video and audio in Europe. Elvin was involved in the planning, installation, support and training of companies as diverse as the BBC, ITV, Channel 4, MTV, Disney, Framestore CFC, Iraq TV, CNBC Pakistan, Al Jazeera UK and Qatar TV. He has also supported artistes such as Jamiroquai, Pink Floyd, Iron Maiden, Lily Allen, Madonna and many more. In addition, he has worked as a demonstrator for Adobe, Apple, Avid, Blackmagic Design and other diverse products at various exhibitions.

His support staff includes professionals from the world of sound mixing, Pro Tools operations and other key areas of knowledge required for various PC/Mac/Linux equipment related to video and audio work.

DDP - Dynamic Drive Pool is an award-winning Ethernet-based SAN (Storage Area Network).

DDP - Dynamic Drive Pool

The DDP is the best of SAN and NAS in one simple product. Manufactured by Ardis Technologies, the DDP advantages are unique. It is a market-leading cost/performance Ethernet (IP) based SAN storage solution with AVFS file system and with no license fees.

Key Features

- DDP is two to three times faster than similar storage solutions. It is also faster than fibre channel storage systems when using MCS (Multiple Connections per Session) means you can double, triple or quadruple cable speed.
- Standard software includes ‘workflow manager’ (for folder-based access permission rights), ‘folder volumes’ (any folder can be exported as a virtual drive with real volume properties), ‘quota per folder’, ‘bandwidth manager’ for QOS - Quality Of Service and easy-to-use WEB GUI with user-friendly connection to clients.
- Unlimited, automatic project sharing for

FCP, Avid Media Composer, GV Edius, Avid Pro Tools, Adobe Premiere and many others.

- DDP works with all audio and video applications, and drives behave as local drives without latency.
- Built-in Archiware software for easy backup and efficient synchronisation.
- DDP has over 100 different models and configurations designed to meet the needs of every company and every budget. From small systems with two SSD drives up to fully redundant systems with no single point of failure with capacities in petabytes.
- Clients include NASA, Disney, MTV, CNN, BBC, ITV, KBS, NHK, PCCW, Oracle, Arena Film, Arri, Red Bull, Discovery Channel, Constantin Film, Molinare, NASCAR, ZDF, EBS, MediaCorp, Univision, CBS, NBC and thousands of other happy users.
- DDP is member of IABM International Association of Broadcasting Manufacturers and 2014 award winner for best shared storage solution. It is also

a finalist for the best innovative product by IABM in 2008, 2011 and 2015.

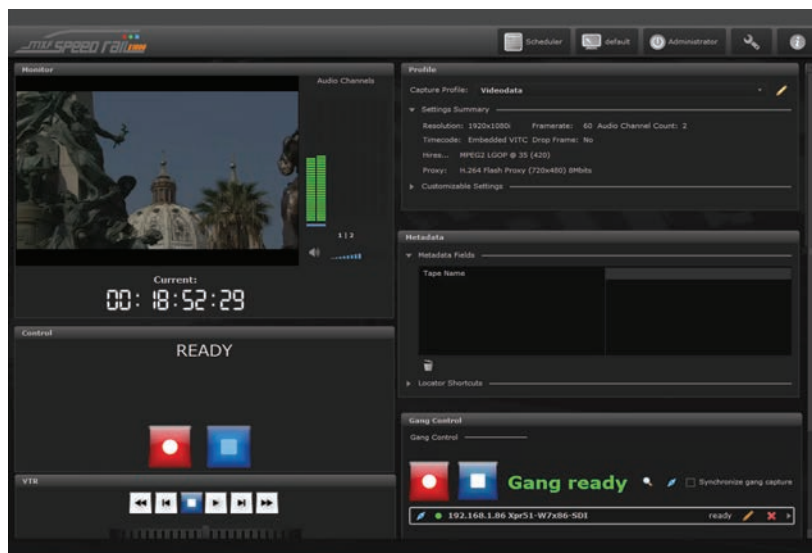
MOG mxfspeedrail

A unique technology that can be seamlessly integrated with the most popular broadcast technology and formats, MOG mxfspeedrail offers high traffic performance, great interoperability between platforms and efficient metadata sharing. With access to a full range of automated solutions for file-based ingest, SD-HD/SDI capture, digital delivery and real-time playback, mxfspeedrail customers can achieve the highest performance in the most diverse file-based workflows.

Key Features

Reduced costs with fast turnaround of content

The mxfsPEEDRAIL is the ideal file-based solution for post-production, playback and file archiving as it integrates the essential components of the creation process into a single and unified platform, saving costs and reducing production creation time.

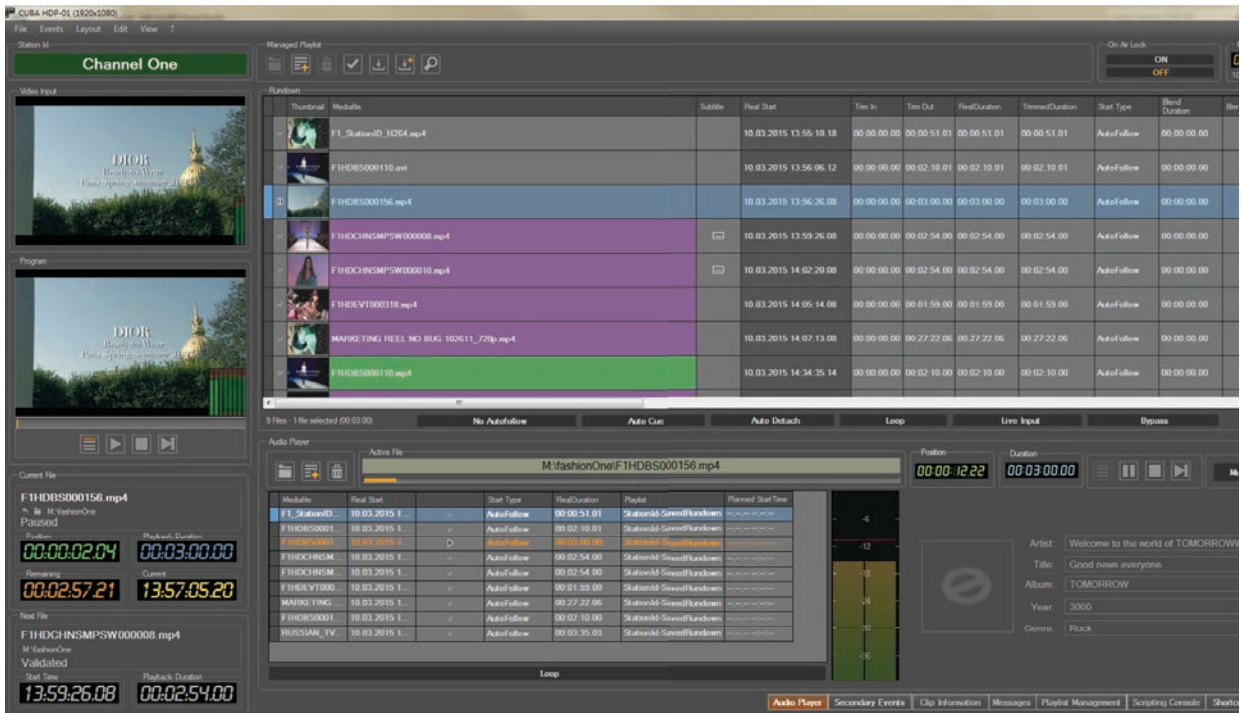


Service-oriented architecture

The mxfspeedrail service-oriented architecture is available either as a complete set of services that include the whole centralised system or as individual products that the customer can suit to his own requirements. Each system also has a wide range of models that can be customised from the most simple to the most complex workflow.

Multi-format, multi-resolution and multi-channel

The mxfspeedrail is a perfect fit for multi-channel workflows as it allows multiple simultaneous transfers with



generations of hi-res and proxy versions. Its multi-format capabilities also enable the user to encode its media contents in all professional broadcast formats.

Powerful metadata annotation engine

The mxfspeedrail centralised solution is completed with a powerful metadata annotation engine to ease proper identification of material, saving time and money. And to keep track of assets, mxfspeedrail preserves camera metadata when transferring clips during ingest processes.

Cuba HDP by Pace Media

This is a 24/7 channel-in-a-box playout system combining video playout, on-air graphics, playlist management and transfer management in a single server solution.

The playout server handles SD/HD/4K UHD workflows, integrates live feeds from SDI or UDP, external triggers such as GPI events, as well as real-time graphics from simple channel branding to complex

designs such as corner logos, lower thirds and tickers that update from RSS feeds, XML data sources and remote databases.

Besides SDI output up to 4K UHD, Cuba HDP comes optional with an H.264 encoder and closed-caption subtitle generator which allows delivery of UDP and ASI feeds directly from the playout server. The Cuba HDP also features a web-based playout management option, enabling operators to plan and import playlists, monitor playout servers and manipulate the rundown, as well as granting them control over an unlimited number of playout servers, regardless of the servers' location across the globe.

The Cuba Playout Management tools offer remote control and management of playlists and servers allowing the operation of decentralised playout centres around the world. The Cuba HDP supports major broadcast video file containers and codecs.

Both the MOG mxfspeedrail and Cuba HDP playout servers are fully qualified with DDP's award-winning Ethernet-based

SAN (Storage Area Network) while the FocalPoint Server is a PAM (Project Asset Management) solution that automates file management and organises workflow.

Designed with a simple, intuitive user interface, the FocalPoint Server serves a new way to create, version, track and search for projects, graphics and documents. It offers users consistent file naming enforced through drop-down menus, error-free versioning, as well as status notifications for instantaneous communication and efficient workflows.

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TOP 50 COMPANIES YOU NEED TO KNOW

IPTV

- ▶ Exterity
- ▶ Infomir



HARNESS THE POWER OF VIDEO TO COMMUNICATE, EDUCATE, ENTERTAIN

Exterity is a market-leading provider of IP video technology that helps organisations to harness the power of video to communicate, educate and entertain. Its end-to-end solutions enable you to capture TV and video content directly from any source and manage its delivery, live or on demand, to any connected device via an existing network. From corporate, finance and education, to hospitality, remote facilities, stadiums and healthcare, Exterity has global expertise in delivering complex, pro-AV solutions.

Founded in 2001, Exterity is firmly established as the global leader in enterprise IP video technology and its systems are deployed globally by some of the most recognised brands in the world,

enabling the distribution of broadcast quality digital TV and video over IP networks to an unlimited number of end points. With centralised management, configuration and control, Exterity solutions support large volumes of content and devices without compromising system performance or availability.

Headquartered in Scotland UK, and with over 80 staff based at its headquarters and international sales offices, Exterity extends its global reach through the StreamForce programme of technically innovative channel partners.

An impressive list of clients include Best Western, New York University Abu Dhabi, Jumeirah Group, The Hazza bin Zayed Stadium, Golden Tulip, Nurai Island Resort, BP, Shell, ADNOC, Saudi

Aramco, Etisalat, King Abdullah Sports City, several of the largest airports in the MENA region including Dubai, Salalah and Doha, as well as multiple oil and gas deployments both on and off-shore.

Products

Exterity has hardware and software products that support every stage of the IP video workflow. Solutions enable delivery of video content to any connected device on an existing network, as well as beyond the corporate LAN via WAN, wi-fi and the internet to any device, in any location. An extensive range of TVgateways, encoders, transcoders, origin server and set-top receiver decoders are seamlessly integrated and controlled via the dedicated AvediaServer, guaranteeing



▲ ArtioPortal applied across a range of devices.

a level of robustness and reliability that cannot be matched by other providers who have to rely on third party products to complete their solution.

AvediaStream TVgateways

AvediaStream TVgateways capture live digital TV and radio from any terrestrial, satellite or cable source and stream it directly across an IP network. TVgateways supply multiple channels at any resolution, including 4K, from a single blade, delivering low cost and power consumption per channel.

AvediaStream Encoders

Exterity Encoders stream live and pre-recorded video and audio over an IP network, creating a single channel from

the output of a wide range of sources, including digital cameras, set-top boxes, digital signage systems and personal computers.

The Exterity Encoder range includes SD, HD and 4K Encoders, each with their own audio, video and encoding capabilities and are suitable for a wide range of industry and video solution requirements.

AvediaStream Transcoders

Exterity AvediaStream Transcoders are high-performance content transformation tools that enable content to be easily converted into a compatible format for delivery to the user's preferred viewing device, whether that's a TV/display screen, computer or mobile device.

For delivery to large numbers of viewers, the transcoder output can be distributed via an origin server or a Content Delivery Network (CDN).

AvediaStream Origin Server

Exterity's innovative AvediaStream o7500 Origin Server increases IP video system flexibility by delivering content direct to any number of devices both in and outside the wired LAN, using streaming protocols suitable for the mobile networks that they are transmitted over. The Origin Server converts content to enable viewing beyond the LAN. This involves transcoding to match the requirements of mobile devices by reducing resolution and bitrate to match the demands of wireless networks, WAN and the internet.



Education



Hospitality



Oil and Gas



Venues and Stadia



Transport



Media and Broadcast

▲ End-to-end IP video systems tailored to your industry.

AvediaStream Chassis

Exterity AvediaStream TVgateway and AvediaStream Encoder blades are installed in one of three AvediaStream chassis which are designed for a wide range of organisational needs and budgets.

All Exterity AvediaStream Chassis are ‘hot swap’ enabled. This enables movement and replacement of Exterity Encoder, TVgateway and Transcoder blades without the need to power down

the entire unit, saving time and avoiding disruption to other IPTV services operating simultaneously in the same chassis.

AvediaServer

The Exterity AvediaServer is the central hub for managing an IP video system. It provides the ability to monitor and control all Exterity devices from one place ensuring that TV and video content

is successfully delivered.

AvediaServer delivers the content viewers want, when they want it. Scheduled recording of live TV for later playback as well as providing video-on-demand are handled with ease. In addition, Catchup TV provides users with the convenience of up to 7 days playback directly via the Electronic Programme Guide (EPG), so important programmes are never missed.

The AvediaServer can also import assets such as training videos and movies, which can be distributed as video-on-demand or as play channels depending on viewers’ needs. The AvediaServer viewing interface, ArtioPortal middleware, can be tailored for individuals or groups of viewers to match even the most demanding of organisational requirements, including the ability to customise and apply branding within an easy-to-use intuitive interface.

The content and user interface can be delivered across standard TVs, computer screens, smart TVs, mobile devices and



▲ ArtioSign built-in digital signage.



IPTV



Digital Signage



Mobile Video



Secure Video

▲ Exterity solutions enable organisations to bring video to any device, in any format, anywhere in a business environment.

thin clients so users can select their preferred viewing device.

AvediaPlayer Receivers

Exterity AvediaPlayer Receivers are highly reliable set-top boxes that connect any screen to an IP network, enabling the receipt of live TV and video, or video-on-demand. Exterity Receivers also work with ArtioPortal middleware to provide a completely customisable end user experience. For installations where middleware is not required, receivers also provide a full featured, customisable viewer interface.

ArtioSign

Digital signage is a natural enhancement to an IP video system and Exterity's integrated set-top box solution makes it easy for any organisation to create and deliver digital signage screens. Designed for organisations that want to install multiple displays to enhance employee, visitor or guest experience, the Exterity system offers users a feature-rich, fully configurable digital signage application and IP video system in one.

For more information and a complete demonstration of Exterity IP video solutions, contact the Exterity UAE headquarters.



▲ ArtioPortal on a Smart TV.

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Colin Farquhar

Chief Executive Officer
Eleuterio Fernandes
Middle East and Africa Sales
Director



KEY TO SUCCESS OF YOUR IPTV BUSINESS

Telecommunication technologies evolve in the blink of an eye. That is why companies in the industry should stay vigilant and flexible in order to succeed. This approach has helped Infomir to ride the crest of the wave for more than 15 years. Its main products, the MAG set-top boxes, have spread all over the world and become a foundation for more than 3000 successful projects.

Since analogue TV with its small content range became insufficient for a regular family evening, telecoms started offering different options in order to revive this family tradition. IPTV, OTT and VoD standards gained their popularity due to connection with the widest content source – the Internet. It was the beginning of a new industry and a historical start to Infomir's success.

Starting as a telephone exchange system

manufacturer, Infomir cooperated with the biggest Ukrainian state and private telecom companies. The manufacturing facility Teletec was established in Odessa, Ukraine. Its production line was designed by TE Connectivity (also known as Tyco Electronics) which helped to unite the world's leading equipment into one chain. All these factors allowed the company not only to produce up-to-date electronics, but also to provide benefits such as reasonable pricing and fast delivery.

With changing trends, the traditional telephone exchange systems started giving way to automatic ones. In 2006 this wind of change opened a new door for Infomir. The company started producing MAG set-top boxes (STB) which became a profitable solution for many IPTV/OTT projects.

Infomir's headquarters and manufacturing facility are located in

Odessa, Ukraine. The facility includes R&D and broadband network laboratories. MAG set-top boxes are also tested by in-house ISP which helps to find technologies that are really in demand. One of the results of such researches is the Stalker Multiscreen, a system that allows subscribers to watch content from one STB on different screens.

MAGical Universe of Infomir

Infomir has three model lines of IPTV set-top boxes: Basic, Hybrid and Premium. Each of them is designed to satisfy the particular needs of operators with different aims, location and capacity. Here are the latest models and their key features:

MAG254 is a basic set-top box with 3D and FullHD video support.

- Chipset STiH207(650 MHz, 1200 DMIPS).



- RAM 512 MB.
 - Optional: Built-in wi-fi 2.4GHz/5GHz ac.
- MAG275** is a hybrid set-top box that supports DVB-C/T/T2 standards and allows enlarging the digital TV services scope.
- Chipset STi253 (650 MHz, 1200 DMIPS).
 - RAM 512 MB.
 - 3D-video playback.

MAG257 is an ultimate model of Basic line that has more powerful processor and HEVC support.

- Chipset STiH301 (1,5 GHz, 3500 DMIPS).
- OpenGL ES 2.0.
- Built-in wi-fi - optional and two USB-ports to connect external carriers.

MAG277 is a new hybrid STB that allows playing HEVC video content and has a high-performance rate.

- Chipset STiH301 (1.5 GHz, 3500 DMIPS).
- OpenGL ES 2.0.
- Verimatrix Advanced Security profile and VideoMark™.

MAG350 is a premium set-top box based on Broadcom chipset. It supports HEVC content and can be equipped with built-in wi-fi adapter.

- ARM A15 (B15) Core CPU with 1500 MHz frequency and 6000 DMIPS productivity.



EGOR MALIAROV
BUSINESS DEVELOPMENT
OFFICER, INFOMIR UAE

“Being a global company requires not only advanced logistics and highly developed manufacturing, it is crucial to retain the local approach to every client and offer flexible solutions that will fit well with the actual state of affairs in each particular region. Infomir has diversified its structure in order to provide responsive services around the world.

Now we pay special attention to Africa and the GCC countries as this region is developing so fast and it has already shown high demand for IPTV technologies. Our set-top boxes reflect the realities of this region. MAG set-top boxes are equipped with CAS/DRM systems that help to improve content protection. We have already conducted some prior agreements with local operators and are looking forward to implement more successful solutions with operators, content integrators and so on.”

- 8 GB emmc.
- 3D-video playback.

MAG352 is a premium 4K STB which is the biggest Infomir’s elaboration of 2015. MAG352 has a Broadcom CPU, 8 Gigabytes of flash memory, two USB 3.0 and SD memory card slot.

- Chipset BCM7252s, 12000 DMIPS.
- 4K P60 and HEVC support.
- Verimatrix Advanced Security profile and VideoMark™.

Global Approach with Customised Solutions

A variety of offered products is one of the building blocks of Infomir’s success. Add to that an extremely low reject rate of Infomir’s products (0.6%). A qualified technical support for all the company’s clients in languages such as Russian, English, German and Turkish is also a contributing factor to the brand’s image.

Being a trustworthy partner is another important advantage that attracts new clients and partners. Presently, Infomir’s set-top boxes are operating in 114 countries around the world and that number is constantly increasing. In 2015 more than 1 million set-top boxes were sold. Europe and the USA remain the main markets – Infomir launches about 10 new projects there each month. Infomir also takes a keen interest in emerging MENA and



LATAM regions. Taking into an account regional specifics makes Infomir helpful to any operator in the world.

The entire company employs about 500 professionals in different areas. Each of them contributes to the company’s success. And it can be noticed from Infomir’s outcomes: the sales growth in 2015 was 65%.





Infomir has branches in the USA, Germany, the UAE, Russia and Estonia and each office is the response to emerging demand for Infomir products. The opening of a new office in Dubai was one of the most significant events of 2015 as Infomir had 393 projects in the MENA region alone. The presence of a new office brings in benefits such as faster order-processing, shorter delivery time and local support.

Constant Improvements

Lately Infomir has demonstrated extensive growth by introducing four new models of MAG set-top boxes and a completely renewed Stalker Middleware, which operates every MAG STB. Global presence of Infomir has also substantially

developed, due to participation in exhibitions around the world. The opening of the Dubai office was the main attribute of this growth.

The plans for 2016 are even more immense. The start of new MAG models sales is just the first of this year's breakthroughs. Stay in touch with Infomir to witness them all.

Try MAG set-top box for free!

If you like to try out all the advantages of MAG set-top boxes, Infomir will be glad to give you a free sample.

To receive it, please send a request with your name, company's telephone number and website to: samplemag@infomir.ae

Infomir will contact you to discuss the best delivery terms.

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MIDDLE EAST PRODUCTION & BROADCAST

PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

Manufacturers

- ▶ Aspera, an IBM company
- ▶ Aveco
- ▶ Avid
- ▶ Brainstorm Multimedia
- ▶ Datavideo
- ▶ Fischer Connectors
- ▶ Hitachi Kokusai Electric Turkey
- ▶ JVCKENWOOD
- ▶ Lawo
- ▶ Miller Tripods
- ▶ Newtec
- ▶ Panasonic
- ▶ Riedel Communications
- ▶ Rohde & Schwarz
- ▶ Sennheiser Middle East
- ▶ SGL
- ▶ Utah Scientific
- ▶ Verimatrix



MOVING THE WORLD'S CONTENT AT MAXIMUM SPEED

Founded in California in 2004 and now part of IBM, Aspera is the creator of next-generation transport technologies that move the world's data at maximum speed regardless of file size,

transfer distance and network conditions. At the root of Aspera's success lies its innovative, patented, highly efficient bulk data transport technology: the FASP (fast, adaptive, secure protocol). This technology is unique and core to all Aspera

high-performance file transfer software. Consistently ranked first in every WAN transfer throughput benchmark it was ever evaluated in, FASP outperforms software and hardware WAN acceleration solutions alike.

		Across US		US to Europe		US to Asia	
		10 GB	100 GB	10 GB	100 GB	10 GB	100 GB
FTP	45 Mbps	10 to 20 Hours	Impractical	15 to 20 Hours	Impractical	Impractical	Impractical
	100 Mbps						
	1 Gbps						
	10 Gbps						

Aspera FASP® Transfer Speeds are Location Agnostic

		10 GB	100 GB	10 GB	100 GB	10 GB	100 GB
		Aspera FASP®	45 Mbps	32 Min	5.3 Hrs	32 Min	5.3 Hrs
100 Mbps	14 Min		2.3 Hrs	14 Min	2.3 Hrs	14 Min	2.3 Hrs
1 Gbps	1.4 Min		14 Min	1.4 Min	14 Min	1.4 Min	14 Min
10 Gbps	8.4 Sec		1.4 Min	8.4 Sec	1.4 Min	8.4 Sec	1.4 Min

THE SOLUTION

ASPERA ON DEMAND

- Full client-side r/w of object storage
- Synchronous transfer from Client to object storage (via Aspera On Demand)
- FASP® transfer speeds end-to-end
- Real-time optimization of HTTP threads, chunk size, interfaced to FASP

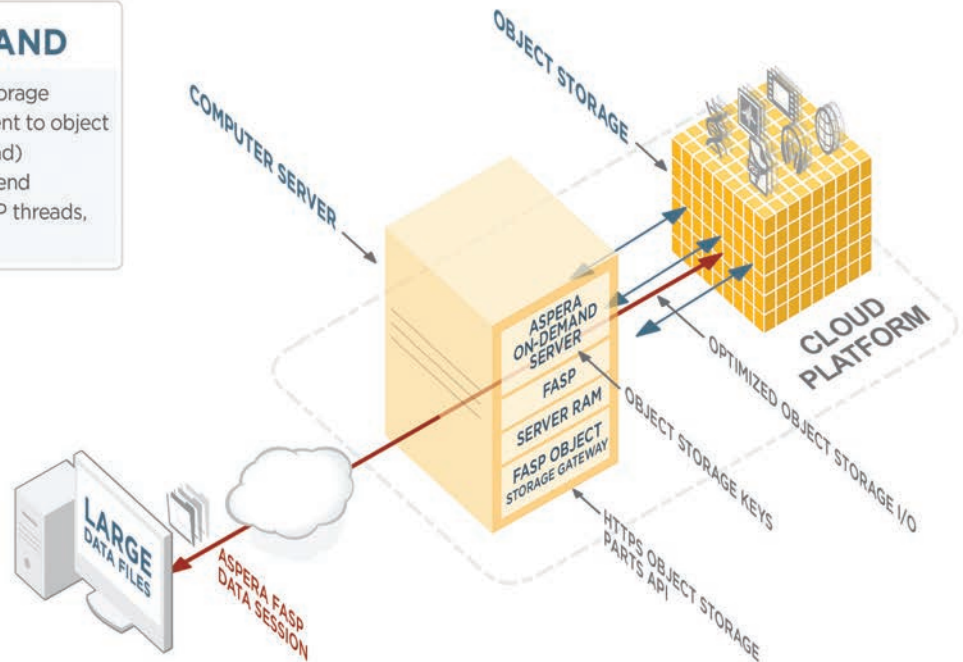
Client Software

- Desktop client
- Web browser plug-in
- Embedded client
- Automatic download widget
- Mobile apps

PERFORMANCE

EFFECTIVE THROUGHPUT

- Up to 1Gbps per instance
- 10 TB per 24 hours



Major film studios, post-production companies, visual effects houses, sports and news broadcasters rely on Aspera to reduce their production cycles while securely delivering high-resolution media worldwide, with the utmost quality of service, to ultimately provide consumers with their best content, faster than ever before.

Aspera software solutions bring breakthrough cost savings and efficiency gains to organisations that need to move large volumes of content over public and private IP networks. Easy-to-deploy, fully cross-platform, file type and network type agnostic, Aspera solutions deliver unprecedented levels of transfer performance to file-based workflows (including maximum speed, security and bandwidth efficiency).

Approximately 3,000 customers and

16,000 active software licenses are widely used across a variety of industries all over the globe, transporting petabytes of data each day.

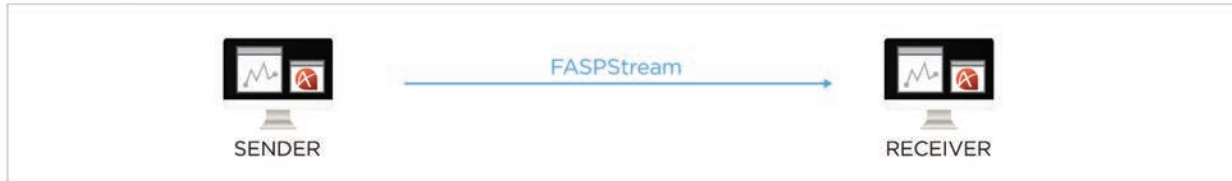
Aspera FASP - Universal High-performance Transport Technology

At the heart of the Aspera solutions is the patented FASP transport technology – a breakthrough transfer protocol that leverages existing WAN infrastructure and commodity hardware to achieve speeds that are 100 x faster than FTP and HTTP. A truly universal content transport platform, FASP supports all data, infrastructure and storage types, over global distances regardless of location. It guarantees maximum speed and powers a comprehensive array of solutions designed for all transport paradigms and deployment models.

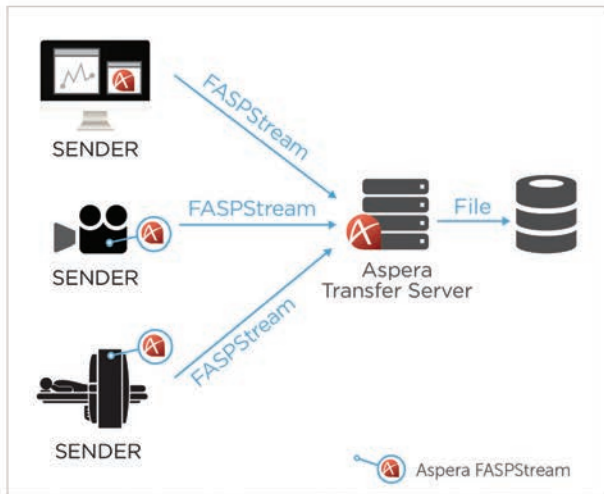
Aspera High-Speed Transfer Software Offers:

- **Fast Content Transfers** - Move the largest files and data sets quickly, efficiently and securely across global distances regardless of network conditions.
- **Enterprise File Sharing and Sync** – Share, exchange and synchronise large files with colleagues, partners and customers across desktop, web and mobile devices and applications.
- **High-performance Cloud Computing** – Achieve line-speed transfers to, from and across cloud infrastructure with deep integration and direct to cloud-based object storage.
- **Workflow Automation** – Orchestration and automation of file transfer and processing workflow from very simple to the most complex.

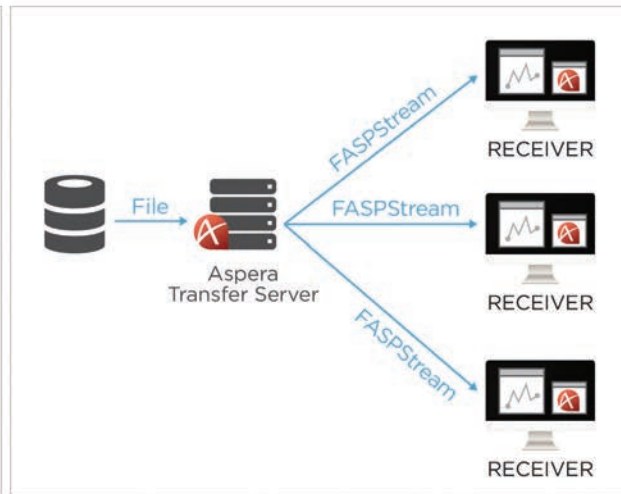
ASPERA STREAM-TO-STREAM



ASPERA STREAM-TO-FILE



ASPERA FILE-TO-STREAM



- Disaster Recovery and Business Continuity** – Replicating massive file systems across distances from primary to backup sites, meeting stringent recovery point and recovery time objectives.

Aspera FASP Transfer Servers and Clients

Leveraging the unique transfer technology is a rich set of cross platform software applications including client and server software with browser plug-in, interactive GUI, integrated mobile client, hot folder and command line interfaces, as well as centralised browser

based automation options for transferring files with globally distributed employees, partners and customers.

Aspera On Demand

Aspera On Demand unlocks the cloud’s unlimited computing and storage resources for big data applications by delivering high-speed transfers in, out and across the cloud with scale-out transfer capacity, a variety of client options (web, mobile, embedded), and applications for ingest, sharing, collaboration and exchange of big data, all available as on-demand subscription services. Available via a subscription

on Amazon Web Services, Microsoft Windows Azure, Google Cloud and IBM SoftLayer, Aspera On Demand comes in four distinct bundles with add-on options. It also leverages Aspera’s patented FASP transport technology, to deliver reliable, ultra-fast transfers, enterprise-grade security and precise control over transfer speed and priority.

Aspera FASPStream

Aspera FASPStream expands Aspera’s FASP transport technology for live and near-live data streaming and provides a fully reliable streaming protocol for in-order data delivery over internet

WANs with excellent video quality and negligible start up delay. Aspera FASPStream can be integrated into any type of application.

- Easily integrate Aspera high-speed transfer technology directly into your applications.
- Start processing the incoming data as soon as the first bytes are transferred, rather than waiting for the entire transfer to complete.
- Enable in-memory access to transfer data for faster processing and better decision-making.
- Initiate high-speed transfers of bulk data from your application memory space as the data is being captured or generated.
- Leverage Aspera FASP high-speed technology, which is efficient, stable, robust and predictable, even for the longest distances and networks with the worst conditions.
- Utilise Aspera security and management features when deployed in conjunction with an Aspera Server.

Aspera Files

Aspera Files is a new SaaS offering for global media sharing built on the Generation 4 Aspera Transfer Platform. The SaaS Platform allows any kind of media organisation of any size to establish a branded web-based presence for fast, easy and secure exchange of file-based media content between end users, where the content can be stored and accessed in multiple cloud storage and on-premise storage systems. Sharing is as easy as drag-and-drop regardless of content location and workspace and content remains private with easy peering with

trusted third parties.

- On Demand SaaS offering global content sharing.
- Easy on-boarding of organisations with branded web presence.
- Fast, easy and secure exchange of files and folders of any size.
- Built on Aspera FASP for unlimited speed, size and distance.
- Store and readily access files and folders in multiple cloud-based and on-premises storage systems. (Supports AWS S3, MS Azure Blob and SoftLayer Swift cloud storage and all-on-premises storage).
- Establish individual and project workspaces with unique branding and any combination of storage to allow users to work as they choose.

Aspera Orchestrator

Aspera Orchestrator is a web-based application and SDK platform, that enables precise control over the Aspera high-performance file transfer environment. It allows organisations to build efficient, predictable file processing pipelines that interconnect business units and external partners.

With Aspera Orchestrator, files can be directed, processed and redirected with easy-to-define rules based on an organisation's workflows and using existing IT infrastructure. Aspera automation streamlines complex workflows, integrates seamlessly with third-party plug-ins and ensures that each processing step is accurately performed. It allows:

- Orchestrator scales fluidly and reliably for the extreme processing required by workflows such as high-volume

video encoding and content ingest and distribution.

- Provide end-to-end secure transfers between suppliers and receivers, including user and endpoint authentication and authorisation, encryption and integrations with antivirus or other security technologies.
- Receive content and data at high speeds from multiple sources around the world and seamlessly consolidate and merge incoming files and folders. Integrate with high-speed storage platforms (on-premise or in cloud) for scalable transfer performance across metropolitan and long haul networks over any distance, with speeds of 10 Gbps and beyond.

Aspera software can be purchased directly or through an expansive network of reselling partners worldwide. In addition to offering a complete portfolio of software products and a comprehensive SDK platform, Aspera provides engineering services to support custom-tailored implementation of solutions and transfer technology in all types of enterprises.

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AUTOMATE ANY WAY YOU WANT

Aveco is a manufacturer of broadcast automation and news production automation, MAM, news-studio-in-a-box and integrated playout solutions. For over 24 years, Aveco has been known for reliability, innovation and its customer-oriented approach. More than 300 broadcasters worldwide use Aveco solutions on-air 24 hour a day.

The product line of Aveco can be used as an end-to-end solution reflecting the business architecture and workflows of the customer or as individual products to fit each customer need. Aveco provides its customers with several key values, these are:

- Stability – A decade after purchase of its products, Aveco is there to help and guide.

- Independence - As an independent manufacturer, Aveco glues all equipment brands into seamless workflows without any corporate policies - the customer is always in control.
- Staying at the cutting edge – The company listens to its customers and helps them grow and adopt new business models and technologies - from on-air to online, linear to social media, high-end to news-studio-in-a-box, the only integrated studio automation package available in the market.

Capex and Opex Optimisation

Broadcasters (including news channels) generate profit in an industrial process and Aveco solutions can help in the following profitable ways:

- High-end automation can use low-cost

devices to achieve high-end output.

- By optimising device utilisation, lower number of devices need to be purchased.
- Low initial investment means low AMC cost.
- Automated workflows and reuse of assets require lower number of operators.
- Automation assisted live news production allows for less people, all the way down to a single person to run the newscast.

Two-dimensional Range of Solutions

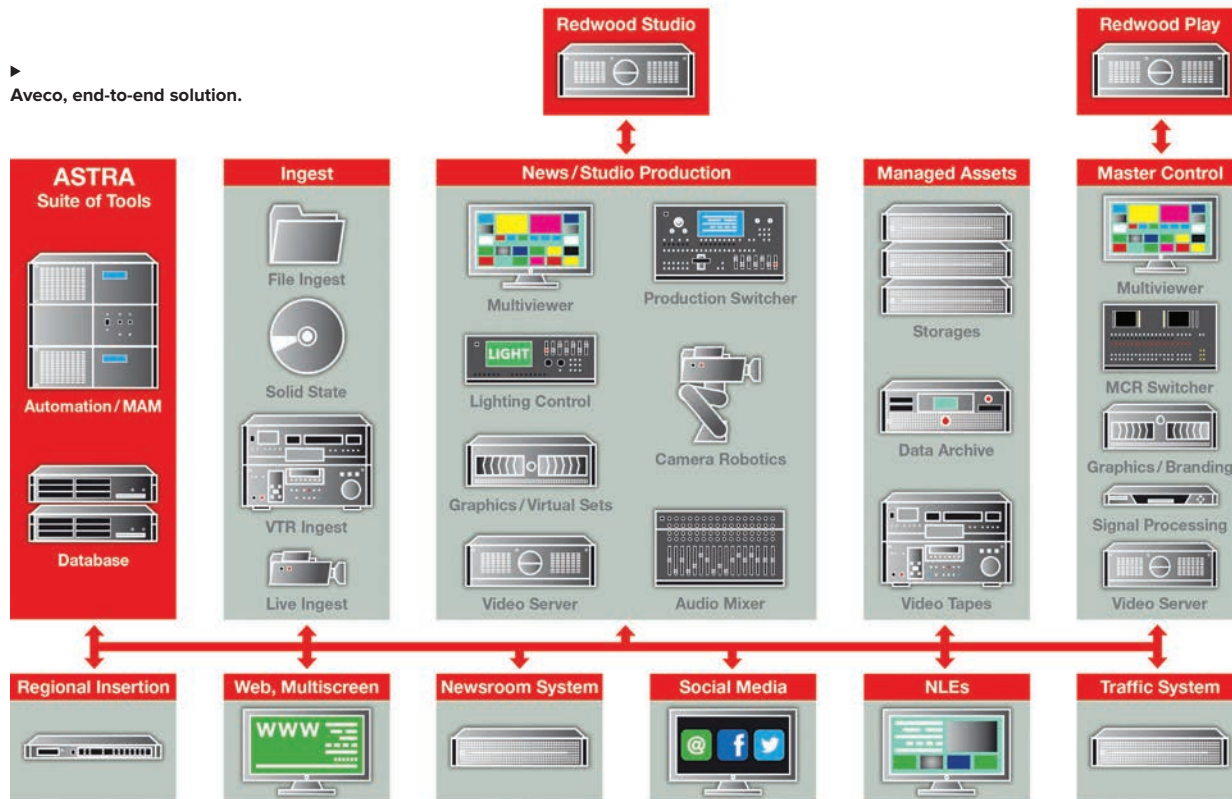
The Aveco product line creates a two-dimensional matrix that guarantees the right-sized solution for any customer.

The first dimension is the form factor - Aveco solutions work in Cloud, in the Box or in the Rack.

The second dimension is functionality



► Aveco, end-to-end solution.



- Aveco systems produce live news and studio events, control broadcasting of TV channels, manage media assets throughout the whole lifecycle from ingest through postproduction to playout and archiving. They implement regional ad insertion, integrate social media and feed assets to web sites.

Aveco can provide end-to-end solutions - individual products can also be selected as standalone or to integrate with third party devices.

Aveco Products

ASTRA is a line of MAM and automation systems that provide functionality such as live news production, MCR playout, ingest, MAM, regional ad insertion and disaster recovery.

Redwood is a family of integrated products that include news-studio-in-a-box and an integrated MCR playout device.

ASTRA Studio 3

The news production automation provides several advantages:

- More graphics, better on-air look, more viewers.
- Less human introduced errors.
- PCR-MCR integration.
- Automating additional services such as social media or web publishing.
- Radical reduction of operational cost.

ASTRA Studio 3 is the only multi-studio news production automation available. It allows easy assign rundowns to individual studios and move rundowns from studio to studio, share devices across studios as well as combine studios to produce major events.

ASTRA MCR

The master control playout automation from Aveco manages single TV channel as well as multi-channel facilities,

centralised as well as distributed across the globe. Redundancy options include N+M, mirrored devices as well as mirrored broadcast chains. Any third party device or system can be integrated into the workflow.

ASTRA MAM

The MAM from Aveco enables facility-wide or multi-facility desktop management for all high-res and low-res content. The ASTRA MAM database links to all other storage devices to provide a central point for media management. A rules-based workflow engine automates media manipulations and transfers QC operations between multiple systems to simplify day-to-day operations.

Integration between MAM and other products of Aveco is simple - they are all components of one end-to-end solution

without any integration effort. They also use the same database.

Redwood Studio

Aveco is the world's first company offering the news-studio-in-a-box product. It combines world-class automation software and media asset management with integrated playout hardware that includes a 4ch HD video server, 32 layers of graphics and eight input production switcher capability with six channels of DVEs all in one box. It is a cost-effective way to put a news or studio show on-air quickly and when run by a single operator.

Redwood Studio is a great solution for small studios within a multi-studio facility where all studios traditionally equipped as well as those with Redwood are controlled by the same ASTRA Studio automation, with the same GUI, the same training and the same user experience.

Redwood Studio is ideal for a network of regional news studios or as a standalone unit.



▲ David Vidlicka, VP Sales MENA.

Redwood Play is an integrated MCR playout solution which offers two major advantages:

- Very rich graphics features.
- Ability to integrate to any third party device or system.

It can be used as a standalone playout, as well as for niche channel playout in a multi-channel facility under ASTRA control.

Technological Platform

Automation servers are made of industrial grade components from world renowned manufacturers designed for long-term reliability. The operating system is a mission critical real-time operating system QNX implemented for critical applications where failure is not an option, such as air and space, security and defence, medical, energy, automotive or telecommunications.

The automation software consists of modules that can be used as LEGO bricks to build a customised solution. Modules run in memory protected address spaces and a problem in one module is always isolated - it will not crash the entire server. Software modules are hot-swappable, allowing for replacement, upgrade or expansion while the system is on-air. This also permits easy and convenient evolution of the system and support. The client software runs on MS Windows, Apple OS X or Linux.

	In the Cloud	In the Rack	In a Box
Media Asset Management	ASTRA MAM	ASTRA MAM	Redwood
MCR playout	ASTRA MCR	ASTRA MCR	Redwood Play
News studio production		ASTRA Studio 3	Redwood Studio
Regional news production		ASTRA Studio 3	Redwood Studio
Mass ingest	ASTRA Ingest	ASTRA Ingest	
Regional programming insertion	ASTRA MCR	ASTRA MCR	Redwood

▲ Two-dimensional range of solutions.

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ENABLING AN EXTENSIVE MEDIA PRODUCTION ENVIRONMENT

Avid is the world's leading provider of audio and video technology for media organisations and independent professionals. Customers use Avid solutions to create, distribute and monetise the most prestigious and award-winning films, videos, music recordings, TV shows, live concerts and news broadcasts.

Ever since Avid led the revolution in non-linear editing over 25 years ago, the company has continued to invest heavily in research and development and currently holds over 200 patents. By envisioning and delivering groundbreaking and innovative solutions that fundamentally improve the way media professionals work, Avid has become the leading technology provider and trusted strategic partner for video and audio production, broadcast, live sound, shared storage and more.

The Avid Everywhere strategic vision addresses the entire media value chain - from the way media is created and managed to the methods used to monetise, distribute and track content - enabling broadcast, video and audio professionals to connect with their audiences in powerful, efficient, collaborative and profitable ways.

Avid solutions have been recognised with numerous industry and technology awards, including two Oscars, a Grammy and 14 Emmys.

The Avid Line-up

To bring the Avid Everywhere vision to life, the company introduced the Avid MediaCentral Platform - the foundation of the industry's most open, extensible, and customisable media production environment. The Avid MediaCentral Platform streamlines and simplifies workflows by tightly integrating all products

and services that run on top of it, enabling customers to create, deliver and monetise content in smarter, faster, easier ways - with whichever Avid or third-party solutions they choose to use.

From large enterprises to post facilities, schools, recording studios, editing suites and professional home studios, the secure and protected Avid MediaCentral Platform offers common services and a unified front-end experience, no matter how professionals choose to access it.

Building on the Avid MediaCentral Platform, Avid's industry-leading Artist Suite, Media Suite, Storage Suite and marketplace solutions provide customers with all the tools needed to create, manage, store, distribute and monetise content. Cutting-edge solutions, powered by the Avid MediaCentral Platform, enable media organisations and professionals to enhance collaboration, streamline production and



distribution, create and deliver higher quality content and maximise asset value with unparalleled power, speed and precision.

Broadcast Solutions

Today’s broadcast industry is going through unprecedented change. In order to survive and thrive in this transformative era, broadcasters need to increase collaboration among their teams, optimise the value of their media assets and deliver higher-quality media that engages audiences on multiple screens. Broadcasters worldwide rely on Avid’s robust and scalable solutions, from iNEWS and NewsCutter to Interplay MAM, PAM and ISIS shared storage.

