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SATELLITE Markets & Research

Industry Trends, News Analysis, Market Intelligence and Opportunities

A Look Back at the Key Developments in 2014

by Elisabeth Tweedie, Associate Editor

No one can say that this year hasn't been an interesting and at times challenging one for the satellite industry. One of the stars of the year, has been, O3b, a company that a few years ago was regarded as an upstart that would probably go the way of most of the previous LEO and MEO ventures. It now has eight of its initial constellation of twelve medium earth orbit satellites (MEOs) in orbit and has initiated service in several different markets. A further four more satellites are scheduled to be launched this month. Among the services now in operation include providing connectivity to the Cook Islands, Papua New Guinea, East Timor and the Democratic Republic of Congo and service to cruise ships, among others. Royal Caribbean Cruise Lines is running a TV advertising campaign for Quantum of the Seas, its latest ship, calling it part space-ship and part cruise ship, focusing on the O3b service. It's not often that a customer advertises a satellite service by name.

Billionaire entrepreneur Elon Musk, Founder and CEO of SpaceX is reportedly working with O3b Founder Greg Wyler on a new broadband satellite constellation called WorldVu.

High Throughput Satellites (HTS) continue to make headlines. On the one hand, several industry observers are concerned that there are too many of these in the offing, which will inevitably lead to a glut in bandwidth and a consequent downward pressure on pricing in some markets. On the positive side, subscribers in the US grew to nearly 1.7 million, with many of these coming from urban areas. ViaSat-1 has been forced to close certain beams to new customers in order not to degrade service for existing subscribers. In the rural areas, where there is still excess capacity, the company has initiated a trial of unlimited bandwidth; something it is considering doing for everyone once ViaSat-2 launches in 2016. Avanti, based in the UK, but with two HTS covering Europe and parts of Africa is obviously not concerned about pricing pressure as even before its third satellite has launched, has just ordered a fourth satellite, Hylas 4, to cover sub-Saharan Africa, with steerable beams that could also cover Latin America.

2014 was also the year that WorldVu was granted a license for 360 LEO satellites, intended to provide global connectivity to the home. The license for WorldVu is held by Greg Wyler, the entrepreneur

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What's Inside

From the Editor

Challenges Ahead

In the last week of October I attended two conferences held at the same time , but thankfully in the same city (unlike my cross-continental effort to attend the Satellite show in Washington D.C. and CABSAT in Dubai earlier this year). I'm referring to the CASBAA convention and VSAT Mobility which were held concurrently in Hong Kong. There was an interesting contrast in both shows. The former focused on new media delivery platforms such as Over-the-Top and IP while the latter focused on emerging markets for satellite services such as the maritime, oil and gas and other verticals.

At CASBAA, satellite operators are concerned with device shifting by audiences in Asia. It is no secret that broadcasters and cable programmers are the largest revenue segment for satellite operators. The over-the-top (OTT) Pay-TV market, which bypasses the traditional set-top-box usually provided by cable and satellite subscribers, is growing exponentially from US$ 5.8 billion in 2014 to just over US$ 10 billion in 2018 says research firm Infonetics.

Meanwhile, at the VSAT conference, there was a generally bullish outlook for new vertical markets, especially in the energy sector (ie. Oil and gas and mining). Whether these vertical markets will compensate for the forecasted decline in revenues from the broadcast sector remains to be seen. This is just one of the challenges that the industry will be facing in the coming years as outlined in our cover story by Elisabeth Tweedie this month. And as her article points out, there are many positive developments in 2014, but challenges ahead.

MarketBrief Report on the Oil and Gas Market for Satellite Services

sponsored by ITC Global

A summary of the key trends and opportunities in the growing market for satellite services in the oil and gas industry worldwide.

To read or download this report go to:

http://www.satellitemarkets.com/news-analysis/marketbrief-report-oil-and-gas-market-satellite-services

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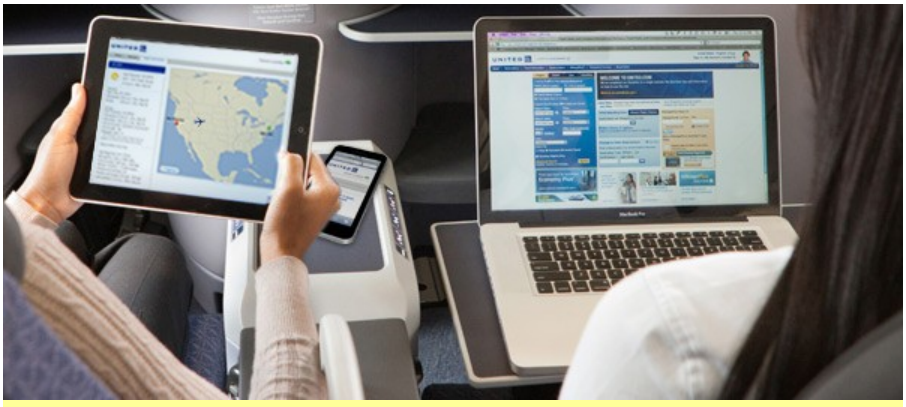
A Look Back at 2014 ...From page 1