When Al Baghdadia TV, the independent Iraqi-owned satellite TV network, wanted to overhaul its operations in order to take advantage of file-based HD workflow efficiencies, it required a holistic strategy that saw the broadcaster fully embrace Avid Everywhere. The broadcaster had two key issues in mind when it decided to

overhaul its technical operations: a phased station-wide migration to HD to maximise efficiency and quality of content, while significantly improving time to air for its news division.

Al Baghdadia decided to introduce Avid MediaCentral Platform as the foundation that would unify and streamline workflows across the breadth of its studio, local affiliate and field operations and has achieved a major business transformation encompassing full file-based operation, transition to HD and a closer integration of its studio production and field news gathering workflows.

Pro-Video Solutions

Video professionals and post-production houses are facing unprecedented challenges. As media technology continues to evolve, projects are getting larger and more complex. It has become necessary to connect creative professionals in distributed workflow environments from wherever they may be. And there

is unrelenting pressure to quickly create and deliver the high-quality content that today’s audiences demand. Avid’s best-in-class solutions, including Media Composer editing software, Avid ISIS | 1000 shared storage and the MediaCentral platform, streamline production, enhance collaboration and give video professionals the power and flexibility to create the best story possible.

Jordan-based production house Arab Telemedia Group produces a high volume of content, often under intense deadlines. In the past, fragmented technology workflows slowed turnaround times and made it difficult to access and monetise archived media. They also needed to begin producing content in 4K without dramatically straining their production infrastructure.

Media Composer’s video editing software with Avid Resolution Independence gives Arab Telemedia’s creative teams the ability to acquire, edit and deliver content in any format and resolution, from 4K and beyond. Media Composer’s floating licensing also





enables Arab Telemedia Group to easily share licences across its entire network and scale workgroups on demand.

In order to streamline and centralise its media production processes, Arab Telemedia Group also implemented advanced media management solutions from the Avid Media Suite. To effectively archive a massive volume of 4K media, Arab Telemedia Group deployed cutting-edge media storage solutions from the Avid Storage Suite, including multiple ISIS shared storage systems and AirSpeed servers. Thanks to the openness of Avid Everywhere, contributors throughout the organisation can now quickly access and monetise the extensive archive of valuable media assets.

Pro-Audio Solutions

Avid audio solutions, from the Pro Tools DAW to the Pro Tools | S6 console and Venue family of live sound solutions such

as the latest Venue | S6L and its smaller counterpart the Venue S3L-X, enable users to create and deliver premium-quality audio, manage complex sessions and high volumes of digital assets and operate more efficiently. With Avid, audio professionals of all backgrounds take on the most demanding sessions and maximise their creativity without holding anything back.

With almost 4,000 speakers driven by 400kW of power and in use for 20 hours a day, the sound system for the Prophet's Mosque in Medina is one of the busiest in the world and requires almost constant attention and upgrades. During peak season, the Mosque services almost 1,000,000 worshippers daily, so it cannot afford a second of audio loss. Having logged around 31,000 hours of usage over five years, it was time to make a console change in time for Ramadan 2015.

The sound system manager wanted to get the benefits of going digital and purchased

a pair of Avid Venue | Profile desks which matched both his requirements and budget. Features including a headend that had an integrated audio analyser system, as well as a multichannel recording option were non-negotiable, as were extensive plugin options. The integrated Pro Tools recording and playback as well as the virtual sound check functionality also proved very attractive.

The installation, while straightforward, took rather longer than usual as it had to be done live while the grand mosque was in daily use without a sound check. Another major challenge was the need to create a total of 114 snapshots to match the various combinations of nine Imams and 11 Muazzins. That alone made 99 snapshots for every possible occasion during prayer sessions. With the desks now installed and in constant use, the sound system manager is positive about the effect they have had on working life for the audio team.

With Avid's 25-year heritage of innovation and leadership, Avid is uniquely positioned to help organisations and professionals succeed in the highly competitive and rapidly changing media industry.

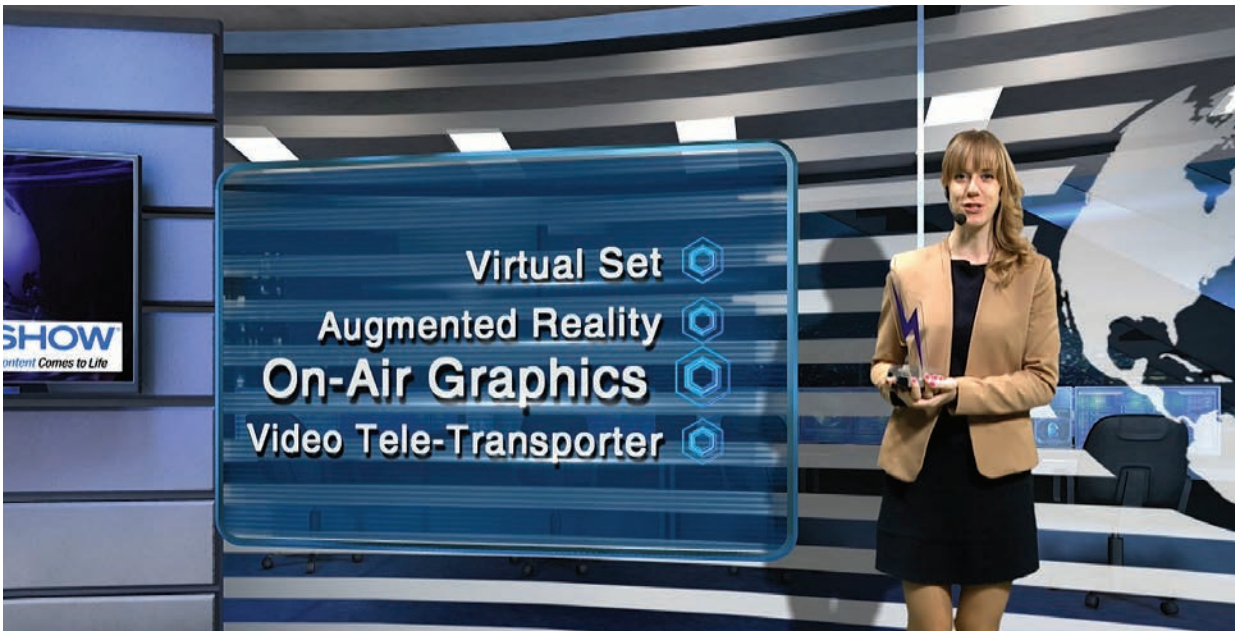
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LinkedIn: [avid-technology](#)



Brainstorm Infinity Set TrackFree demonstration

On-Air graphics production. Brainstorm launches at NAB 2015 Infinity Set 2.0. A rev



BRAINSTORM

VIRTUALLY INNOVATIVE

Since 1993, Brainstorm Multimedia provides industry-leading real-time 3D graphics and virtual set solutions for all broadcast graphic types and workflows as well as for feature-film production and 3D real-time presentations. The Brainstorm customer list includes many of the world's leading broadcasters plus a large number of smaller and regional stations. Brainstorm's flagship product eStudio, considered the industry's fastest on-air graphics and virtual studio engine, is the base upon which all other Brainstorm products run.

With headquarters in Madrid and Valencia in Spain, Brainstorm is a company with a global reach and committed to innovation, allocating 25% of the annual income to R&D.

Regional Influence

Brainstorm Multimedia as a corporation realises the multiple possibilities the Middle East and Africa have to offer in the broadcast sector, especially in the booming of virtual studios in the Gulf in the past year. Brainstorm allocates more resources in the region year after year and increases its efforts in renewing opportunities where the potential is limitless.

Brainstorm has an extensive network of excellent resellers working all around the region, some of whom have been associated with them for many years. These include Pharaon Broadcast in Lebanon and Brainwaves in Egypt, where the company has a huge number of references such as LBC, Al Mayadeen, Al Jadeed or ERTU, among many others. Brainstorm also has valued partners such

as For-A Middle East, SOFTEDIT in Dubai, GHADEER Professional Services in Kuwait, DigitalCast in Iran as well as Questek Technologies in South Africa.

More recently Brainstorm Multimedia installed an Infinity Set virtual studio with unique patented technology at NCMS (National Centre for Meteorology and Seismology) in Abu Dhabi and Mozambique and an Aston 3D graphics system at IRIB in Tehran. In addition, Brainstorm is willing to find new partners to intensify its presence in the region.

At the recent IBC exhibition, the Infinity Set was selected to be featured in *What Caught My Eye*, a special IBC video programme to highlight the most eye-catching products and capabilities at the exhibition. A highly sought-after 'award', it has less than 30 companies



Video TeleTransportation to an Augmented Reality Set

Virtual Set, Augmented Reality and On-Air graphics production. Brainstorm launch



of the more than 1,800 exhibitors at IBC that are chosen to be represented. Following on from winning the 'IABM Game Changer Award at NAB', this is further proof that the Infinity Set has unique, ground-breaking technologies and features that are highly beneficial for existing clients and new prospects alike in setting themselves apart from their competition. The unique Tele Transporter, TrackFree Technology and 3D Presenter features were the main reasons for being selected.

Brainstorm is in its sixth consecutive year at Dubai CABSAT and is one of the major events that the company participates in the region. CABSAT is not the only venue that Brainstorm attends in the region. Last year it organised an Open House in Dubai where several broadcasters were invited and Brainstorm presented its award-winning Infinity Set, the most advanced virtual set

solution and the Aston 3D, a cutting-edge real-time 3D graphics creation, CG and playout solution.

Owing to the enormous success of these events, Brainstorm will repeat both this year. Those willing to attend and participate to watch the Brainstorm software in action may contact its Commercial Department during CABSAT, or even to reserve a place for the upcoming Open House.

As Softedit CEO Naiem Aiyed, Brainstorm's reseller from UAE states, "From the first stage of our relationship I realised that the Infinity Set fits perfectly in most of the requirements in the area - it is powerful, visually engaging and full of possibilities. I could confirm this feeling several weeks later, once we installed a first reference in the Emirates at NCMS. Now I am about to open a training centre for the Infinity Set and Aston in my facilities to show potential customers."

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▲ Datavideo engineers, designs and manufactures a wide range of innovative technologies for use in broadcast, AV, live event and production environments.



datavideo

ENGINEERED TO EXCEL

Based in Taipei, Datavideo engineers, designs and manufactures a wide range of innovative technologies for use in broadcast, AV, live event and production environments. Founded in 1985 in Taiwan, Datavideo has spread globally with subsidiaries in America, England, Canada, Netherlands, Singapore, Hong Kong, India, France and China.

With regional offices in North America, Europe, the Indian sub-continent and South East Asia, and a global network of distributors, Datavideo deliver full support to resellers, end users and integrators. Datavideo is located all over the world with the EMEA office located in Utrecht, The Netherlands.

Product Overview

Datavideo designs a wide range of highly innovative broadcast equipment that are easy-to-use, cost-effective and long-lasting. These listed below are some of the successful product lines.

Production Switchers

The first Datavideo video switcher dates back to 1994. This small switcher was rudimentary but very powerful. It featured different wipe patterns, wipe colours and a basic audio mixer. The SE-200 was a huge leap forward with built-in title interface used for live events or recordings. Both switchers were used by both consumers and professionals.

The current lineup of production switchers includes small switchers with four input channels used in small productions, but there are also the larger 16 input HD switchers capable of being used in master control setups.

Mobile Studio Systems

Datavideo excels in creating versatile and highly flexible mobile studio systems. All mobile studios are based around the acclaimed switcher range. They are mounted in an impact resistant case with an in-built screen and enhanced with equipment like talkback and tally

interfaces. These mobile studios are the size of a briefcase and weigh around nine kilograms.

The larger studios have a pull-out screen and can also be equipped with chromakeyers, recorders, audio delay interfaces and streaming encoders. These portable studios are mounted in a shockproof flight case. Datavideo carries several configurations to suit different needs.

Datavideo also carries full OB Van kits, which exists of one, two or three 27RU racks, fully catered to individual requirements. These racks are fitted for use in the back of a van with special rails to mount them to the floor or the car. They can also be popped out in minutes to use in a venue. Rack solutions can be entirely configured through a web portal at the Datavideo website or by contacting the local Datavideo distributor. These rack solutions can hold the full Datavideo CCU



▲
Rob Op de Beek, Managing Director, Datavideo Technologies Europe B.V.

solution which consists of MCU camera controls, tally/talkback interface and video lookback, all through a single cable that can run up to 100 metres.

Virtual Studios

Datavideo has developed a line of virtual studio systems that can be used in the

educational field, small broadcasting field, webcasting, enterprise companies and other small production facilities. The key feature of this line of virtual studios is that it is very easy to operate. Anybody with a slight knowledge of video production can operate the system. For instance, the chromakey is made in seconds using the colour picker and with fine adjustment.

This virtual studio line is based around 2D trackless technology which means the background is 2D and the camera feed is projected onto the background. The main advantage of 2D trackless technology is that it creates backgrounds easily. It is also easy to create a studio by arranging JPG images in the special editor built into the system, but also available free as a standalone app for any Windows PC.

To simulate camera movement, three virtual zoom phases are built in.

The TVS series virtual studios all have



▲ Datavideo booth at IBC in Amsterdam.



▲ Datavideo EMEA office in Utrecht, The Netherlands.

two built-in clip players that support a majority of video codecs and containers. It has built-in recording facilities with the choice of recording on the built-in hard drive or the use of removable USB media. It is also possible to stream broadcast directly from the system using the in-built H.264 RTMP encoder. A majority of live streaming networks now use this format.

The Datavideo TVS series virtual studio is available as a one HDMI input version (TVS-1000) and a two input 3G-SDI version (TVS-1200). Also available is an AUX input board for ingesting an extra HDMI channel.

Signal Conversion, Extension and Distribution

Datavideo offers highly compact, cost-effective and high quality signal converters, extenders and distributors. These range from simple HDMI to SDI (and vice versa) converters to very flexible up/down/cross converters for multiple standards.

Datavideo also offers rack mounting kits for these compact converters, as well as battery packs, tripod mounts and other accessories. Extending composite video, HD-SDI and 3G-SDI can be done up to 1000 metres with the VP series active extenders, whereas splitting and distributing 3G-SDI can be done with distribution amplifiers.

Teleprompters

Datavideo offers a highly innovative way of teleprompting with a clever system that can be mounted on a regular iPad or Android tablet to the front of a camera. Through a halfway mirror you can see your tablet screen running the teleprompting software. With the professional version you can distribute the script wireless to different teleprompters to sync them.

PTZ Cameras

Datavideo carries a line of cost-effective and high-quality PTZ cameras. These cameras are both able to capture the image

in 1080p and output this through 3G-SDI. The bigger PTC-150 has professional features like manual shading and iris, whereas the PTC-120 has less of these options sporting a smaller footprint. The PTC-150 is controlled by the professional RMC-180 controller that can store presets and can control up to four cameras. The smaller PTC-120 has a unique feature wherein the control cable can be cascaded like a daisy chain.

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▼ Broadcasters worldwide use Fischer Connectors' innovative connectors and cable assembly solutions to overcome their challenges and achieve top performance.





BROADCAST MADE EASY

Broadcasters worldwide use Fischer Connectors' interconnection and cable assembly solutions to overcome their challenges and achieve top performance. Known for their reliability, precision and resistance, the products of Fischer Connectors, a pioneer and worldwide leader in circular push-pull connectors, have a proven track record in diverse broadcasting fields requiring faultless quality. The company's innovative products are used throughout the media industry and are suited to any broadcast, audio and video applications.

Meeting Broadcasters' Specific Needs

Broadcasters face all kinds of connectivity challenges, such as linking TV cameras to signal transmitting devices in a TV studio or on location, integrating complex movie production systems in harsh environments and optimising onsite equipment to provide

power, lighting and signal transmission.

What they demand is high-performance, reliable equipment. Fischer Connectors' 1051 HD Triax Pro+ connectors link HD video cameras and related equipment dependably. Its plug-and-play circular connector and cabling solutions include fibre optic signal and power connectors, plus options for connecting the camera control unit (CCU) to cameras, equipping outside broadcasting (OB) vans, and connecting fibre media converters. And when broadcasters need to reduce the size and weight of their equipment while guaranteeing signal quality, Fischer Connectors' miniature connectors come handy.

Connectors and Cable Assembly Solutions for Broadcast Applications

- Fischer FiberOptic Series and Fischer Core Series Broadcast (1051 HD Triax Pro+) for all your audio-video needs.
- Easy to clean, maintain and store.



FISCHER CORE SERIES
BROADCAST



FISCHER FIBEROPTIC
SERIES



- Simple, quick installation to save time.
- Watertight IP68 for inside and outside coverage.
- Rugged and reliable.
- Engineered for easy field repair.
- Lightweight, miniature design suited for portable devices.
- Fischer MiniMax Series, to combine signal and power in a single connector.

Industry Standard

The Fischer Core Series Broadcast 1051 Triax HD Pro+ is a recognised industry standard for both studio and outside broadcasting. In 2010 it won the ‘Best of IBC’ award for innovation and cost-efficiency. It’s the user-friendly choice for connecting cameras and the production area, be it a TV studio or an OB van, over long distances. It offers:

- Long transmission distance.
- Low cost of ownership.
- Easy maintenance.

Robust Optical Performance and Easy Cleaning with Plug-and-Play Fibre Optic Solutions

The Fischer FiberOptic Series connectors and pre-configured reels are ideal for indoor,

outdoor and extreme applications when performance and reliability are key, offering the perfect plug-and-play solution for field broadcasting activities. This new technology gives you the stability you need for a high-quality optical link, plus:

- Unmatched device protection.

- Easy field cleaning.
- Easy mating with its push-pull locking system.

In 2013 the Fischer FiberOptic Series received a ‘Best of IBC’ award in the category production and infrastructure. It maintains stable, high-quality optical links indoors or outdoors. IP67 sealing unmated (IP68 mated) provides unmatched device protection, ensuring suitability even for harsh environments. The removable sleeve holder and push-pull locking system make them easy to connect, disconnect and disassemble for quick, efficient field cleaning. You can choose from fibre optic solutions (with two or four optical channels) and fibre optic hybrid solutions (with two fibre channels and two electrical contacts) saving space, time and money.

Coupled with their new accessories unveiled at IBC 2015, the Fischer FiberOptic Series pre-configured reels make fibre optic deployment and transmission testing in the field as easy as child’s play. They’ve been designed to simplify technical support teams’ lives by facilitating fibre optic deployment (daisy chaining) and transmission testing in the field (loopback).

FISCHER CONNECTORS

Fischer Connectors has been designing, manufacturing and distributing high-performance connectors and cable assembly solutions for more than 60 years. Known for their reliability, precision and resistance to demanding and harsh environments, Fischer Connectors’ products are commonly used in fields requiring faultless quality, such as broadcast, telecommunication, medical equipment, industrial instrumentation, measuring and testing devices and military forces worldwide. Primary design and manufacturing facilities are located in Saint-Prex, Switzerland, with subsidiaries and distributors located worldwide.



FISCHER MINIMAX™ SERIES



Thanks to Fischer Connectors' extensive portfolio, the company can design a unique solution for your application. For rugged applications when weight matters, for example, by packing more functionality into smaller devices, the Fischer UltiMate Series overcomes space and weight restrictions, giving designers more flexibility. Their lightness, high density, IP68 sealing, colour coding and reliability meet the stringent requirements of varied broadcasting applications.

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High Density, Signal & Power in One Miniature Connector

When it comes to miniaturising broadcasters' equipment while guaranteeing signal quality, the Fischer MiniMax Series connectors and cable solutions come handy. Awarded 'Best of 2015' by TM Broadcast International magazine, the Series fulfills all of the requirements of the HDMI protocol and can be used for audio/video applications, such as HDMI-compliant source devices as display controller, a compatible computer monitor, video projector, digital television, or digital audio device.

A compact, rugged power and signal solution with a high data rate, means less connector, a smaller housing and lighter equipment.

- Up to 45% smaller and 75% lighter.
- Greater reliability, even in harsh environments (IP68 mated and unmated).
- Available in 19 and 24 contacts.

With a screened twisted pairs cable, these connectors have also been tested as belonging to Class Ea of ISO/IEC 11801, and can thus be used for applications such as 10Gigabit Ethernet, Firewire or Power over Ethernet.

▲ Fibre optic deployment and transmission testing in the field as easy as child's play: when it comes to capturing HD images in the field, the trend is towards plug-and-play fibre optic solutions. In enabling broadcasters to save setup, field deployment and testing time, the Fischer FiberOptic turnkey solutions give more modularity, more flexibility and more value for money.

HITACHI

Inspire the Next

PRODUCTS, SYSTEMS AND SOLUTIONS UNDER ONE ROOF

Hitachi Kokusai Electric Turkey (HKT) is headquartered in Istanbul, Turkey with a manufacturing facility in the Tuzla Free Trade Zone near Istanbul.

HKT provides sales and maintenance services based on a 'local production for local consumption' business model focussing on locally developed, designed and manufactured products in Turkey's free trade zones. From its 8000 square metre production facility, HKT manufactures some of the broadcast market's most cost-effective high-end products, systems and solutions serving customers in the regional broadcast industry and government institutions.

HKT designs, develops and manufactures mobile antenna systems, controllers and SATCOM components, which are integrated into customised DSNG (Digital Satellite News Gathering) vehicles, special purpose vehicles or

Outside Broadcasting trucks that the company designs and manufactures within its facilities. Also, Hitachi Kokusai Electric Turkey build and integrate earth stations for satellite communications, terrestrial sites and complete production studios to create turnkey solutions for its customers.

SOLUTIONS

- ▶ Vehicle Based Systems.
- ▶ Coachwork.
- ▶ Mobile Antenna Systems.
- ▶ Satcom Equipment.
- ▶ Broadcast Cameras.
- ▶ Studio & Network Systems.
- ▶ Broadcast Media Solutions.
- ▶ Broadcast Sites.
- ▶ Satellite Earth Station.
- ▶ Telecom Emergency systems.

Vehicle-based Systems

DSNG Systems: HKT's DSNG systems are based on the Mercedes Vito, Sprinter and Iveco vehicle models, weighing up to seven tonnes each. Vehicles from other leading car makers can be converted as well. For systems integration purposes, the company uses its range of antenna systems, satcom equipment and components, making turnkey solutions economically efficient.

Comfort Series: These are compact and fast-responsive, based on the Mercedes Vito model with precise in-house coach building interior modifications. They are SD/HD MPEG-2/4 Encoding, RF with Pals PKM-120L antenna system and HD baseband production infrastructure.

Smart Series: HKT's SMART series of DSNG vehicles are designed to be versatile and ready for SNG/production, supporting up to four camera channels and with sufficient space for HD A/V production





equipment and accessories. They represent some of the market's most cost-effective and reliable SNG systems, including vehicle design and coach-building. These have SD/HD MPEG-2/4 encoding, RF with Pals PDA150 antenna and 400W Ku.

Producer Series: HKT's PRODUCER series of DSNG vehicles are specifically designed for fast, flexible live productions and transmission of (HD) outdoor events.

Outside Broadcast Vehicles: HKT's broad base of experience in design and systems integration of high-end video production studios is utilised to convert large vehicles into mobile digital studios (OB vans), giving

broadcasters all the mobile production and broadcasting capabilities they need. HKT OB vans can support up to 16 HD cameras. **OB-BOX:** OB Box is a fully featured modular OB facility, which is delivered to the customer and then mounted onto a vehicle's chassis using a proprietary fixing kit.

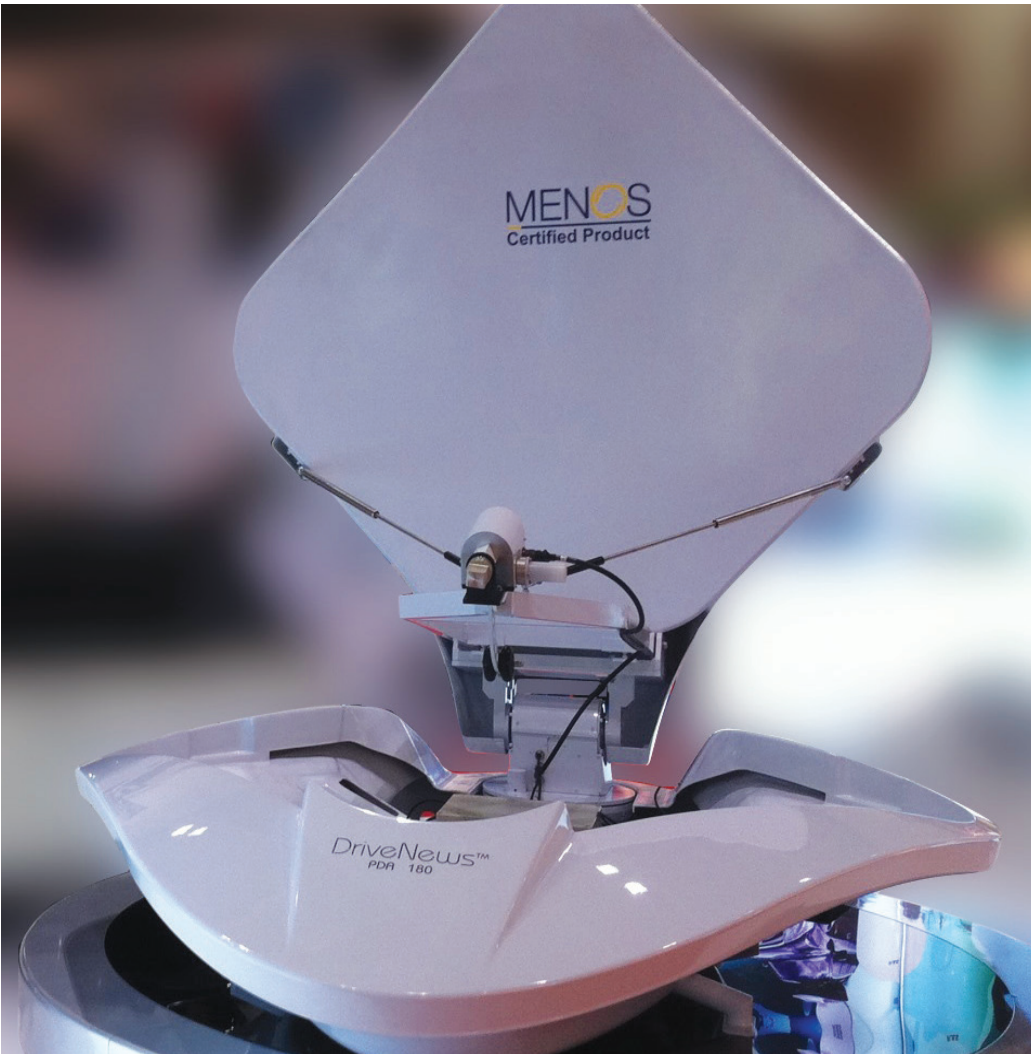
Broadcast System Cameras

HKT offers one of the market's broadest, most advanced and diverse range of broadcast system cameras. Developed to meet the most demanding acquisition needs, these camera systems include the company's market leading SK-UHD4000

4K Ultra-HDTV camera, a super slow-motion camera, a new version wireless camera system, together with the company's latest 3 MOS sensor series cameras - the SK-HD1300 and Z-HD6000 - as well as the DK-Z50,DK-H100 and 3G DK-H200 POV Box cameras.

Satcom Equipment

For mobile SNG antenna systems, HKT manufactures satcom equipment which include antenna controllers, redundancy switch systems, real time uplink power controllers or remote monitoring and control systems for earth stations.



Mobile Antenna Systems

HKT designs and manufactures a range of carbon fibre SNG antenna systems, including drive-away antennas up to 240cm and flyaway antennas up to 150cm.

Systems are lightweight and provide flexible mobile transmission for satellite news gathering, outside broadcasting and communication during critical missions. Antennas are ultra-light with composite carbon fibre construction; they have dual optic configuration/C, Ku, DBS feeds. These models are fully compliant with satellite operators.

Systems Integration

Media network solutions: HKT offers media network solutions, including earth stations, video networks, broadcast studios and transmission sites to produce and distribute live data, audio, video, voice and internet.

Earth stations: HKT builds earth stations that are 2.4 to 11m in diameter, configured for C-, X, KU, DBS and KA-band.

Broadcast Studio Facilities

HKT's system designers deliver solutions across the complete broadcast chain, integrating the best automation, server

and archiving products - from simple studio facilities to complex multi-lingual, multi-platform play-out centres.

The HKT team design and integrate various digital headend platforms configured to be extremely reliable and easy to operate for a single channel or multi-channel applications.

Broadcast Transmission Networks

HKT designs transmission towers for terrestrial broadcasting of TV and radio channels using the DVB-T and DVB-H standards. The company's technical solutions include all transmitters and components, base, shelter and additional infrastructure.

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JVC

LEADING MANUFACTURER OF PROFESSIONAL VIDEO PRODUCTS

JVC has a longstanding reputation for build quality, service and reliability, earned over decades of being at the forefront of technological innovation in both consumer and professional markets. From creating the first personal video player, to more recent developments of live streaming and extensive network connectivity in its professional 4K and HD camcorders, JVC has continually sought to push the boundaries of quality, ingenuity and usability in its products. The main areas for JVC are content creation for film and broadcast, display technology and studio solutions. JVC not only offers individual products in the Middle East region but also fully-configured operational systems.

4KCAM Professional Camcorders

In the last year, JVC introduced a number of affordable 4K camcorders including the GY-LS300CHE Super35 camera, which offers 4K acquisition along with

a cine-style shallow depth-of-field look, and this has proved a very desirable combination of features to customers looking to begin 4K acquisition even if delivery is required only in HD. JVC's 4KCAM product line comprises three handheld camcorders and a remote camera head system, each offering 4K and HD recording with professional features in a compact design. An ideal complement to JVC's successful ProHD product line, the cameras feature dual SDHC/SDXC card slots for dual, backup and continuous

recording with the fast shoot-to-edit workflow JVC customers have come to expect.

The GY-LS300CHE features JVC's 4K Super 35mm CMOS sensor, combined with an industry standard Micro Four Thirds (MFT) lens mount. It records to non-proprietary SDHC and SDXC media cards in a variety of image formats including 4K

Ultra HD, full HD with 4:2:2



sampling, SD and web-friendly proxy formats. JVC's unique Variable Scan Mapping technology maintains the native angle of view for a variety of lenses, including Super 35, MFT and Super 16, and as a result, lens options are almost limitless, making this camcorder ideal for customers who have already invested in high quality lenses.

The versatile fixed lens GY-HM200E and GY-HM170E camcorders offer an outstanding combination of professional features and performance for any filming scenario. They deliver 4K Ultra HD, 4:2:2 full HD (50Mbps) and SD images with a 1 / 2.3" BSI CMOS chip. Thanks to the latest free firmware update, they now include 120 fps recording in HD mode for smooth slow motion effects. The camcorders feature a built-in 12x zoom lens with optical image stabiliser and 24x dynamic zoom in HD mode.

The GY-HM200E also includes dual XLR audio inputs that are mic/line switchable with built-in phantom power, an integrated handle with hot



shoe and dedicated microphone mount (mic not included) and SDI and HDMI video outputs. This model adds all the IP features from the top-of-the-range JVC camcorders too, including excellent network connectivity, FTP file transfer and live streaming capabilities. A built-in HD streaming engine with Wi-Fi and 3G/4G connectivity allows live HD transmission directly from the GY-HM200E to hardware decoders, popular streaming websites and content delivery networks.

JVC sees the updating of firmware to deliver new functionality within cameras as being critical to adding value to its customers' investment in its products. Since the launch of the 4KCAM range, there have been a number of very significant upgrades adding in many new features and improvements. For the GY-LS300, the latest upgrade adds a JVC Log mode that practically duplicates the look of film, plus Cinema 4K and Cinema 2K recording and a unique prime zoom feature that

uses the camera's innovative technology to allow zoom capabilities when using prime lenses. For this and the GY-HM170/200 camcorders, there's now a 70-bit mode to enable 4K recording on standard Class 10 SDXC cards, a histogram, new zebra indication and a variety of live streaming changes (GY-LS300 and GY-HM200 only). There's also the ability to trigger recordings via HDMI/SDI and JVC LUT support via the Atomos Shogun and Ninja Assassin external recorders.

Studio Solutions

JVC's developing relationship with Bradley/BR Remote is borne of the intention to expand its range of solutions into the studio environment. JVC sees an increasing demand for affordable HD and 4K studio solutions and the Bradley range is a perfect complement to its existing studio products. JVC has enjoyed success with its GY-HM890 studio camera, alongside its production monitors, recorders and related studio components. The Bradley range adds a series of pan/tilt heads, integrated PTZ cameras and studio control products, enabling JVC to offer a full range of 4K/HD studio solutions alongside existing products for corporate, education and full broadcast environments.

JVC has also launched the new DT-N Series of studio monitors, with three models supporting up to Cinema 2K 2048x1080p signal sources. They include an array of professional features, such as waveform monitors, vector scope, histogram and 3G support, and are ideal for a wide range of broadcast, OB, production and post-production applications.





▲
Paddy Taylor,
Sales Manager, MEA.

Camcorders for Global Content Delivery

JVC continues to see the demand for IP connectivity growing as network and mobile infrastructure increases in capacity. This now encompasses all aspects of IP connectivity, from remote camera control, file transfer, live streaming and metadata exchange. JVC was an early adopter of IP capability within its cameras, starting with the GY-HM650E camcorder, which is used in a wide range of ENG and production environments. The company has continued to add to its IP functionality both with new products, such as the GY-HM200 4K camcorder and GY-LS300 Super 35mm camcorder and via free firmware upgrades to existing models.

Live streaming is a key feature of many of JVC's camcorders, including the handheld GY-HM650, the shoulder-mounted GY-HM850 and the GY-HM890 studio camera. Ideal for news, sport, production and web applications, JVC camcorders' innovative streaming facility allows footage to be streamed live at the same time as recording full HD to the SDHC/SDXC memory card.

With dual codecs and built-in FTP/wi-fi connectivity, getting your story on air becomes fast and simple whether you need a video stream or a complete broadcast news story.

For the camera operator, this live streaming facility means it is possible to transmit urgent news directly and then follow this up with pristine quality HD footage to the broadcast station via FTP at a later time. From high-quality HD video to light, web-friendly proxy video data, delivering footage back to the studio has never been faster or easier. In addition, the company's collaboration with Streamstar means that remote control of JVC camcorder settings and zoom functions/presets are now available from within the Streamstar live production software; unique IP video stream inputs enable JVC streaming camcorders located anywhere in the world to be used in live production.

With their elegant and user-friendly design, JVC's hand-held and shoulder-mounted 4KCAM and ProHD camcorders are already widely used throughout the region. When JVC launched its ProHD product line a few

years ago, the company made professional HD production affordable. Its 4KCAM product line follows that same tradition with cameras that make ultra-high definition 4K economical for cinematographers, webcasters and broadcasters, corporate and live event production teams and independent filmmakers.

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Twitter: [jvcprofessional](https://twitter.com/jvcprofessional)

MANUFACTURER





PIONEERING IN IP-BASED VIDEO, AUDIO & CONTROL

Nearly five decades of innovation have made Lawo a world leader in IP-based video, audio and control for TV and radio broadcast production. Its products are used in sports and entertainment events, as well as theatres and houses of worship worldwide. Lawo's portfolio includes solutions for IP video core infrastructure, video processing and routing and audio-to-IP interfacing, as well as digital audio mixing and routing. In addition to manufacture, Lawo supplies both dry-hire and turnkey solutions for major international sports and entertainment events.

A family-owned organisation, Lawo is run by the founder's son Philipp and employs more than 300 people in Europe, Asia, Australia and the Americas. More than 40 regional representatives and partners guarantee customer support.

Lawo played a major role in global sporting events in 2014 – the Winter Games (Russia), the Asian Games (South Korea) and the World Cup (Brazil) which included the application of IP-based solutions that allowed remote production from Rio de Janeiro. These were followed in 2015 e.g. by Formula One, the Biathlon World Cup, the Australian Open and the US Open, the Tour de France and the FINA World Championships. The Lawo Team is looking forward to its part in similar sporting events in 2016.

Product Lines

Broadcast Control and Monitoring Systems

Lawo's VSM-System (Virtual Studio Manager) integrates management of TV and radio production equipment within a single system, providing unmatched benefits in workflow and simplified

operation. VSM uses a TCP/IP backbone and manufacturer-independent protocols for controlling and monitoring all relevant hardware in OB Vans, studio facilities and TV and Radio MCRs. The system controls all major brands and models of video and audio routers, video and audio mixers, intercoms, under-monitor displays and multiviewers, glue equipment and third-party devices.

theWALL allows configuration of any video monitor wall, signal routing, mosaic layouts changes and use of user-presets through a HTML5-based app that runs on any mobile device. It enables operators and Engineers in Charge (EIC) to configure monitor walls in OBs or studios swiftly and on-the-fly. Instead of operating specific multiviewer configuration software or requiring time-consuming changes of layout, users manage multiviewers with a single tool, saving setup time during

production and providing new levels of efficiency and operability.

Video Solutions for IP-based infrastructures

Lawo's V_line video broadcast tools support workflows with unprecedented efficiency and compactness. V_remote4 is a bidirectional multichannel video/audio-to IP-interface for remote production, providing a one-box solution for video and audio signal transport and processing in WAN-based remote productions. The 19"/1RU unit includes everything from J2K video-over-IP coding to monitoring and processing tools and uses virtual cabling to effect IP infrastructure benefits and cost savings. It includes parallel production-quality en/decoding of four uncompressed, raw -format video streams (SMPTE2022-6/-7 compliant) and four JPEG2000 video streams (VSF-TR01 compliant), as well as parallel encoding of four MJPEG and two H.264 video streams for monitoring. It supports source-timed, frame-accurate switching of SMPTE2022-6 video, in combination with VSM control systems. Its robust J2K codec and SMPTE2022-7 compatible port redundancy ensure uncompromised signal availability and quality. Lawo's EPS technology for enhanced protection switching further enables system designs with true hardware and network redundancy.

V_pro8 is the 'Swiss Army Knife' of video processing, interconnecting signals in different video formats and bridging between audio and video within a studio infrastructure via high-density audio connections (including MADI and RAVENNA/AES67). It features two-channel, high-quality up/down/cross-format conversion, eight-channel colour correction, frame sync, separate video and audio delay on all channels, embedding/de-embedding



AWARDS

After receiving an Emmy Engineering Plaque in 2013, Lawo won the IABM award for the EBU/VRT Live IP project, and a TVB Award for the Eurovision Song Contest 2015 (with ORF and EBU) for 'Outstanding Broadcast'. Further recognition has come from the Panorama Audiovisual Jury (Brazil), and in the form of 'Best of Show' awards from TVBEurope and InstallationEurope.

with sample-rate conversion, 8x8 video matrix, 384x384 audio matrix, time-code insertion, test-pattern generation, surround down-mixing, quad split multi-viewer, plus tools for monitoring and metering - through an intuitive HTML5 GUI.

A DOLBY E option provides up to four DOLBY E en/decoders for fully compatible management of multichannel audio on a single AES3 connection, with Dolby E metadata. In combination with the Dolby E Auto Aligner, the V_pro 8 becomes the

perfect transmission path gateway for multichannel productions.

In use, DutchView Infostrada's Cloud Production platform recently aired the world's first live multi-camera broadcast using cloud-based technology. Integrating Lawo's IP-based video, audio and routing, the infrastructure is centrally controlled via VSM. The setup comprises V_remote4 IP video production units as well as mc256 audio mixing consoles, Nova compact routers, DALLIS I/O systems and A_mic8 analogue-to-IP audio interfaces. All video streams are furnished as uncompressed SMPTE 2022-6/-7; the audio streams use the AES67-compliant RAVENNA protocol.

Audio-to-IP Interfacing

The A_line series of 19"/1RU audio-to-IP interfaces for broadcast, live and install applications transports analogue and digital audio signals using IP network environments. Based on RAVENNA technology, all A_line devices are AES67 audio-over-IP interoperability compatible, and come with VisCon_navigator software for set-up of audio and video streams without the necessity for deep IT knowledge.

While the A_mic 8 features eight Lawo-grade mic/line inputs and four line outputs, A_digital 8 offers eight AES3 inputs and four AES3 outputs, and A_madi4 four MADI interfaces. All units provide two RAVENNA/AES67 Ethernet ports and eight GPIOs. For large-scale infrastructure installations, Lawo provides modular high-density audio-to-IP interfacing based on DALLIS I/O systems.

Broadcast production consoles

Lawo's mc²36, mc²56, mc²66 and mc²90 mixing consoles set new broadcast standards, allowing operators to focus on their work rather than their equipment. Solutions are scalable, offering maximum reliability for every task. With the 2014 debut of the mc²36, Lawo extended its application range, adding an all-in-one mixing desk with a feature-set covering broadcast, theatre, houses of worship, live and install applications. Natively equipped

with RAVENNA/AES67 technology, all mc² series consoles integrate seamlessly into future-proof IP infrastructures.

Radio Broadcast Solutions

crystal and sapphire radio consoles support self-ops programme production with tools like VisTool customisable screen building software used to create custom status displays, tablet and touchscreen-based button panels and mixing console controllers, as well as to capture and manage snapshots and for rights management. Lawo radio consoles are RAVENNA/AES67 native and operate stand-alone or within a networked environment.

Audio Routing

Acknowledged by the Emmy jury as a benchmark in audio routing, Lawo's Nova series offers modular construction, Dual Star network topology and scalable routing of up to 8192x8192 crosspoints in a single

frame. Nova routers provide maximum reliability and flexibility and significantly enhanced workflows. They also have native integration of AES67/RAVENNA audio-over-IP technology.

Installations in the Middle East

Broadcasters and OB companies in the Middle East and Africa are benefitting from the use of Lawo systems. These include installations at Qatar TV, Al Kass and Al Jazeera Children's Channel, Oman TV, Radio Jeddah/Radio Riyadh, Sky Arabia News, IRIB, ORTAS, ERTU, Radio Tunis, LiveHD, and beIN Sports' massive playout centre. Most recently, Oman TV equipped a new OB truck with an mc²56 audio console and Al Dawri & Al Kass Sports Channel furnished its new HD studio complex with a Lawo installation that provides innovative networking. In radio, Dubai's MBC Radio has adopted studio workflow from sapphire radio consoles and Nova routers.



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MILLER



THE RIGHT FEEL

IMAGINE, CREATE, TELL


Founded in 1954, Miller Camera Support Equipment designs and manufactures professional fluid heads and tripods for the film and television industry, inspiring the world's leading camera operators to imagine, create and tell their story. Celebrating more than 60 years in the industry, Miller is a long-time, global leader in the field of specialised camera support and holds the world's first patent for fluid head design, acquired in 1946. With more than 200,000 systems in use, Miller's camera support systems are used globally in electronic news gathering (ENG), electronic field production (EFP) and cinema and television productions by the world's leading networks, production houses, corporate, educational and government institutions in more than 65

countries. It is comforting to know that when you own a Miller you are in good company.

Why Choose a Miller?

Miller Camera Support Equipment is a company solely dedicated to designing and manufacturing fluid heads, tripods and other ancillary camera support equipment. Each product is made by passionate, zealous and highly skilled craftsmen whose combined number of years of experience adds up to centuries.

Miller products are made from the highest quality, environment-friendly materials and manufactured using high-precision CNC machinery and modern manufacturing processes under strict quality control. Each product is tested to a stringent tolerance and performance



▶ Miller takes on the rugged Canadian wilderness with Derek Frankowski.





2090 Cinline 70 System. ▲



regime through multiple levels of quality control, starting at raw material level, followed by component level and finally at finished product level. Before the product is shipped, a final check is made before packing.

Good design and stringent manufacturing results in many years of trouble-free service evident by the large quantity of Miller products sold many years ago that are still in use.

How to Choose a Fluid Head from the Miller Range

If you ask any camera operator what they consider to be the most important piece of equipment, they will most likely tell you how important a rock solid tripod

and a smooth fluid head is to capturing that perfect shot. When choosing a tripod system, think ahead 5 to 10 years because this piece of equipment will most likely still be with you then. So will it still do the job? Choosing the right fluid head and tripod system depends on many factors, for example, the type and size of the camera, shooting style, type of location and then finally budget. The Miller recommendation is to not shy away from stretching the budget as, as most people regret having skimped a few years down the track.

Payload and Payload Range

One of the most important things you need to consider when choosing a fluid head is

the payload capacity. Payload capacity is dependent not only on the dead weight of the rig but also on the centre of gravity of the total camera rig placed on top of the fluid head, including the camera, lens and other accessories. Centre of gravity (COG) is defined as the point at which the entire weight of a body may be considered as concentrated, so that if supported at this point, the body would remain in equilibrium in any position. The centre of gravity of a symmetrical cube is the physical centre of the cube. A camera rig however is not a symmetrical object and its COG may be anywhere along the length of the rig and between 50mm to 150mm or more, above the camera plate. Typically, fluid head manufacturers



Geoff Mackley with Arrow tripod system in the crater of the Marum Volcano on Ambrym Island in Vanuatu.

specify the payload range at 100mm above the camera plate.