that started O3b. At the time of filing, he was closely associated with Google, the founder investor in O3b. Now, he and his team are more closely associated with SpaceX, although it is not clear at this point, if the association is with SpaceX or with Elon Musk, the founder of SpaceX, Tesla and Paypal, personally. The company has now issued an RFP for the satellites and bids are expected by the end of the year. Each satellite is intended to have 14Gbps capacity. This is obviously a challenging venture, and there is a long list of hurdles that need to be overcome to make it reality; but when two people with vision and a successful track record of shaking up established industries get together the potential for change is enormous.



This year has seen the In-Flight Connectivity market grow as demand for this service is forecasted to rise in the coming years.

2014 also seems to have been the year that Inflight Connectivity began to inch its way to becoming mainstream. Panasonic now has its equipment installed on 3,000 planes. In November, at Satcon in New York, Todd Hill, Director, Product Management and Capacity of Panasonic, described the industry as being at the bottom of the hockey stick in the traditional growth curve and forecast rapid growth ahead. Passenger adoption continues to be an issue and both chargeable and free services are being offered by different airlines. As would be expected the take-up rate for the free service at around 60%, is significantly higher than the 7-12% quoted for a chargeable service.

On the launch side of the business the news has not been so good. In May of this year, Proton, which already had a dubious track record, had another failure – the second in less than twelve months, when it destroyed AM4R. AM4R was the replacement satellite for AM4 that was destroyed during a previous Proton launch in 2011. Both satellites belonged to RSCC as did Express AM6 which was launched in October. Initially that launch was reported as a success, but subsequently questions have been raised as to the drop-off point. Roscosmos has been quoted as saying that the drop-off point was "somewhat different than planned." Pre-launch statements had indicated that the satellite would be operational in the early part of 2015; post-launch statements are saying that the satellite won't reach its intended orbit until July next year. A tough time for RSCC indeed.

The most recent failure of the Proton launch of RSCC's AM4R last May has caused a chain reaction of delays of upcoming satellite launches including the much anticipated second and third GlobalXpress satellites from Inmarsat.

The previous failures mean that the commercial manifest is behind schedule. Astra 2G (owned by SES) which was originally scheduled for a June launch, has had the date moved twice, and is now scheduled for the end of this month. The second and third GlobalXpress satellites for Inmarsat were also due to be launched this year and have now been delayed until next year.

Astra 2G will be the next Proton launch. The eyes of the world and SES and Inmarsat in particular will focused on that launch to see if Proton really is ready for prime time.