Counter Balance

Counter balance is used to counter the weight of the camera rig when tilting. The amount of counter balance force required depends on the weight of the rig and the location of its centre of gravity. When setting up a fluid head with the camera rig mounted the balance point of the rig needs to be found by sliding the rig backwards or forward to a point of equilibrium with counter balance set to minimum. After the camera rig is balanced to a point where the rig stays level, the Counter Balance (CB) springs, built-in within the head take over when CB is stepped up and

the rig is tilted backwards or forward. If the CB force is too strong, then the rig will spring back and CB should be set to a lower step. If the CB is too light, the rig will go towards the full tilt position and CB should be increased. By selecting the right CB position, using the Counter Balance selector knob, you are looking to select a spring with the right amount of force to keep the rig at approximately half tilt, without springing back to level or dropping to full tilt.

Drag Resistance

Smooth starts and soft stops are the hallmarks of Miller's fluid drag system. In much the same way as the stroke of a rower is controlled by water, the fluid drag system applies carefully controlled resistance to ensure the force (torque) generated by the camera operator is counteracted by constant resistance for the entire pan or tilt action including start and stop. Miller prides itself and is known to make the world's best constant drag fluid heads with soft starts and soft stops. Stepped drag enables the user to precisely and repeatedly select the level of drag depending upon the focal length of the lens, shooting frame rate, distance from the subject, subject size and the speed of camera movement.

In addition to pan and tilt drag, when choosing a fluid head diagonal drag needs to be symmetrical in all directions. For example, if both pan and tilt drag is set on position 3, then drag should feel the same in every direction.

Pan and Tilt Locks

Camera operators in the know, look for bounce-free pan and tilt locks. When

shooting a long sequence where the fluid head needs to be locked in a fixed position, the locking action should not cause any picture disturbance. Miller uses a floating caliper locking system, which means that the caliper is freely floating and automatically finds the right position enabling it to grab the locking disc without causing bounce or picture disturbance.

When choosing a fluid head:

- Buy it for long-term and do not skimp on price.
- Choose the head with the right payload capacity keeping in mind varying COG due to changing rig configurations.
- Smooth start, soft stops and constant drag are fundamental requirements of a fluid head.
- The locking mechanism should not create a disturbance in the picture.
- Miller staff and dealers are always present to assist with any information and advice required.

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Newtec



DELIVERING TOMORROW'S TECHNOLOGY TODAY

In a milestone year, which saw Newtec celebrate its 30th anniversary, it is fitting that 2015 saw the company continue to champion innovation. This has been Newtec's mission since it was founded in 1985 and today, the specialist in designing, developing and manufacturing satellite communications equipment and technologies is continuing to break barriers.

Products offered by Newtec include modulators, modems, redundancy switches, frequency converters, gateways, combiners, network optimisation units and hubs.

The company is particularly focused on pushing the limits of spectral efficiency, with the introduction of technologies like wideband DVB-S2X, Mx-DMA, Bandwidth Cancellation and pre-distortion Equalink 3 – all of which aim to

help Newtec's customers keep up with the insatiable demand for more bandwidth at lower costs. While transmission efficiency is important, reliability is essential. The company's roots in mission critical services, such as TV broadcast and high-speed trunking, means equipment must be built to last.

Newtec's solutions aim to address the main challenges in the following segments within the broadcast vertical market:

- Direct-to-Home (DTH) broadcast.
- Direct-to-Transmission Tower (DTT).
- Distribution to local headends.
- Fixed contribution.
- Satellite News Gathering (SNG).
- Multi-Service BroadCast (MSBC) Networks.

In addition, Newtec caters for:

- Cellular backhaul and trunking.

- Consumer and enterprise VSAT.
- Government and defence.
- Mobility offshore and maritime.

DTH

Newtec offers powerful capabilities including Equalink 3 pre-distortion, which allows operators to increase their space segment efficiency by up to 20% without changing the end-users' existing Set Top Boxes (STBs) or impacting the uplink chain in any way, other than updating the modulators to the latest Newtec M6100 series. This will help position broadcasters as they gradually migrate to HD and then to 4K in the future.

Another example would be for SNG or fixed contribution, where the DVB-S2X standard can save more than 20% of the space segment OPEX.

MARKETS & APPLICATIONS



It's the **magic** of satellite communications that allows information to be transmitted anywhere, helping to build a **safer**, better **informed** and more **connected** world for everyone.

MSBC

The Newtec Dialog multi-service platform is one example of how the application of cutting-edge Newtec technology can add significant value to the broadcast vertical market. The primary driver for developing this technology is reducing clients' OPEX and CAPEX, as well as increasing operational flexibility.

Within the broadcast vertical market, Newtec Dialog brings automated workflows. The Newtec Dialog multi-service broadcast platform is a single multi-service platform designed to support and automate mixed occasional use live and file broadcast workflows, in combination with always-on data and voice services. Benefits to operators include:

- Control and automation of the contribution link from the SNG to the studio.
- Workflow automation incorporates the management of available space segment and satellite ground equipment.
- End-to-end system approach to broadcast content exchange, whereby VSAT and SCPC technologies are merged into one single multi-service platform supporting always-on IP connectivity for data and voice services.
- Automated FNG live/file contributions for additional broadcast workflow flexibility.

To give two examples, Intelsat has launched a next-generation MSBC

solution called IntelsatOne Prism, based on Newtec Dialog. By choosing Newtec Dialog, Intelsat is addressing the increasing pressure on media companies to meet the demands of a 'television everywhere' society, as well as the challenges posed by the growing complexity of workflow management. Network Innovations (NI) has developed its 'Maverick' service which is ideal for SNG-broadcast, government and energy clients wanting true dynamic bandwidth allocation via satellite. Through Maverick, NI offers the best and most efficient platform with flexibility and cost savings for its VSAT services worldwide.

In addition to efficiency, scalability and flexibility, Newtec Dialog enables the automation of broadcast workflows and effective usage of available hardware and bandwidth resources. A sophisticated resource scheduling and workflow automation engine reduces costs, saves time and allows broadcasters to rapidly deploy new services as the market evolves.

The ground-breaking product was awarded the World Teleport Association's 'Teleport Technology of the Year' award at the beginning of 2015. Its benefits, along with others brought by Newtec technology, can be applied to all of Newtec's key markets, as already outlined.

The Rise of HTS

The continued growth of High Throughput Satellite (HTS) has been a key driver in Newtec's product development strategy. A further expansion of HTS is on the horizon, bringing enormous opportunities for operators and service providers alike. However, in order to ensure that all levels of the value chain get

EXPANDING ADDRESSABLE MARKETS WITH NEWTEC DIALOG



the most out of HTS, choosing the right ground segment technology is essential.

Looking at the HTS evolution, Newtec has identified a clear trend towards multi-service networks across the industry. Although the majority of VSAT terminals are deployed for consumer broadband, much of the revenue actually comes from high-end applications, like mobility, oil and gas and cellular backhaul. By combining all these applications on a single platform, network operators can maximise economies of scale while diversifying their business.

With a diverse modem portfolio and three return technologies, the Newtec Dialog multi-service platform was specifically designed to address this wide range of applications. Only 20 months since it was released, Newtec Dialog has already been chosen by many customers as a way of streamlining, expanding and future-proofing their businesses.

Connecting 600 Million Users

Satellite services provider Yahsat chose Newtec Dialog to prepare for the launch of its new satellite Al Yah 3, which is scheduled for service launch in early 2017. The Newtec Dialog hub will be used as part of a new gateway in Brazil, along with various types of the Newtec Ka-band

VSAT terminal.

The setup will allow for broadcasting in the new DVB-S2X standard, while the Al Yah 3 satellite will extend the company's commercial Ka-band coverage to an additional 19 countries and 600 million users, covering more than 95% of Brazil's population.

A key factor in Yahsat's decision to opt for Newtec Dialog was its capabilities to help it appeal to wider demographics in the markets in which it operates, meaning the platform may also be deployed in other territories across Yahsat's footprint.

Breaking Barriers to Set New World Records

Aside from reliability, speed and efficiency are also important to Newtec. In the past, the company has broken several speed barriers and also demonstrated its industry-leading spectral efficiency.

Newtec has now taken this a step further and achieved a world first for the amount of throughput in a single transponder – putting 20Mbps into 2MHz. Maximising bits per second per Hz has always been a priority for Newtec and is increasingly important as satellite operators and service providers look to launch new services while delivering higher performance and improved

economics for their customers.

This important achievement shows Newtec can utilise the capabilities of next-generation satellites by using technology that is available today. Reaching this record demonstrates unparalleled efficiency at any rate, whether on low-speed voice or data connection or for medium-speed backhaul links, all the way up to ultra-high-speed trunks.

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SATCOM EQUIPMENT PORTFOLIO

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NETWORK OPTIMIZATION • FREQUENCY CONVERTERS • REDUNDANCY SWITCHES

NEW TECHNOLOGIES

DVB-S2X

Equalink 3
by NEWTEC

Mx-DMA
by NEWTEC

Newtec
PATENT



SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS

RAISING THE BAR IN BROADCAST AND AV PRO SEGMENT

Panasonic, one of the global leaders in consumer electronics and technology, has been providing the discerning broadcast and professional audio-video community for over 30 years. Its products and solutions have been actively serving a diverse set of categories within business communities around the world – in news (ENG), studios, sports and live events, broadcast stations, OB Vans, film making, concerts, government, education and more. The brand's wide network of agents, distributors and resellers, specifically in the AV professional category have been strongly supporting in reaching out to deserving customers.

With a view of the unprecedented change in the world of broadcasting and electronic media at present, Panasonic has plans to make a radical shift in the kind of existence it has in the Middle East and Africa region. Panasonic's three decades of expertise have achieved several milestones including the

prestigious Emmy awards which got the brand's pioneering presence under spotlight in large-scale video monitoring systems, broadcast digital VTR, Digital Production Switcher, Variable Frame Rate Camcorder "Varicam" and many more.

Says Masa Kitamura, "We see a promising future in the region due to the advent of

the most anticipated upcoming global events; hosting Expo 2020 and World Cup 2022 will provide ample scope to invest in quality products. As governments are initiating and emphasising on smart administration it is the responsibility of companies like ours to support, innovate and take ahead the vision of governments and at large, the people of the region.

Panasonic is coming with the next wave of innovation in professional 4K broadcast and professional solutions and patrons in the business will start taking note of advancements that we are bringing which will definitely support this growth drive in the industry."

Expansion Plans

Panasonic, as a people-focussed company, trusts in the fact that people make the organisation and make it successful. By expanding its operations in the Middle East and Africa, Panasonic is thereby upsizing its broadcast team in the region taking



▲ Masa Kitamura, General Manager, Broadcast Division (Sub-division of System Solutions & Communication Division), Panasonic.



a strategic leap for improving customer engagement and experience.

24 Years, 11 Games – Panasonic's Olympic Run

Starting 1984, Panasonic began its involvement with the Olympic Games in Los Angeles as the supplier of the professional sound system and large video display for the main stadium. Soon Panasonic became the Worldwide Olympic Partner and joined the TOP (The Olympic partner) programme (It is also the first partner to sign for the 2024 Games). Since then it has been providing the Olympic Games with its state-of-the-art digital audio/video equipment.

Panasonic's success to serve as Official Host Broadcast Equipment Supplier for several past editions of the Olympic Games is proof of the brand's pathbreaking technology, which plays a vital role in delivering the sights, sounds and unique excitement of the Games. Right from the

field of play to the spectators, Panasonic products and solutions capture every moment flawlessly through large on-site video screens and professional audio systems, and broadcasting the same to people around the world with solid digital broadcast equipment.

The P2 Lineup Star – Varicam - Changing the Way Emotion is Created

The VariCam line of cameras has been used on a wide variety of movies, commercials and TV programmes, and is known for its colour reproduction, look and for bringing progressive workflow to the production industry. The latest VariCam 35 helps users create emotion with its amazing latitude, wide colour gamut and 4K resolution. It also revolutionises workflow with the addition of dual-codec recording, in-camera colour grading and modular design.

Features:

- High-resolution 0.7 type(1280x720

pixels) OLED panel shows wide field angle with viewfinder magnification of 0.78x.

- Large-diameter 38 mm eyepiece lens offer comfortable viewing with minimum vignetting.
- Optical zoom and advanced focus assist function.
- Detachable control panel for enhanced camera flexibility.
- 3.5 type LCD display panel for live preview.
- Direct access to frequently used menu.

Studio Handy Camera – Featuring B4 Mount 4K Model 1080p High-speed Model

The B4 mount gives superior usability and mobility for existing Panasonic Studio Handy Cameras and has opened a new door in production industry.

The Studio Handy Camera is nurtured in actual production exporting the superior Panasonic imaging. Product



Broadcast Division team at Panasonic.

lineup includes 1080p high-speed system camera and a built-in special conversion lens that allows to use existing 2/3-type lenses for 4K shooting with high-quality video and excellent operability. There are two versions of the Studio Handy Camera:

AK-UC3000 - 4K Studio Handy Camera

The AK-UC3000 is equipped with a newly developed large-format 4K MOS sensor and allows using two shooting modes. In High Sense Mode, while also achieving F10 at 59.94p high sensitivity, it is possible to obtain an S/N ratio of 60 dB or higher when noise reduction has been switched off. The result is low-noise and high-image-quality video.

AK-HC5000 - HD Studio Handy Camera

The AK-HC5000 is equipped with a 2/3-type 3MOS sensor and also has two shooting modes to choose from. In High Sense Mode, it achieves F10 59.94p and F11 50p high sensitivity and low noise

with an S/N ratio of 60 dB or higher. Skew reduction can be realised through high-speed scans plus flash band compensation.

2ME Production Switcher - AV-HS6000

In addition to wipe, mix and cut transitions, the 2ME Switcher performs DVE transitions with 3D DVE 2ch, such as size reduction and sliding. Diverse rendering of image effects such as mosaic or defocus is possible. It has 32 SDI and two DVI inputs and 16 SDI outputs, with a wide variety of keyers and DVEs. The intuitive operation is realised by a multi-selection panel, cross point buttons with colour grouping function and a OLED source name display panel.

Multi Format Live Switcher

This high-performance switcher handles the switching needs of broadcast studios, OB vans and multi-camera systems anywhere. Comprising 16 SDI Inputs, 4 SDI Outputs and 2DVI-D Outputs, it has a wide range of optional boards plus luminance and chroma keying.

Other key products in the switcher/mixer category include Live Switchers, Compact Live Switchers, Digital AV Mixers and more.

World's First 4/3-type Large Format Camcorder with Integrated Zoom Lens – The DVX200

Launched recently in the UAE, DVX200 is an ideal product for independent film and documentary production as well as event videography. It offers many top-end features including 4K/60p* recording, a 13X optical zoom and a V-Log L gamma curve. Delivering a shallow depth of field and a wide field of view, the DVX200 is the ideal companion camera to the company's groundbreaking VariCam 35 4K camera/recorder. DVX200 shares the esteemed VariCam family characteristics of filmic tonality and colourimetry with natural, subtle rendering of skin flesh tones and a V-Log curve emulating the natural grey-scale rendition of the VariCam 35. It also incorporates a newly-developed 4/3" large-format MOS sensor and offers variable frame rate recording up to 120fps in FHD mode, enhancing the DVX200's utility in sports and VFX production as well as optimising 4K/HD quality.

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PROFESSIONAL 4K SOLUTIONS

4K Camera Recorder
VariCam 35



4K Studio Handy Camera
AK-UC3000



4K Multi Purpose Camera
AK-UB300



4K
PROFESSIONAL

4K Monitor
BT-4LH310



4K 4/3" Fixed lens Camcorder
AG-DVX200



4K Integrated Camera
AW-UE70K



2ME Live Switcher
HS6000





▶ Wedding halls in Qatar: One of the five high-class celebration complexes with Riedel's high-end communications solutions MediorNet and Artist.



▼ Formula for success: For 20 years now, Riedel is enabling flexible communications at F1, including the Abu Dhabi Grand Prix.



SEAMLESS SOLUTIONS THAT PROVIDE SCALABILITY

Riedel Communications designs, manufactures and distributes pioneering real-time video, audio, data and communications networks for broadcast, pro-audio, event, sports, theatre and security applications. The company also provides rental services for radio and intercom systems, event IT solutions, fibre backbones and wireless signal transmission systems that scale easily for events of any size, anywhere in the world. Founded in 1987, the company now employs more than 350 people at 13 locations in Europe, Asia, Australia and the Americas.

The Middle East has been very busy over the past year with large installations for several key projects throughout the region. Aside from Dubai, there is a strong and rising demand in Qatar and

Saudi Arabia, as well. Here are some of Riedel's highlights in the region.

The MediorNet real-time media network now is being used to address the challenges of matrimony. Deployed at The Wedding Hall, one of Doha's most popular wedding chapels, the Riedel solution provides a flexible fibre backbone for simple, secure real-time communications and signal transport across the building's five wedding halls. The system was installed and commissioned by systems integrator, eMediaNet. With MediorNet, an Artist digital matrix intercom system and the RockNet real-time audio network, the Wedding Hall can support ceremonies and celebrations by delivering media and supporting communications throughout their facility.

Just north of Doha lies the new Lusail Multi-Purpose Hall. The hall was built for the Qatar Olympic Committee (QOC) for three Olympic sports - handball, basketball and volleyball. The building complies with local and international standards for the federation of those three sports and the handball world championships that were held there in 2015. To support the efficient transport of broadcast signals throughout the facility, one of the biggest MediorNet and RockNet networks in the region has been installed.

In Saudi Arabia, the Ministry of Higher Education has put an OB van on the road. Integrated by First Gulf Company, the van uses an Artist digital matrix intercom system to provide clear and reliable communications for local events and as part of an educational programme.



Smartpanel.

Also in Saudi Arabia, Saudi TV has recently completed the installation of a new Artist intercom system as part of a massive MCR upgrade, designed to take care of their current and future needs. The Artist will provide connections between locations throughout the kingdom.

Dubai Media, Inc. (DMI) is also replacing an existing intercom talkback/

intercom system with a Riedel Artist.

There are several big projects coming up including F1, who Riedel has worked with for many years and, of course, the World Cup. The company has also added staff and opened a new office in Dubai to better serve the region. In addition, an inventory of rental/demo gear has been created that will allow many more potential

customers to see what Riedel technology can do for them.

In terms of new products, Riedel continues to highlight MediorNet MicroN, Tango, Smartpanel and the STX-200 professional Skype interface. Each of these products provide powerful features and substantial cost savings in new and existing Riedel solutions.



▶ MicroN.



► **Tango.**

MicroN is an 80G media distribution network device for Riedel's MediorNet line of media transport and management solutions. Working seamlessly with the MediorNet MetroN core fibre router, MicroN is a high-density signal interface with a complete array of audio, video and data inputs and outputs, including 24 SD/HD/3G-SDI I/Os, two MADI optical digital audio ports, a Gigabit Ethernet port, two sync reference I/Os, and eight 10Gb MediorNet high-speed links. MicroN is available as a fully networked MediorNet device, or as a point-to-point solution, at a very competitive price point.

Tango is a network-based communications platform that supports RAVENNA/AES67 and AVB connectivity are standard with AES3 over CAT/coax as an option. With its own dedicated intercom application, 'My First Riedel', Tango becomes an efficient intercom system that users can tailor and scale to their needs. Tango is ideal for collaborative production, exemplifying the benefits that flexible communications provide for live or recorded events in single or multi-campus scenarios.

The new RSP-2318 Smartpanel offers features and capabilities that will enrich the user experience and change the way broadcasters and A/V professionals communicate. As the world's first control panel designed to serve as a powerful multi-

functional user interface, the Riedel device boasts a unique feature set that includes three high-resolution colour displays, premium-quality stereo audio, a multi-lingual character set and 18 keys in just 1 RU. These features make Smartpanel a powerful user interface that can be further expanded through the use of apps. Three apps are available offering different levels of functionality. RAVENNA/AES67 and AVB connectivity are standard with AES3 over CAT/coax as an option.

Riedel's STX-200 professional broadcast-grade interface brings any Skype user worldwide into the professional broadcast environment. Licensed by Microsoft, the new Riedel product meets broadcasters' increasing need for a reliable single-box solution that enables them to bring live contributions from both reporters and viewers into live programming – all while avoiding typical problems such as consumer PCs running common Skype clients, the need to add scan and HDMI-to-SDI converters, or audio dropouts and menu pop-ups on the live feed. The 1-RU box offers broadcast-quality HD-SDI and balanced XLR audio I/Os and is packaged with professional Microsoft Skype TX software. The solution's broad feature set includes remote management and monitoring of Skype calls. The STX-200 was recently used for the Indian show, *India's Got Talent*.

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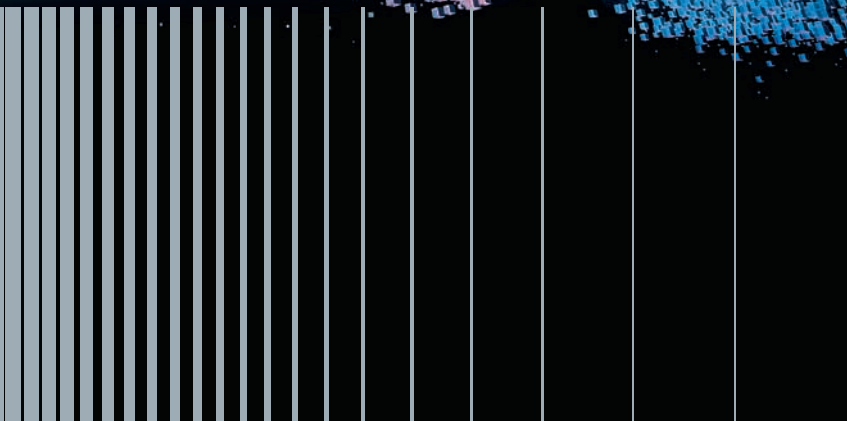
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EXPERTISE IN BROADCAST AND MEDIA FOUNDATION FOR NOW AND THE FUTURE

For more than 80 years, Rohde & Schwarz has stood for quality, precision and innovation in all fields of wireless communications. The electronics group is strategically based on five pillars: test and measurement, broadcast and media, cybersecurity, secure communications, radiomonitoring and radiolocation. The company addresses customers in the mobile radio, wireless, broadcasting, electronics and automotive industries, in aerospace and defence as well as government, security and critical infrastructures.

Rohde & Schwarz is among the world market leaders in its established business fields. It is the world's leading manufacturer of wireless communications and EMC test and measurement

equipment, as well as of broadcasting and T&M equipment for digital terrestrial television. The Executive Board is made up of Manfred Fleischmann (Chairman), Christian Leicher and Peter Riedel.

As an independent, family-owned company, Rohde & Schwarz generates its growth from its own resources. Since the company does not have to think in quarters, it can plan for the long term. On June 30, 2015, Rohde & Schwarz had approximately 9900 employees with about 5900 working in Germany. The group achieved a net revenue of EUR 1.83 billion in the 2014/2015 fiscal year (July to June).

Broadcast and Media Technology to Meet the Highest Requirements

Rohde & Schwarz has been active in the field of TV and sound broadcasting

for almost 70 years. The company has significantly contributed to the development of broadcasting – from analogue to digital to the current high-definition UHD format. Its transmitters support the world's most common digital broadcasting standards and set standards in energy efficiency. The company's transmitters and T&M equipment are in use in more than 80 countries.

Rohde & Schwarz also sells T&M equipment for installing, maintaining and monitoring broadcast networks. Consumer electronics manufacturers can use this T&M equipment to develop and manufacture both current and next generation devices. One out of every two set-top boxes around the world is tested using Rohde & Schwarz equipment.

The company has been very successful in developing groundbreaking systems for professional TV and film post-production over the past decades. Major international players of the TV industry rely on future ready workflows based on Rohde & Schwarz expertise. Broadcast studios and TV control rooms around the world use the company's products to produce and process news and entertainment programmes and serials.

Rohde & Schwarz has positioned itself as a solutions provider for the entire broadcast value-added chain. It offers a complete product line to support the broadcast industry in rolling out the high-definition 4K standard. The company's encoding and multiplexing solutions are used for test operations and initial UHD TV services. Rohde & Schwarz is also involved in defining future standards, effectively supporting media development.

Now Rohde & Schwarz focusses on more than just transmitters and T&M equipment. The company is a solutions



provider for the entire broadcast value-added chain - from ingest to post-production and transmission. It offers an entire product line to support the broadcast industry in rolling out the high resolution 4K standard. Rohde & Schwarz develops hardware and software for professional film and video post-

production and is a global market leader in digital film processing.

Rohde & Schwarz Product Portfolio for 4K

Rohde & Schwarz offers products for post-production, ingest, storage, playout, encoding and multiplexing as well as transmitters for this high-resolution standard. The company has also added new features to its T&M equipment to test 4K devices.

Rohde & Schwarz offers a complete product line for the high-resolution 4K transmission path. Many of these products are already in operation in a wide range of applications. The R&S AVHE100 headend was used for test operations and initial UHD TV services. Asia Satellite Telecommunications Co. Ltd. and Rohde & Schwarz have partnered to advance next-generation Ultra-HD (UHD) TV technologies by implementing the first free-to-air (FTA) UHD channel on AsiaSat 4. The R&S AVHE100 encoding solution and R&S CLIPSTER mastering



station are key components of the UHD broadcast platform.

Rohde & Schwarz has been offering systems for 4K processing in cinema post-production since 2005. The R&S CLIPSTER mastering station processes 4K data in real time. It supports mezzanine formats such as AS-02 and AS-11 and can generate the necessary interoperable master format (IMF) packages up to 4K. R&S CLIPSTER supports Dolby Atmos, allowing post-production studios to create Dolby Atmos DCPs that can be easily integrated into existing workflows to increase efficiency.

The R&S VENICE 4K ingest and production server enables TV studios to set up file-based studio production workflows in 4K which resemble HD workflows in their simplicity. R&S VENICE 4K allows direct recording in 4K without any time-consuming stitching processes. The material is synchronously converted to HD-SDI and saved as a file. This parallel generation of both HD and 4K content provides TV studios with a



feasible transition option until content is broadcast entirely in 4K.

The R&S SpycerBox Cell is used to store massive volumes of data in 4K production environments. Thanks to the web-based SAN Remo management software, the devices can easily be configured in clusters. 36 TB of storage and a maximum data throughput of 3G bytes per unit in just

one height unit make the R&S SpycerBox Cell an exceptional combination of performance and functionality.

The transmitter generation of Rohde & Schwarz for digital TV, FM and DAB+ features maximum energy efficiency, an extremely compact design and innovative redundancy concepts that can reduce costs by more than 70%.

**Need efficient transmitters?
Mission accomplished!**

Power of Five
Efficiency for the Future
E5
by Rohde & Schwarz

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▶ Shakira using the Sennheiser SKM5200-II with Neumann KK105-S capsule.



THE PURSUIT OF PERFECT SOUND

Throughout its history, Sennheiser has been driven by a passion for sound; a passion that has never diminished in nearly 70 years. From modest beginnings in 1945, through to the present day, this family-owned German company has built a truly global profile.

Faced with the technological deficiencies of existing products, Professor Dr Fritz Sennheiser devoted himself to finding innovative solutions, looking to make the very best technology available to users everywhere. Ever since the company that bears Dr Sennheiser's name was founded, it has been providing technological innovations that improve people's lives – and the Pursuit of Perfect Sound continues to this day.

The first Sennheiser microphones were developed by broadening microphone theory. First launched in 1947, they were rapidly adopted by large numbers of artistes and professionals – musicians such as Louis Armstrong, singers like Edith Piaf and politicians such as Eisenhower and Kennedy, as well as broadcasters, radio stations and air-traffic controllers across the world.

And now 70 years later, professional

musicians, sound engineers, presenters and singers throughout the world are in agreement that Sennheiser products are the pinnacle of technological perfection.

Sennheiser Today

The 21st century sees Sennheiser represented in over 105 countries, employing over 2,200 people and continuing to develop the most innovative products for the professional sound and consumer electronics industries.

The Sennheiser Group also includes studio microphone and monitor manufacturer Georg Neumann GmbH, bringing together two outstanding microphone manufacturers in the industry; and Danish-based joint venture company, Sennheiser Communications, which develops headsets for PC and consoles, office and call centre markets. The company turnover in 2013 was in excess of €600m, with the EMEA region accounting for approximately 60% of the company's business.

Sennheiser Middle East

In 2009, Sennheiser Middle East was born as a sales and marketing office, based in the Dubai Airport Free Zone, with a small but

motivated staff that have been responsible for exponential growth over the last six years. With a long-term strategy in place for the regional office and Sennheiser's commitment to its business in the Middle East, Africa and Central Asia, the team and office continues to grow apace.

Sennheiser Middle East has the responsibility for distribution of the Sennheiser Group brands across the GCC and Levant region whilst also servicing countries in North and East Africa, as well as most of the former CIS countries in Central Asia. Having established a logistics partnership with Hellmann Worldwide, based in Dubai's Jebel Ali Free Zone and with a significant stockholding, the operation has become a natural regional hub.

Product Offering

Sennheiser and Neumann's combined current product range for the broadcast industry comprises both wired and wireless microphones, headphones and headsets for camera operators, production crews and studio engineers as well as award-winning studio monitors. All have an identical core value - uncompromising audio quality.

KEY PARTNERS

As the most recognised audio brand in the broadcast industry, Sennheiser Group products can be found inside studios and OB production units for some of the most respected broadcasters globally. Regional partners include:

- ADMC.
- Al Jazeera TV.
- Al Kass TV.
- Al Rai TV.
- Bahrain TV.
- BBC Arabic.
- Dubai TV.
- JRTV.
- Kuwait Radio & TV.
- MBC.
- Oman TV.
- Saudi Arabian Radio & TV.
- Sky News Arabia.
- TwoFour54.
- Yemen Radio & TV.

Sennheiser MKH8000 Series

- Wired Microphones

Building on the legacy of the famous MD21 reporters' microphone, launched in the 1950's, the extensive range of wired microphones includes the MKH range of RF condenser microphones that instantly became an industry-standard in shotgun microphones for outdoor broadcast, a range recently extended to include the class-leading MKH8000 series of compact and shotgun microphones.

Sennheiser 2000 Series -

Wireless Microphones

At the heart of its wireless microphone range, Sennheiser offers the 2000 series. Regardless of whether for theatre, broadcasting or live events, the 2000 series has become the first choice of sound engineers across the world because of its large switching bandwidth, flexible frequency management and operational safety. With up to 64 intermodulation free frequency presets and an integrated

antenna splitting system, the single or dual rack mounted receivers ensure easy installation and setup for large scale wireless microphone systems.

Sennheiser 3000/5000 Series

- Wireless Microphones

The flagship of the analogue wireless range, the 3000/5000 series has long since set an international standard in wireless microphones design. These microphones provide exceptional sound and total freedom of movement, while the modular receiver concept provides flexibility and safety to any type of performance. Every evening the greatest artistes, the best theatres, the most respected broadcasters and the most highly regarded sound engineers place their confidence in Sennheiser's 3000/5000 series.

DIGITAL 9000 Series - The

Wireless Masterpiece

The pinnacle of Sennheiser's wireless range is DIGITAL 9000, a meticulously designed, ground-breaking digital wireless system



▶ **DIGITAL 9000 - The Wireless Masterpiece.**



▶ Two MKH 800 in a stereo recording.

that provides uncompressed digital audio transmission, free from intermodulation and delivering stunning, artefact-free audio dynamics with cable-like purity. Targeting broadcasting professionals, (musical) theatres and high-profile live audio events, DIGITAL 9000 sets a new benchmark in digital wireless transmission. With a comprehensive suite of accessories, it has been designed for the highest channel counts in today's increasingly dense frequency environment.

Sennheiser and Neumann Digital Microphones

Sennheiser and Neumann have pioneered the implementation of digital microphones, succeeding in bringing the dynamic range and signal fidelity of some of the world's best analogue studio microphones into the digital domain. Thanks to a tailored A/D

processor, the system meets requirements of professional audio production. With a modular design, outstanding acoustic reproduction and conforming to the AES-42 standard, Sennheiser and Neumann again lead the industry in development of microphone technology.

Neumann KH Range | Studio Monitors

For decades, Neumann has been regarded worldwide as the standard-setting, leading manufacturer of studio microphones, with models such as the U47 and M49 assured of legendary status, alongside more modern incarnations such as the U87 and M149. It is difficult to imagine a professional studio without a Neumann microphone and today a new chapter in Neumann's long and illustrious history has begun with the launch of the new range of studio monitors, which represent the latest in acoustic and electronic

simulation and measurement technologies.

The KH Range of loudspeakers represents Neumann's use of the very latest in acoustic and electronic simulation and measurement technologies to ensure the most accurate sound reproduction possible. The range includes the KH 120 and KH 310 near-field monitors and the new KH 420 mid-field monitors, all of which feature Mathematically Modelled Dispersion (MMD) waveguides, flexible acoustic controls, analogue class-AB amplifiers, a number of input formats and an extensive range of mounting hardware. Perfect for tracking, mixing and mastering in music, broadcast, project and post-production studios, these monitors can be used in conjunction with the KH 810 or 870 subs to extend the low-frequency response of the system and to increase the overall maximum output level of a system.

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FLEXIBLE AND ADAPTABLE ARCHIVING SYSTEMS

SGL is a leading provider of content archive and storage management software for multiple business sectors including post production, news, sports and government. Founded in the UK in 1991, the company has clients on every continent, serviced globally by offices in the US, UK, Germany, Singapore and Australia. SGL's FlashNet content storage management system delivers unrivalled levels of resilience, flexibility and adaptability. Regardless of size or environment, FlashNet's clustered

architecture and open approach provide secure, future-proof business solutions that grow with the customer.

FlashNet can control and manage all aspects of attached storage systems, whether to near-line, disk, tape or optical disk (including Sony ODA) or the cloud. The software presents the broadcast archive as a single storage repository, ensuring a seamless integration into all types of workflow. With a mature network of both hardware and software partners, SGL has developed an unrivalled integration programme providing broadcasters and

content owners with a truly adaptable and flexible video archiving solution.

SGL ensures that all of its customers' assets are fully protected. The company has many hundreds of archives installed around the world where Disaster Recovery (DR) workflows are either in use or can be made DR-capable quickly and easily. Its scalable FlashNet architecture provides a clustered system of multiple servers or nodes, each in constant communication. Each cluster node has identical software installed, and each is connected via a fibre channel into the archive devices - generally disk storage and one or more tape libraries. At the heart of the cluster is a Microsoft SQL database, which is usually installed across two servers running a Microsoft cluster for fully automatic failover.

The archive has been revolutionised over the past few years and SGL has been at the forefront of this change. With the successful take-up of LTFS, fully supported by SGL, broadcasters and content owners have true interoperability between what were once disparate systems. Now material can be acquired directly to disk and dragged-and-dropped to LTO data tape and transported back to a facility. This removes the need to



Trevor Morecraft,
EMEA Sales, SGL.



Bernie Walsh, Director,
Worldwide Sales, SGL.

re-ingest content to the archive and also enables large amounts of data to be transported and archived on a single LTO tape. This type of workflow is just as valid on location as it is in a production facility. To banish the 'end of the line' archive message, once the tape has been loaded into the archive, duplicate copies can be made automatically to back-up the valuable material. The archive system can also automatically copy the content to a disk portion of the archive so that craft editors can start working with the material as swiftly as possible.

This places the 'archive' much further

forward in the production process placing it alongside the ingest element of the chain. Instead of ingesting in the traditional sense, the material can now be moved directly into the LTFS archive. LTO has grown to become one of, if not the, de-facto tape format installed in tape libraries by broadcast-centric organisations implementing tape (and disk)-based archives. LTFS is not a file format or even a wrapper; it presents an open standard for broadcasters to provide real interoperability between systems. Any tape written according to the LTFS specification can be read by any other

PRODUCTS



FlashNet



FlashWeb



FlashBox



FlashPack



StorageManager



system using the same specification.

The cloud is also becoming part of the storage hierarchy, which SGL is integrating into its strategy. The latest version of FlashNet brings to fruition SGL's new integration with Aspera. Using FlashNet, broadcasters and content owners can transfer media to the cloud at a guaranteed speed providing an additional means of storage and disaster recovery workflows.

SGL has partnered with broadcasters and systems integrators in the Middle East for many years, and is now an established brand/company in the region. SGL FlashNet is now installed and is delivering efficient broadcast archives to leading broadcasters throughout the Middle East including AD Media, MBC, Qatar TV, Al Baghdadia, Al Aan, Al Kass and many others. As an example, Qatar TV in Doha uses SGL FlashNet as a key element of its digital workflow based around an Avid production environment in its state-of-the-art facility.

MBC uses SGL FlashNet as a key

element of its digital workflow to support its bouquet of HD channels. The broadcaster selected SGL because of its open system architecture, which provides compatibility with MBC's broadcast, storage and server systems as well as its proven maturity as a broadcast archive management system.

MBC used SGL's XML-based API, which allows broadcast vendors to create integrated applications that can instantly access the SGL content storage management system. The SGL archive interfaces with systems from major suppliers including Aspera, Avid, Dalet, Grass Valley, Marquis, VSN and more. It also allows the broadcaster to create dynamic watch folders within its nearline storage, allowing broadcast items to be moved to the watch folders ready for archive.

SGL has a regular presence at CABSAT where it highlights its latest developments. Technical and commercial SGL staff at the booth can answer archiving questions or discuss possible projects that customers may have.

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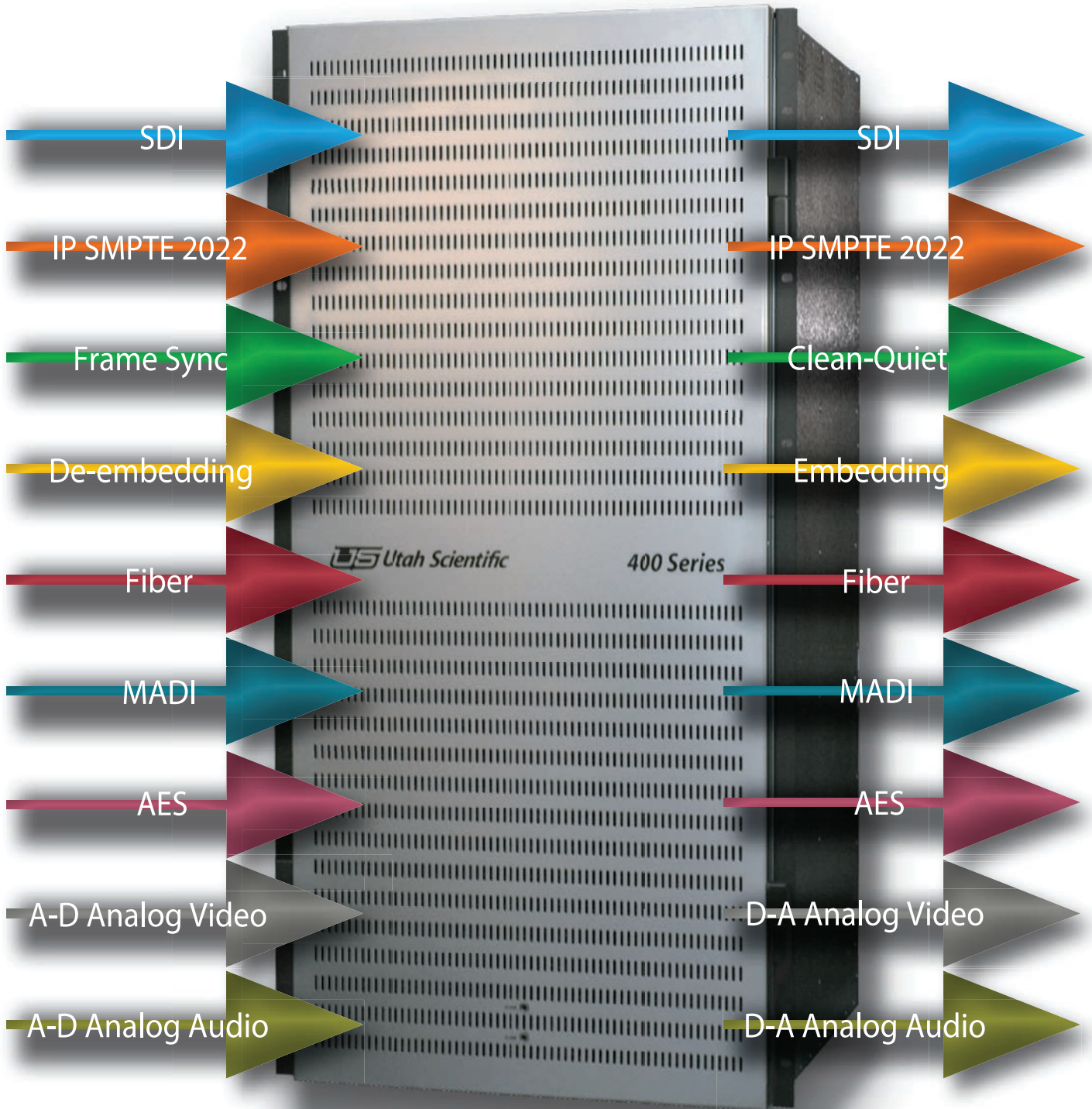
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Unlimited I/O Flexibility



US *Utah Scientific*

A LONG HISTORY OF LEADING ROUTING TECHNOLOGY

Utah Scientific set the industry benchmark with the first no-fee, 10-year product warranty and is the world's leading specialist in all types of routing switchers, master control switchers and related control software. The company was founded in 1977 to develop routing switchers for the broadcast industry and after a short span of seven months — in the spring of 1978 — delivered its first analogue router to KUED-TV in Salt Lake City. The company's integrity and high-quality product quickly earned distinction and television stations worldwide became Utah customers.

Since its first analogue router, the AVS-1, Utah Scientific has taken the leadership role in advancing routing technology. Significant milestones for the company include the first large-scale digital router, multi-format routing, integrated A/D and D/A conversions on inputs and outputs, integrated fibreoptic conversion and 300-Mb switching capability on all its digital routers since 1992. Additionally, Utah routers are the most energy efficient in the market. The company offers the industry's widest range of control panels, allowing customers to specifically tailor Utah routers to fit any operation.

Utah Scientific has more experience than any other manufacturer in routing

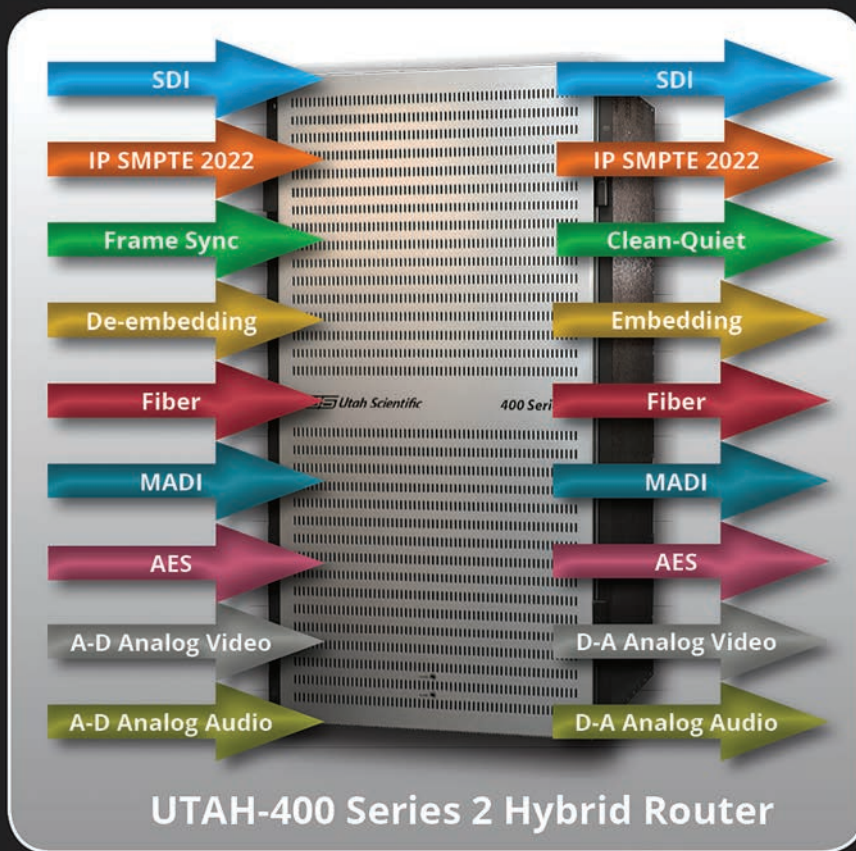
switchers and associated distribution products. Utah Scientific takes pride in knowing that the reliability and performance of their routers, control systems and master-control processors are unmatched by any product line in the industry.

Today and Tomorrow – Solutions for Traditional and Hybrid IP Environments

Utah Scientific's flagship routers, the UTAH-400 Series 2, are designed to provide a single platform for all signal formats including the growing IP network-based environments, giving broadcasts the ideal tool for navigating

Routing • Signal Processing • Fiber •

Simplify your facility using our broadcast infrastructure experts.



www.utahsci.com

to hybrid IP environments. The routers hybrid architecture provides a complete system solution for even the most complex signal management requirements. Utah Scientific has introduced a family of

modules with the latest advances in technology that greatly simplify system design by incorporating into the router functionality that otherwise would require the addition of external equipment.

The powerful set of tools for switching and processing signals provides a complete integrated system for today and the future. Utah Scientific's wide range of modules include SDI, IP decoding and multiplexing

Multiviewers



Utah Scientific
entific.com 10 Year Warranty

of SMPTE ST-2022, synchronising incoming signals to a common reference, clean-quiet switching on specific outputs, audio shuffling, de-embedding, embedding, AES, MADI, fibre and analogue formats

all in a single frame, allowing complete flexibility of facility operation.

In addition to this flexibility of configuration, the UTAH- 400 Series 2 offers a common set of I/O cards for any frame size. The cards are modular and hot swappable from the front. The series offers tremendous reductions in the physical space requirements and power consumption, increasing efficiency and ensuring long-term operational reliability.

The routers are readily scalable from 72x72 to 1056x1056 with frame sizes of 72x72, 144x144, 288x288, 528x528 and 1056x1056.

Compact Routing – 12G SDI Solutions for Emerging 4K Standards

In addition to the Series 2 products, Utah Scientific provides routing switcher solutions that offer the smallest footprint and highest bandwidth available in the market.

The UDS line of products allow for SDI video, AES audio and analogue audio routing in 32x32 (1RU), 64x64 (2 RU), 144x144 (4 RU) and 288x288 (8RU) that provides compact size, minimal power consumption, low cost and state-of-the-art functionality. The UHD line provides all of those features but adds support for SMPTE ST-2081 (6G) and ST-2082 (12G) signal types, allowing a user to support 4K signalling in their facilities without using four cables for each signal. The simplification of wiring infrastructure and reduction in cost is a significant benefit to the end user.

When this feature set is combined with the internal control system it provides a simple, user friendly routing system with GUI and distributed hardware control locations that can satisfy all customer requirements.

Advanced Control Systems – Putting it All Together

For any routing system to be utilised effectively, the control system feature set and user interfaces must be tailored to the needs of the customer. Utah Scientific has a four-decade history in listening to the needs of its customers and developing control systems that fit their needs.

The current offering, System Controller 4 (SC4) is the culmination of those years of experience. It has a complete set of features designed for fault tolerance, speed of reprogramming and ease of use, as well as the ability to interface to most of the standard protocols in use in the broadcast industry.

The control system as a whole offers numerous GUI control surfaces, dozens of different models of hardware based control surfaces and a completely open network-based control protocol. When this is combined with the fault resilient, 15-second boot time, Linux based OS of the SC4, what results is an extremely reliable and flexible system. Utah Scientific has more experience with routing switchers and related products than any other company in the world.

A complete product line up can be found on their website at www.utahscientific.com.

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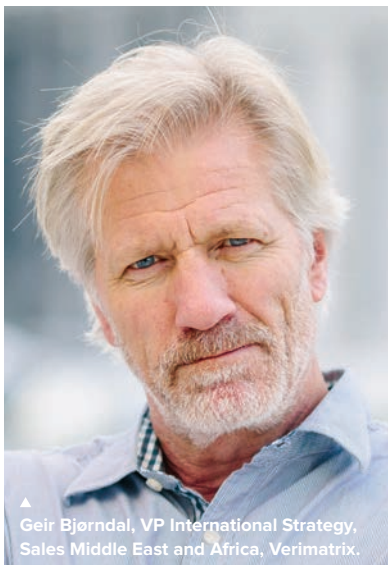
Website: www.utahscientific.com



SECURE SOLUTIONS FOR MULTIPLE VIDEO NETWORKS

Verimatrix specialises in securing and enhancing revenue for multi-network, multi-screen video services around the globe. Leveraging a combination of established video standards and proven IP-based technologies, Verimatrix is recognised as the global leader in revenue security for connected video devices.

Its range of VCAS security solutions addresses multiple video delivery networks with a unified approach to rights management. Its global deployment footprint and deep management expertise give the company an unparalleled insight to technology and market trends.

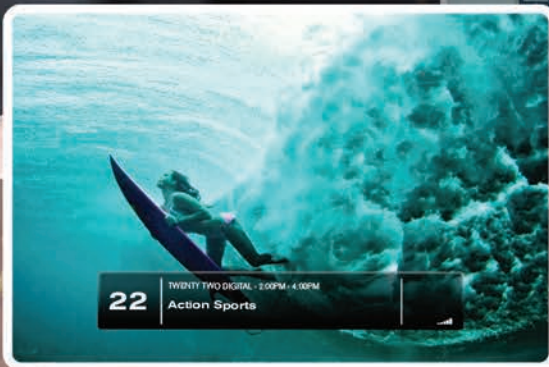
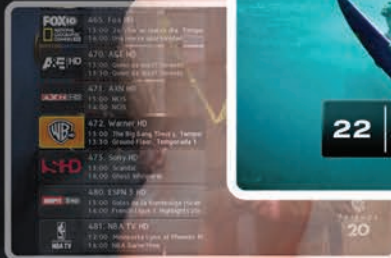


▲ Geir Bjørndal, VP International Strategy, Sales Middle East and Africa, Verimatrix.

Verimatrix offers fast deployment through unmatched numbers of partner integrations, highly responsive customer support and award-winning technology. Forward-thinking solutions boast multiple industry awards for innovation, deployment and flexibility.

As the Middle East video services market matures, the growth prospects have been well-documented. According to Gartner, developing markets in sub-Saharan Africa, the Middle-East and Northern Africa will together experience 18% growth in household subscriptions in 2015 and 14% in 2016. IHS reported that the recent growth in the Middle East was due to successful anti-piracy measures,

SECURING THE CONNECTED FUTURESM



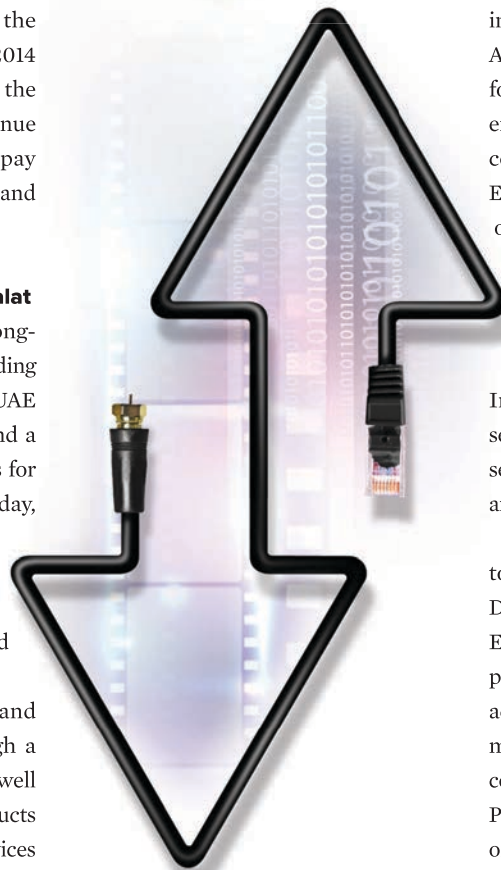


the high-quality pay TV offerings, the investment in local content and the 2014 FIFA World Cup Finals. IHS expects the growth of the pay TV market to continue in the region, with the number of pay TV households reaching 6.6 million and revenues €1.7 billion in 2019.

Award-winning Security with Etisalat

One of Verimatrix's largest and long-standing customers, Etisalat is the leading telecommunications operator in the UAE with almost 11 million customers and a pioneer in next-generation networks for fixed-line and wireless services. Today, the operator offers its eLife service both through an innovative fibre-based IPTV network and as in an OTT format that targets second screen and mobile users.

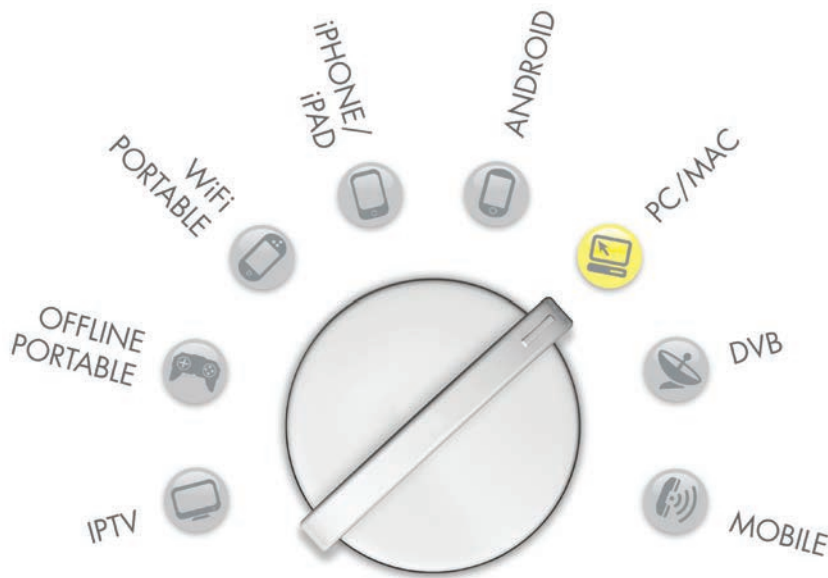
Etisalat's broadband services and content are being delivered through a wide range of set-top box devices, as well as leading consumer electronics products through downloadable apps. These devices



include iPhones, iPads, Android phones, Android tablets and a range of Smart TVs for all of which Verimatrix provides the embedded security. The joint goal of this collaboration is quite simple: to provide Etisalat's customers with advanced services on the broadest range of devices TV, while ensuring the security of the internet delivered content services.

In fact, Verimatrix and Etisalat won a Global Telecoms Business Innovation Award in 2011 in the video service innovation category for the robust security features embedded in Etisalat's IP and OTT video services.

Recently, Etisalat announced its plans to introduce the first 4K/Ultra High Definition (UHD) TV service in the Middle East, offering a new premium service proposition to its eLife customers. This advancement of technology and market maturation highlights a new security concern: redistribution of premium content. Priorities for operators like Etisalat are not only to protect content, but also the ability



to address revenue threats such as those where premium content has been captured and redistributed.

Verimatrix is addressing these market dynamics with innovative new security solutions for customers across the region from Kuwait to Qatar to Saudi Arabia and UAE.

VCAS Ultra

This latest generation of VCAS is fully aligned with the needs of software-empowered video operators as it prepares them for new premium service delivery of UHD/4K content. Operators are able to extend their reach to premium UHD services and advanced hybrid network deployments that meet, or even exceed, content providers' requirements for protection of UHD content.

VCAS Ultra features enhanced content security profiles designed according to MovieLabs' defined UHD service requirements—including fully integrated multi-network **VideoMark** watermarking

technology as well as TEE support. The patented VideoMark forensic watermarking solution enables the tracking of pirated content and detects the last authorised recipient of that content by securely, robustly and imperceptibly embedding identifying information within copies of media content. Through an insertion process, the VideoMark watermark can still be extracted from extremely low grade analogue copies of the original content, and the information contained can be used to determine the time and place where the copy was originally made.

MultiRights

The leading multi-DRM revenue security solution is designed for OTT services. The solution brings CE devices and HTML5 browsers with embedded, non-Verimatrix clients under the VCAS unified revenue security umbrella in order to enable transparent content consumption for end users. The VCAS harmonised rights platform supports entitlement

management for PlayReady, Widevine, FairPlay Streaming and other DRMs.

Verspective Intelligence Center

The latest security innovation from Verimatrix, Verspective is a cloud-based security platform for system deployment, management, monitoring and analytics. Verspective harnesses the power of a globally interconnected revenue security platform to optimise solution performance, strengthen threat resilience and reduce operational expenses. This cloud resource enables operators to take advantage of global scale to address operational challenges, while improving competitiveness through visibility of service usage and subscriber behaviour.

Without a doubt, pay TV is becoming more connected. And greater connectivity brings the promise of more engaging services, but also potentially paints a much larger target for would-be pirates. To address these issues, it only makes sense for operators to have their revenue security platform connected as well.

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MIDDLE EAST PRODUCTION & BROADCAST

PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

OB Services

▶ Al Aan Media Services





COVERING THE ARAB REGION RESPONSIBLY

Part of Tower Media Middle East FZ LLC, Al Aan TV is a pan-Arab TV broadcaster with its headquarters in Dubai Media City. Tower Media is the region's fastest growing service provider having a stronghold in the transmission facilities segment of the MENA region. Backed by strategic geographic positioning and skill gathered from years of technical expertise, Tower Media is today in a unique space wherein their 'expert edge' helps them translate client requirements into cost-effective working methodologies.

The Tower Media track record reveals a well-established graph of companies in the MENA region who have benefited from their valuable services. These include leading regional broadcasters and event organisers who have in the past received creative, technical and broadcast support from Tower Media. Listed below are a comprehensive line-up of services offered by the company.

Key Services

- Uplinks.
- Post-Production.
- Live Studios.
- Outdoor Production.
- Space Segment.
- Creative Support.
- Multi-Channel Playout.

Transmission Services

Transmission services comprise SD/HD with DVBS/DVBS2 modulator with fully redundant flyaway and trucks. These are ready-to-move and can be deployed at very short notice inside and outside the UAE.

It allows for:

- Broadcast facility (100 percent file based workflow).
- Multi-channel playout system.
- On-air multi-graphic overlays.

Live Studio Services

- DTL News.

- Chroma Studio.
- Studio Floors.
- Studio Lights.
- Jimmy Jib.
- Auto Script Teleprompter.
- Makeup Rooms.
- Studio Software Integration.

Outdoor Production Services

- Digital OB Vans.
- SD6 Camera Setup OB Vans.
- 4 Camera Setup OB Vans.
- SD/HD DSNG Vans/
- SD/HD Flyaway SN/
- Space Segment.

Post-Production Services

- Final Cut Studio.
- Graphic Workstations.
- Sound Production.
- Station ID Packages.
- Show Opener and Promo Production.
- Sponsorship Tags.

For all its services and solutions, the company presently employs Avid, Final Cut Pro, Adobe Production and Creative Suites, 3D Max, Maya 3D, Cinema 4D and Vizrt.

Creative Support Services

- Corporate Campaigns.
- Off-Air Promotions.
- Web and TV Series.
- Event Coverage.

Worldwide Services

Al Aan Services provide (lease/rental) 100percent owned broadcast facilities throughout the MENA region. Currently, its flyaway SNG are stationed in Tripoli and Benghazi, Libya (SD/HD Flyaway Unit) and in Syria (SD/HD Flyaway Unit). Production and SNG facilities can be arranged anywhere across the MENA region covering broadcast facilities, outdoor production, flyaway SNGs and live studios.

Al Aan TV

Based out of Dubai, Al Aan is supported by four core pillars which define its key brand attributes and guide its corporate vision; these are originality, interactivity, female empowerment and responsible broadcasting. Expanding on these virtues and working on their guidelines has given Al Aan the unassailable edge over other broadcasters in a considerably short period of time.

QUICK FACT

Since its inception in 2006 Al Aan has enjoyed tremendous growth both as a TV broadcaster and as a multi-media brand, demonstrated through its latest figures (as of end May 2015).

Originality

Al Aan produces innovative programming developed by Arabs for Arabs. Its young, highly skilled and talented team generates original, homegrown, relevant and empathetic content that continually engages, motivates and inspires its pan-Arab audience.

Al Aan’s originality resonates strongly with its viewers because it anticipates and meets their evolving needs thus guaranteeing their loyalty despite the constant fragmentation of media.

Interactivity

Taking the pulse of its audience on a daily basis is essential to Al Aan’s approach to media. Through a variety of platforms from phone-ins to Facebook to WhatsApp, Al Aan listens to its audience minute-by-minute, conversing with them in real-time, capturing their thoughts, feedback and suggestions. This information and interaction are essential to determining and shaping content, formats and product development.

Female Empowerment

Al Aan’s commitment to female empowerment stems from its unshakeable belief that pan-Arab advancement is highly contingent upon sustainable economic growth and that in turn, is inextricably linked to mobilisation of the untapped energy and potential of the Arab women. The channel believes that serving female empowerment does not benefit women alone. Men have an equal responsibility in realising a vision for a better world through supporting the socio-economic role of women.

Al Aan informs and entertains





through the prism of Arab women while simultaneously targeting the family and, as such, its content and brand positioning attracts a more female-orientated and younger audience.

Responsible Broadcasting

At a time when the airwaves and the cyber world are populated by the good, the bad and the ugly, Al Aan stands out as a responsible broadcaster, one which maintains a calm, positive and constructive tone even on issues that are considered highly contentious. The channel believes that the mission of a responsible broadcaster is to inform accurately but

in an entertaining and engaging manner.

A Genre of its Own

Reality - In a Very Real Sense

Al Aan offers a strategic blend of current affairs and entertainment crystallised in the singular brand proposition. With its progressive content and packaging Al Aan defines its key brand benefit as 'Real TV: Real news and real entertainment for real people'. The positioning is complemented and brought to life by its call-to-action, 'Join the conversation'. All lines are open and Al Aan consumers know that they have real power to influence output 24/7, every day of the year.

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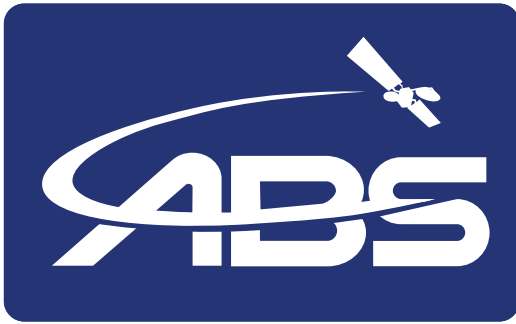
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PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

Satellite

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- ▶ APT Satellite
- ▶ AsiaSat
- ▶ Eutelsat
- ▶ Gazprom Space Systems, JSC
- ▶ HorizonSat
- ▶ M-Three Satcom
- ▶ STN PLC



SATELLITE SOLUTIONS FOR THE WORLD

Since its inception in 2006, ABS operates a global fleet of six satellites including ABS-3A at 3° West, the latest addition to its satellite fleet. Its extensive teleport network provides comprehensive coverage to 80% of the world's population across five continents. ABS has strategic alliances and partnerships with state-of-the-art communication hubs to deliver the best possible satellite solutions.

Planned Satellites

ABS' innovative design and procurement approach for satellites is designed to deliver the best possible economics to its customers for their IP networks. The company's current investment programme includes two satellites in the pipeline, namely ABS-2A and ABS-8, which will provide additional capacity planned for

this year and 2017/2018 respectively. ABS-2A will deliver these exceptional economics on current generation satellites providing Ku-band coverage connecting MENA, sub-Saharan Africa, Russia, South Asia and Southeast Asia regions. ABS-8 will start to take it to the next level on its high throughput spot beam payload and provide substantial new capacity into the Middle East, Russia, Southeast Asia, South Asia and the South Pacific replacing ABS-7.

Product offerings

The MENA market is a highly competitive region, however ABS sees the constant demand for data and broadcast services. Selling bandwidth services predominantly, ABS also deploys shared hub services into its teleports to augment customer networks and provide efficient avenues for growth.

Media and Broadcast

ABS satellites provide unparalleled market penetration for regional and continental distribution. It offers broadcasting services to media, broadcasters and to telecommunications companies via its fleet of satellites (ABS-2, ABS-3A, ABS-6 and ABS-7).

ABS offers long-term 24 x7 playout or turnaround services and transmits media in all formats in MPEG-2, MPEG-4 or HEVC, from Standard Definition to High Definition. Services are available on C and Ku-bands across the satellite fleet.

- Direct-to Home (DTH) television service.
- Programming and content delivery to cable headends and pay TV operators.
- Video contribution and distribution.
- Satellite News Gathering (SNG).

ABS will deliver two video platforms

Delivering Your Content to the World

Services Include:

- Cable Head-end Distribution
- Full-time Contribution
- Turnaround
- MCPC
- Playout
- Encryption

Picture from ABS Subic Bay MCR

services via ABS-3A, a premium satellite located at the 3°W orbital position, to effectively meet the growing demand for content and DTH services using 90cm dishes. The two new platforms will support both SD and HD channels in MPEG-2 and MPEG-4 encoding. Coverage will focus on the free-to-air channels and pay TV markets in Sub-Saharan Africa.

Data Services

ABS is pursuing an active strategy to provide comprehensive data solutions with integrated technologies and flexible service options. These cover:

- GSM Backhaul.
- Broadband Internet and IP Trunking.
- SCPC links.
- Maritime connectivity.
- VSAT networks.
- Virtual Network Operator.

IP Trunking services for the Middle East, Africa and Europe

ABS-2 West Hemi (WH) Beam and ABS-3A East Hemi (EH) Beam offer affordable IP trunking service that can support international and national data or broadband connectivity for enterprise and government networks over the Middle East and Africa and Europe. The IP trunking service streamlines your network into one manageable and affordable solution with flexibility.

Virtual Network Operator (VNO) Services for the Middle East, Africa, and Europe

ABS provides a number of VNO services allowing its customers to offer solutions without incurring a large startup infrastructure cost by leveraging its teleports, technology platforms and expert

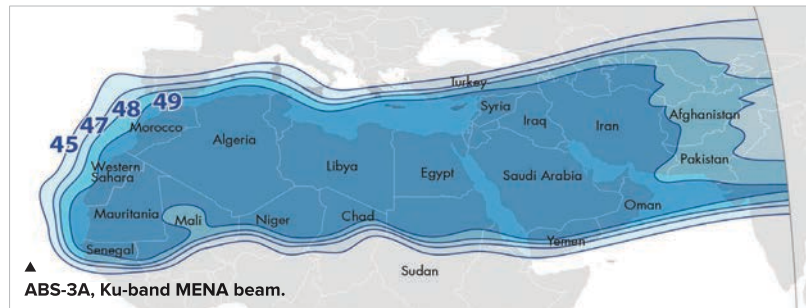
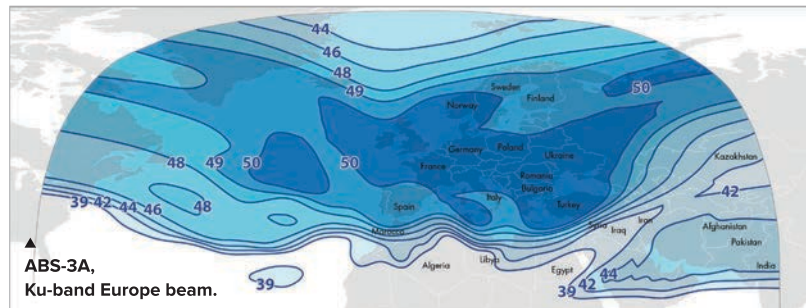
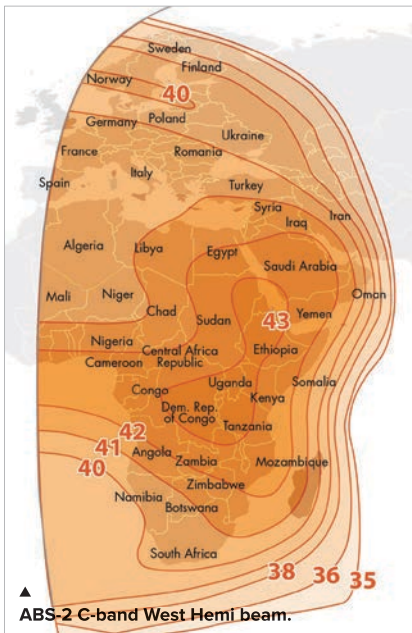
engineering resources. Operators can manage and monitor their VSAT networks in a cost-effective manner and minimum capital expenditure. ABS VNO services are available on Ka, Ku and C bands, using a number of its satellites, as per below:

- ABS-2 West Hemi Beam VNO operating in C-band.
- ABS-2 MENA Beam VNO operating in Ka-band.
- ABS-7 Steerable Beam VNO operating in Ku-band.

Satellites in Orbits

ABS-2

- Launch date: February 2014.
- Design life: Estimated 2028.
- Orbital position: 75°E.
- Transponders: 89 C, Ku & Ka-band.
- Geographic Coverage: MENA & Africa, South Asia, SE Asia, Korea, Russia.



- Typical Uses: Telecommunications, VSAT services, data communications, DTH services, government use and trunking applications.

ABS-3A

- Launch date: March 2015.
- Design life: Estimated 2030.
- Orbital position: 3°W.
- Transponders: 24 C & 24 Ku-band.
- Geographic Coverage: Middle East, Africa, Europe and the Americas.
- Typical Uses: Telecom, IP trunking, VSAT services, maritime and TV distribution.

ABS-4/Mobisat-1

- End of Life: 2020.
- Orbital position: 61°E.
- Transponders: High-powered cross polarised Ku/S band.
- Geographic Coverage: West Beam & East Beam (Egypt, Jordan, Israel, Syria, Libya and Saudi Arabia).
- Typical Uses: Broadcast of digital audio/

video content.

ABS-6

- End of life: 2023.
- Orbital position: 159°E.
- Transponders: 28 C & 16 Ku-band.
- Geographic Coverage: East Asia and the Pacific Ocean.
- Typical Uses: Video, data, VSAT services, internet backbone and telecom.

ABS-7

- End of life: June 2018.
- Orbital position: 116.1°E.
- Transponders: 30 Ku and 3 Ka-band.
- Geographic Coverage: The Middle East and Afghanistan.
- Typical Uses: Cellular backhaul, VSAT services, satellite broadband and government requirements.

Planned Launches

ABS-2A (Launching 2016)

- End of life: 15 years.
- Orbital position: 75°E.

- Transponders: Ku-band.
- Geographic Coverage: MENA, Africa, Russia, South Asia and SE Asia.
- Typical Uses: Telecom, DTH services, VSAT, Maritime and Mobility solutions.

ABS-8 (Future Deployment)

- Orbital position: 116.1°E.
- Transponders: C, Ku & Ka-band.

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ABS-3A^{3°W}

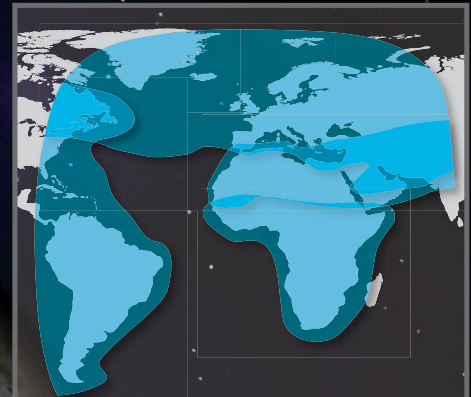
In Service Now



Expanded Capacity to Connect the Americas, Africa, Europe and the Middle East

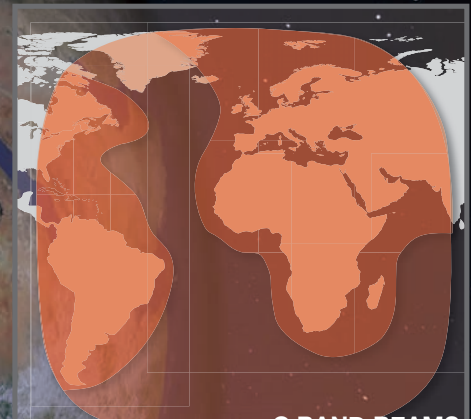
High performance C & Ku-band coverage
will provide inter-regional and trans-Atlantic
connectivity and services.

Contact ABS for your satellite solutions at:
info@absatellite.com



KU BAND BEAMS

Americas | Europe | MENA | SAF



C BAND BEAMS

Global | West Hemi | East Hemi

www.absatellite.com

Satellite rendition courtesy of the Boeing Company



APSTAR

by APT Satellite

RELIABLE SATCOM PLATFORMS

Founded in 1992, APT Satellite currently owns a fleet of five in-orbit satellites, namely, APSTAR-5, APSTAR-6, APSTAR-7, APSTAR-7B and APSTAR-9, forming the APSTAR fleet, covering regions in Asia, the Middle East, Oceania and most parts of Europe. This vast regional influence stretches across approximately 75% of the world's population and provides excellent quality 'one-stop-shop' services for satellite transponder leasing, satellite telecommunications and satellite TV broadcasting and transmission to

broadcasters and telecommunications customers.

To go in line with business development, the company is equipped with state-of-the-art ground facilities including satcom platforms and TV broadcasting centre, pooling together versatile satellite frequency resources for the provision of TV playout and uplink, DTH, telecommunications and IP transit services. APT also strives to enhance its competitive advantage and promote business growth through the formation of strategic alliances with prestigious international satellite service contractors.

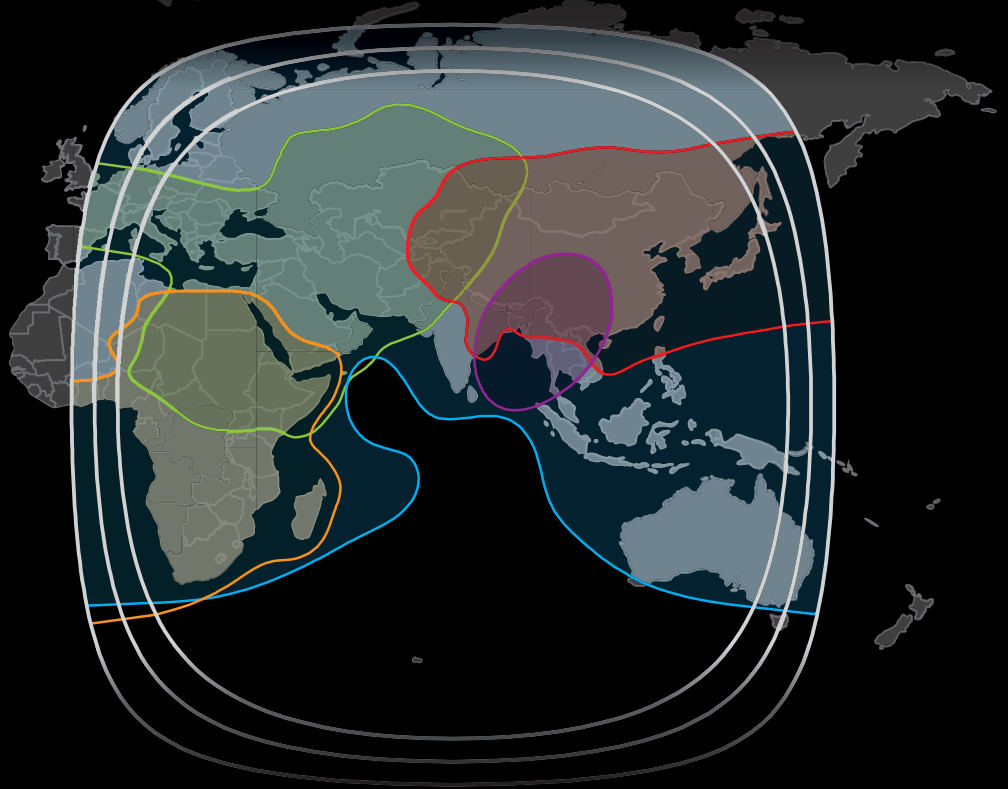
Satellite fleet

APSTAR-5

Positioned at 138E orbital slot, APSTAR-5 is a high-power satellite with the latest in advanced technology and built by Space Systems/Loral. Equipped with 38 C-band and 16 Ku-band transponders, it is based on the highly reliable FS-1300 platform. APSTAR-5 provides broad C-band transponder coverage over Asia, Australia, New Zealand, the Pacific islands and Hawaii, as well as high-power Ku-band transponder coverage over mainland China, India, Taiwan, Hong Kong and Korea.

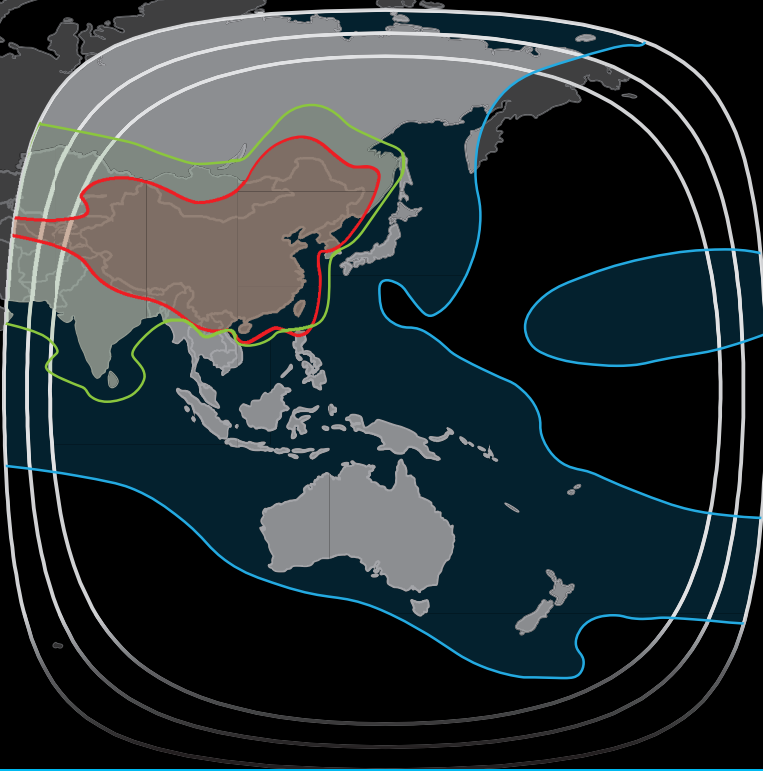
Superior Coverage Across Regions

APSTAR-7@76.5°E



■ C-Band
■ ■ ■ ■ Ku-Beams

APSTAR-5@138°E



■ C-Band
■ ■ Ku-Beams

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www.apstar.com



APSTAR
by APT Satellite

APSTAR-7 @ 76.5 °East

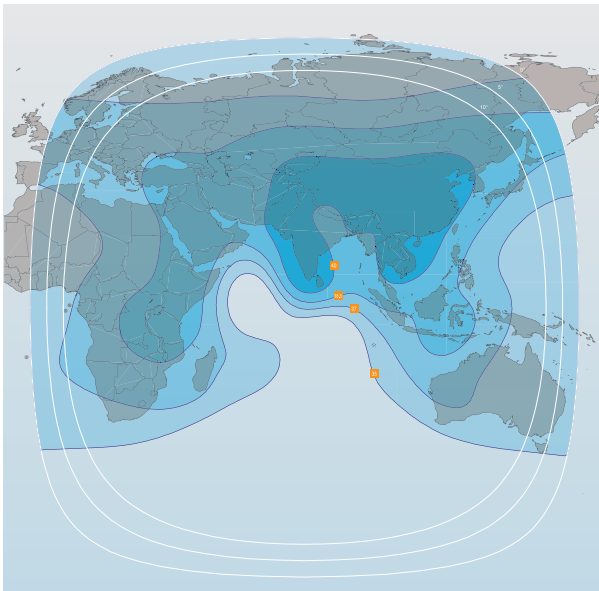


General Information

Platform:	TAS SPACEBUS 4000 C2	Launch Date:	Q4 2012	Orbital Slot:	76.5°E
Life Time:	>15 years	Transponders:	28 C-Band, 28 Ku-Band		
EIRP:	C-Band: 32-41 dBW	Gain Control:	FGM and ALC		
G / T:	C-Band: -10→+1 dB/K	Polarization:	Dual Linear		

Satellite Coverage (EIRP, dBW)

C-Band



APSTAR-7 @ 76.5 °East

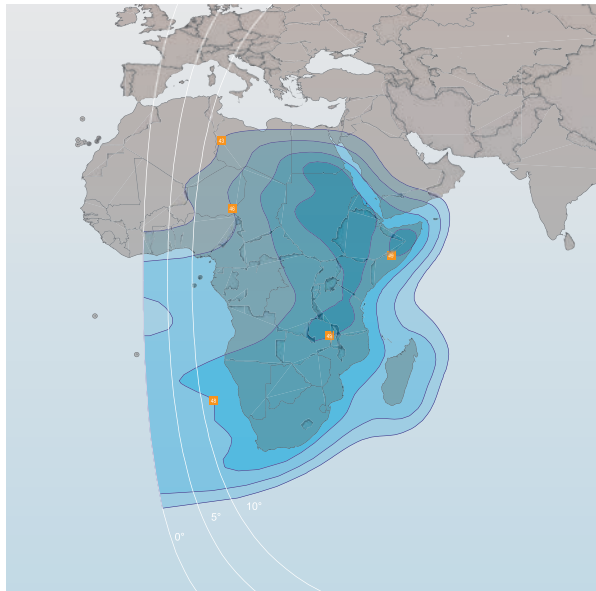


General Information

Platform:	TAS SPACEBUS 4000 C2	Launch Date:	Q4 2012	Orbital Slot:	76.5°E
Life Time:	>15 years	Transponders:	28 C-Band, 28 Ku-Band		
EIRP:	Ku-Band: 43-56 dBW	Gain Control:	FGM and ALC		
G / T:	Ku-Band: -4→+11 dB/K	Polarization:	Dual Linear		
		Interconnectivity:	Interconnectivity and Selectivity between 4 Ku beams		

Satellite Coverage (EIRP, dBW)

Ku-Band_AFR



APSTAR-5 hosts TV channel distribution, DTH broadcasting, internet and VSAT services within the Asia Pacific region and also inter-connection to the USA via the Hawaii spot beam.

APSTAR-5 was successfully launched by sea launch on June 29, 2004 to geostationary orbital slot 138°E as a replacement satellite for APSTAR-1. It has an estimated operational lifetime of over 15 years.

APSTAR-6

APSTAR-6 positioned at 134E is the replacement satellite for APSTAR-1A and was launched in 12 April, 2005, using Long March 3B rocket. The satellite is based on the SPACBUS4000-C2 platform, one of the

most reliable satellite platforms today and developed by Alcatel Space (now Thales Alenia Space France). It has an estimated operational lifetime of over 15 years.

The APSTAR-6 payload system consists of 38 C-band transponders and 12 Ku-band transponders. Equipped with powerful 64W linearised TWTAs, the C-band transponders cover Asia, Australia, New Zealand, the Pacific islands and Hawaii. The Ku-band transponders mainly focus on the Greater China region. It is designed with powerful and linearised TWTAs, single polarisation and other unique features, allowing it to provide ideal solutions for DTH, SNG and other broadcast and telecommunications services in the region.

APSTAR-7

Positioned at 76.5E, APSTAR-7 is based on the Thales Alenia's SPACEBUS4000-C2 platform which is one of the most reliable satellite platforms present in the market today. The satellite is built with 28 C-band transponders and 28 Ku-band transponders.

As the replacement satellite of APSTAR-2R, APSTAR-7 has the merits of high power, high reliability and it was launched on 31 March 2012 with an estimated lifespan of more than 18 years.

APSTAR-7 has 28 C-band and 28 Ku-band transponders. The C-band global beam covers four continents: Asia, Europe, Africa and Australia. Through its advanced technology, APSTAR-7 provides improved

APSTAR-7 @ 76.5°East

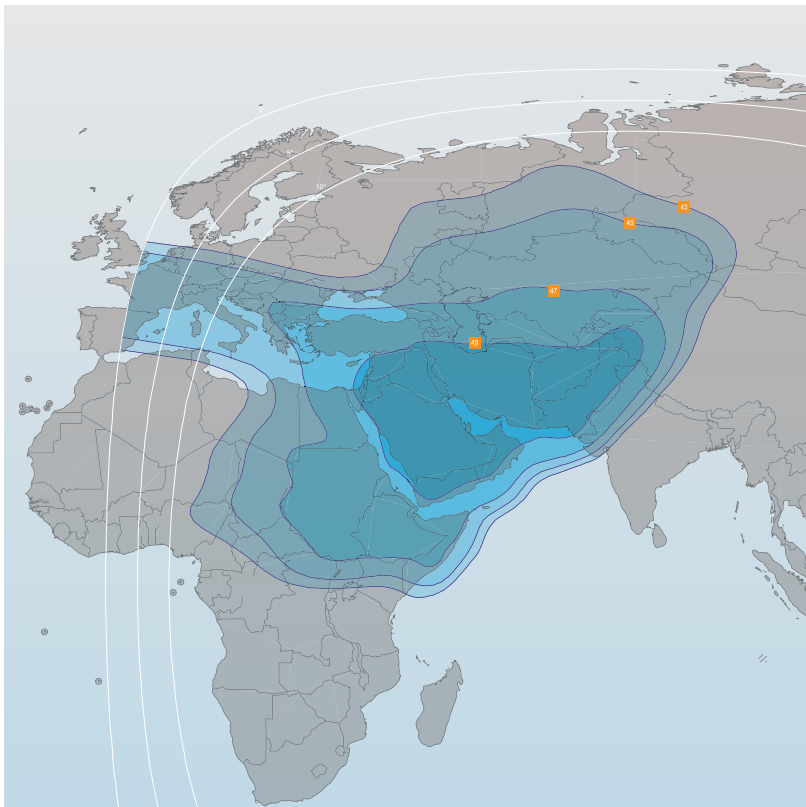


General Information

Platform: TAS SPACEBUS 4000 C2	Launch Date: Q4 2012	Orbital Slot: 76.5°E
Life Time: >15 years	Transponders: 28 C-Band, 28 Ku-Band	
EIRP: Ku-Band: 43-56 dBW	Gain Control: FGM and ALC	
G / T: Ku-Band: -4--+11 dB/K	Polarization: Dual Linear	
Interconnectivity: Interconnectivity and Selectivity between 4 Ku beams		

Satellite Coverage (EIRP, dBW)

Ku-Band MENA



communication performance, power and efficiency to customers. The four Ku-band beams cover China, the Middle East, North Africa and Central Asia and another steerable area that is complementary to the fixed beams.

Owing to its prime orbital slot, APSTAR-7 has the largest geographic coverage over all visible landmass including all of the

Middle East, Asia, Australia, most parts of Africa and Europe, as well as numerous islands scattered across the Pacific and Indian Oceans. Such advantages make APSTAR-7 ideal for broadcast and telecommunications services which is a major reason why APSTAR-7 through its predecessor APSTAR-2R is one of the highly demanded satellites of this region.

A number of well-known global broadcast service providers such as Sony Pictures (AXN), HBO, Disney, Hallmark, Globecast, BBC, as well as other regional broadcasters utilise APSTAR-7 for distributing their channels across the region.

APSTAR-9

Launched in October 2015, APSTAR-9 satellite is a DFH-4 platform satellite manufactured by CASC (China Aerospace Science and Technology Corporation). Located at 142E orbital slot, APSTAR-9 is equipped with 32 C-band and 14 Ku-band transponders. C-band coverage consists of one broad beam for the Asia Pacific region (AP Beam) and one enhanced beam for South East Asia (SEA Beam), suitable for video broadcast and high throughput telecom and cellular backhaul services; Ku-band covers the west Pacific and east of the Indian Ocean region, providing DTH, VSAT and mobility services such as maritime and inflight connectivity.

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AsiaSat's state-of-the-art earth station in Tai Po, Hong Kong.



AsiaSat's Customer Network Centre provides 24/7 support services to customers.

ASIASAT

ASIA'S PREMIER PROVIDER OF QUALITY SATELLITE SOLUTIONS

Asia Satellite Telecommunications Company Limited (AsiaSat) has been Asia's premier satellite operator for over 25 years. Through a fleet of high performance satellites located strategically over Asia's massive landmass and surrounding oceans, AsiaSat delivers satellite solutions with the highest quality and reliability to its clients.

AsiaSat's broadcast platforms are amongst the world's most-watched. Operating at Asia's prime orbital locations, these platforms deliver 700 television and radio channels from the Middle East, Europe, South Asia, East Asia and international networks. Broadcasters use AsiaSat to deliver premium content instantaneously to all major Asian broadcast networks and pay TV platforms serving millions of viewers across the region.

In 2014, partnering with content and technology partners, AsiaSat established

an industry leading research laboratory in ultra-HD broadcasting via satellite to promote UHD in Asia. Two UHD channels on AsiaSat 4 have since been launched to demonstrate this exciting and immersive technology.

AsiaSat satellites' comprehensive C-band and high-powered Ku-band coverage also provide secure and reliable connectivity for applications such as banking, mobile backhaul, oil and gas exploration, aviation, shipping, transportation, education and rural consumer broadband.

AsiaSat is a wholly-owned subsidiary of Asia Satellite Telecommunications Holdings Limited, a company listed on the Hong Kong Stock Exchange (Stock Code: 1135).

Broadcast Services

With AsiaSat's high quality C and Ku-band capacity, broadcasters and channel providers are able to access their target audiences and reach new markets.

- Direct-to-Home (DTH) television.
- Delivery of content and programming to cable headends and pay TV operators.
- Content distribution to mobile TV networks.
- Distribution of radio programming to retransmit stations.
- Contribution feeds to broadcasters' studios and playout facilities.
- Video distribution of news, sports and special events.
- Video distribution to nationwide UHF/VHF & DTT rebroadcast stations.

Telecommunications Services

AsiaSat satellites support corporations, governments and telecommunications carriers around the world for a diverse range of services and applications.

- Mobile backhaul.
- VSAT networks.
- Communications networks for governments.



- National and international networks.
- Tele-education networks.
- Rural consumer broadband.
- Internet access.
- IP backbone connectivity.

Mobility Services

AsiaSat offers an expanding range of mobility services for the aviation, maritime and transportation industries. AsiaSat enables people on the move, to stay

connected to the world, from broadband internet access to TV and voice services. AsiaSat also provides vital connectivity links for real-time data communications that ensure operational efficiency and safety for the industries and maintain crew welfare.

Occasional Use (OU)

AsiaSat offers Asia’s prime OU platforms for distributing sports and news events. Its

full range of C-band and Ku-band capacity across its fleet ensures seamless connectivity that supports delivery of global, regional or local events, in SD, HD or even UHD.