Proton is not the only launcher to have problems this year. At the end of Octo-

Gazprom Space Systems – Russian satellite operator

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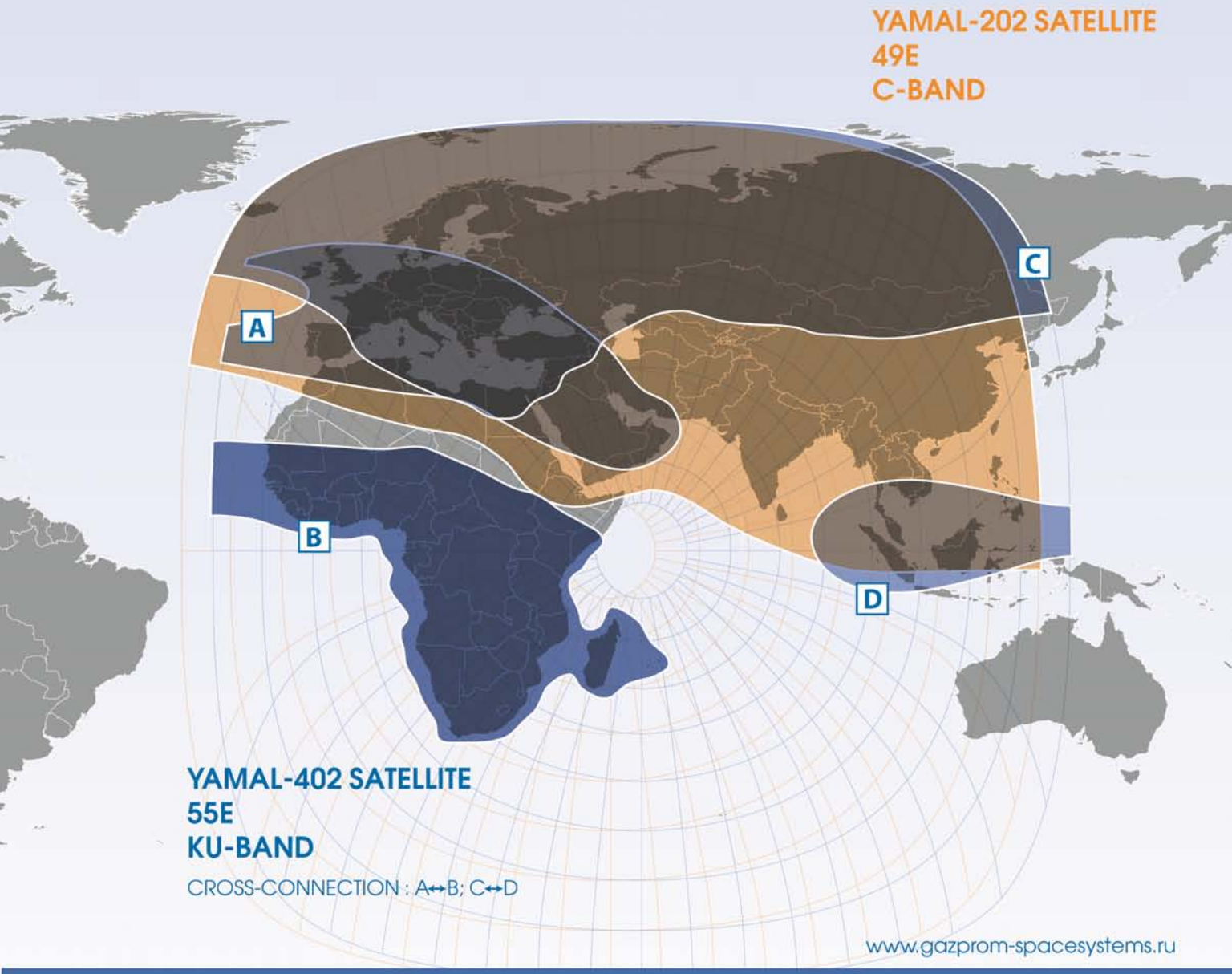

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ber, Antares, the rocket used by Orbital Sciences, to take the Cygnus resupply capsule to the ISS, exploded seconds after launch, destroying Cygnus and damaging the spaceport at Wallops Island. The cause of the failure has now been attributed to one of the two Aerojet Rocketdyne AJ-26 engines. This engine, a refurbished version 1970s Russian NK-33, also had a failure on the test stand earlier this year.

Back to the more positive events of the year.

The industry as a whole has been gearing up for WRC-15 and a further fight to keep C-Band frequencies for the satellite industry.

2014 marks the year that regulations, which have dogged the US satellite industry for the last 15 years, started to be changed. In 1999, following the publication of the Cox Report into the Long March launch failure, and associated review by American and other Western Satellite experts; satellites were placed on the munitions list and subject to export controls by the Department of Defense. This made it more difficult for US manufacturers to compete internationally, particularly initially, and later led to the development of the "ITAR free" satellites. The new regulations transfer back to the Department of Commerce, commercial communication satellites, some remote sensing satellites and associated components and ground terminals. A move, considered long overdue by many and that has been welcomed by US industry.

More good news came from Eutelsat and the Satellite Interference Reduction Group (IRG) who reported that deliberate interference to satellite broadcasts had decreased significantly, following an alarming rise in 2014. In May of this year there were 1,610 minutes of deliberate jamming, not a good figure, but when compared to the 46,000 minutes in the same month last year, a major improvement!

The industry as a whole has been gearing up for WRC-15 and a further fight to keep C-Band frequencies for the satellite industry. This effort is being spearheaded by: the Global VSAT Forum (GVF), the World Teleport Association (WTA), the Satellite Industry Association (SIA), the European Satellite Operators Association (ESOA), the Cable and Satellite Broadcast Association of Asia (CASBAA) and the Society for Satellite Professionals (SSPI).