AsiaSat has extensive experience in providing satellite services for international sports and news events, including the FIFA World Cup, the Olympic Games, the Commonwealth Games, the Asian Games, UEFA Champions League, UEFA Europa League, Formula 1, the ASEAN Summit, as well as supporting the first-ever live UHD telecast of the 2014 FIFA World Cup matches held on 28 June (Round of 16), 4 July (Quarter-Final) and the final on 13 July 2014 in Brazil.

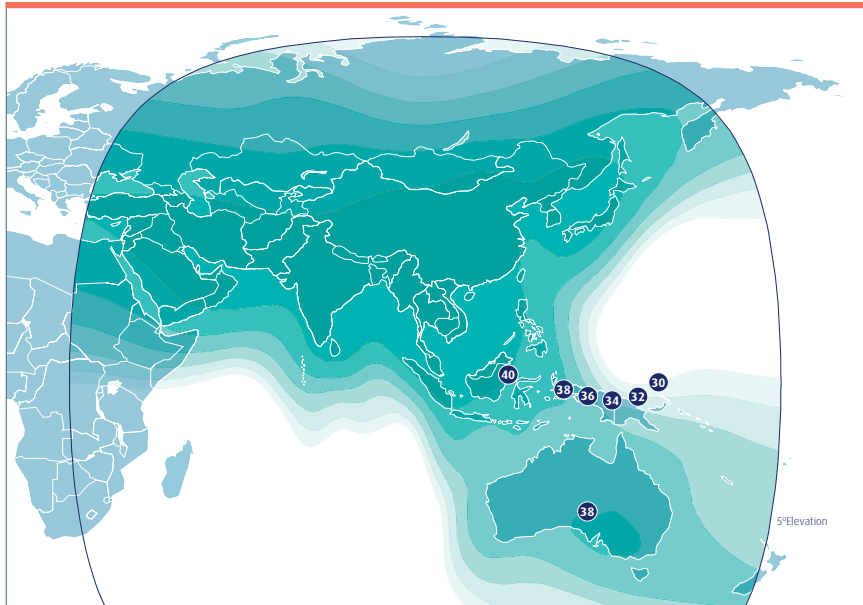
MCP Platform

From its Tai Po Earth Station in Hong Kong and trusted partners in the industry, AsiaSat offers wide-ranging distribution platforms:

- *AsiaSat 5 C-band DVB-S2/S platforms*
Asia’s leading platforms for sports and multilingual content and home to Asia’s largest bouquet of Middle Eastern programmes.

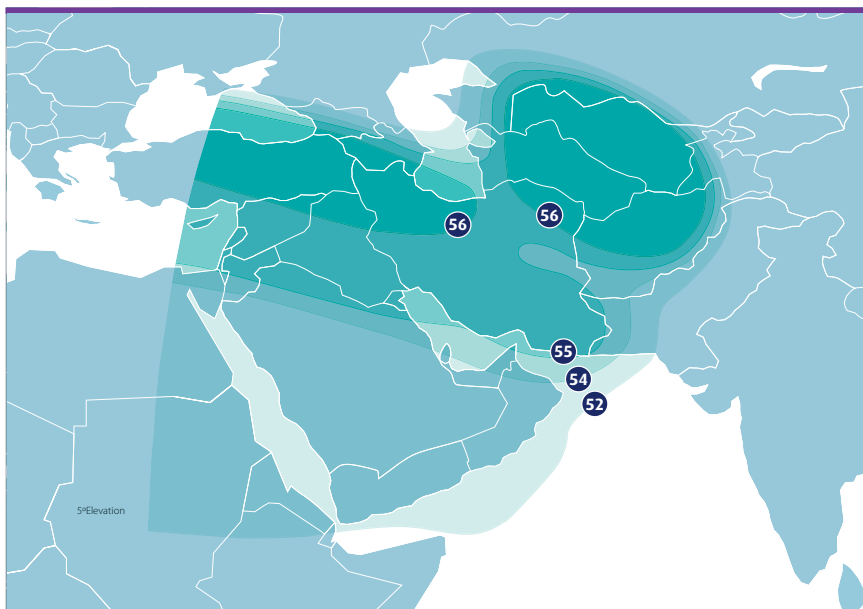
Satellite	Nominal Orbital Location	Launch	C-band Coverage	Ku-band Coverage
AsiaSat 4	122°E	2003	Asia, Middle East, Central Asia and Australasia	East Asia Australasia
AsiaSat 5	100.5°E	2009	Asia, Middle East, Central Asia and Australasia	East Asia South Asia Steerable Beam
AsiaSat 6	120°E	2014	Asia, Australasia, Central Asia and Pacific Islands	-
AsiaSat 7	105.5°E	2011	Asia, Middle East, Central Asia and Australasia	East Asia South Asia Steerable Beam
AsiaSat 8	105.5°E	2014	-	China India Middle East South East Asia
AsiaSat 9	122°E	Late 2016/ Early 2017	Asia, Middle East, Central Asia and Australasia	Australasia East Asia Indonesia Mongolia Myanmar

ASIASAT 5 (100.5°E) C-BAND EIRP (dBW)



▲ AsiaSat 5 is the preferred broadcasting gateway to the Asia-Pacific market.

ASIASAT 8 (105.5°E) KU-BAND MIDDLE EAST BEAM EIRP (dBW)



▲ AsiaSat 8 offers exceptional power and unique Ku-band coverage for the Middle East.

- *AsiaSat 7 C-band DVB-S2/S platforms*
On Asia's most popular TV satellite with superb channel neighbourhood and audience access.
- *AsiaSat 4 Ku-band DVB-S2 platform*
Multicultural DTH programming for audiences across Australia.
- *AsiaSat 4 C-band UHD platform*
Asia's first true UHD content and free-to-air platform.

Teleport Service

- Downlink, turnaround and uplink.
- Fibre and Broadway Internet Connectivity.
- Playout service.
- Equipment hosting.
- Encryption.

Backup

- Backup and emergency.
- Recovery services.

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YouTube: [viasatellite](https://www.youtube.com/viasatellite)



eutelsat

COMMUNICATING GLOBALLY

Eutelsat Communications is one of the world's leading and most experienced operators of communications satellites. The company provides capacity on 39 satellites to clients that include broadcasters and broadcasting associations, pay TV operators, video, data and Internet service providers, enterprises and government agencies.

Providing coverage of Europe, the Middle East, Africa, Asia-Pacific and the Americas, Eutelsat's satellites enable video, data, broadband and government communications to be established irrespective of a user's location.

Eutelsat has been present in the MENA region for over 30 years, but their main focus on broadcasting really shifted gear over 10 years ago with the specialisation of some satellites for the region, and the collaboration with Nilesat in the 7/8 degrees West arc.

The 7/8° West position, jointly operated by Nilesat and Eutelsat, is key in MENA as it enables 250 million TV viewers in a vast region from Morocco to the Gulf to receive over a thousand channels with a single small satellite dish.

This result reflects longstanding partnerships between Eutelsat and Gulfsat, Nilesat, Noorsat and anchor







media groups, including MBC and OSN that are experiencing strong commercial success and are well placed for further expansion in the region.

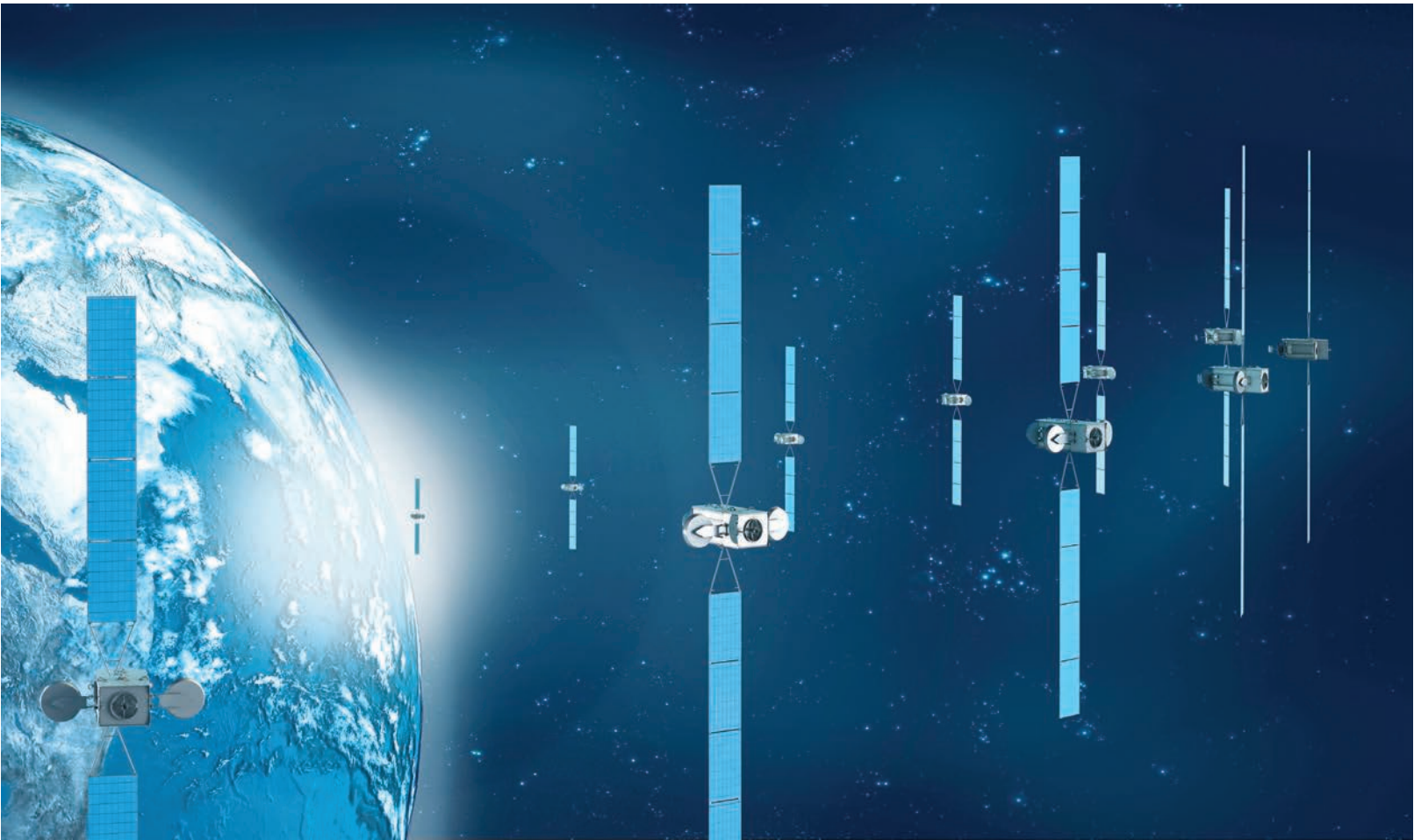
The EUTELSAT 8 West B satellite joined the constellation at 7/8° West in 2015, taking it to a new level of performance. The additional capacity provided by the satellite enabled over a hundred further channels to be accommodated. EUTELSAT 8 West B also introduces C-band capacity to 7/8° West, connected to footprints covering the African continent and reaching west to South America. This capacity will be particularly beneficial for global TV contribution, telecom networks, mobile

backhaul and data networks.

For the Arab and international broadcasting community the entry into service of EUTELSAT 8 West B marks a milestone in the growth story of the most popular satellite TV neighbourhood in the Middle East and North Africa. Channels can benefit from increased power, more coverage options and higher in-orbit security, as well as a future-proof infrastructure for HD TV and Ultra HD.

Eutelsat wants to help channels manage a transition to HD and set the scene for Ultra HD that will take the viewing experience into a whole new dimension. Looking forward, Eutelsat believes that the move to higher





quality afforded by Ultra HD will further consolidate satellite as a core infrastructure in the region.

The broadcasting sector in MENA is both vibrant and highly developed, as there is a strong concentration of broadcasters and service providers in Dubai and the Gulf states. This drove the decision to open new representative offices in Dubai. The TV market is characterised by very high satellite penetration, representing nine out of 10 TV homes, due to lack of terrestrial networks.

Longstanding Partnerships

Eutelsat has established strong and longstanding partnerships with MENA

operators and broadcasters and developed leading Direct-to-Home neighbourhoods. In addition to 7/8° West, 13° East (HOT BIRD) was confirmed by the Eutelsat TV Observatory in January 2015 as the second most-watched position in the Middle East after 7/8° West, and 7° East remains a vibrant neighbourhood for the Turkish market.

In November 2015, the Arab Broadcasting Union (ASBU 2015) named Eutelsat 'Satellite Operator of the Year'. In so doing, ASBU recognised the company as a driving force behind the massive expansion in the number of television channels available to homes throughout the Middle East and North Africa region.

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SATELLITE SYSTEMS THAT COVER THE GLOBE

Joint Stock Company Gazprom Space Systems (known as JSC Gascom before December 2008), is one of two Russian national satellite operators holding 36% of the satellite capacity market in Russia. GSS was established in 1992 and its shareholders are Gazprom, the world's biggest gas company, Rocket-Space Corporation Energia, the leading Russian space enterprise, and Gazprombank, one of the largest Russian non-state banks.

The company operates the Yamal Satellite Communications System, providing users with:

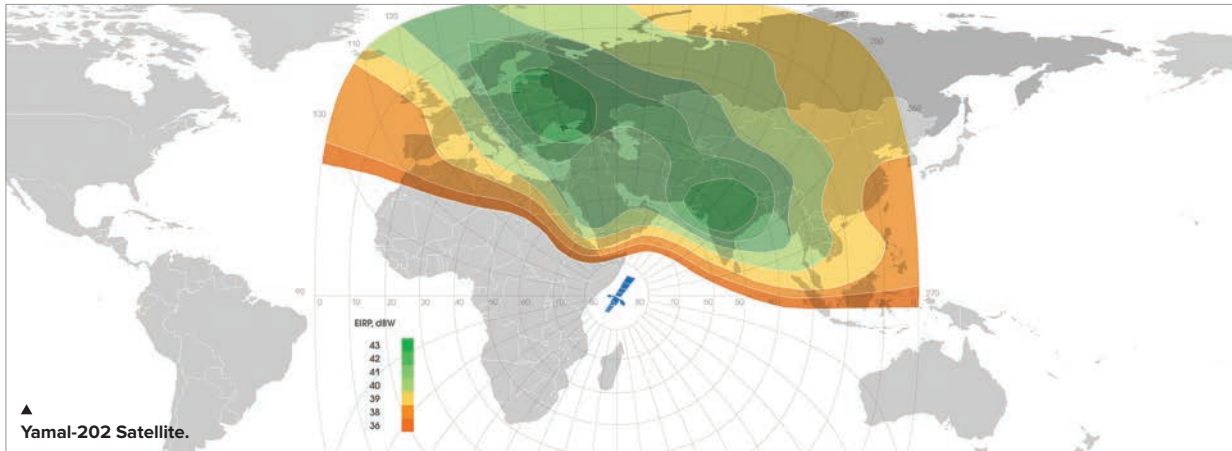
- Satellite capacity worldwide, and
- Satellite services in Russia ('point-to-

point' links, TV distribution, VSAT networks, broadband, mobile backhaul, trunking, etc.).

Gazprom Space Systems' first satellite, Yamal-100, was launched in 1999.

Today the Yamal Satellite Communications System consists of four satellites (Yamal-202, Yamal-300K, Yama-401, Yamal-402), a state-of-the-art telecommunications centre and VSAT networks in Russia. Its total satellite constellation capacity amounts to 248 equivalent transponders of 36MHz.

About a third of Yamal satellite capacity is concentrated in beams pointed over territories outside Russia. The geography of GSS clients encompasses around



30 countries and Yamal’s capacity services are utilised in over a 100 countries. Although on the international market GSS provides pure capacity, the company has a number of partner teleport companies in Europe, the Middle East, Far East, Asia, Africa and America.

In September 2014 on the World Satellite Business Week in Paris, Gazprom Space Systems was recognised by the world telecommunications community as the Best Regional Satellite Operator that showed the most impressive growth in the preceding year, 2013.

The World Teleport Association ranked Gazprom Space Systems the third place in the Fast 20 Top Teleport Operators of 2014. And in 2009 according to the WTA

official report, Gazprom Space Systems was selected as the Corporate Teleport Operator of the Year based on a 48% revenue growth rate in 2008. In 2014, the company’s revenue grew to about 108 million dollars, a growth rate of 24%.

The company’s next step in its constellation enhancement will be the Yamal-601 satellite aiming to replace the Yamal-202 satellite operating at 49E. In total at least five new satellites are planned to be launched by the year 2025.

Space Infrastructure

GSS space infrastructure consists of four Yamal satellites - Yamal-202 (49°E), Yamal-300K (183°E), Yamal-402 (55°E), Yamal-401 (90°E).

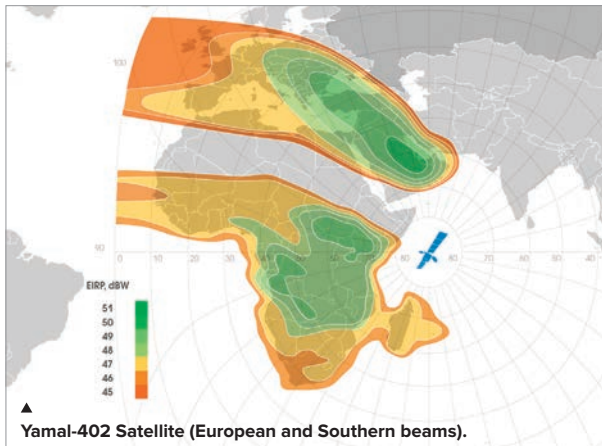
Yamal-202 Satellite

Satellite: Yamal-202

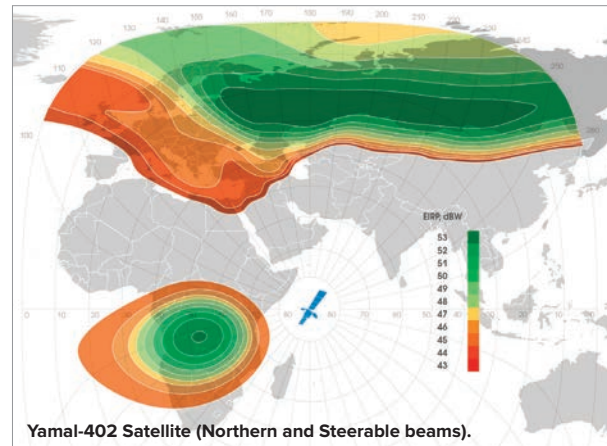
Orbital slot: 49E

Number of transponders: 18x72MHz C-band

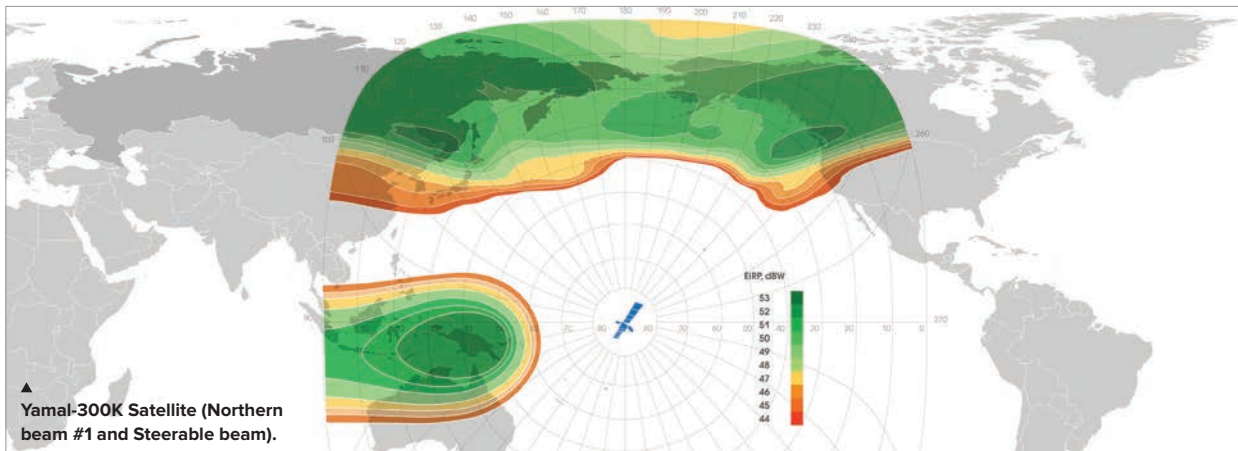
This satellite has a semi-global coverage (Europe, Middle East, North Africa, South and South-East Asia) focussing mainly on the international market. Yamal-202 is optimal for arranging point-to-point connection and VSAT network for corporate customers having businesses in developing countries. It is also used for government organisations, for arranging trunks between information resource centres (mainly in Europe) and centres of resource consumption (in developing countries of North Africa,



▲ Yamal-402 Satellite (European and Southern beams).



▲ Yamal-402 Satellite (Northern and Steerable beams).



the Middle East and Asia), and for the distribution of TV channels.

Yamal-402 Satellite

Satellite: Yamal-402

Orbital slot: 55E

Number of transponders: 66 equivalent 36MHz transponders, Ku-band.

Yamal-402 covers Russia, the CIS countries, Europe, part of the Middle East and Africa to the south of Sahara. The satellite introduced the company into the African market. Together with high-powered beams, Yamal-402 has strong coverage that can connect Europe, the Middle East and sub-Saharan Africa. Its capacity is used to provide communications services to operators of pay TV, corporate sector, government organisations and NGOs. Almost a 100 VSAT-networks of diverse technologies and scale operate via this satellite in the EMEA region.

Yamal-300K Satellite

Satellite: Yamal-300K

Orbital slot: 183E

Number of transponders: 18x72MHz Ku-band, 11x72MHz C-band

Yamal-300K at 183E brought GSS into the markets of the Western Hemisphere.

The satellite's wide contour fixed beams, covers the eastern territory of Russia, the western parts of North America and North of the Pacific Ocean where air and marine traffic are exceedingly busy. Such service zones make the beam ideal for aeronautics and maritime sectors.

The other fixed beam of Yamal-300K covers the Far East. It is particularly advantageous to mobile operators who develop backbone infrastructure for their networks in the region.

The steerable beam can be pointed over any region of South-East Asia, Australia, New Zealand or the island states of the Pacific. It has high power parameters and allows receiving TV signals to the dishes starting from 0.6m in diameter and creating VSAT networks with the antennae from 0.75m.

Ground Infrastructure

The GSS ground infrastructure consists of a:

- Telecommunications centre, and,
- More than 900 satellite communications earth stations, operating in the interests of Gazprom Group, built on the sites of production, transportation, processing, storage and sale of gas.

The Telecommunication Centre in Shchelkovo, Moscow region is the

fastest growing part of the company's ground infrastructure. This site hosts the Mission Control Centre for all Yamal satellites, hubs, uplink stations for satellite communications, the satellite capacity monitoring facility and the Network Operations Centre, managing networks of Gazprom and other customers.

Additionally GSS is going to build its own spacecraft assembling facilities and start business in the sphere of assembling, integrating and testing of communications and observation satellites.

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SATELLITE





COMMUNICATIONS ACROSS BORDERS

HorizonSat is a leading satellite service provider covering the Middle East, Africa, Asia and Europe. HorizonSat currently operates on Eutelsat's E70B, E21B, E3C, E10A, Sesat-2, E7A, Intelsat's IS-12, IS10-02 Yahsat 1A, Apstar-7 and Azercomsat-1 satellites.

Recognised as a key provider of satellite communications services in the Middle East, Asia and Africa, HorizonSat supports strategic and institutional clients in the field of telecommunications (broadband and broadcast) and attributes its success to its dedication in implementing solutions that leverage the latest satellite technologies and support through its 24/7 operations centre.

HorizonSat offers a broad range of services that include IP trunking, private networks, VoIP and GSM backhauling, media and broadcast services inclusive of video distribution, contribution and

turnaround. The company also provides managed broadband solutions (VNO) on i-direct and other platforms.

HorizonSat has witnessed remarkable growth since inception, and is known for technical standards and its professional approach to telecom solutions. It was the first company to launch services on DVB-S2 in the Middle East – a substantial differentiator from other service providers in the region and Africa.

Always at the forefront of new technologies, HorizonSat is renowned for implementing the latest satellite modulations from leading satellite equipment manufacturers in order to optimise its use of spectral efficiencies to ensure its customers' competitive advantage.

HorizonSat will continue to work closely with its customers, focusing on their objectives and creating solutions that ensure continued success in their mission's critical applications.

Global Reach

HorizonSat's client base includes some of the largest corporations in the region operating in the field of defence, voice over IP, broadcasting distribution/contribution and internet services (ISPs). HorizonSat has been aggressively increasing its market share and is reaching high volumes of satellite capacity with various satellite operators.

Teleport Facilities

HorizonSat established its own teleport in Munich, Germany under the name of Horizon Teleports. Horizon Teleports can offer access to C-Band, Ku-Band and Ka-Band satellites located at 55 degrees west to 78 degrees east. The holding company of Horizon Teleports is HorizonSat LLC, a well-known and experienced satellite communications provider based out of Dubai, UAE.

With a fully manned team of experienced support engineers monitoring the teleport



24/7 and top-of-the-line equipment featuring the latest technologies, Horizon Teleports helps clients reach their intended goals cost-effectively.

This state-of-the-art teleport is equipped with 16 high-end antennae that offers high quality coverage and guarantees 99.99% uptime. With a solid background in terms of experience and technical expertise, Horizon Teleports assures clients of high standards of service and quality at all times.

Horizon Teleports provides managed and customised solutions, detailed technical consultancy, with a redundant core network and backbone connectivity that is second to none in terms of efficiency and performance.

To ensure that customers are always connected, Horizon Teleports Network Operations Centre operates on a 24x7 out of Munich, Germany and is backed up by

a second Network Operations Centre in Dubai, UAE.

HorizonSat Management Structure

HorizonSat maintains a flat management structure with direct access to its executives to facilitate the decision-making process. Inquiries are processed between sales, contracts and operations within the same location efficiently and rapidly. Customers are also constantly posted on the status of their links and activation process.

Solutions

HorizonSat is a communications company that focuses on satisfying its customers by providing them with innovative and cost-effective solutions, fully redundant reliable services, record availability rates, and round-the-clock support. Teamwork and personal employee

satisfaction are essential factors that enable Horizon to meet its objectives in creating value for its clients and shareholders.

Services

- IP Trunking.
- GSM Backhauling.
- Broadcasting Solutions.
- Private Networks.
- ISDN Solutions via Satellite.
- i-Direct Broadband Services.

Technologies

- SCPC (Single Carrier Per Channel).
- MCPC (Multi Carrier Per Channel).
- TDMA (Time Division Multiple Access).
- DAMA (Demand Access Multiple Access).
- CDMA (Code Division Multiple Access).
- DVB-S (Digital Video Broadcasting, Standard Modulation).
- DVB-S2 (Digital Video Broadcasting, Generation 2).

Achievements

HorizonSat has witnessed remarkable growth owing to client confidence in its capabilities, service quality and responsiveness. The company has built a reputation for rapid service activation and customised solutions, thereby setting it apart from other service providers in the Middle East and Africa.

CONTACT

HorizonSat FZ-LLC

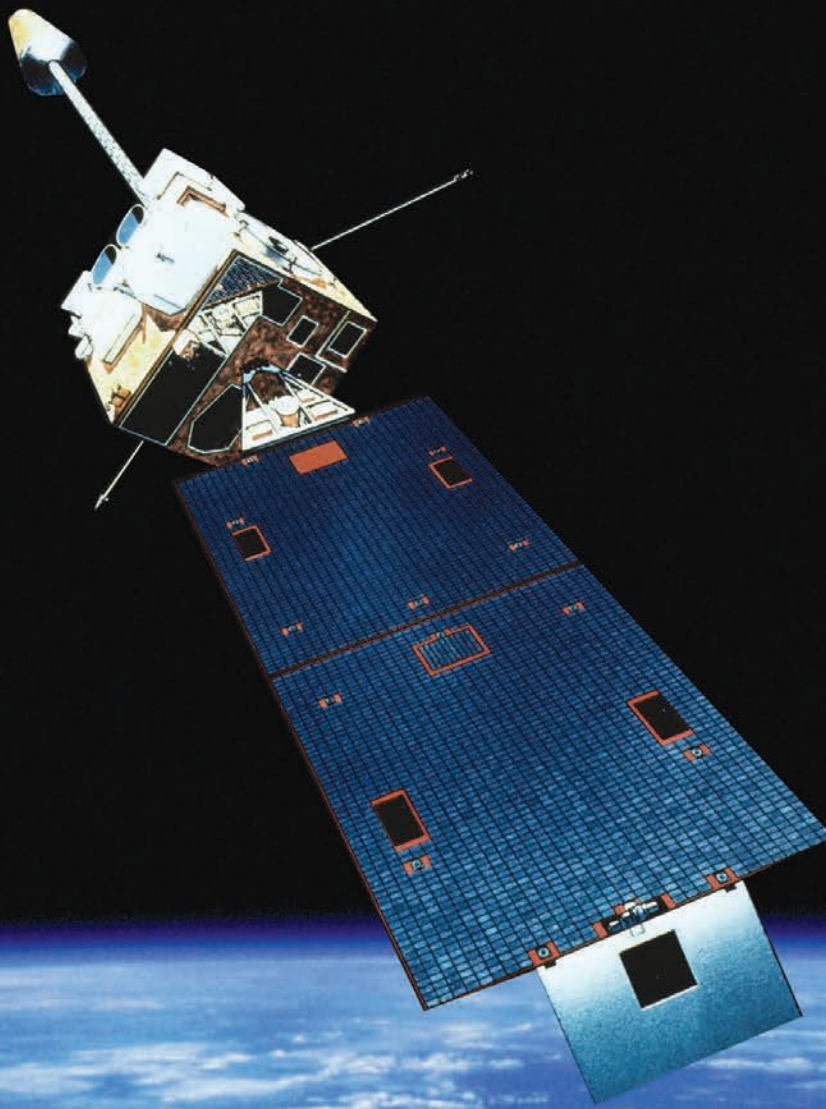
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M-Three

s a t c o m

GIGLIO
GROUP S.p.A.

BROADCASTING AND CONNECTING

Giglio Group's fully owned M-Three Satcom SpA is an Italian company committed to providing reliable, complete and cost-effective solutions to international television, radio and A/V professionals. Since 2004 when M-Three Satcom was founded, its activity has been based in two teleports in Milan and Rome, connected to the worldwide Interoute network and allowing for a full range of services in terms of geographical coverage and solutions. A fleet of OB facilities for production and transmission of news,

sport and shows and a systems integration unit completes the 360° range of available services.

Initially focused on the Hot Bird – E13 east DTH distribution as a starting point, M-Three Satcom gradually increased its activity range and coverage reaching a primary position in the infrastructure-provider arena. The services portfolio is organised into three interdependent business units: teleport services, outside broadcast, systems integration as VAR (value-added reseller) for Thomson TV Networks and other primary brands for

all elements of the broadcast and delivery chain.

Teleport Services

Top-level and Worldwide Delivery: From its twin teleport facilities in Milan and Rome and through long-term agreements with teleport and satellite operators worldwide, M-Three offers a wide choice of digital platforms for fibre optic, satellite, OTT contribution and distribution.

The prime orbital positions directly managed by M3 from Milan station are





Eutelsat 13 East and 9 East, both in DVB-S and S2 configurations, and serving a number of SD and HD channels as well as Italian and European radio networks. Most recently, M-Three started a new service for distribution in the east and Far East regions through Eutelsat E70 East, uplinking on two beams dedicated respectively to the Middle East and India (widebeam) and to the Far East and Oceania (Asia Beam).

At the same time, both Eutelsat and other key players in the European and EMEA region are cooperating with

M-Three in delivering DTH bouquet in the areas, and joining forces to provide cost-effective, reliable solutions to clients. Clients benefit from an M-Three commitment to interruption-free service, earth station's redundancy, power and fibre diversity, 24/7 support, plus a full site backup and recovery system managed between Milan, Rome and partner platforms.

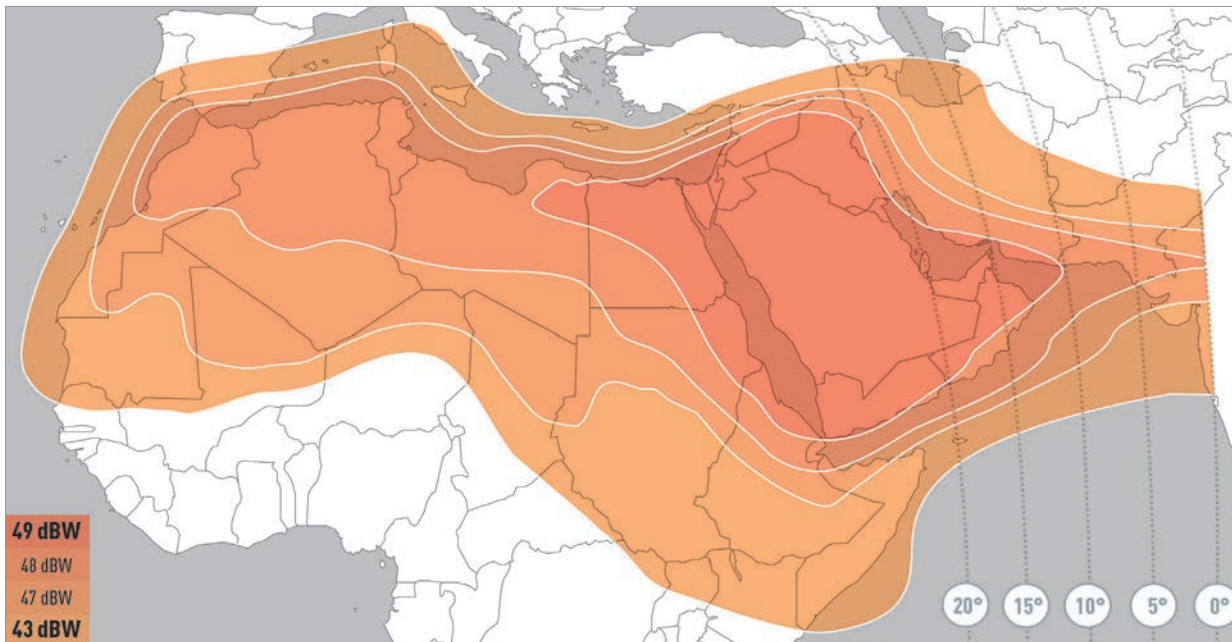
Playout services and co-location: At M-Three premises, in addition to the robust fibre connectivity (which benefit from the co-presence of Interoute POP facilities at the teleport), a number of co-location and managed services are available. The playout centre consists of secured rack space, MCR, multiscreen area, systems and personnel for a 24/7 operation from basic 'hands on' support to full management of TV and radio channels. Clients can very easily monitor and operate self-owned or leased equipment through IP-dedicated access while on-site personnel will provide ingestion, files quality controls and provide a single contact point to coordinate operations between broadcaster and distribution platforms.

Systems Integration Services

The approach as technology supplier and end user makes M-Three Satcom the ideal partner in projecting, delivering and supporting all production and transmission solutions from studio facilities to modulation and compression systems, uplink stations and complete teleports facilities. M-Three provides turnkey solutions covering all steps of the digital supply chain from content acquisition and processing, to compression and delivery to final audience. The experience as direct technology user and provider and the continuous research and implementation activity carried at its teleport facilities allows M-Three Satcom to fully understand client needs in building efficient, affordable digital networks for contribution and transmission via satellite or terrestrial infrastructures.

M-Three is driven by innovation and care and shares with clients and partners every improvement in compression, bandwidth optimisation, reduction of delay in transmission and delivery. A full systems integration concept including project, delivery, on-site configuration and 24/7 maintenance and assistance assure





client success.

As value-added reseller of Thomson Networks and many other main brands, M-Three gives support with on-field experience to clients for:

- Production facilities.
- DSNG and fly-away integration.
- Playout systems.
- Encoding, compression, networking systems.
- Modulation.
- Amplifiers, RF units.
- Antenna systems for fixed installation, fly-away or on-the-move auto pointing antennae.

Outside Broadcast

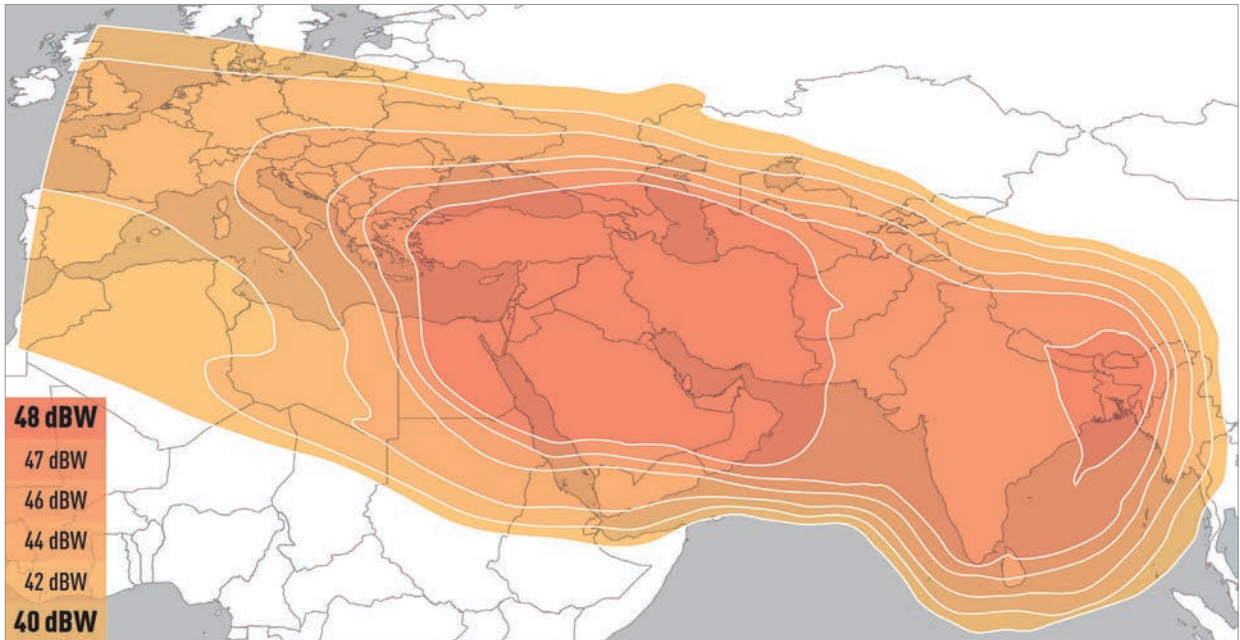
M-Three Satcom through its fleet of OB Vans and SNGs provides live coverage of sport, entertainment, news and corporate events. Broadcasters, news agencies, sports associations and rights holders can count on M-Three Satcom’s affordable structure including a 24/7 booking centre, HD mobile facilities, fibre and satellite

capacity for occasional use in every bandwidth and protocol configuration.

Outside broadcast production and transmission units from various locations in and around Italy and in the neighbouring countries can rely on M-Three’s affordable and flexible OB van and DSNG trucks fleet, configured to support any kind of live events. These

production services combine the forces of a skilled team of professionals for all related activities, from events scheduling and management, system configuration and optimisation to complete on field service delivery. In addition, the M-Three teleports and MCR support live transmissions with 24/7 troubleshooting services, turnaround and backup.





M-Three has supported and covered a number of prime time event—the Giro d’Italia and the Tour de France cycling races, SuperBike motor show and races, skiing, rugby and football championships as well as the Olympics and the World Championships, to name a few.

Available OB Facilities

- HD/SD DSNG trucks.
- Production facilities from light stand-up to HD multi-camera van.
- Special units with aircraft, helicopter and special MW links in cooperation with international partners for sport events such as marathons, cycling races, car rallies and such.
- Payout, uplink and fibre injection centre in Milan and Rome.
- Editing and post-production.

M-Three applications range from news coverage to sports broadcasting, content delivery and exchange, entertainment broadcasting, live corporate and business events, HD and 3D production

and distribution. Through long-term agreements with major fibre and satellite operators, M-Three provides occasional and permanent use capacity on fibre and satellite networks for worldwide coverage in every required configuration.

Available Resources – Satellite

- OU satellite capacity with booking on a pay per minute basis.
- From 4.5 MHz to full transponder in various orbital positions.
- Middle and long-term booking available for special events.
- 24/7 booking centre and MCR for support and troubleshooting.

Available Resources - Fibre Network

- Connecting most city centres all over Europe and worldwide.
- Leased lines from E1 to GbE and STM1/4/16/64.
- IP Backbone access with CBR and burst capacity.

- Network management and global NOC.

M-Three Satcom at CABSAT 2016

M-Three’s showing at CABSAT covers new and available services. The company management together with colleagues from the Holdings Giglio Group discusses possible projects or queries with prospective clients and partners.

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STN is a leading innovative teleport with headquarters in Slovenia, Europe.

STN's services include remote and managed playout services, turnaround, down/up link in SD/HD/UHD, channels distribution via all prime satellite orbital positions, TT&C, IPTV & OTT, CAS - encryption and fibre connectivity.

BROADCASTING BEYOND BORDERS

STN PLC provides global broadcast distribution via satellite and media services, with the capabilities to offer multiple solutions, satellites and platforms best-suited and tailored to individual customer requirements.

Since its inception in 2004, STN, the Satellite Telecommunications Network, has significantly grown to become a leader amongst teleports on a global scale - with world-class facilities that elevate industry standards. In addition to its cutting-edge facilities, STN is celebrated for its quality of services that include multiple solutions, satellites and platforms. Its speciality is tailoring services to ideally suit individual customer's requirements, making it a single state-of-the-art emporium with quality highlighting everything you need.

Smart Solutions and Swift Services

STN provides a comprehensive, highly proficient range of services covering myriad technical possibilities that are superior to competitors and go far beyond the transport of signals via satellite or fibre. STN offers TV channels, radio broadcasters and content producers a high quality, cost-effective outsource for all or part of their playout and transmission requirements. The foundation of STN's operation is based on reliable and uninterrupted services which are provided through several levels of redundancy ranging from power supply to end-transmission chains.

STN is a well-established and trusted partner to all major satellite owners around the world, a provider that offers its services around the globe

with satellite capacity on all prime and most popular orbital positions to cover Europe, the Middle East, Asia, Africa, Australia, North America and South America.

Trusted, Qualified and Technically Prepared

STN's range of expertise is diverse, enabling the company to facilitate single channel start-ups as well as transmit multiple top-tier direct-to-home satellite platforms while serving everything in between. Through professionalism and vast industry knowledge, STN has earned a reputation that is punctuated by reliability, trustworthiness, high quality and an unrivalled turnaround time. It is a trusted partner of choice to over 600 TV and 300 radio channels to date.



STN HQ, Slovenia.



STN Network Operations Centre.

Future-focused and Ready for an Evolving Digital World

To keep ahead of the expanding market, STN has developed strong work ethics to equip itself with the latest technology and spare capacity on a rolling basis, in order to handle the demand for the increasing number of time-dependent projects. STN is able to maximise customer's possibilities by utilising the most effective technology available in the market. It is STN's cutting-edge technical infrastructure that affords complete peace of mind as reliable, uninterrupted high-quality services are ensured.

STN can receive a signal in a variety

of standards including NTSC, PAL or SECAM, HDTV formats in 1080p59.94, 1080p50, 1080i59.94, 1080i50, 720p59.94 or 720p50 and 4K UHD (2160p) and convert it to any other standard using state-of-the-art motion compensated cross converters, encoders and transcoders.

For playout customers, STN uses three-tier playout options (Bronze, Silver and Gold) all of which are industry established SD/HD/UHD channel playout systems with advanced graphics capabilities, each with a unique capability to tailor customers' specific needs.

STN's compression headend system is based on the latest series of SD/HD

MPEG-2, SD/HD MPEG-4 AVC encoders and the new h.265 (HEVC) encoders that can be used to compress SD/HD or UHD signals; all of which utilise advanced pre-processing algorithms and multiplexing to further increase bitrate efficiencies and picture quality improvements. The headend system is designed to provide world-class performance, optimise bitrate/picture ratios and be completely flexible. With STN there are no restrictions: 10-bit, 4:2:2, JPEG 2000 or 3DTV, 4K UHD are all available today.

STN has implemented the new generation of system multiplexers. These robust devices combined with powerful stream processing constitutes the heart of



▲ STN's unique global footprint provides customers with simple, reliable access to diverse multi-platform distribution, which allows channels to grow in whatever direction you choose.



STN Equipment/Data Centre.

▲ STN not only has its PoPs in all major data centres in Europe, but is also connected with fibre networks spanning worldwide.

the company's MPEG-2, MPEG-4 AVC and HEVC SD, HD and UHD based broadcast systems. STN takes great pride in the fact that each transmission chain is protected by spare/redundant units to ensure error-free no-single-point-of-failure operation.

Modernised Data Centre

STN PLC has recently invested in a major internet and L2 PoP's infrastructure upgrade. The upgrade includes investment into the new ASR 1000 Series Aggregation Services Routers, ASA 5585-X models with FirePOWER services which includes a Security Services Processor (SSP) for maximum protection against any potential threats on internet lines. At the same time it has upgraded and increased its international traffic capabilities on various PoPs around the world (while simultaneously increasing its diverse path/dual ISP provider public internet line by 1000% from 1Gbps redundant connection to 10Gbps fully redundant public internet line).

The new data centre switches are now based on Nexus series of switches and Catalyst 6500 series switches. All

these devices operate in full active/active redundancy mode enabling maximum resiliency without single point of failure.

This modernisation will enable STN to give better quality and meet the increasing demand to migrate contribution path from traditional satellite to the more cost-effective fibre/IP contribution. Over the last couple of years STN has seen a huge rise in the amount of clients who are investing in the products/services for fibre /IP delivery systems. This migration into the 'terrestrial/cable' contribution will on a long term save content providers/TV stations a great deal of money.

STN has also concluded this phase with a move to purely IP-based infrastructure eliminating and bypassing the need for costly (3/6/12HD)-SDI routers and ASI switches. The new IP-based infrastructure will provide the company with flexible robust solutions while retaining maximum possible quality both for SD/HD/UHD formats as well as for MPEG-2/MPEG-4 AVC/HEVC video codecs. The core of the headend consists of the Nexus family of data centre switches offering

capabilities of the comprehensive NX-OS feature set. The switches are renowned for their high scalability and unparalleled performance and are designed to meet the scaling demands of traditional and cloud deployments. With the throughput of a staggering 2.56 Tbps (Layer 2 and 3 hardware based) and 96 10GE ports and 8 true 40GE QSFP ports, these behemoths now stand and serve the core of STN's new advanced headend based on a multi-platform headend architecture.

The new IP-based infrastructure is not only up to the latest technological standard but also enables STN to offer higher reliability and flexibility to its customers, and all at a competitive price to the elimination of costly routing and switching equipment.

Satellite point-to-point IP backbone and IP Trunking networks provide local networks with access to the internet (or any other type of network) from a remote access point to regions that have no access to fibre or undersea cable infrastructure.

With STN's implementation of the latest technical solutions, clients are provided with highly reliable, robust, cost-effective solutions that will help maintain their competitiveness while retaining profitability. Efficiency and reliability are at the core of STN's IP trunking services ensuring a high level of customer satisfaction. It is broadcasting distribution, beyond borders, beyond expectations.

CONTACT

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MIDDLE EAST PRODUCTION & BROADCAST

PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

Service Providers

- ▶ ABS Network
- ▶ Amagi
- ▶ Erstream
- ▶ NorthTelecom
- ▶ PCCW Global
- ▶ U-TO Solutions (I) Pvt. Ltd.
- ▶ Vectracom



PROFICIENT NEWS GATHERING SERVICES

ABS Network is one of the largest broadcast services companies in the Middle East and North Africa (MENA). Working closely with medium-to-large broadcasters as well as smaller clients, the company delivers the most comprehensive set of content production and delivery services. Owing to years of hard-gained regional expertise and strategic investments into the latest technologies, the company has developed the ability to expertly manage every aspect of the production process from filming in SD and full-HD to post-production editing and distribution via satellite, fibre and online streaming.

ABS Network's formula for success has been the combination of experienced personnel and professional expertise with the latest production and transmission



▲ Mohammed Al Ajlouni,
Chairman of ABS Network.

solutions. Through its expansive network of 22 offices, 10 of which are in MENA capitals and hotspots, ABS is capable of providing industry-leading services to major Arab as well as international broadcasters.

Company Roots

ABS Network was founded in 1993 by Mohammed al Ajlouni, a Jordanian-American media entrepreneur with more than two decades of experience in broadcast production and services across the Arab world. Having successfully built media businesses and hosting channels such as Al Jazeera, BBC, Fox News, ABC News, CNN, KSA TV, Sky News Arabia and many others in his Amman-based production house, he saw the opportunity to establish a news gathering service to deliver coverage of the Gulf War. As one of the few production



companies to have access to Iraq during this time, ABS Network was quick to support many international broadcasters in their coverage during and after the war. They were also the first company to gain permission to set up an uplink in Jordan.

The challenging circumstances under which ABS Network was established and the ability to overcome every obstacle and become the largest broadcast services provider in the region has led them to subscribe firmly to the belief that 'If one combines courage and resolve with high professional standards, then, he/she is on a winning formula in the field of television.' This is precisely what ABS Network has been able to achieve on a consistent basis.

Vision

ABS Network's vision is to provide clients

with a definite competitive advantage. As their broadcasting gateway from the Middle East to the world and vice-versa, the company aims to spearhead the development of the region's media industry through innovative, ground-breaking services.

Expansive Network

ABS Network headquarters is based in Dubai, UAE. They also maintain a strong presence across the region and have offices in key cities including Baghdad, Beirut, Benghazi, Cairo, Amman, Irbil, Manama, Ramallah, Tripoli, Tunis, Damascus and Kabul. ABS Networks has established bureaus in Manhattan and Washington DC, giving them the ability to engage deeply with broadcasters based in the USA. They have 22 offices in all, 10 of which are wholly owned by ABS Network and are located in

major regional hot-spots including Erbil, the Green Zone and Gaza.

Commitment to the Latest Technologies

In an age where viewers demand the highest level of production quality, ABS Network spares no expense to ensure that the equipment it provides is state-of-the-art. Today it operates more than 34 mobile Satellite News Gathering (SNG) trucks with full-HD capabilities and can supply mobile real-time feeds of news and raw footage to clients across the globe. Systems are upgraded to ensure the availability of HD/SD application technology at all their offices, and it has purchased fully redundant HD systems to cover all types of high-profile events across the GCC (Gulf Cooperation Council).

In 2014, ABS Network advanced its



capabilities and competitive edge with the establishment of a quick deployment operations department that is supplied with special production equipment for rapid response purposes.

Having the best technology is only beneficial to an organisation that can also draw from a resource pool of expertly trained and enabled staff. The company invests heavily in hiring and training the most professional staff. This ensures that they are capable of utilising cutting-edge equipment to its utmost potential. ABS Network employs over 250 professionals and its production staff includes over 60 producers, 50 editors, 100 cameramen and production support staff operating in over 20 countries.

2015 Highlights

The last year saw the network expanding its horizons further with the opening of a new office in Istanbul, Turkey. The new office which was set up in Yenibosna is expected to serve the area better and support the existing office in Besiktas. Another office that was also newly established was in Aden, Yemen at the start of 2015. ABS Network hopes to open a new office in Kuwait in the coming year.

Services

ABS Network prides itself on being able to deliver end-to-end services for the broadcast industry. Over the years, it has tailored its portfolio of services to meet the needs of regional and international

broadcasters often addressing gaps in the market. They include:

Live Studios and Production

From a simple interview to complex multi-camera studio set-ups, ABS Network is fully equipped for live studio productions. The offices offer panoramic views of some of the most iconic regional scenery, be it the blue dome of the Mohammed Al Amin Mosque in downtown Beirut or the sun-kissed skyscrapers of Dubai. Facilities to cover complex, multi-camera broadcast requirements are also provided. These cover:

- Outside Broadcast Vehicles.
- Portable Studios.
- Portable (FLY/DRIVE-away) SNGs with

the latest technology.

- Remote studio set up and control rooms.
- Multi-camera sports production.
- Studios all over the branches for DTL - 1,2 or 3 cameras (capability).

Event Coverage

ABS Network can rapidly deploy a skilled team to cover any event in the region or the world. Be it entertainment or war, highly trained professionals are ever ready and provide world-class coverage services. Live event coverage include:

- Filming and editing.
- News packages.
- Live stand-ups.
- Studio set-up.
- Logistics.
- Content delivery.
- Consulting.
- Editorial services.
- Rushes.

Transmission

Clients are provided with uplink services to European and Middle Eastern satellites or fibre to and from the USA. In essence,

they can facilitate transmission to and from any location and act as a turnaround in the middle.

News Room

A dedicated team of news producers stay abreast with the latest events, both locally and regionally and are ready to cover news as it breaks, giving ABS Network unmatched news gathering capabilities. They have also built a comprehensive list of contacts through years of diligent research and work in the field and can find guests on any topic for their customers anytime, anywhere.

News Packages

ABS Network produces a number of scripted news packages in Arabic and English with script, interviews and shortlists. ABS Network is highly flexible - special requests are accommodated and suggestions given for content.

Archive

ABS Network maintains a repository that contains over two decades' worth of archives, translating to countless

hours of priceless footage. This includes extensive coverage of wars, revolutions, invasions, protests and much more. This is expertly tended to by a skilled archivist who has developed a superbly efficient system which gives customers almost instantaneous access to this rich library.

Clients

While the company's capabilities speaks for itself, it is the impressive number of industry bigwigs who have placed their trust in ABS Network for their broadcast needs that are the true testament to the quality of their services. The company's experience and expertise have enabled them to serve the region's and indeed the world's biggest broadcasters. Their clients include Sky News Arabia, ABC News, CNBC, Al Arabia News Channel, BBC, Al Jazeera, CNN, Al Hurra TV and the MBC Group.

Irrespective of the size or scope of a client's engagement with the company, ABS Network remains deeply committed to every customer, treating each project as its own entity and ensuring that meticulous detail is paid to every aspect in order to achieve success.



CONTACT

ABS Network

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Anas Athamneh
Tel: +962797000919
Email: anas.a@absn.tv


 The Amagi logo consists of the word "amagi" in a lowercase, bold, sans-serif font. The letters are white and are set against a bright yellow rectangular background.

LEADING PROVIDER OF CLOUD-BASED BROADCAST SOLUTIONS

Amagi is the leading provider of next generation cloud-based TV broadcast infrastructure encompassing content preparation, playout, delivery, monetisation and targeted advertising across traditional TV and multi-screen platforms.

Amagi has successful deployments for global and regional TV networks with over 10,000 device installations across the Middle East, Europe, the USA, Australia, India and parts of the Asia Pacific region.

The company is headquartered in Bangalore, India, and has its sales offices in New York, London, Los Angeles and Hong Kong. The Bangalore office also houses Amagi's R&D, product development and operations teams.

Amagi's investors include Nadathur Holdings, Mayfield Fund and Premji Invest.

Products and Services

CUMULUS - Amagi Cloud Broadcast Platform

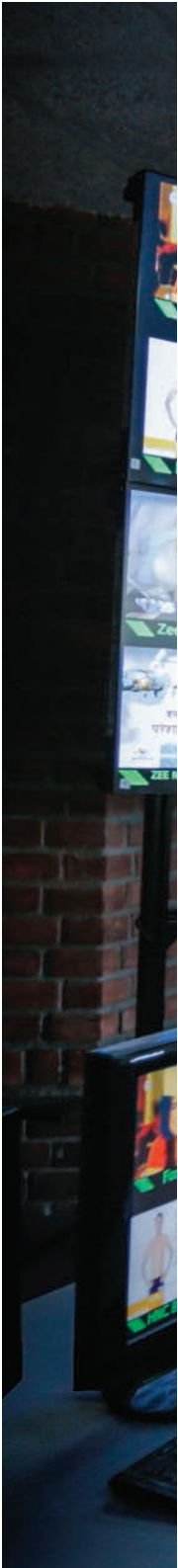
CUMULUS, Amagi's cloud broadcast platform allows TV networks to prepare, manage, playout, deliver and monetise their content all through a single platform. Using end-to-end cloud services, content owners and broadcasters can create and deliver linear and non-linear streams across cable, satellite, IPTV and OTT on-demand platforms reducing dependencies on individual service providers. CUMULUS is built on a global, secure and reliable architecture provided by Amazon Web Services (AWS) lowering CAPEX and OPEX.

CUMULUS offers centralised content storage and archiving providing TV networks with transparent, total access and control of their assets. Leveraging AWS Glacier, CUMULUS provides

an integrated archival workflow with instant retrieval of archived assets. Monetisation can be realised from content regionalisation and targeted ad insertion across linear and OTT feeds, combined with the opportunity for ad sales partnerships and programmatic buying.

CLOUDPORT 3.0 Cloud-Based Playout Platform

CLOUDPORT 3.0 is a cloud-based platform for multichannel playout of both live and non-linear feeds. The next-generation CLOUDPORT platform has transitioned from proprietary hardware to an Intel server residing in the cloud, giving broadcasters more control over their operations. By hosting a broad range of advanced playout capabilities from the Amazon Web Services infrastructure, CLOUDPORT 3.0 enables TV networks





Cloud MCR monitoring facility at Amagi, Bangalore, India.



KA Srinivasan
Co-founder, Amagi.



Micky Edwards
Head of Sales – EMEA, Amagi.



Sanjay Kirimanjeshwar
Head of Global Marketing, Amagi.

to launch new channels in less than four weeks at a fraction of the traditional broadcast cost.

Using CLOUDPORT 3.0, broadcasters can support the entire playout workflow from channel branding and graphics to subtitling, traffic and scheduling, compliance recording, quality control, multichannel monitoring and more. In addition to delivering content to operator headends and teleports for further distribution, CLOUDPORT 3.0 also offers automated transcoding and delivery to different VOD and OTT platforms, enabling broadcasters to address the growing consumer demand for multiscreen viewing.

Leveraging the platform’s dynamic and local ad insertion capabilities, TV networks can increase monetisation. Full-screen graphics and UHD support ensure a high-quality viewing experience for broadcast subscribers.

STORM Ad Insertion Platform

Amagi offers TV networks a unique platform that can insert targeted local ads on a common feed creating new revenue

streams. Unlike the traditional approach of setting up separate feeds for localising ads, Amagi’s STORM platform eliminates the need for high CAPEX and OPEX that is typical with regional feeds.

Central to the STORM platform is Amagi’s innovative, patented content watermarking technology. The Amagi watermark is a unique, invisible and inaudible signature that is inserted into the broadcast feed. The platform also consists of an advanced IRD installed at operator headends.

The STORM IRDs are capable of receiving broadcast feed and recognising the Amagi watermark. These watermarks act as replacement triggers and the STORM IRD replaces watermarked content with appropriate local ads stored in it as per the local playlist. The platform is flexible in supporting delivery of local ads to the STORM IRD devices either through trickle satellite bandwidth or via the cloud.

The STORM platform also supports traditional triggers such as DTMF and SCTE 35 cue-tones in addition to Amagi watermarks.

THUNDERSTORM Dynamic OTT Ad Insertion Platform

Amagi’s THUNDERSTORM platform enables TV networks to dynamically insert ads on the server side simplifying the delivery of personalised and targeted ads on premium live and linear OTT feeds.

With the ability to perform instant, server-side ad insertion, TV networks now have an effective approach to OTT ad insertion compared with the traditional method of inserting mid-roll ads on the client side. The platform allows broadcasters to insert multiple types of ad formats, including bugs, L-bands and linear video for ultimate flexibility. Since ads are stitched at the server level, THUNDERSTORM eliminates the need to create device-driven OTT ad streams making ads compatible across various screens.

Awards for Technology Innovation
IBC Innovation Award 2015

Amagi was honoured with the IBC Innovation Award based on its unique ability to replace key content on Sundance Channel Global’s Latin American feed



▲
KA Srinivasan of Amagi and Dave Alworth of Sundance Channel Global receiving the IBC Innovation Award 2015.

with content specifically geared toward the Brazilian audience, without using separate satellite feeds or reducing audio-visual quality.

The solution features Amagi's STORM platform and an innovative content watermark-based workflow that makes it easy for broadcasters to regionalise television content, seamlessly replacing bugs, logos and other channel graphics.

ASBU BroadcastPro Middle East
2015 Innovative Project Award

Amagi's STORM platform enabled NDTV, a pioneer in television news in India, to

regionalise advertisements in the Middle East without disrupting the existing workflow and satellite infrastructure or incurring significant CAPEX and OPEX.

Using trickle satellite bandwidth, NDTV can deliver local replacement ads and the playlist on the common satellite feed. Installed at various headends in the region, Amagi's STORM IRDs receive the common satellite feed, recognise the watermarked ads and then replace them with the local ads as per the local playlist.

Amagi won the Innovative Project of the Year award for monetising the Middle East market for NDTV.

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PREMIUM VIDEO DELIVERY

Erstream has been operating globally for the past 14 years as a leading technology company with a strong presence in the world's leading markets providing top-quality products and solutions to content owners and broadcasters. Their products include encoding, CDN and web streaming software and services that are researched and developed in their own R&D labs under the expert supervision of uniquely gifted engineers. Erstream works in collaboration with Turkey and the international market's established content creators and broadcasters.

Erstream focuses on end-to-end online video delivery and works continuously to improve cost-effective solutions to their customers.

Erstream CDN Special Features

Compared to other CDN services available in the market, Erstream is only focused on premium video delivery. Features include the following:

- Storage cost of the customer brought down by 70-80%.
- Increases performance of storage and origin dramatically.
- Provides a high performance Edge server that does not require a specific HW; and a very powerful cache layer with enhanced features, and a cost effective proposal.

As many other traditional E2E CDNs, Erstream's operational flow is as below;

Ingest Work Flow (VMS)

- Encoding VOD and LIVE.

- Multi DRM.
- Common Encryption.
- Number of chunks reduction of HLS files.
- Upload, callback notification.
- Multi CDN support.
- Thumbnail, logo, watermark insertion, etc.
- API.

Storage & Origin

- Based on Gluster File System.
- Similar Topology Netflix.
- Built-in origin, zero network delay between storage and origin. Storage and origin server are built by Erstream based on an open source SW.
- Arc Cache file system with custom settings according to last miles

ERSTREAM CDN CLUSTER

GUARANTEED SLA

- %100 UPTIME
- LESS THAN 4 SEC START UP TIME
- %0.001 AVERAGE RE-BUFFER RATIO
- 720P %92 OF TOTAL VIEWINGS

Logos shown on the map: VECTRA, FILM BOX LIVE, LIGTV, RT RUSSIA TODAY, TRT, upc, skylink, TURKISH BASKETBALL FEDERATION, ABU DHABI MEDIA, Digiturk, atv, millenicom, atr, T.J.K.

Technical logos shown below the map: H.264 MPEG-4AVC, HEVC, HLS, mpeg-DASH, Smooth Streaming, ADOBE FLASH PLAYER, GPAC, Microsoft Silverlight

www.erstream.com

- behaviour and content type (MP4, HLS, SMOOTH STREAMING, JPEG, HTML, CSS, etc).
- Multi Nodes.
- 10Gbps constant uplink for chunked content.
- Multi-Format Support (mpeg-dash, HLS, Smooth Streaming).
- Multi DRM Support.

- On the fly DRM support.
- Custom Firewall settings for DDOS or SYN(when server serves directly to last mile).

Cache

- Customised for premium video delivery only.
- Enhance caching algorithms.

- Enhance fingerprinting techniques to prevent re-broadcast of any important event especially sports.
- Custom Edge service.

Analysis

- Based on no-SQL DB.
- Flexible filtering based on any different dimension in server logs.



Encoding Service

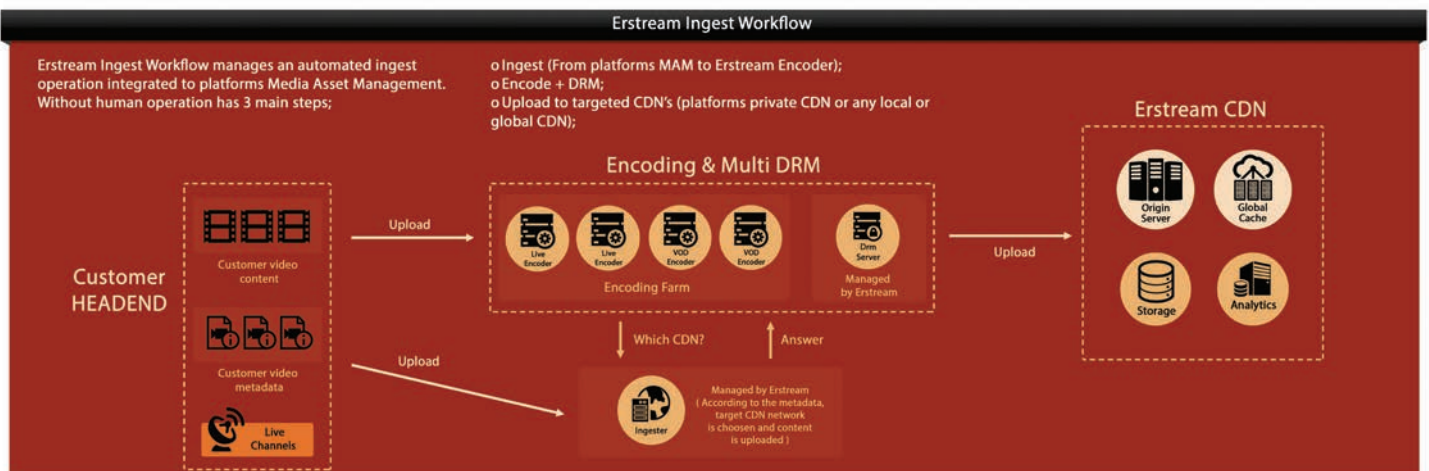
Erstream Encoder / Encoding Service supports H264 and HEVC as codec; HLS, Smooth Streaming and Mpeg-Dash as video format.

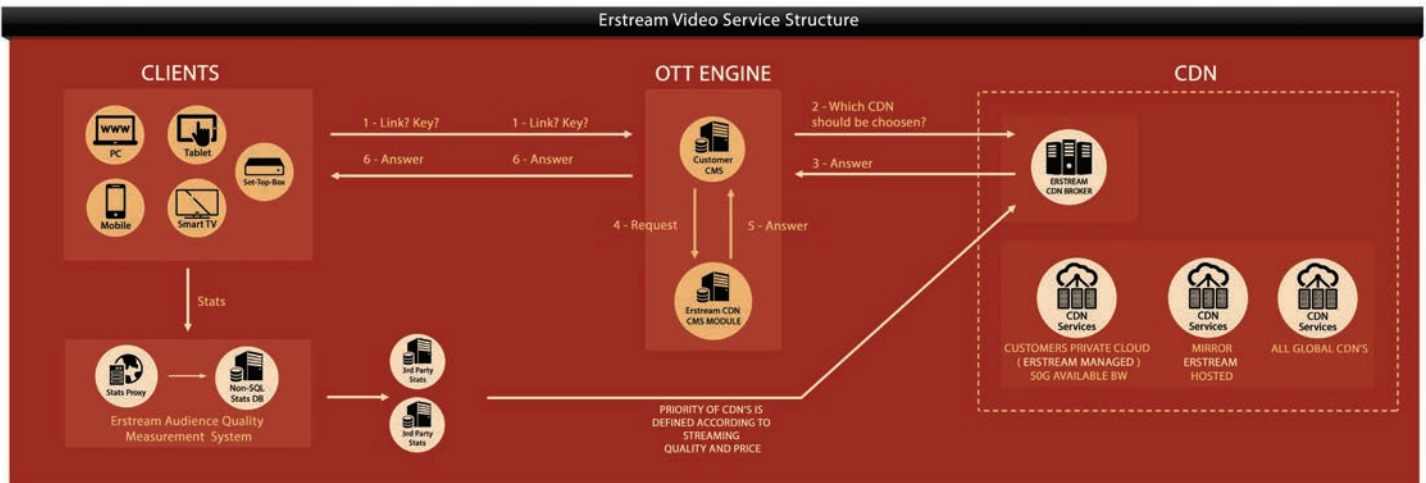
So how is the Erstream Encoder different from other encoders? The Erstream Encoder makes a pre-calculation

before the encoding process starts. This calculation finds out the ideal maximum bitrate for a specific content. The ideal bitrate is often determined by operators. Most operators want to give the best picture quality to their viewers and the easiest way to achieve that is by increasing the size of the bitrates of the outputs.

However this usually causes other issues and does not increase picture quality as expected.

To achieve picture quality, there are two criteria to be observed. One, if the size of the bitrate is lower than it should be, then you lose quality. And vice versa – which is if the size of the bitrate is higher than it should be, then there is the loss of storage size and storage performance (especially for standard HLS format, wherein storage is important as each HLS folder consists of thousands of mini ts files). There is also capacity demands in terms of CDN Edges or Uplink and unwanted re-buffer issues at the last mile because of high size bitrates, or low bitrate viewing ratio as it is difficult for client devices to download high-sized chunks. As a result of these blocks in bitrate determination, Erstream developed a workable logic that would help decipher it. In 2011, they created pre-calculation for deciding the ideal maximum bitrate size for a specific content. The ideal bit rate size is the bit rate size above the picture quality that does not increase and below the point where the picture quality can get worse.





Digiturk

Largest customer

Digiturk is the largest satellite and OTT platform in Turkey with more than three million subscribers controlling 50% of the MENA market. Digiturk has a huge video platform running globally covering Europe, USA, Asia, Africa and Australia.

Erstream provides the following services for Digiturk:

- DRM.
- VOD CDN distribution in Turkey (more than 30K video titles).
- VOD CDN distribution for global networks (more than 10K video titles).
- LIVE channels encoding.
- LIVE channels CDN for Turkey (more than 100 channels).

- LIVE Channels CDN for global markets (more than 100 channels).
- Encoding, CDN and protection for the most expensive of Turkish content, the Turkish Premium Football League.
- Smart TV apps for LG, Samsung, Arcelik, Vestel, etc.
- SmartTV app for delivering 4K VOD with Samsung/Digiturk (first in the MENA region).



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SERVING A GLOBAL COMMUNITY

NorthTelecom is a leading global satellite service provider offering satellite communications (ICT services) on land and at sea. Having high-quality managed network services from the East to the West, NorthTelecom delivers leading-edge satellite communication services and solutions to meet customer demands across the spectrum. Headquartered in Dubai, UAE, NorthTelecom prevails at 12 international points of presence with seven teleport operations, serving over 100 partners globally and enabling businesses to be accessed worldwide. Leveraging up-to-date ICT concepts, the company delivers reliable, efficient services and solutions to key industries such as telcos and GSM operators, ISPs, NGOs, media and broadcasters, the maritime industry, oil and gas, mining, the government sector and more.

NorthTelecom's achievements are a far cry from its humble beginnings in

September 2007. Within this short proactive period, the company has grown steadfastly into one of the most outstanding networking and satellite service providers globally, including internet access solutions and broadcasting services. NorthTelecom has a global reach now with offices in Germany and Singapore, supported by operations and teleports in South Korea, Singapore, Dubai, Greece, Spain, the UK and Cyprus.

The NorthTelecom corporate mission is communications all over the world and this undertaking has led the company to provide exceptional solutions that are bound by client contentment. Combining the strengths of its core professional team, NorthTelecom offers a plethora of services to its partners and customers all over the world, with a 24/7 network operations centre and global presence, thereby offering flexibility in aid and assistance to its valued clients. Their steady and invariable expertise lends an eye to businesses at all times.

Satellite Payload

NorthTelecom offers the advantage of satellite payload, targeted mostly at government entities and large corporations that are aiming to effectively invest in their own assets for purposes of long-term business security. With the rising trend towards broadband connectivity, large companies realise the potential of reaching across to the other half of the world, and the only commercial and viable means of achieving that is by way of satellite communications. Distance is no longer a hindrance. The NorthTelecom expertise helps companies study their options, and gives a first-hand account of their long distance connectivity possibilities, and insures their CAPEX and OPEX in the long run.

Broadband Internet

Advanced internet communication is the new basic need of today's modern world.



NorthTelecom provides broadband internet via satellite thereby accommodating satellite internet access on a variety of platforms including iDirect (TDMA, SCPC), SCPC and DVB-S2 with the teleport backbone in Europe and Asia.

IP Trunking

NorthTelecom offers IP connectivity services via satellite, providing end-to-end solutions that cover all equipment needs and ensures reliable connectivity. The corporate vision is to provide cutting-edge solutions for large-scale service providers including the government sector, telcos and GSM operators who wish to expand their quality of service at costs that are sustainable.

Furthermore, NorthTelecom is a leading global provider of internet connectivity solutions over satellites and has years of experience in implementing and delivering satellite ICT services through its earth stations and teleports in Europe and Asia.

Broadcasting (DTH, FTA)

Realising the increasing role that the media plays in daily life, NorthTelecom's networking solutions meet requirements for an integrated transmission and management system, which processes diverse bi-directional traffic types while automatically controlling multiple space and ground segment resources. It is ideal for high-speed contribution and distribution of any live or on-demand data, audio or video content from IPTV to HDTV. These solutions cater to various choices for transmitting video or streaming data in combination with telephony and production intercommunication. Likewise, they also have provision for SNG systems for broadcast in remote areas.

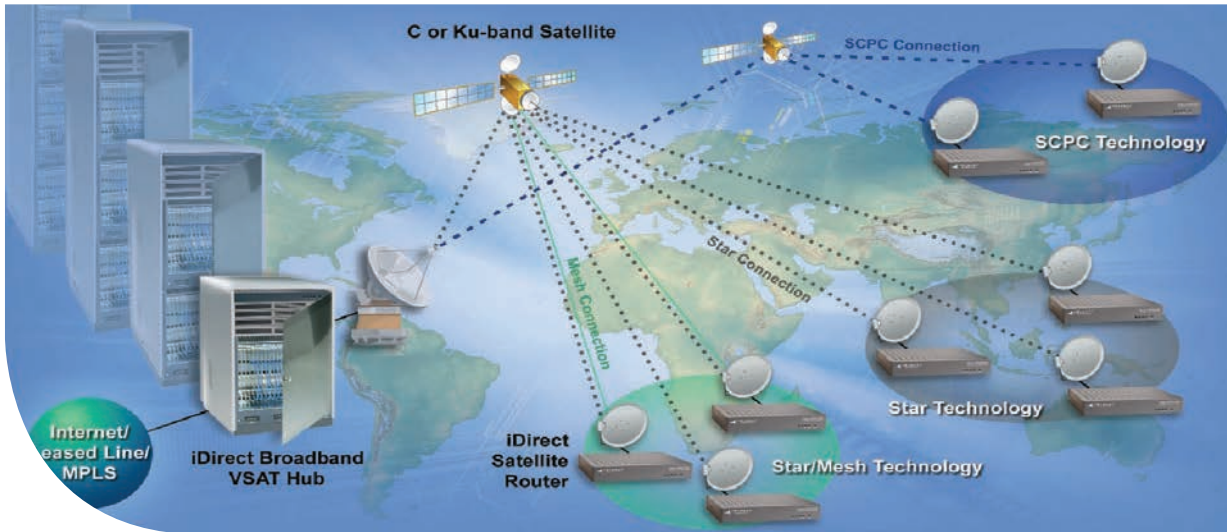
Private Network

Beyond providing satellite communications systems, the corporate endeavour is to engineer ways that improve productivity

and quality. The NorthTelecom VSAT satellite communications network is tailored to suit individual businesses, web applications or any sort of communications such as banking, real time monitoring, video conferencing, government and military services and much more. NorthTelecom provides a reliable and stable network along with security that protects your business and the organisation.

Offshore/Onshore (Oil and Gas)

The oil and gas sector's remote locations often mean heavy dependence on satellite solutions. As a result, minimising costs is key, particularly when bandwidth needs continuation to grow due to technological advances in exploration and production. Complex data from remote drilling sites are transmitted to corporate head offices for analysis by way of NorthTelecom's connectivity services through highlighted solutions.



NorthTelecom integrates instant connectivity at construction sites and once development is complete, satellite becomes an ideal solution for new urban developments or city outskirts. Construction companies and master developers can have regular updates from their construction sites through high-speed internet access.

Teleport Service

NorthTelecom Teleport service offers complete uplink and downlink solutions as well as telehousing requirements. Customers can have their own satellite platform hosted at the NorthTelecom facility, or share at the existing up-to-date facilities that offer immediate access to a robust, reliable internet backbone and fibre optic network across the world.

GSM Backhauling

In remote locations where communications services are expensive to set up or almost impossible, GSM backhauling provides a simple, quick and cost-effective way to provide connection for any sort of mobile network (3G and 4G systems). This application is also suitable for first responder use, disaster recovery and for humanitarian activity. Within minutes, a

secure, wireless communication setup can be established at any location.

MVSAT

NorthTelecom supports onshore and offshore operations extending their services to maritime VSAT with coverage from Asia Pacific to the Middle East and Europe. Knowing MVSAT as a high-speed, two-way IP broadband ship-to-shore satellite telecommunications service, NorthTelecom added value packages to its client along with its existing infrastructure, such as video on demand, GSM services, fax, VoIP and SIP phone services.

NorthTelecom at Your Service (Consultancy)

Mastering all phases of ground systems engineering, NorthTelecom offers consultancy through design to final turnkey delivery of uplink and downlink stations, control centre, teleports, video and data management platforms and network operations centre. From pre-designing satellite payload to its technical, financial and market specifications, regardless of project phase and challenges, NorthTelecom offers consultancy solutions until completion of a mission.

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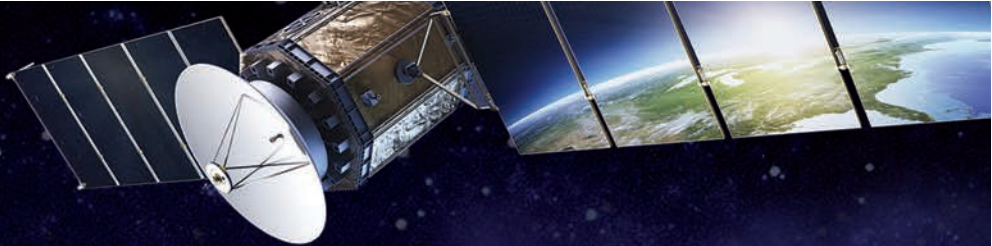
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North Telecom



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- TV & Radio Broadcasting
- MVSAT
- Teleport service
- Private network
- Broadband internet
- Transponder lease
- Oil & Gas service



PCCW Global

NETWORKING MEDIA SOLUTIONS ACROSS THE GLOBE

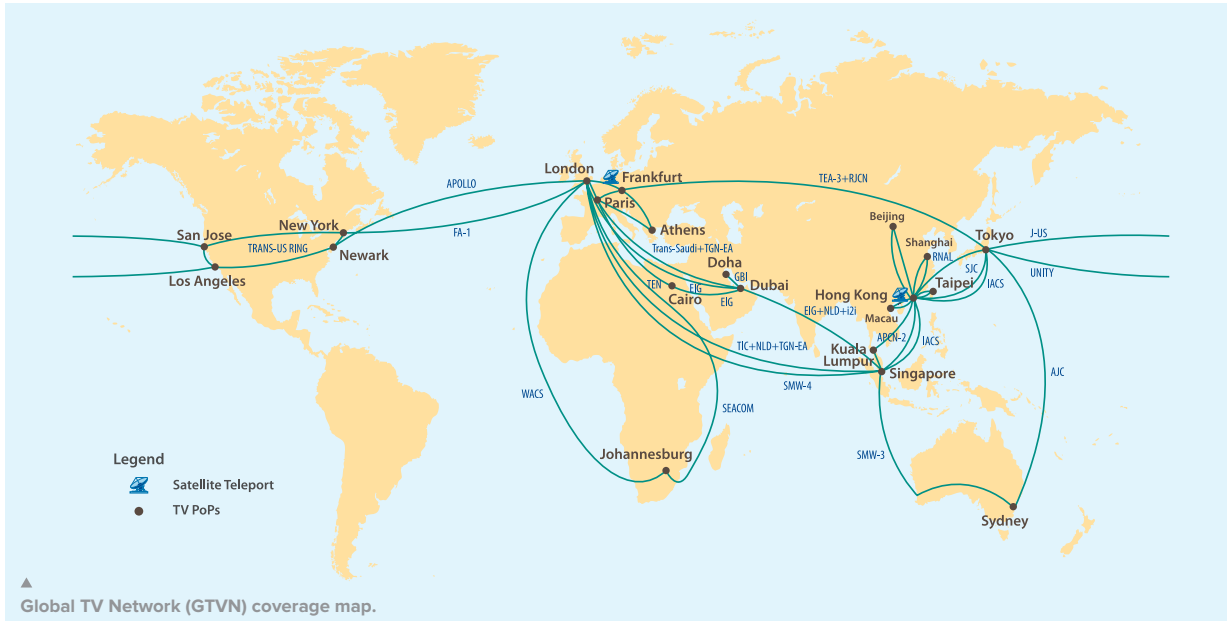
PCCW Global is a leading telecommunications provider with network coverage in more than 3,000 cities and 140 countries. Apart from offering innovating voice and data solutions with the global network coverage, PCCW Global is aggressively expanding its portfolio of video solutions for the media industry.

Through a truly global coverage, combined with local, on the ground knowledge, PCCW Global has built the best in class connections across the globe, especially in some of the remotest, hard-to-reach areas in exciting growth markets across Asia, Africa, Latin America and the Middle East. Built on one of the world's largest and most diverse, integrated global backbones, PCCW Global offers a portfolio of network solutions that provide an efficient way to connect your business, wherever you are located.

PCCW Global has inherited over 40 years of experience in the media industry and has been a trusted partner for international broadcasters and service providers. The company offers a comprehensive **MediaFlex Video Platform** with the option to have strong end-to-end management from the company to enable rapid entry in the fast-moving multi-screen OTT video market.

Video Contribution and Distribution

PCCW Global offers an integrated global satellite and fibre infrastructure to support global video contribution and distribution. **Global TV Network (GTVN):** Advances in technology have meant that TV broadcasting has evolved from analogue to digital and now high definition is a de-facto standard. Transportation of digital video content internationally has traditionally been served by satellite transmissions.



However, with the increase in bandwidth requirements for carrying high definition video content, it has become very costly to contribute video content point-to-point or point-to-multipoint over satellite (although satellite is still the most cost-effective way to distribute to mass receiving ends). The media sector is converting to adopt diversified fibre transmissions as the means of carrying video content from source to mass distribution headends.

PCCW Global deployed GTVN, a video switching platform over its cable infrastructure, to offer a true managed end-to-end global video contribution solution. Apart from extensive global coverage and robust backbones, the GTVN platform supports Simplex transmission and video multicasting for cost-efficient point to multi-point video content delivery. Coupled with PCCW Global satellite teleport presence, the integrated platform provides a highly customisable, reliable, end-to-end

solution for worldwide contribution and distribution of video content.

Satellite TV Network: PCCW Global is headquartered in the broadcasting hub of Asia and has established the largest commercial teleport in the region with more than 30 operating earth stations in Hong Kong. In addition, PCCW Global has

self-owned teleport facilities in Europe and Africa and partnerships with satellite and teleport operators worldwide including interconnections with video switches in strategic locations around the globe.

With its global broadcasting teleport presence, PCCW Global operates a global satellite video contribution and distribution network. Whenever there is breaking news, special global coverage events, or regular broadcasting segments, PCCW Global is able to provide ad-hoc and full-time access anywhere in the world via satellites in the Asia Pacific Region (APR), Indian Ocean Region (IOR), Pacific Ocean Region (POR) and Atlantic Ocean Region (AOR).

MEDIAFLEX VIDEO PLATFORM

Launching your own multiscreen OTT video service is never easier:

- ▶ Cost-effective high quality media transmission.
- ▶ World class quality transcoding at exceptionally low and stable bitrate.
- ▶ Flexible cloud-based OTT TV service.
- ▶ High-performance CDN optimised for video delivery.

Transcoding

The rapid uptake of content consumption on multi-screen has presented a challenge to broadcasters, service providers or content providers to prepare the appropriate formats optimised for consumption on the

increasing variety of devices. Uncertainty on the evolution of different competing formats further adds to the complexity on the CAPEX investment decision for the corresponding transcoding platform.

PCCW Global offers a cloud transcoding solution that dramatically simplifies the content transcoding process with presets for a wide variety of devices and flexible workflows. The transcoding solution offers a pay-as-you-go model to provide flexibility for the broadcasters, service providers and content providers.

Delivering broadcast quality content at limited bitrate is always a challenge and also a differentiator for multi-screen applications. This is particularly important in emerging countries with limited network bandwidth. The PCCW Global transcoding solution outperforms the market by transcoding content in superior broadcast quality and low bitrate even for the most challenging fast-moving sports scenes. This gives service providers and content providers a competitive advantage to uplift the customer multi-screen video experience without increasing their network investment.

OTT Video Management

PCCW Global's OTT Video Management offers broadcasters, service providers and content providers a rapid, low risk, cost-effective entry into the OTT video market with a fully managed and integrated hosted solution.

The OTT Video Management enables operators to deliver a full range of advanced digital video services, taking advantage of PCCW Global high performance, secure Global CDN (content distribution network), integrated content management

system (CMS) and Electronic Programme Guide (EPG). The OTT Video Management supports a wide variety of business models and extensive analytics to facilitate operators to experiment different models to maximise monetisation of their content.

The service is offered as a white label product and can be scaled to meet the needs of all audience sizes, from small niche communities to global markets. Entering the market with this hosted solution helps operators avoid the capex intensive infrastructure or specialist staff typically required to build and operate an IPTV service, and allows them to focus on their business requirements.

Content Delivery Network

The PCCW Global CDN Network has been built to optimise delivery of large files and video on-demand. The network allows users to bypass the congested public internet and experience video in high definition on their laptop, tablet or smartphone with picture quality that is almost as good as being at the event. The PCCW Global CDN provides leading coverage globally, including China, with innovative solution elements to enable CDN to be custom built to extend coverage in hard-to-reach areas in developing countries to ensure the best user experience to the global audience.

About PCCW Global

PCCW Global is the international operating division of HKT, Hong Kong's premier telecommunications service provider, which is majority-owned by PCCW Limited. Covering more than 3,000 cities and 140 countries, the PCCW Global network supports a portfolio of integrated global communications solutions which include

Ethernet, IP, fiber and satellite, voice and a suite of managed services to help customers to optimise communications, simplify operations and drive profitability.

PCCW's advanced security solutions incorporate real-time threat intelligence to identify and combat known and unknown advanced network threats in their infancy.

The company's global IPX network supports a one-stop solution for next generation of voice, video, messaging, roaming solutions, enabling MNOs to deliver a high quality seamless mobile experience.

PCCW's media and entertainment solutions include fast, efficient video contribution and distribution, high speed cloud-based transcoding and a fully integrated hosted online video platform facilitating rapid, low risk, cost-effective entry into the online video market.

PCCW Global maintains regional centres in Hong Kong, China, Japan, Korea, Singapore, the United States of America, the United Kingdom, France, Belgium, the United Arab Emirates and South Africa. *To learn more about PCCW Global, please visit www.pccwglobal.com.*

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EMPOWERING MEDIA BUSINESSES WORLDWIDE

U-TO stays true to its promise to deliver unmatched media solutions to clients spread across the APAC region with its flagship offerings 'RightsU - Rights Management Solution' and 'BroadView - Broadcasting Management Solutions for scheduling, programming, acquisition, ad-sales and traffic'. Trusted by industry leaders globally for over a decade, U-TO's expertise and in-depth understanding of the media domain

has helped broadcasters, studios and distributors address the complexities of their evolving business needs.

The rapid evolution of digital devices and consumer behaviour is reinventing the broadcasting industry. To keep up with new challenges, media and entertainment companies have leveraged U-TO's capabilities to maximise revenues from their content, advertising and promotional inventories.

Since its inception in 2000, U-TO has

innovated and reinvented its solution offerings with scalable technology, to provide cost-effective solutions and operational efficiency. Companies choose U-TO for its expertise in consultancy, project management, design, integrations via web services/API, flexible workflow, implementation and training, maintenance and post-implementation support.

As the media landscape shifts towards non-linear platforms, U-TO is adding the appropriate tools to manage programme scheduling on OTT, electronic sell through, download to own (DLTO), TV everywhere, cable VOD, SVOD, web and IPTV.

Company Goal

"At U-TO, we believe in merging technology, innovation and business knowledge to help our clients achieve more," says Sumit Suri, Founder of U-TO. Suri, a technology enthusiast leads a young team of domain experts in global broadcast and media.

Middle East Footprint

From its regional base in the UAE, the company is poised to offer broadcast solutions and services to existing and



Richard Saldanha
Head - MENA

Dheeraj Lilani
SVP Business Development & Strategy



prospective clients spread across the Middle East, Africa, Iraq, Pakistan and Afghanistan. With continuous investments and rapid expansion, U-TO has created a strong presence in the Middle East and this is the company's second consecutive participation at CABSAT.

MENA Penetration in the Last Year

- Image Nation, Abu Dhabi
In partnership with Discovery Communications, Image Nation launched Quest Arabiya, a free-to-air channel for the Middle East region. The channel showcases locally produced Arabic infotainment content as well as leverages the large Discovery library dubbed in Arabic. U-TO implemented a playout interface

with Ericsson at TwoFour54 which supports automatic generation of dynamic secondary events with native support for Arabic.

- Moby Group
Tolo, Tolo News and Lemar TV Channels in Afghanistan and Lana TV in Iraq, which are being uplinked from the Moby Group's first-of-its-kind, state-of-the-art facility in Afghanistan. Alliance Media-Urdul leading GEC in Pakistan uplinked out of DMI (UAE).
- Fatafeat, UAE
Fatafeat, a part of Discovery Communication is the first free-to-air food channel in the Arab world with playout from Samacom facility.

Broadcast Management System

U-TO Solutions and BroadView Software are dedicated to deliver solutions to the television broadcast industry worldwide. With over 500 channels using U-TO software globally, the company offers cutting-edge technology to support any format in any country in multiple languages. U-TO provides an extremely powerful, yet easy-to-use software solution that helps these groups manage all their multi-channel needs in programming, traffic, on-demand, media and ad-sales for linear and non-linear platforms. U-TO and BroadView's collaboration has brought a significant change in broadcast management.

Clients include:

- Television networks and stations.
- Radio networks and stations.

- Speciality channels and cable networks.
- OTT and On-Demand needs.
- Non-commercial broadcasters.
- DTH operations.

Content Rights Management and Business Intelligence

The media domain has evolved in recent times and is now more aware of its content rights and exploitation. Rights are treated as a strategic investment bringing about an overall change in business perspective. U-TO designed and developed a product ‘RightsU’ that addresses all these business scenarios with intelligent modules and granular reporting.

RightsU provides complete visibility and control over all acquired and syndicated media assets. This powerful solution empowers businesses to manage content at every stage of the assets life. From acquisition to syndication, get complete flexibility and convenience in managing assets across multiple platforms, territories, hold-backs and languages along with

intelligent built-in reporting systems that help broadcasters track royalty payouts, custom defined revenue/profit sharing rules, etc. RightsU also provides insight into all available asset inventory across platforms or territories enabling revenue opportunities. It manages and monetises assets helping businesses achieve more. What sets RightsU distinctly apart from its competitors is:

- Protection from intellectual property rights violations.
- Asset availability.

Recent Achievements

The last quarter of 2015 was an indicator of U-TO’s success and its impact in the media domain.

RightsU - BroadView Integration

In a key strategic move, U-TO accomplished native integration of asset rights (RightsU) and programme scheduling (BroadView) - the first of its kind in the Indian sub-continent.

The integration eliminates intellectual property rights violations. This comes as a huge relief for broadcasters facing potential losses from law suits of intellectual property rights violations. The data exchange between two systems is seamless, reducing dual data entry efforts and maintains data consistency across all business units.

Compatible Interface Protocols & Mechanism

U-TO has significant experience in developing interfaces and integrations to suit client systems. These interfaces are text or XML-based and APIs or direct database connections. Furthermore, an open database structure that is ODBC, JDBC and .Net compliant also makes it easy for other systems to extract key data directly from a database.

Today U-TO integrates with automation systems, media asset management systems, video servers, ingestion systems, character generators, graphics systems, accounting systems, EDI systems, sales proposal systems, media archive systems and various email delivery platforms.

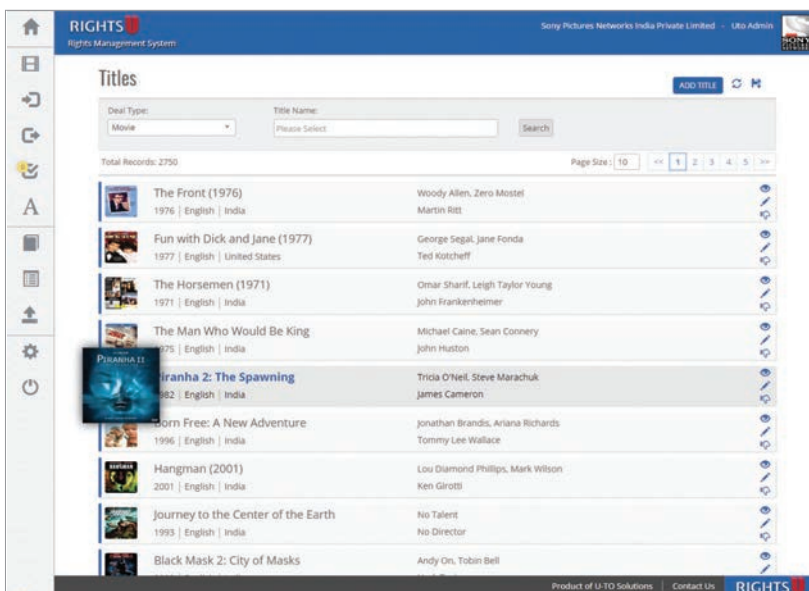
Client Footprint

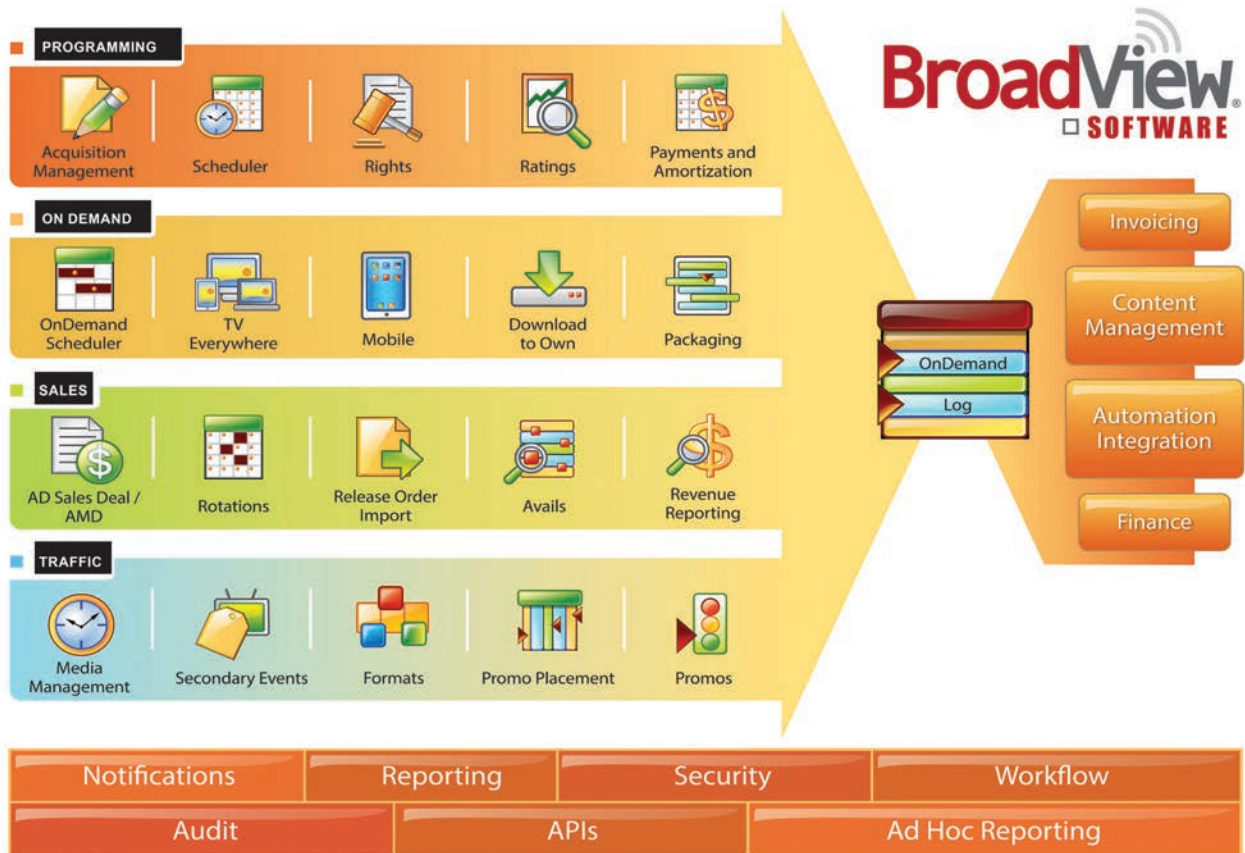
Sony Pictures Network

A global commercial television provider with operations in Mumbai, Singapore and London, the group operates 30+ channels across six time zones.

Discovery Communications, USA

A \$4 billion company, Discovery Communications has implemented BroadView’s scheduling and asset meta-data tools for all of its 10 US networks. Worldwide, Discovery reaches 1.8 billion cumulative subscribers in 218 countries





and territories through its 155 channels. The implementation involved complex interfaces to numerous legacy systems in the Discovery environment.

PBS, USA

BroadView is used by the PBS network to manage over 15 video streams that serve the 300+ PBS member stations across the USA. This system has over 350 users in Washington, DC. PBS has been using BroadView from 2006 and has been implementing workflow improvements and customisations ever since.

Rogers, USA

A large North American group, it owns and manages 46 local television channels arranged into a complex web of parent and child schedules. The group has over

725 users and has been managing these channels on BroadView since 2002.

Viacom18 Network, India

BroadView’s programming, scheduling, traffic and sales system is used by Viacom 18 network for 25+ channels across various genres such as general entertainment (English, Hindi and regional) music, kids shows, etc. Viacom18 Media Pvt. Ltd. is a 50/50 joint venture operation in India between Viacom Inc, US and Network18 Group.

Tata Sky, India

BroadView is deployed at TataSky, which is one of India’s largest DTH platforms with over 11 million subscribers. BroadView also manages EPG content for TataSky integrating with NDS.

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PRESERVING AUDIO-VISUAL ARCHIVES

Vectracom is a service company specialised in preservation and valorisation of audio-visual heritage (films, video and audio).

Every year Vectracom digitises 100,000 to 200,000 hours of content regardless of their physical media type, covering broadcasters, administrations, corporates, museums and associations. Vectracom is the leading mass digitisation company in Europe with proven expertise and references for critical and/or large projects.

Founded in 1991, Vectracom headquarters is located in Paris, France but the company operates worldwide with offices in Europe, North Africa and USA.

On-Site Service

Vectracom has long experience and good understanding of content owners' needs. Therefore, for digitisation, the company suggests on-site service close to the archives vaults to avoid difficulties

in shipping archives across. Audio-visual cultural heritage is of great importance and hence it is necessary to limit the risks involved.

When a broadcaster, association or an administration has decided to go for a digitisation campaign, Vectracom comes on site with the required equipment and people. The company takes care of everything. The content owner has only to provide or give access to the legacy audio-visual carriers. At the end of the project, the company takes back all equipment and the content owner has all their assets in a digital repository.

Service Means Saving Money

In case of content migration, the big benefit of sub-contracting with Vectracom is the total cost of operation. It is more expensive for a content owner to do the job internally because they face complex tasks and heavy investment. By doing the job in-house, a content owner

needs to manage the project in detail, purchase equipment and manage the operations. For the end users, Vectracom makes the project simpler and limits the risk. It also replaces large Capex by smaller Opex.

By doing the job themselves, content owners have to deal with five big issues:

- Find (hire) people with old formats expertise for staff management.
- Find (buy) the legacy machines to play the original material.
- Maintain these players and time to refurbish them.
- Take charge of systems design and commissioning.
- Finally, hire, train and manage staff.

At the end, it is a lot of things to do and many risks to take and once all the material is digitised, the content owner pays for equipment that has become useless or redundant. As Vectracom is the best specialist that you can find, the risk to content owners is reduced.





SD/HD/2K/4K scanning



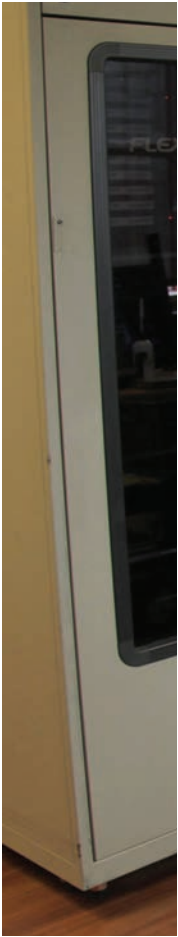
System under verification before shipment.



Parallelised digitisation with a quarter inch audio.



Vectracom is the expert of legacy formats.



In-house Designed Solution

Vectracom also uses several in-house software designed for archives digitisation. From workflow management, to automation systems and quality control, it is all about specific software allowing the company to provide fast solutions and customised services at the best possible price.

Digitisation - Do It Now!

Content owners “should think about digitising their assets if it is not already done,” explains Laurent Gignoux, president of Vectracom. “There are several factors that are making it more and more difficult to digitise or retrieve media from audio and video tapes.” According to Gignoux these are:

- Material is ageing and degrading over time. This is true for all media (moisture and fungi) but more specifically for the film (Vinegar syndrome).
- Keeping material in optimal storage is expensive – and you have to pay as long as you don’t digitise it.
- Legacy machines are now rare, in few years they will be untraceable and in a few decades they will be gone.
- Spare parts cost will increase

dramatically. In 2023 beta heads will become unavailable.

- People having legacy machine knowledge are getting older.
- The sooner you get digitised content, the sooner you can monetise it.

Valorisation: Make Money with Your Historical Content

Once content is digitised, it becomes available in many ways and gets a new life. As a file, it can be stored on various containers (hard disk, LTO, DVD, USB keys) and copied, transferred through the internet and broadcast without any limitation. Asset Management System may retrieve any content with just some keywords or indexes. Indexing is of prime importance, an archive has no value if it is not indexed as it is not usable.

Vectracom has developed new services to help content owners to value their assets such as metadata enhancement services. Large projects of these types are currently in progress in Saudi Arabia.

Service Quality With an ISO 9001 Certification

Vectracom is among the very few service companies to have made so much

investment on quality. Each step of the workflow reflects Vectracom’s constant concern regarding quality. This means love and care of original material, faithful digitisation and comprehensive file checking, specific proprietary software allowing constant VTR monitoring during transfer. Each snag is recorded in a database. Vectracom is probably one of the very few service providers in the domain to display an ISO 9001 certification.





▲ Mass video digitisation using cart machines.



Large Project Management

Vectracom has been in-charge of the largest projects of audio-visual archive digitisation during the last 10 years and has saved more than 800,000 hours of video and 25,000 hours of film. Several countries have trusted Vectracom with preserving their legacy tapes including Arab countries that have entrusted Vectracom with their legacy tapes, such as Saudi Arabia with (60,000 hours spread on 7600 films, 32,000 two-inch reels, 41,000 one-inch B reels and 1,600 one-inch C reels) and Tunisia with (11,000 two-inch reels).

Vectracom is currently managing huge preservation campaigns:

- For Saudi Arabia: 110,000 hours of Beta

tapes and metadata enhancement of 250,000 clips.

- For Switzerland: More than 45,000 hours of audio tapes.
- For France (INA): 350,000 hours of Beta tapes are currently digitised (50,000 each year).
- For French territories: 120,000 hours of DV and Beta located in nine locations around the world (Polynesia, Carribean, Indian Ocean) are digitised on-site.
- For the European Parliament: 120,000 hours of audio cassettes.

Vectracom participates in the activities of various organisations such as FIAT/IFTA, IASA, ICCROM and AMIA.

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MIDDLE EAST PRODUCTION & BROADCAST

PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

Systems Integrators

- ▶ AI Futtaim Technologies
- ▶ Aret Video and Audio Engineering
- ▶ BFE Studio und Medien Systeme GmbH
- ▶ Broadcast Solutions GmbH
- ▶ Broadcast Systems Arabia
- ▶ GloCom
- ▶ HEAT for Engineering and Technology
- ▶ INC System Integrations
- ▶ Systems Design
- ▶ Tek Signals/Qatar Signals Systems
- ▶ TSL



AI-Futtaim technologies

CONSOLIDATED INTEGRATION SYSTEMS

Al-Futtaim Technologies, one of the region's leading systems integrators, is part of the AI-Futtaim group of companies.

Al-Futtaim Technologies provides complete business solutions for large, medium and small customers. These include complete broadcast solutions, audiovisual solutions, networking solutions, IP telephony, infrastructure, contact centre solutions, business applications, ELV systems and managed services.

With this strong pedigree and respected leadership position, Al-Futtaim Technologies offers its customers a sense of confidence in dealing with a well-established organisation where serving the needs of customers is fully understood and the key driving force.

The established success of Al-Futtaim Technologies has been largely attributed





to its ability to understand the customer's business needs and provide workable business solutions through effective design and implementation. This has resulted in an impressive customer base where the company has delivered a set of practical executable plans to reduce operating cost and free up resources for new business initiatives.

Solutions Deployed

Al-Futtaim Technologies, as both systems integrator and business solutions provider, boasts a highly skilled and professional workforce with many years of combined experience. It is a converged systems integrator capable of catering to the needs of office, commercial and residential customers. The company's offering of solutions and services cover a wide range low current and ICT systems for end-to-end solutions. These low current systems include, Broadcast Solutions, Audio-

Visual Systems, Public Address Systems, Professional Audio Systems, distribution and acoustics, security systems and integration, access control systems, master clock system, nurse call systems, IPTV Systems, Video Conferencing systems and Intelligent Control systems. Al Futtaim Technologies' ICT product range comprises voice and data solutions, infrastructure solutions, servers and storage and Microsoft Business Solutions.

Broadcast Solutions

In broadcast, Al Futtaim Technologies deliver collaborative solutions for radio, television and OB in the region. The design team are experts in delivering solutions for TV and radio studios, MCRs, post-production, newsrooms, headends, DSNGs, TX&RX, studio lighting, play out, virtual radio solutions, media storage, studio networking, Media Asset Management and upgrading solutions.

The company integrates innovative solutions, working with leading brands and manufacturers with NO boundaries and their services include consultation, design, deployment of solutions and annual maintenance contracts.

Audio-Visual System

Al Futtaim Technologies has AVSP with on-board professional sales team and dedicated pre-sales team who are qualified and technically certified in systems design. The team designs solutions that caters to government, education, religious and transportation facilities. Installations include arenas like stadiums, performing arts spaces, classrooms, auditoriums, boardrooms, command-and-control centres, courtrooms, museums, training rooms, multimedia presentation rooms, call centres, video walls, smart classrooms, small to large meeting rooms, guest room management systems,

interactive digital signage, presentation systems, dynamic digital signage, collaborative conferencing systems (Video-Audio-Data and Web-Conferencing), smart audio-visual systems for enterprise and education, streaming media solutions, stage lighting, language translation and voting system, and lecterns. Most importantly the company has its own technical deployment team trained to install any complex audio-visual system.

Training is Key for Successful Implementation

AI Futtaim Technologies' onsite training session is intended to give end users a comprehensive understanding of



Dawood Bin Ozair, Senior Managing Director, AI Futtaim Engineering and AI Futtaim Technologies.



Venkat R, General Manager, AI Futtaim Technologies.





audio, video and control fundamentals along with a greater awareness of systems technologies and improved troubleshooting skills.

Al Futtaim Technologies truly believes that product training to end users improves the know-how with AV technology and provides strengthened knowledge on installed products and applications – this process gives customer peace of mind and the confidence to operate the systems they deserve.

An expertise in any field saves valuable time and money and confirms a higher level of customer service and satisfaction.

One-Stop Systems Provider

Working with both SMB and enterprise customers, the key focus is on delivering value. The company's customer list includes many well-known organisations in the UAE and across the region. Al Futtaim Technologies seeks to further

spread out in other countries within the region to address its 'One Stop Broadcast, Audiovisual & ICT System Integrator' campaign for customers headquartered in the UAE, and share in their regional growth aspirations.

The Al Futtaim Technologies' area of expertise is in building, installation, integration and maintenance of audio and video solutions for broadcasters - from image capturing to transmission solutions and beyond. The company's experience and established strategic partnerships with the best global brands have enabled it to advance its incomparable depth of technical knowledge and experience in the broadcast industry, which is reflected in its ability to increase customer efficiency, productivity and profitability as well as the strength of its relationships across the region.

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EXTRAORDINARY ENGINEERING ACHIEVEMENTS

Italian company Aret Engineering is a globally active broadcast systems integrator with wide ranging experience in the provision of complex broadcast projects.

Established 40 years ago in Milan, Aret continues to deliver consistently high-profile turnkey projects to an international client base in Europe, the Middle East, South East Asia, Africa and America.

Aret's engineering expertise encompasses TV/ radio OB Vans, DSNG Vans, radio and TV production, post-production studios, news studios, production automation, master control rooms, tapeless workflows, storage and robotics.

Aret services, which are exclusively managed by Aret trained staff, include consultancy, architectural design, systems

design, project management, coach building, systems integration, training and after sales support.

A History of Success

Founded in 1976 to provide OB Vans and studios for RAI Radiotelevisione Italiana, Aret unfailingly demonstrates growth in its business and technical expertise. Thanks to the wide range and volume of projects successfully rolled out, Aret continues to retain the confidence of its customers worldwide. The drive for unceasing improvement prompted the creation of a 'Learning Organisation' within Aret which sets a benchmark for every project delivered and attempts to improve the next one. This is an Aret tradition.

Aret is justifiably proud of its success in the Middle East and Africa with more

than 34 OB Vans delivered over the last 15 years, along with successful projects concluded in production studios, robotics studios, MCRs, MAM systems and conference rooms. These projects were delivered to broadcast clients in Qatar, Kuwait, Bahrein, Iraq, Syria, Lebanon, Saudi Arabia, Tunis, Morocco, Nigeria, South Africa as well as private service companies.

Ethics

Aret has built its market position through strong ethical values. Honesty and fairness is the beating heart of all Aret business practices – a position from which the customer receives impartial advice matching proposed solutions to budgets. With over 400 OB Vans, multiple TV studios and broadcast systems delivered



worldwide, Aret's clients enjoy direct and consistent support.

Unique Approach to Systems Integration

Aret's unique approach to broadcast systems integration relies exclusively on Aret internal resources with fully trained, skilled and experienced staff covering all relevant subjects e.g. broadcast and RF, mechanics, air conditioning, hydraulics, power engineering and project management.

With its in-house coachwork department and many years of experience, Aret has developed a highly effective coach building technique specifically dedicated to OB Vans working in harsh weather environments. A formally appointed project management office, utilising the best practices in management acts as the customers' 'in

house' representative and thus responsible for smooth project roll out.

Every project is commissioned with a fully detailed check list, shared and agreed with the customer before the commissioning phase commences. The check list includes HW inventory and a detailed system performance check.

After delivery of a project with commissioning and training processes completed, Aret product specialists and project managers remain available as single points of contact to assist customers during their daily operation to guarantee the success of the project.

At Aret, commitment to customers is paramount.

400 Turnkey OB Vans Delivered

Aret has one of the widest global

experiences in this sector and understands the unique challenging nature of these projects. The company's expert capabilities translates to powerful design, flexibility, reliability, space, ergonomics, heat dissipation and air conditioning to achieve success. Aret understands the customers' need in a 'Live' situation!

All broadcast projects are designed and implemented with several redundant paths and all infrastructure around the system is carefully created to anticipate potential emergency situations and guarantee Live-On-Air event success.

Through Aret's internal coachwork department, the company has developed unique coachbuilding techniques which deliver exemplary performance in:

- Reliability.
- Emergency operations.



- Operation safety.
- Robustness and flexibility.
- Absence of rust and any kind of corrosion.
- Waterproofing.
- Space available inside.
- Soundproofing.
- Thermal insulation.
- Damage prevention through human error while operating expansions.
- Easy maintenance.
- Spare parts availability.
- Quality finish.

Aret OB Vans have an unmistakable style with standardised components that are simply the best suited for the purpose. All Aret designs have an unmistakable Italian style based on a careful choice of materials and use of the finest Italian craftsmanship to deliver unique bespoke products.

After-Sales Support

With turnkey projects delivered throughout the world and with all components made in-house, Aret delivers comprehensive after sales support using stored strategic information for all projects including:

- Broadcast system drawings.
- Power, mechanics and hydraulics.
- Air-conditioning drawings and schematics.
- Broadcast equipment HW inventory.
- Small parts inventory eg, lights, pistons, valves, filters, gaskets, etc.
- Full software inventory.
- All equipment configurations.

When a customer calls, ARET engineers are trained to give ready assistance on all items and technologies, to understanding where the problem lies and to provide workaround and permanent solutions

to allowing the customer to return immediately to operations.

After this value-added performance, the final problem solution normally consists of a spare parts shipping.

Aret Care Programmes

All customers who have sought turnkey system from Aret receive maximum care and immediate assistance to resolve issues in the event of a crisis. Beyond this Aret offers bespoke customer care programmes including periodic general check and ordinary maintenance, periodic performance checks, SLAs and spare parts packages.

Unique Project Capability

ARET recently delivered large and outstanding turnkey studio projects which included two news studios including two production rooms, one teleport, two documentator rooms, two graphics rooms and 48 graphics and post-production rooms.

The project included over 100 rack cabinets and over 400 monitors, over 300Km of copper cables and 250 fibre optic links. The project involved over 100





staff and was delivered in five months.

The next project is the completion of a brand new 24hour news channel. This project includes two production rooms, playouts, teleport, edit rooms and graphics. Aret also oversaw broadcast infrastructure, design, project management and commissioning.

The Al-Rayyan OB Vans project was delivered to the Qatari broadcaster and consisted of a 14m HD OB trailer with double expansion sides, a support truck with a 70kVA diesel generator, an audio OB Van and a DSNG van. The OB Trailer

is wired for 18 cameras and is equipped with two wireless cameras and two super slo-mo cameras that are served by an architecture of networked slow motion servers. A powerful audio mixer capable of 340 DSPs together with a powerful intercom system serves the audio section, while a fibre optic system supports the transit of signals to and from the OB Van.

A management and supervision system controls all the variables inside the OB Van for powerful, flexible operations. All project details are available upon request.

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GERMAN EXPERTISE IN BROADCAST AND MEDIA TECHNOLOGY

BFE is a leading European broadcast systems integrator with more than 40 years of experience in planning and implementation of complex projects in broadcast and media technology including studios, master control rooms, broadcast IT systems and OB vans.

As a competent and reliable partner, BFE supports its customers in implementing systems solutions tailored to their specific requirements. BFE's clients also rely on them as a general contractor. In taking on this important responsibility, BFE is utilising its comprehensive competencies in solution design, broadcast and IT-engineering

and project management. To deliver the highest quality on time, BFE relies on its in-house capacities in mechanical and electrical engineering and production, as well as in-house joinery.

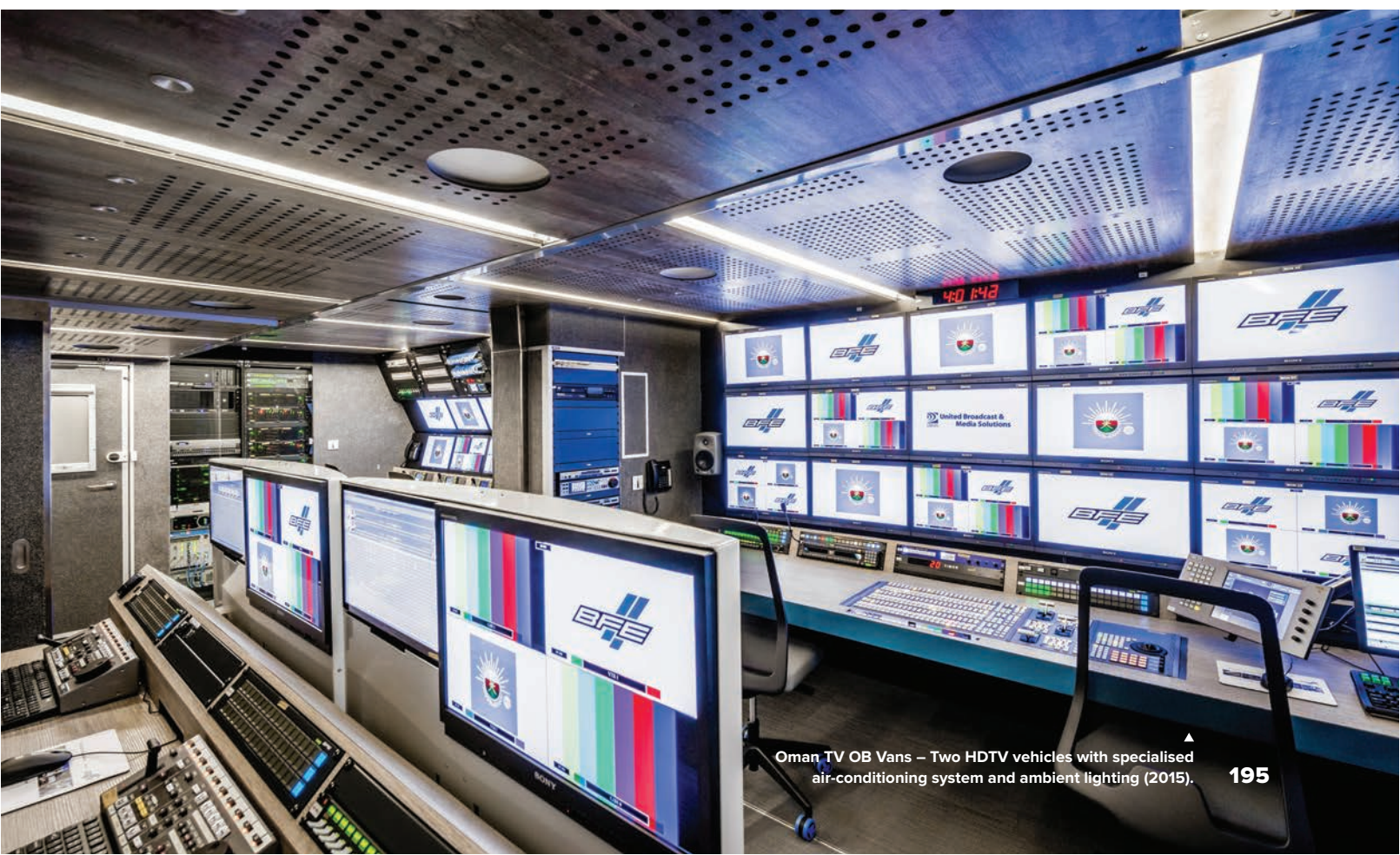
Over the past 40 years, BFE has successfully delivered projects in Europe, Asia, North Africa and the Middle East. Additionally, BFE is a leading provider of broadcast control and master control room management systems. The KSC software solutions such as the latest KSC CORE Control and Monitoring System, take care of the entire broadcast chain, enabling fast and flexible control of all systems. KSC solutions have been deployed worldwide more than 900 times.

BFE's Latest Projects in the Middle East

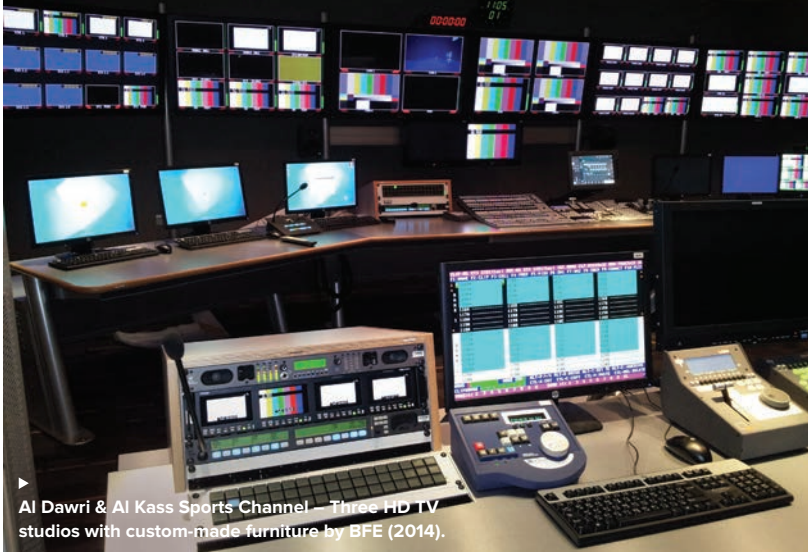
Al Jazeera

Al Jazeera was launched in 1996 as the first independent news channel in the Arab world; currently it has more than 70 bureaus around the world. This renowned broadcaster has selected BFE for a major project aiming to completely overhaul and augment its working infrastructure. Al Jazeera is aiming to centralise, upgrade and renew the core of its distribution facilities to deliver its audiences with unparalleled coverage and an elevated viewing experience.

With over 40 years of experience in successful projects for the broadcast



Oman TV OB Vans – Two HDTV vehicles with specialised air-conditioning system and ambient lighting (2015).



▶ Al Dawri & Al Kass Sports Channel – Three HD TV studios with custom-made furniture by BFE (2014).



▶ Deutsche Welle, Studio 3 – Tailor-made, seamless 11m-wide LED wall (2014).

and media industry, BFE was chosen to design and build a new, centralised master control room, upgrade and refurbish the teleport facility and build a Teleport Network Operations Centre in Al Jazeera’s headquarters in Doha, Qatar. The project aims to change and innovate Al Jazeera’s communications and content management processes by utilising state-of-the-art equipment and cutting-edge technologies, thus redefining the industry and setting new standards for excellence.

Oman TV

Oman TV is the national television channel broadcaster in the Sultanate of Oman. In 2015, BFE designed, built and delivered two OB vans to Oman TV as a prime contractor together with United Broadcast & Media Solutions. The two OB vans featuring 10 and eight cameras respectively, have a length of 12.6m and 10m respectively, and were built on a Mercedes Actros chassis with the larger

one featuring an extendable frame for maximum work space. Both OB vans have the latest HD camera and slow-motion technology on board and are controlled by BFE’s own KSC Commander Control and Monitoring Software and BFE control panels. The vehicles are used for live coverage of sport and other national and international events and TV productions.

A major challenge in the project was to take the environmental conditions of the Sultanate of Oman into consideration when constructing and designing the vehicles. The two vans are equipped with specialised air-conditioning systems to cope with the extreme climatic conditions of up to 50°C of heat, dust and humidity.

All work areas, separated into audio control, video control and technical control rooms, feature a tailor-made ambient lighting system for a truly high-class look and great working environment.

Additionally, BFE built a flight case studio for Oman TV consisting of six shock-absorbing 19” flight case racks to accommodate all of the technical equipment. Part of this production unit is a support van designed for transport of flight cases and other necessary production equipment.



▶ TPC Switzerland, HD6 OB van – 10 cameras, extendable frame and antenna for broadcasting in Swiss mountains (2015).

Selection of International Projects

TV & Radio

- **Al Kass – Integration of three HD TV studios for Al Dawri & Al Kass Sports Channel, Doha, Qatar.**
- BBC – New broadcasting centre with two HDTV control rooms and three studios, 12 digital radio stations, Glasgow, United Kingdom.
- Bibliotheca Alexandrina – Delivery of technical equipment for TV studios, Alexandria, Egypt.
- CBC – Infrastructure for new TV centre, Baku, Azerbaijan.
- **Deutsche Welle – Renewal of studio 3 and construction of innovative LED video wall, Bonn, Germany.**
- MBC – Implementation of tapeless environment and MAMS, Dubai.
- MOCI – Implementation of broadcasting complex for Radio Jeddah, Jeddah, Saudi Arabia.
- RTS – Systems integration of 2 HD studios, Geneva, Switzerland.

- Sharjah Media – Renewal of TV and radio infrastructure, Sharjah, UAE.
- SRG SSR – Renewal of playout and master control room, Bern, Switzerland.
- TVR – TV centre & regional TV centres, Tashkent, Uzbekistan.

OB vans

- JSTV – 8-camera OB van, Nanjing, China.
- MOI – Three 5-camera OB vans, Riyadh, Saudi Arabia.
- **Oman TV – 10- & 8-camera OB van, Muscat, Oman.**
- RAI – Two DSNG uplink vehicles, Rome, Italy.
- RRI – 49 radio OB vans, Jakarta, Indonesia.
- **Smiths Detection – 10 X-ray scan vehicles as mobile security command centres for international airports, Wiesbaden, Germany.**
- **TPC – 10-camera HDTV OB van, Zurich, Switzerland.**
- TVP – 20-camera HDTV OB van, Warsaw, Poland.

- TVR – 4-camera OB van, Tashkent, Uzbekistan.

Media Technology

- Audi AG – New Audi driving experience centre, Neuburg, Germany.
- Kofi Annan Centre – Peacekeeping Training Centre, Accra, Ghana.
- UEFA Euro World Cup 2008 – Installation of media centres and media stands, Austria & Switzerland.

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▶ Smiths Detection, Scan Vans – 10 Mercedes Sprinters as mobile security command centres for airports (2014).





SYSTEM INTEGRATION AND BEYOND

Broadcast Solutions GmbH is one of Europe's biggest and fastest growing systems integrators. For more than 10 years, the German-based company stands for innovation and engineering 'made in Germany'. With subsidiaries in Europe, Asia and the Middle East, Broadcast Solutions plans, implements and realises projects in the areas of Outside Broadcasting, satellite communications, broadcast facilities, sport arena multimedia solutions as well as mobile security and surveillance solutions.

Currently, Broadcast Solutions is Europe's biggest OB Van manufacturer. As a hardware manufacturer and independent systems integrator, the company offers its expertise to the broadcast industry as well as other demanding business areas.

Broadcast Solutions is a one-stop-shop for all technology in the fields of broadcasting, multimedia, infrastructure, engineering or consultancy – video, audio, IP, control systems, digital signage, IPTV, satellite communications and innovative coach building, to name just a few.

The company offers German engineering to international standards thus giving customers peace of mind when it comes to mission critical environments. Over the years the company successfully delivered over 300 outside broadcasting units in every conceivable variant, from small radio SNGs to 30-camera HD outside broadcasting vans.

Furthermore, Broadcast Solutions planned, implemented and commissioned broadcast facilities, DSNGs, fixed up- and downlink stations as well as Satcom on

the Move solutions. With several mobile surveillance solutions already delivered, Broadcast Solutions transferred its vast experience from the broadcast and satcom business to the security and surveillance market. Combining all the company's knowledge the team also plans, implements and commissions complex solutions for broadcast and multimedia infrastructure in sporting and other venues.

One partner – from Planning to Construction

Crucial to their work is the responsibility to counsel customers before, during and after a project. The company's experience, creativity and dedication lead to successful, time-saving and reasonable investments.

Being a manufacturer and an independent

**WHAT CUSTOMERS
THINK OF BROADCAST
SOLUTIONS**

“During the development process we worked closely together with Broadcast Solutions which led to affordable, reliable and flexible OB units with a very short delivery time.”

**Paul Henriksen, CEO
Mediatec Broadcast**

“We were looking for companies that reach our demands for high-quality and specialised OB Vans and who work as a full service provider – and we found all this at Broadcast Solutions.”

**Samer Younes, Technical
Advisor, Al Kass**

“Whenever I meet KBS people, they constantly tell me to thank you for the delivery of such a nice HDTV4 OB Van. The only problem is, all Program Directors rather work with it than to take any holiday...”

**J.S. Bae, Technical Senior
Manager / Technical Sales,
DongYang Digital / Korea**

“Broadcast Solutions delivered our first big HD OB Van, one of the first big productions was for the Olympic Games in 2008, and everything is still working fine, perfect German quality!”

**Ping Yang, Engineer at Technology
Management Division, Hunan
Broadcasting Systems / China VR**

“It was a great opportunity to work with you last year, and I appreciate your effort for making KBS’s best HDTV4 OB Van.”

**Yongsuck Cho, Head of Outside
Broadcasting Department, Korean
Broadcasting System / Korea**



systems integrator, Broadcast Solutions serves as a single source thus giving customers the freedom to choose the best technology available in the market. In close relationship with customers, the company develops individual solutions – tailored to their specific needs and requirements.

Services Offered

- Outside and mobile broadcasting solutions.
- Broadcast facilities.
- Sport arena multimedia infrastructure.
- Satellite communications.
- Mobile surveillance.
- Engineering & innovation services.

Broadcast Solutions constantly scans the airwaves to update technology. Keeping abreast of the latest technological developments enables the company to be in tune with the ever-evolving broadcast, AV and multimedia technology. As a result, customers are one step ahead of the competition.

Striking examples of such developments include the trailblazing products from slomo.tv with their multi-channel recording solutions, Robycam with stabilised camera heads and cable cameras, ProSat solutions with traditional and future satellite communications technology and Serenity with its unique Playout Software.

The development of the Streamline product family of OB Vans, serves as a perfect example of the company's technological leadership. Streamline is a series of pre-engineered, nearly off-the-shelf produced and offered OB Vans. Streamline OB Vans come in five different versions, from four to 16 cameras, and can be delivered in a very short time-period with significant

cost savings and without compromises on technology and reliability.

Outside Broadcasting Solutions for the MENA Region – SNGs to 30 camera OB Vans

Over the years the company experienced great demand for their outside broadcast solutions in the Middle East. In 2015, Broadcast Solutions delivered one Streamline HD 12 camera OB Van to Abu Dhabi-based company, LIVE. Another 10 camera OB Vans were handed over to the MBC Group in Dubai. In 2015, Broadcast Solutions also signed a contract to deliver a 30-camera OB Van plus supporting truck to Qatari Broadcasting Company, Al Kass. This big OB Van was delivered early 2016 and is a tailor-made solution to meet the customer's needs and expectations in every aspect. Further deliveries to the region in 2015 included an SNG for the Information Affairs Authority in Bahrain and other government-based special projects.

Sport Arena Multimedia Infrastructure – Solutions and Products

Broadcast Solutions successfully planned and delivered state-of-the-art broadcast and multimedia-infrastructure to Otkrytije Arena, the new home of football club Spartak Moscow. The arena should enable its investors to develop new revenue streams by using flexible and modern technology. Additionally, all technology had to be planned in compliance with FIFA regulations since the stadium is a venue for the FIFA World Cup 2018. Furthermore, the company analysed the investor's needs and supported the planning team with its expertise when it came to entertainment, broadcast and multimedia solutions. It

also proposed a single media content management system, allowing maximum profit from advertisement and distribution throughout the whole arena. This would mean all audio and video systems are managed by one multi-functional control centre. Basic considerations in planning the stadium's concept and profitability focussed on the flexible use and distribution of all available multimedia content to available and future channels.

As a worldwide distributor of the Robycam system, Broadcast Solutions supported the use of the innovative flying 3D cable system, covering the sermons during the Holy Month of Ramadan in the Sheikh Zayed Mosque in Abu Dhabi, the biggest mosque in the United Arab Emirates. Robycam is a highly developed cable camera system that is used in live broadcasting, outside or in studio productions. The system consists of carbon fibre gyro-stabilised remote heads and motion control systems that allow for 3D camera movements in a fast and precise way.

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BROADCAST SYSTEMS ARABIA

WHEN it matters WHERE it matters!

INTEGRATION EXPERTISE IN CHALLENGING MARKETS

Established in 2011, Broadcast Systems Arabia (BSA) is already a pioneer in delivering complex broadcast infrastructure solutions that cover all aspects of integration -- from consultancy to planning, engineering, project management, design installation, commissioning, training, maintenance and post-implementation support. A solid, diversified experience and expertise in conflict regions and war zones has made BSA market leaders in such areas where broadcast infrastructure needs to be built most of the time, from scratch.

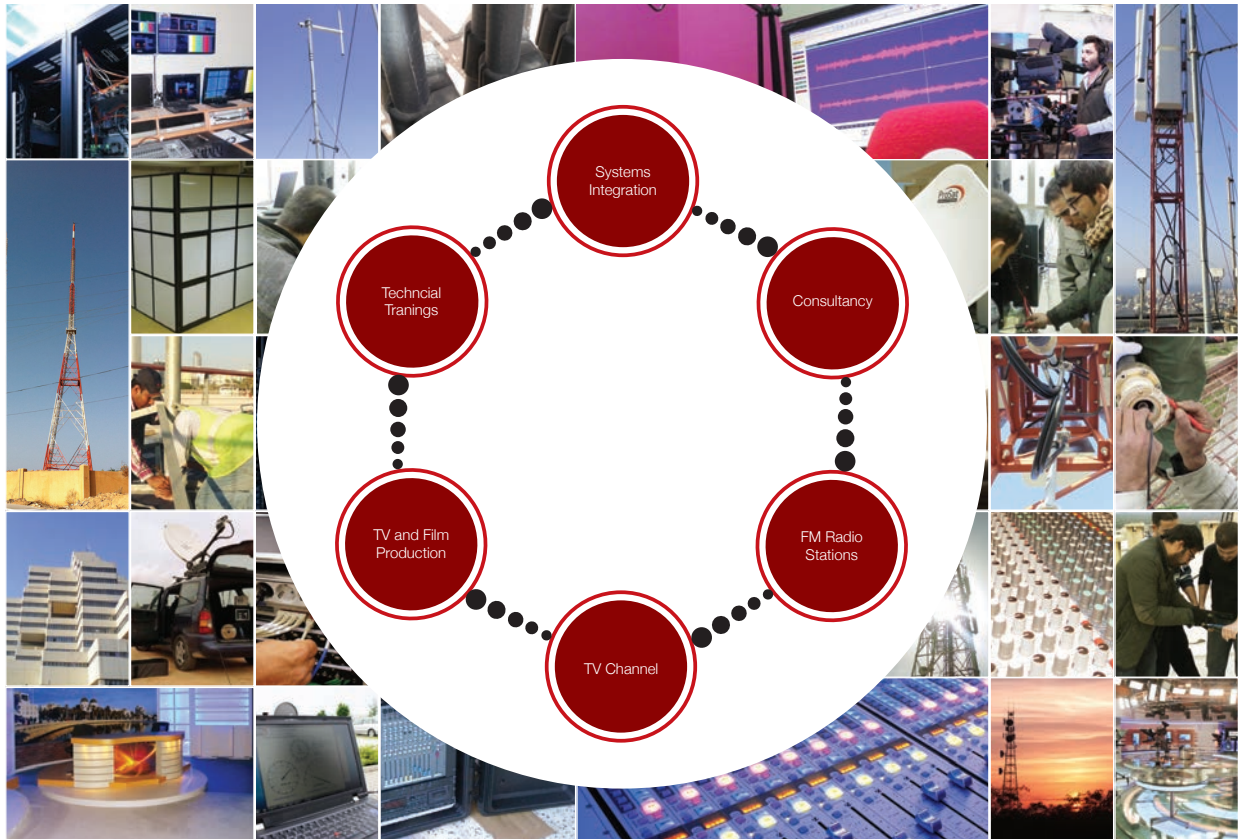
Under the leadership of its CEO and broadcast expert, Muhammad Irfan Gondal and his specialised team of



▲
Muhammad
Irfan,
CEO, BSA.

professionals, BSA's expansive services extend beyond traditional platforms such as radio and TV channels to include all forms of media such as satellite, radio channels, internet streams, mobile media, websites and portals.

Services include design, delivery and installation of different broadcast facilities for newsrooms, studios, control rooms, transmission centres, earth stations, disaster recovery suites and Outside Broadcast (OB) vehicles. Key solutions cover deployment of terrestrial analogue and digital TV and of radio infrastructure and satellite channels, etc. From its UAE-based regional headquarters, the team is ideally positioned to offer extended production and broadcast services to



customers spread across the Middle East and North Africa (MENA) and Pakistan.

Focus on Challenging Markets

Though a great demand exists for broadcast services in war-torn nations such as Libya, Syria and Afghanistan, only a daring few understand the complexities of conducting business in such countries. BSA was quick to realise this potential, and since its establishment, has invested heavily in developing the unique skillsets necessary to address the logistics, technical and political challenges of conflict areas. The company is now one of a select few systems integrators capable of effectively operating in challenging markets and has successfully delivered

multiple projects many of which required the infrastructure to be built from scratch.

In addition to its exceptional capabilities and willingness to serve customers in war-torn countries, BSA has enjoyed a great deal of success in mature markets across the MENA region. This is due to the company's position as a one-stop shop for all broadcast needs.

Systems Integration

BSA utilises its qualified team of broadcast professionals guided by in-house senior management staff to implement all projects. To meet stringent deadlines and ensure timely delivery of projects, BSA employs contract engineers and wiremen. Through deep investment in trainings,

these third-party resources are expertly enabled by the company to guarantee the highest quality of work.

Following implementation, BSA conducts in-depth knowledge sharing with the customer and provides comprehensive manuals detailing every aspect of the system. Furthermore, the company's dedicated 12-month support of every completed project entitles each customer to engineer visits and 24/7 phone support.

Consultancy Services

BSA's end-to-end technical consultancy addresses both knowhow and know-why requirements of its customers. The company's services relating to studio

set-up, media technology, audio and video solutions help new entrants in the broadcast industry reduce their time to market. BSA also works extensively with established TV channels in re-engineering their processes to better utilise their systems and improve efficiency while cutting operational expenses.

BSA draws on its wealth of experience in the field of systems integration to guide clients in deploying tried and tested broadcast solutions that deliver tangible business benefits. Consultancy services also extend to production houses, content creation, live broadcast set-up and radio stations.

TV and Film Production

BSA's technical proficiency has made it a prominent solutions provider to TV and film production crews. Customers depend on BSA for cost-effective production services that include rental of all camera equipment and location services.

FM Radio Stations

BSA works closely with FM radio stations right from the initial stages of technical planning, allocating frequencies and securing necessary clearances, up to complete systems integration. This requires a particularly categorical approach to addressing commercial aspects and

developing a sound business model. BSA ensures that its FM systems are reliable and conform to industry standards in order to meet and exceed customer expectations. Radio transmission facilities designed and maintained by BSA are renowned for their excellent quality and reliability.

**Successful Projects
Across the Region**

Libya Al Ahrar

An ambitious start-up venture, BSA initiated and managed the project by advising Libya Al Ahrar on how to build studios in the country for its news and related programming. Expert guidance





along with immediate and rapid project implementation meant the channel was able to provide coverage of the country's elections.

In addition, BSA installed permanent satellite uplink facilities in Tripoli, Benghazi and Masrata as well as 12 Digital Satellite News Gathering (DSNG) vans. These included leasing satellite segments for occasional broadcast on Arabsat and Eutelsat and dedicating extensive time and effort to identifying and hiring local resources and training them to manage HD production equipment.

For the channel's main production facility, BSA delivered a hangar setup, which was completed in just 22 days. This involved steel work, sandwich panels, acoustics, painting, power and meeting all infrastructure requirements.

Alwasat Radio

3 FM transmitters were installed for

Alwasat Radio in Libya (Benghazi, Albayda and Tubruk) with the additional live radio studio facility at Cairo Egypt.

BSA also integrated a 3 cameras HD studio for Alwasat in Cairo.

Alaan FM Libya

Despite the turmoil in the country during the revolution, BSA efficiently installed six FM radio transmission points in Tripoli, Benghazi, Sabha, Masrata, Tubruk and Albayda. These installations enabled Al Aan FM to successfully relay its feed via satellite to over 3.7 million listeners in all the major metropolitan cities in Libya.

Al Aan TV Services

Al Aan was one of the first TV stations to transmit live from within the borders of war-torn Syria. It began its broadcast at a time when other channels were operating from border crossings.

BSA provided Al Aan's TV crew

with two fully equipped Satellite News Gathering (SNG) vans for use in Idlib and Aleppo along with full fly-away kits to ensure backup availability. The crew was also provided Thuraya satellite phones for communicating between team members. With the consultancy and support of BSA, the team uplinked their broadcasts via Arabsat, using Thuraya IP for internet access.

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GLOCOM

PUSHING BOUNDARIES, SHAPING THE FUTURE

GloCom, founded in 1996, is a broadcast technology integrator with its core activities in broadcast, broadband and the telecommunications industry. Headquartered in the United Kingdom with a regional head office in Dubai, GloCom delivers cutting-edge solutions and unprecedented support as well as training to its ever-growing customer base across the Middle East and Africa.

GloCom's inception brought a broadcast pioneer to the region focusing on

partnership with its customers to design, deliver and implement world-class tailored broadcast solutions. GloCom was the first to set up 24x7 customer support and introduce MPEG technology regionally. In addition GloCom delivered the first virtual studio, first MPEG-4 HD uplink, first largest IPTV headend, first end-to-end pay TV system as well as the first end-to-end contents aggregation and playout centre.

As the industry reinforces the shift to file-based media and legacy systems are required to integrate with cutting-edge systems

of the future, the role of a reliable and competent systems integrator is becoming ever more important. Working with its customers to identify key current and future requirements, GloCom has evolved as an industry leader in broadcast technology integration focusing primarily on high-end IT/IP based technology integration. Over the past 20 years GloCom has successfully delivered projects across the Middle East and North Africa utilising its reliable and competent in-house systems design and project management capabilities.

GloCom Solutions and Service Offering



Broadcast & Cinema Lenses



Broadcast Solutions



RF Solutions



Digital Video Delivery Infrastructure



Digital Workflow and Asset Management



Radio Solutions



Professional Managed Services



Broadcast & Cinema Lenses

GloCom has been the official partner for Canon Broadcast in the MENA region for over two decades providing full technical maintenance repair and training to over 120 customers through their approved in-house service centre based in Dubai. GloCom supports Canon broadcast and pro-video product range including ENG/EFP lenses as well as the latest cinema 4K and pro-video products.

Broadcast Solutions

Solutions on offer include Outside Broadcast vans/units, studio integration, lighting solutions, virtual studio and sports solutions, production, post-production and news, archive and digital/media asset management solution, live censoring system, monitoring and analysing system, payout automation and scheduling.

RF Solutions

GloCom provides complete end-to-end RF solutions covering all aspects of ground system engineering from consultancy to delivery of uplink and downlink RF and transmission systems. This includes satellite earth stations/teleports, terrestrial transmission (MMDS/DVB-T2/DTH) digital satellite news gathering terminals, flyaway terminals, Vsat and TVRO system solutions. GloCom has delivered fully automated audio-over-IP radio as well as conventional radio broadcast solutions.

Radio Solutions

GloCom provides complete end-to-end RF solutions covering all aspects of ground system engineering from consultancy to delivery of uplink and downlink RF and transmission systems. This includes satellite earth stations/

teleports, terrestrial transmission (MMDS/DVB-T2/DTH) digital satellite news gathering terminals, flyaway terminals, Vsat and TVRO system solutions. GloCom has delivered fully automated audio-over-IP radio as well as conventional radio broadcast solutions. It is capable of delivering end-to-end radio transmission solutions which meet industry standards and required transmission coverage (FM/SW/MW).

Digital Video Delivery Infrastructure

GloCom is one of the leading solution providers delivering futuristic DTH/IPTV/OTT solutions, providing end-to-end pay TV (CAS, SMS, STB, call centre) and free-to-air solutions for deploying triple play services over broadband networks, IPTV, wireless and other interactive media. GloCom brings the best of TV and internet technologies together in unified, interactive platforms.

Digital Workflow and Asset Management

GloCom provides a range of digital workflow and media asset management services from capture to depiction. This includes creation, adaptation, preservation and management of content. GloCom is capable and experienced to service its clients to meet the challenges facing the dynamic digital era.

Professional Managed Services

GloCom’s team is fully committed and qualified to support customers through its managed services offering including 24x7 support agreements to help a smooth operation transition, from design inception to operational usage coupled with the necessary training and onsite technical support.

Landmark Projects 2014 - 2015

Bahrain TV - MCR 2015

GloCom successfully upgraded Bahrain TV’s 35-year-old MCR to a new state-of-the-art HD/3G facility as part of revamping its broadcast infrastructure. GloCom delivered the turnkey project from inception and design through to implementation and delivery. In addition, GloCom’s delivery team relocated to Bahrain to ensure 24x7 technical support.

The project entailed a complete overhaul of the broadcaster’s 35-year-old setup to a 24/7 live MCR with full HD infrastructure. GloCom worked closely with Bahrain TV to install a monitoring solution for all sources in different levels such as playout, audio processor out, final output, downlink of BTV and other channels. This included multiple remote sites for live feed reception over fibre, two live studios with production control rooms, centralised equipment room, centralised talkback connectivity, continuity rooms for a seven-channel master control playout.

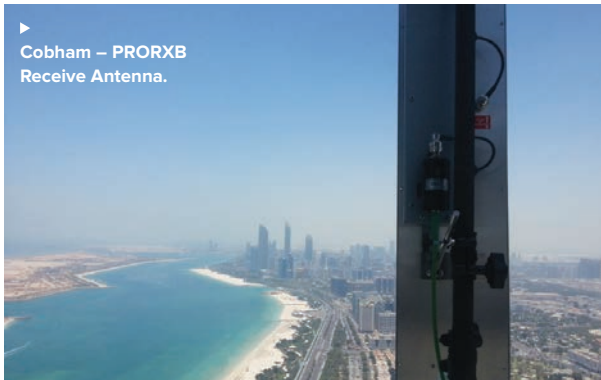
In addition, the facility now boasts a full HD setup with 3G compatible cabling for a more secured way of connectivity in terms of signal quality and strengths.

Dubai Channels Network (DCN) - Radio Studios Upgrade 2015

GloCom was recently awarded one of the most prestigious projects in the UAE; the upgrade of Dubai Channels Network’s (formerly known as Dubai Media Integrated) Radio Stations, namely Noor Dubai and Dubai FM.

Project involved upgrading the existing infrastructure to the latest state-of-the-art Audio-over-IP solution. The project comprised four main on-air areas for Noor Dubai and Dubai FM, three recording studios that can also be utilised as on-air studios, two production rooms and one production studio for music or drama which can also be connected to the on-air studios.





▶ Cobham – PRORXB Receive Antenna.



▶ The Ghanada dhow sailing championship.

Abu Dhabi Media Company (ADMC)
– Wireless RF Transmission 2014
 GloCom in conjunction with Cobham the RF transmission specialist company installed four wireless transmitters and a PRORXB receive system for live television coverage of the Abu Dhabi Yacht Club's Ghanada Dhow Sailing Championship. Transmitters were installed on two race event chase boats and a helicopter as well as a receive and transmit ship, plus onshore receive systems at the ADYC headquarters and 'Nation Towers', the two skyscrapers near the southern tip of Abu Dhabi.

Despite the long distances of up to 80km offshore and harsh weather conditions, high-quality video and audio signals were sent and received from the chase boats and helicopter throughout the race. The solution was designed

specifically to be completely splash proof at an ambient temperature of at least 50C whilst providing excellent live production image quality over wireless links, with support for composite, SDI, HD-SDI and HDMI video input formats. This was the first time such a system was deployed successfully.

HRH Crown Prince Burj Khalifa Falcon Jump - 2015

GloCom brought the world famous Burj Khalifa Falcon jump to millions of viewers around the world through supplying a light-weight nimble solution enabling live wireless video transmission without compromising on quality. The falcon was armed with a Sony action camera for an unprecedented one minute 40 seconds flight around Downtown Dubai taking

off from the world's tallest building offering panoramic views of the city. GloCom's partnership with Cobham wireless technology continues to push the boundaries of live video transmission under unfavourable conditions bringing both companies to the forefront of broadcast technology.

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▶ Darshan the falcon fitted with a lightweight wireless video camera.





INTEGRATION SOLUTIONS DESIGNED TO EXCEL

Driven by broad experience and motivated teamwork, Heat was founded in 1993 as a privately owned company. Its extensive expertise in electronic engineering, communications and broadcast media determined the scope of work and specialisation of Heat.

Heat is an accredited supplier in Jordan and other Middle East countries in the field of audio and video broadcast and telecommunications, and has evolved into an authorised agent and distributor for a number of world leaders in these fields of technology such as JDSU Telecom testing, Promax

Test Equipment, Advantech Wireless MW, Vislink Communications, Gates AIR, Vitec and Cartoni Camera Support, Avid Technology, Sony, Snell, Grass Valley, Imagine Communications and Neveion, among others. Moreover, Heat is a business partner with a wide base of international manufacturers and suppliers.

In its endeavour to develop expertise in such a dynamic field, Heat keeps the momentum with the latest technologies and concepts in both telecommunications and broadcast, aiming at continuously updating customers and providing them with tailored technical advice.

The Heat team of engineers is ready to provide optimal, accurate technical back up and is equipped to supply all technical services such as systems design, installation and testing, in addition to precise information on the Jordanian market.

Broadcast Systems

The Heat broadcast systems team encompasses design and installation of powerful, turnkey video and audio communication solutions to cater to all broadcast needs, from small post-production and production studios to large multi-channel broadcasting corporations.

CLIENTS

Broadcast

- ▶ Jordan Radio and Television Corp. JRTV.
- ▶ Yarmouk University.
- ▶ Moral Guidance Directorate/ Jordan Armed Forces.
- ▶ Arab Telemedia Services Centre.
- ▶ Play FM.
- ▶ UNESCO.
- ▶ JMI (Formerly Higher Council for Media).
- ▶ Royal Hashemite Court.
- ▶ UNRWA.
- ▶ Al Hussein Bin Talal University.
- ▶ Sawt Al Madina.
- ▶ Hayat FM.
- ▶ Spin and Ayyam FM.
- ▶ Amen FM.
- ▶ Al Waseela Productions.
- ▶ ZAD Group/ Saudi Arabia.
- ▶ Fujairah Culture & Media Authority.
- ▶ Moral Guidance/Yemen Armed Forces/ Yemen.
- ▶ Lina Productions/Yemen.
- ▶ Seyaha FM.
- ▶ Hayat FM / YEMEN.
- ▶ AL-Housna FM Radio.

Telecom

- ▶ Royal Jordanian Air Force.
- ▶ Special Communications Commission.
- ▶ Zain.
- ▶ Umniah.
- ▶ Orange.
- ▶ NEPCO (National Electric Power Company).
- ▶ Public Security Department.

Heat has designed, tested and installed TV and radio production studios, video and audio editing suites, OB Vans, complete FM radio stations, video editing and distribution systems and satellite uplinks and downlinks for corporate, entertainment and news applications. Based on client demands and requirements, the team can design and deliver a user-friendly broadcast facility that allows for ease of operation and delivers a high quality, state-of-the-art product.

Services range from providing a simple design to complete systems design, systems integration and engineering complete broadcast facilities. Clients are furnished with a cost-effective solution

that meets their specific requirements and business goals for the present day and also gives them a solid base for future expansion.

Heat has integrated broadcast systems for corporations such as JRTV, Higher Council for Media (JMI), Hayat FM, Amen FM, Sawt Al Madine, Al Waseela Productions, ZAD Group/ Saudi Arabia, Zayed FM radio-Fujairah/UAE, to name a few.

A comprehensive list of services encompass:

- Consultancy.
- Design.
- Engineering.
- Procurement.
- Installation.

ONGOING PROJECTS

Client	Project	Country
JRTV	Central Archive System	Jordan
JRTV	8 CAM OBVAN	Jordan
JRTV	SNG VAN	Jordan
JRTV	Lighting System for 3 studios	Jordan
Roya TV	OBVAN	Jordan
ZARQA Uni.	FM RADIO Station	Jordan

PREVIOUS PROJECTS

Year	Client	Project	Country
2015	JRTV	NEWS CENTER	Jordan
2015	ZAD	3 CAM OBVAN	KSA
2015	JRTV	4 CAM OBVAN	Jordan
2015	Al-Hedaya	Play-out centre - 32 channel	KSA / EGYPT
2014	Zad Group	Zad Media Center (Production Studio)	Saudi Arabia



- Documentation.
- Training.
- Service & Maintenance.

Telecommunication Systems

Heat's specialisation in telecommunications stems from the profound experience of its telecommunications and information technology team. This division offers services in the field of telecommunications with expertise in specific areas such as radio communications, telemetry, video communications, satellite earth-stations and the setting up of fibre optic and microwave link, broad-band and wireless local loop access systems, etc. Test and measurement solutions are offered to customers in fields as diverse as process control, electronics, defence, automation and environmental testing.

Major projects have been undertaken for customers such as Jordan Telecom, Fastlink, Mobilecom, Xpress, Umniah, and the Royal Jordanian Air Force.

List of services include:

- Telecommunication Networks Management Systems.
- VSAT.
- MW Telecom Networks.
- Fiber Networks and Testing.
- GSM Network Testing.

Telecom Consultancy Services

Wireless Expertise Services

- Dimensioning of radio network based on subscription forecasts.
- CAPEX/OPEX estimations.
- Management of propagation model calibration campaigns.
- Frequency scanning and qualification of in-band and out-of-band interference.

- Performance benchmarking of competing service providers.
- Perform radio access network audits (actual coverage footprint, capacity headroom and QoS) and provide recommendation for improvements).

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SYSTEM INTEGRATIONS
(J.L.T)

LEADING THE WAY WITH CUTTING-EDGE MEDIA TECHNOLOGY

INC System Integrations (INC), a subsidiary company of INC Technologies, provides functional and cost-effective media technology solutions. INC offers project management, systems engineering, software configuration, equipment sourcing and systems installation. It brings that little extra to the business of systems integration, applying an additional impetus to every project that is undertaken, irrespective of the size or complexity of the job.

With its vast experience and expertise in the field, the company has the wherewithal to pre-build and test large-

scale installations prior to delivery. Each project is supervised by a dedicated specialist who remains the client's contact from project commencement to completion and beyond.

Technology Consulting

INC provides consultancy services so that clients can identify their current and future requirements, a service that can assist in detailing the technical and financial scope of potential projects.

As the industry moves from traditional to file-based media, many companies are looking for high level collaborative strategic

consulting services to assist them through the transition so as to achieve optimum operational standards in all aspects of their business.

INC is neither owned nor aligned with any vendor but maintain healthy relationships with major media equipment and software vendors. They are involved in projects at the earliest possible stage when strategies and goals are set, and their experience enables them to offer accurate and focused advice to clients from the outset, ensuring that business and technical objectives are realistically framed in the light of available resources.



RECENT PROJECTS

- ▶ Dubai Government Media Office - Production Studio Upgrade.
- ▶ Kuwait TV HD 16 Cam OB Truck.
- ▶ Kuwait TV Studio 160B.
- ▶ Sharjah Media Corporation – 4.7M Motorised Antenna and TVRO System.
- ▶ Libya Al Watanya TV Channel.
- ▶ Intigral – R System.

SUCCESSFUL PROJECTS

- ▶ DMI Camel Race – Al Marmoum.
- ▶ DMI Studio F & Sports Studio.
- ▶ Kuwait TV Master Control Room.
- ▶ Kuwait TV Channel One.
- ▶ Kuwait TV High Definition Centre.
- ▶ Kuwait TV Studio 500.
- ▶ Kuwait TV Studio 160.
- ▶ Kuwait TV Newsroom System.
- ▶ Bahrain TV News Studio.
- ▶ Bahrain TV Playout Servers & NLEs.
- ▶ Bein Sport – Studio One Lighting System – Sport.
- ▶ Bein Sport – Morning Studio Lighting System.
- ▶ Bein Sport TVRO System.
- ▶ Qatar TV Studio 5 – Doha/Qatar.
- ▶ Qatar TV HD Master Control Room.
- ▶ Qatar TV HD 512x512 Matrix.
- ▶ Qatar TV News Studio Upgrade.
- ▶ Qatar TV- Satellite Two Earth Stations.
- ▶ Qatar TV – TVRO System.
- ▶ Media Centre for the Arab Summit League – Doha/Qatar.



Project Planning and Management

INC’s corporate culture and processes provide stability, accountability and leadership skills to their project managers, thereby giving them a collaborative mindset in dealings with internal and external project stakeholders. As primary point of contact, the project manager works with the client to set the technical vision and design philosophy that will direct engineering design, project scheduling, costing, quality control and on-site move-in and installation.

A typical project plan would include:

- All milestones and significant delivery dates.
- Dependencies between sub-tasks.
- Outcome of sub-tasks.
- Start and finish time of sub-tasks.
- Resourcing and responsibility for sub-tasks.
- Timescale for client input and sign-off.
- Delivery milestones.
- Specification of works to be undertaken.
- Draft acceptance documents.

Facility Design and Liaison

Liaison with architects and builders to provide the correct building in which to install a broadcast system is one of the services provided by INC Broadcast.

Planning complex facilities requires understanding how buildings facilitate media production and distribution. INC has the skills necessary to bring vision to the total facility concept.

Technology Engineering and Workflow Design

At INC, a thorough understanding of broadcast operations and workflow exists, gained over many years of close co-operation with a vast network of clients.

INC’s areas of expertise include:

- Production Television Studios, Newsroom, Master Control & Transmission Systems.
- Linear & Non-Linear Edit Suites.
- Storage, Archive & Media Asset Management.
- Satellite Earth Stations.
- Satellite News Gathering.
- Outside Broadcast.
- Emerging Technologies such as IPTV and Mobile TV.
- Space Planning (HVAC, Power Loading, Work Flow Design, Facility Logistics & Layout).

System Installation, Commissioning and Testing

INC Broadcast has a team of engineers and installation wiremen, experienced in broadcast installations and commissioning. On completion, the system is commissioned and thoroughly checked both for technical performance and operational requirements.

In any project, partial or complete system pre-build can be undertaken at the company premises prior to on-site implementation. This technique saves time on-site and reduces costs especially on overseas projects.

The system testing procedure that is followed is as per the industry's highest standards, in which all major components are tested – the cables path test such as jitters, rise time and amplitude is conducted using special measurement tools. Draft copy of the system testing procedure document is handed over to the client for approval before testing commences.

Equipment and Materials Sourcing

INC's large annual purchasing volume creates a strong relationship with major vendors which often yields a significant

pricing advantage that is then passed on to clients.

Support Contracts

INC offers two types of support contracts, both of which can be customised.

- **Parts Pro:** Where the company supplies clients with spare parts only when a fault happens.
- **Service Pro:** Where the company supplies clients with spare parts replacements as well as on-site inspection and repair services when a fault happens.

Methodology

INC has developed a methodology that ensures high-quality and a wholly customised system for each client. A robust project management practice, it facilitates swift project commencement and progress through pre-defined stages of a low-risk path designed to achieve high quality results. It is based on continuous client involvement and remains the principal focus throughout the project and until the achievement of pre-arranged objectives.



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Systems Design

EXPERT SYSTEMS AND SOLUTIONS

For over two decades, Systems Design has provided media and broadcasting solutions to innumerable clients across the Middle East. Armed with an array of specialised services, excellent technical systems and unparalleled expertise, the company has remained ahead of the mainstream and continues to satisfy discerning customers across the region.

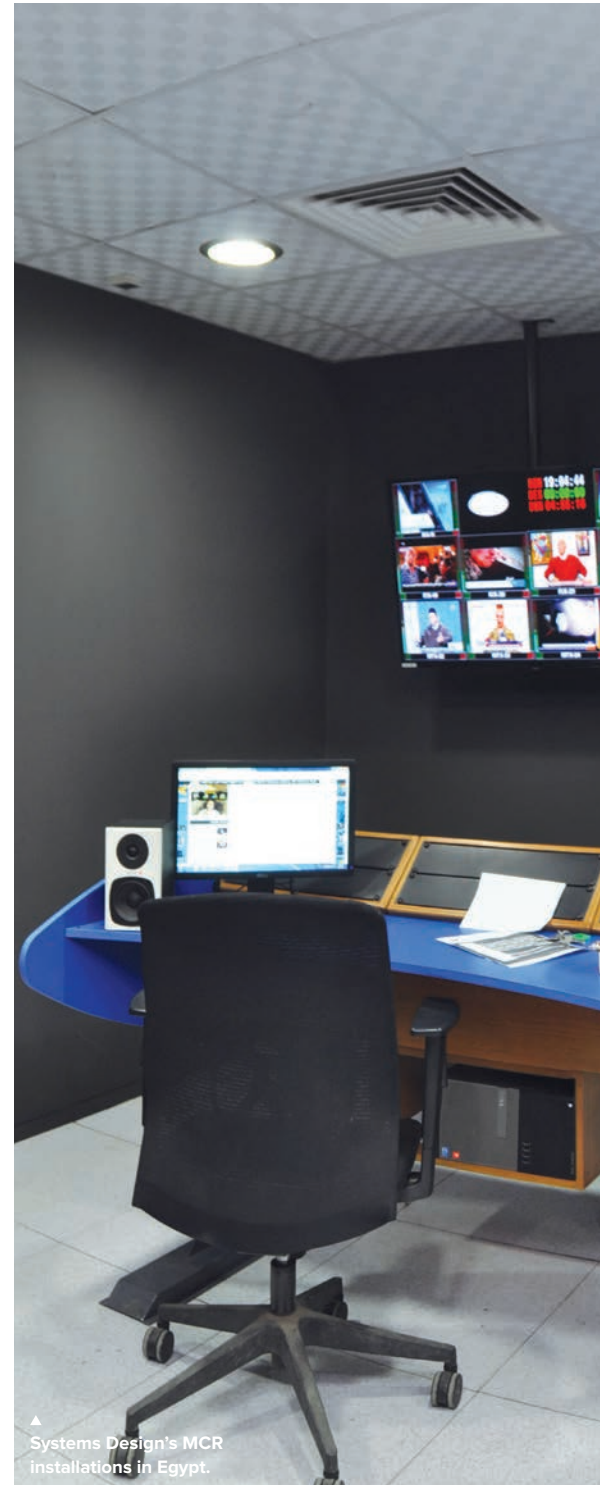
The company mission is to deliver the latest technologies in the broadcasting and media domain so as to maintain their status as a prominent systems integrator and provider of related technical and consultancy services. Fortified by a legion of engineers, Systems Design offer a wide scope of solutions and services, including value-added reselling of hi-tech equipment and the design, engineering and integration of turnkey projects for studios, video and cinema production/post-production,

digital video broadcasting (DVB), digital signage, transmission facilities and streaming technologies.

Products and Services

Systems Design employs a team of highly qualified engineers, making it an expert at designing, managing and implementing turnkey projects for:

- Satellite channels playout centres.
- Studio complexes.
- Video Transport Solutions.
- TV & Radio Master control rooms (MCR).
- Media Archiving Solutions.
- Outdoor Broadcasting Vans (OB vans).
- Audio & Video Restoration and Digitisation.
- Acoustical Isolation & Treatment Works.
- Video Storage & Archiving Solutions.
- Video Transport Solutions.
- Virtual Studios & Augmented Reality.



▲ Systems Design's MCR installations in Egypt.



Satellite Channels Playout Centres

Working with customers, Systems Design provides customised, state-of-the-art solutions for playout centres that meet their needs, including on-site as well as off-site locations and multi-channel solutions. Their solutions packages include value-added features such as setup and support of all equipment and solutions, consultancy and system design services, complete turnkey solutions and a 24x7 on-site technical operations team.

Studio Complexes

Systems Design offers its clients complete solutions for all their studio setup needs, regardless of the status of the project. The company also sets up virtual studios for special applications such as news and education.

In addition to supplying the best-in-class studio equipment and software, the Systems Design package also includes:

KEY CLIENTS

- ▶ The Egyptian Radio & Television Union (ERTU)
- ▶ The Egyptian Satellite Company (Nilesat)
- ▶ The Egyptian Media Production City (EMPC)
- ▶ Saudi Media City (SHAMAS)
- ▶ Rotana
- ▶ Jeddah Chamber of Commerce & Industry
- ▶ World Health Organisation
- ▶ Al Ahly Channel
- ▶ ONTV
- ▶ Al Nahar TV Network
- ▶ CBC network
- ▶ Arab News Agency (ANA)
- ▶ On News Agency (ONA)
- ▶ Al Saeeda Channel
- ▶ Al Sahraa Channels

- Setup and support of all equipment and solutions.
- Consultancy and system design services.
- Complete turnkey solutions.
- Acoustical isolation and treatment works.
- Technical supervision for studio operations.

Video Storage & Archiving Solutions

Video assets are the most precious property for broadcasters. Systems Design in cooperation with global leading vendors in that field provides video storage and archiving solutions. Offered solutions include storing, moving, searching and restoring video assets and their associated metadata in an easy, efficient manner.

Video Transport Solutions

Based on Net Insight top notch technology and Systems Design project execution capabilities, the company offers professional media transport solutions



▲ Systems Design bagged the Grass Valley Top Growth for Middle East.



▲ Systems Design was awarded EditShare 2014 Partner of the year, EMEA region.



The TVU Award.



▲ TVU Outstanding Partner Award, 2014 went to Systems Design.

for different applications such as;

- **Media Contribution:** Video and audio transport services combined with datacom and telecom between a broadcaster's different sites.
- **DTT Networks:** National infrastructure from head-ends to transmitters. This infrastructure supports TV distribution as well as mobile TV, mobile back haul and time distribution.
- **Sport Event Production:** Transmission of video, audio and data signals between the venues and broadcast centre for sport events.
- **Sport Event Contribution:** Long distance, international contribution of audio and video on a continental or global basis.
- **IPTV Distribution:** Distribution of IPTV signals to remote operators or other parts of a service provider network, or from central head-ends to regional or local head-ends for further distribution into the metro or access network.

- **Satellite Backhaul and Contribution:** Terrestrial infrastructure for client-uplink and client-client transport for media, datacom and telecom signals.
- **Network-based Time Distribution:** Distribution of extremely accurate time signals over fibre-based network infrastructure for Single Frequency Network (SFN) operation of digital TV and mobile TV distribution. These time signals are as accurate as those provided by GPS receivers but will not fail in the event of a GPS system shutdown.

Virtual Studios & Augmented Reality

With technological advancements in virtual studios and augmented reality allowing real-time combination of people or other real objects and seamless computer generated environments and objects, Systems Design is providing turnkey solutions for high end virtual studios and on-air graphics to broadcasters in the Middle East region.

Partners

Systems Design has established partnerships with global market leaders in the industry to deliver best-in-class equipment and solutions to their customers. Systems Design partners include but are not limited to Grass Valley, Lawo, Net Insight, Beehive Systems, EditShare, IBM, Barnfind, Sky Line, Oracle, TV Logic, Syes, TVU, DARIM, Junger-Audio, Progira and many others.

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tek Signals

Qatar Signals Systems

ON THE LEADING EDGE OF TECHNOLOGY

Pioneers in systems integration for over 23 years, Tek Signals/ Qatar Signals has been the expert choice for customers, offering the most comprehensive and innovative technology in systems integration, design, consultancy, delivery and implementation of services in the broadcast industry. Since its inception, Tek Signals (TS) has made rapid strides and boasts being a leader in technical competence and workmanship.

By integrating various path-breaking technologies, Tek Signals sets standards as a professional consultancy in the fields of broadcasting, telecommunications, test and measurements, multimedia, education, instrumentation and professional systems. Tek Signals is truly an innovator and leader in the integration of different technologies,

and the expertise has given it a firm footing among its a growing local and international client base.

Tek Signals is the only company to have designed, installed, tested and commissioned over 500 TV and radio channels 'On Air', in addition to upgrading a record number of TV and radio stations, studios, edit suites, audio suites, OB Vans and auditoriums in the Middle East.

Specialist Divisions

- Broadcasting & Professional Systems (Est. 1994).
- Telecommunication (Est. 1997).
- Test and Measurements Division (Est. 1994).
- Multimedia Systems (Est. 1998).
- Educational and Training Division (Est. 1997).

- Customer Support Division (Est. 1994).
- Technical Consultancy (Est. 2002).

Tek Signals' Partners

Tek Signals represents companies that are well-known and respected in their individual fields for product quality and reliability. Tek Signals acts as sole distributor in the Middle East for over 80 major global players. These include, Actix, AEQ, Aventura, Axis Communications, Calrec, Christie, Clear-Com, Comrex, Cussions, Bird, BDL-Autoscript, Bosch, Evertz, Extron, Grass Valley, General Dynamics, Ikegami, Kompass, Kroma, Kyocera, Promax, Spectracom, Tandberg, Tecnovision, Tektronix, Telos, TSL, TCI, Vinten and Verite, among a host of others.

Turnkey Projects

Tek Signals undertakes projects on a turnkey



basis, providing high technology equipment engineering, including systems design and system integration. It has distinguished itself amongst other system integration companies by carrying out complex turnkey end-to-end fixed/mobile technical installations for complete tapeless set-ups that comply with full 3G HDTV, Dolby E standards.

Tek Signals takes the credit for designing the first HD, 3G and the first fully automated studio, and also the first media university infrastructure in the Middle East. TS is now working as consultant for the Middle East's first 4K studio.

Recent Broadcast Projects (Turnkey)

- Al Jazeera New Arabic Channel (part of AJWT project), edit suites, graphics stations, Doha.
- beIN Sports (nine studios), Doha - first 3G studio in the Middle East.
- North Western University, Doha – first full infrastructure for a media university in the Middle East.
- Al-Kass Sports Channel, Doha.
- Presidential Palace Project (PPP), Abu Dhabi – largest project infrastructure for four palaces, a first of its kind.
- Shaikh Zayed Grand Mosque, Abu Dhabi – first HD Studio in the Middle East – 100 per cent robotic studio.
- Abu Dhabi Media Company, Abu Dhabi TV – four studios.
- Dubai Media Inc, Dubai & DMC – full news centre - three studios in DMC, studios D,E & F in Maktoum Centre, centralised ingest system.
- Sharjah Media Corp, Sharjah - Studio 3, 5, MCR, CAR, Radio TV and SMC Kalba, Studio.
- Du-Samacom – 14 Channel+12 channel playout stations, automated monitoring system.
- Arab Media Group – Full TV Complex with seven automated TV, 5 radio stations and Radio TV.
- Ajman TV, Al Dhafra TV, Lissali Camel Track, Infinity TV, Al-Majid Satellite (Dubai and Saudi Arabia), MBC (Dubai), Cultural Foundation Studio (Abu Dhabi), Al Ain University, Higher College of Technology (UAE), Ras Al Khaimah Radio Station.
- Oman Radio & TV.
- GEO TV, DMC, Dubai and GEO TV, Pakistan.
- Duniya TV, Capital TV, Pakistan.
- Home TV, Delhi, India, All India Radio, Delhi, India.
- New TV, Lebanon, Future TV Lebanon.



Live HD OB vans rolling out of Tek Signals System Integration Facility.



World-class harnessing and installations by Tek Signals.



OB Vans

- LIVE HD OB's (4 OB's 24/16 Cameras), Al Kass Sports OB and SNG Vans, Adduniya OB, Al Dhafra OB & SNG, Vietnam OB; Future Comm OB, Saudi Arabia.

AV Division Projects

- QNT – Qatar – Auditorium, Projection System, Audio etc.
- Sidra Medical Centre – world's biggest indoor curved LED installed
- Emirates Foot Ball Club, Emirates Golf

AWARDS

- Best System Integrator of Middle East Award in 2007, 2008, 2013, 2015.
- Best Technology Implementation Award for the year 2011, 2012, 2015.
- Best Reseller / Distributor Award for the year 2014.

Club, Grand Cinema Complex – large LED video walls, video banners, etc.

- Over 50 automated meeting rooms.
- PALM Tower, Qatar – high-end meeting rooms with state-of-the-art AV systems.

Communication Division Projects

- Al Jazeera Network, complete DBS earth station.
- MBC, Dubai – 4 Dishes & complete D/L System for Nile-Sat, Arab-Sat, Hot-Bird, etc.
- Integral-Dubai & Saudi Arabia - TVRO



system, headend, dish antennas, D/L System.

- Etisalat – Advanced VSat Broadband Soln, 6 Channel bouquets.
- Irdeto, Dubai – TVRO System, 6 Antennas, D/L.
- GHQ UAE – “SAT-ON-THE-MOVE” full turnkey project – 10 systems.
- YAHSAT - Complete design and integration, turnkey project of bouquet for ADMC, 6 + 1 HD channels.
- QTEL DOHA - Complete design and integration, turnkey project of up-link/

down-link System V-Sat Network with Comtech modem, 9 x 2.4m antennas.

Telecommunications Division

The telecom division offers reliable telecommunications services with expertise in areas such as radio communications, military communication, antenna, telemetry, video communications satellite earth stations and setting up of fibre-optic and microwave link, broadband multimedia access network and wireless local loop access systems, etc.

Broadcast Project

Al Jazeera Arabic Studio-3 (part of AJWT project) – One of the biggest 3G Studios in the Middle East

This was a turnkey project with 100% content delivery. It was completed in the shortest time span and included fully redundant design, power, video, audio, data, control redundancy and fault alarm. A 24/7 automated channel and work centre, it was highly cost-effective and increased efficiency, productivity and delivery with file-based workflow.

With a ‘room in room’ studio floor for perfect audio isolation - it is the first studio in the region to accomplish digital audio from the microphone to uplink, resulting in crystal clear sound systems, unheard of before. This set a whole new standard in audio systems. It also included QC Check for every cable and signal level, jitter, eye pattern and noise measured for each path.

North Western University Qatar (NUQ)

It is the largest and first media university in the Middle East, affiliated to NU, USA. Tek Signals was the first integrator to build a media and communications university

(leading to degree and post-graduation) in the Middle East in Doha. It contains 3G broadcast studios, film studios, IT infrastructure, high-tech class rooms with IPTV, video conferencing, non-linear edit suites, audio and video 5.1 surround.

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PAVING THE WAY FORWARD IN INTEGRATION TECHNOLOGY

Founded in 1986, TSL Systems is an independent systems integrator trusted by broadcasters around the world. Over the last 30 years, the company has worked on countless prominent technical and commercial integration projects and installations, covering Enterprise MAM, broadcast IT networks, file-based workflows, shared storage and archiving, automation systems, multi-platform delivery, playout and studios and much more.

During the last three decades, the company has never forgotten the importance of locality. TSL Systems is a

local business, operating on a global scale. And the Middle East operation is a great example of this.

From its offices inside the Dubai Studio City, TSL FZ LLC provides independent integration services at every stage of a project. From consultancy and design through vendor selection and pre-build up to FAT, integration and installation, and beyond to support and maintenance.

Working in partnership with a client's own engineers, the sole aim is to enable local broadcasters to meet and exceed their technical and commercial goals.

The company also has extensive

internal integration resources for building and testing systems. This allows costs and projects to be closely monitored and maintained and is one of TSL's major strengths.

Importantly, all of these things are done in a way that makes a broadcaster's life as simple and straightforward as possible. TSL Systems is very proud of the knowledge and expertise it has gained over the years and it isn't afraid to share it. The door is always open for questions or queries, no matter how small. TSL Systems people are always happy to chat and, importantly, to listen. This is a people business after all.



The TSL Vision

2015 was a pivotal year for broadcast technology, not least with the growing realisation that IP can and will - as predicted - replace baseband signals. During IBC, there were countless demonstrations of IP interoperability and, although many were in an embryonic stage, all the major manufacturers showed great willingness to participate. And there is a strong desire among many broadcasters to make all IP infrastructures a reality.

This change is now inevitable. As we move away from established picture formats and move towards more and

better pixels, we have to abandon SDI just to accommodate native data rates. With UHD-1 (4K) and UHD-2 (8K) along with High Dynamic Range (HDR) and Wide Colour Gamut (WCG) becoming the new standards, the only way to go is forward.

IP promises greater efficiency but this will not be utopian. It is certain that in this new world, integration and workflow issues will remain. All products must play nicely together, or they will surely fail.

At the same time, the adoption of IP is not going to be some big bang-style change. It will be a gradual adjustment, one that could potentially be long and difficult, as it represents a seismic shift

from what we know and have been so familiar with.

“This fundamental transition to IP is greater than the move from analogue to digital or from SD to HD,” says TSL Systems’ new chief executive Roger Henderson. “It is a step-by-step transition for most customers, leading ultimately to a broadly software-only universe where functions are provided from suites of software residing in local or remote, customer owned or outsourced clouds.”

Henderson believes that it could take three to five years for the early adopters, and perhaps five to 12 years for the majority to make the switch.



Initially, they might create islands of IP functionality, suggests Henderson. “Either that or broadcasters will adopt IP for specific components within an infrastructure. After all, for perfect systems integration, rather than just media transport, there needs to be shared control architecture too - and that looks to be long way off yet.”

Along the way, because of the incompatibility of files, formats, file movements, timing and metadata (amongst other issues), there will still be a need for people and companies who are able to manage complex and sometimes bewildering issues and who can track

RECENT WORK

Recent TSL Systems projects in the Middle East include:

- ▶ OSN - MCR and NOC expansion.
- ▶ Al Aan TV - HD video router upgrade and archive migration from LTO-4 to LTO-6.
- ▶ Sky News Arabia, Abu Dhabi - HD file-based news workflow.
- ▶ NUQ, Qatar – File-based HD news workflow.
- ▶ First Media – File-based news, production and playout facility.

down the source of those in the ‘cloud’ environment. It will become specialist. And of course, signals and metadata have to be captured into any system and delivered from it.

In the brave new IP world, there will be a huge demand for trusted specialists who are able to craft market leading solutions, many of them with mixed technologies, implement them and be able to manage them over the long term for those operators who do not have the capacity to do so. This is where TSL Systems comes to the fore.

As an experienced SI, TSL can also separate the underlying trends and



technologies from the marketing hype. With a long and close relationship with all the major vendors TSL staff have access to the facts and the ability to uncover what is actually deliverable and what is pie-in-the-sky!

So, what's next? With domestic TV offering 4K and now HDR (in its many forms), the pictures in 2016 will be markedly better, and it is down to the industry to provide the supporting material. It is relatively easy to swap a camera for a better model; changing the core infrastructure will not be so straightforward. TSL Systems is perfectly positioned to take media companies



▶ Roger Henderson, CEO, TSL.



▶ Suhail Ahmed, General Manager, TSL.

through this transition, offering friendly but sound advice and helping to keep up with developments at the same time.

By making use of TSL Systems' clear vision of the future, coupled with its strong networking skills and expertise, broadcasters will be able to get it right first time.

Facility Overhaul

Expanding an existing facility when mission critical services are still running is never an easy assignment. And that was certainly the case when OSN asked TSL Systems to expand its NOC and MCR facilities. The first task was to clear the existing Studio Gallery. Over four days, the kit was asset-tagged and 2.5 metric tonnes of cable extracted. MCR and TX services were then migrated to a temporary position. An open plan office, plus the legacy MCR and TX areas were transformed into a new NOC position and new MCR area including seven TX suits. This took 40 days in total and included the installation of Lund Hasley furniture and a Christie monitoring

multi-viewer stack. The NOC was then moved to a new location. This process required significant documentation and planning. The preparation was essential as it allowed the move to happen smoothly in just three days.

With the NOC migration completed TX facilities were moved to their new suites along with the MCR. "Each day brought its set of challenges but TSL had multiple teams working endlessly to ensure the project was delivered on time," says Suhail Ahmed, project manager and solution architect.

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Index

ABS	122	HorizonSat	142
ABS Network	156	INC System Integrations	214
Al Aan Media Services	116	Infomir	32
Al Futtaim Technologies	186	JVC Kenwood	70
Amagi	160	Lawo	74
Amaranthine Trading LLC	22	M-Three Satcom	146
APT Satellite	126	Master Media	16
Aret Video and Audio Engineering	190	Miller Tripods	78
AsiaSat	130	Newtec	82
Aspera, an IBM company	38	NorthTelecom	168
Aveco	42	On-Air Asia	26
Avid	46	Panasonic	86
BFE Studio und Medien Systeme GmbH	194	PCCW Global	172
Brainstorm Multimedia	50	Riedel Communications	90
Broadcast Solutions GmbH	198	Rohde & Schwarz	94
Broadcast Systems Arabia	202	Sennheiser Middle East	98
Datavideo	54	SGL	102
Erstream	164	STN PLC	150
Eutelsat	134	Systems Design	218
Exterity	58	Tek Signals/Qatar Signals Systems	222
Fischer Connectors	62	TSL	226
Gazprom Space Systems, JSC	138	Utah Scientific	106
GloCom	206	U-TO Solutions (I) Pvt. Ltd.	176
HEAT for Engineering and Technology	210	Vectracom	180
Hitachi Kokusai Electric Turkey	66	Verimatrix	110

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PRO50

TOP 50 COMPANIES YOU NEED TO KNOW

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