In support of this effort, and to try and get the message to a wider audience, a new website has been launched: www.bettersatelliteworld.com, documenting how satellite is so often the hidden link in so many things that we depend on, both in our daily life and in times of crisis. A fact that we are all aware of, but something that is relatively unknown outside of our industry. And something that we should all take responsibility for changing.

Elisabeth Tweedie is an Associate Editor of the Satellite Executive Briefing. She has over 20 years experience at the cutting edge of new communication and entertainment technologies. She is the founder and President of Definitive Direction a consultancy that focuses on researching and evaluating the long term potential for new ventures, initiating their development and identifying and developing appropriate alliances. During her 10 years at Hughes Electronics she worked on every acquisition and new business that the company considered during her time there. www.definitivedirection.com She can be reached at: etweedie@definitivedirection.com

What's Next for Consumer Satellite?

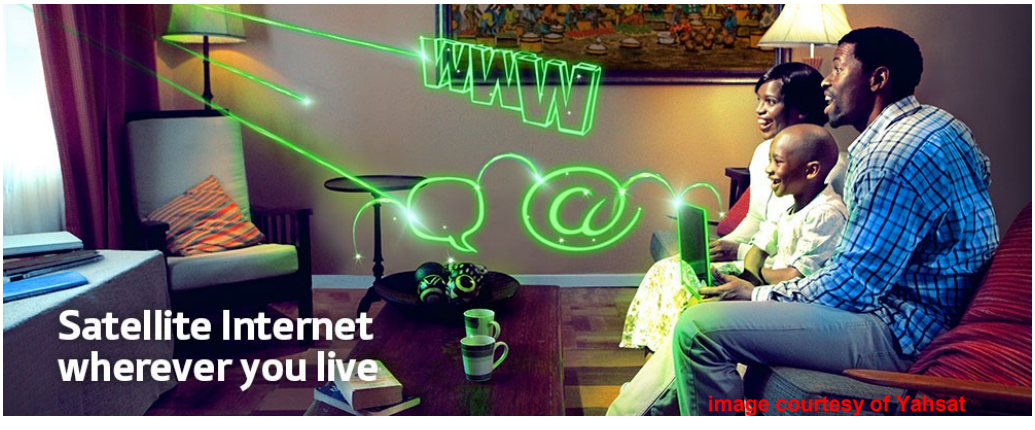
by Roger Boddy

We have witnessed a huge shift in the satellite industry over recent years and months. In particular, High Throughput Satellite technology has developed a great deal and finally reached the point where the technology is reliable, efficient, and cost-effective enough for the consumer market.

"...As an industry, we understand that High Throughput Satellite technology has transformed the environment to such a degree that it is a viable alternative, with prices down and good reliability. So, now the challenge is to tell the consumers that and help them understand what HTS means for satellite broadband. .."

At Global Teleports we have been supplying reliable satellite services to the industry for nearly twenty years. However, we didn't rush to enter the satellite broadband market until we were satisfied that we could provide a good service. We officially launched our new broadband service for commercial and domestic users, **Vip3Play i**n March 2014 and it has already met with a great deal of interest.

That said, the satellite industry has a number of challenges ahead. One is educating the consumers about the value of satellite services, the threat on our spectrum with the upcoming WRC-15, and bringing in new talent to the industry. Of course, we can't solve it all overnight!



Educating the Consumer

In my view, educating the consumer is absolutely crucial, as it will have a knock-on effect on the other two. If we can demonstrate the value and necessity of satellite technology, then the consumers will more likely see that satellite broadband and other similar services are not the last resort but a viable alternative. At the same time, this will surely add fuel to the satellite industry's spectrum defence and at the same time show young people the huge scale of the satellite industry, therefore making the search for new talent much easier.

And we have such a good story to tell. From the Global Teleports perspective, we have a number of customers using satellite to connect them in locations which would otherwise be unreachable, ranging from for the Fire, Crash and Rescue Services on Kandahar Airport in Afghanistan, to West Wales, where we will shortly be installing a service for a local business with currently practically no service. Not only will it be used for establishing a strong online presence, but also the company in question has big plans to become a business center and veritable hub of the community, offering state of the art conferencing facilities.

The issue is of course that a couple of years ago when the first commercial and domestic satellite broadband services launched, they were expensive and suffered with high levels of latency. With so much bad press at the time, the consumers still view satellite broadband as the last resort, when all else fails, and even then many can be skeptical. As an industry, we understand that High Throughput Satellite technology has transformed the environment to such a degree that it is a viable alternative, with prices down and good reliability. So, now the challenge is to tell the consumers that and help them understand what HTS means for satellite broadband. This is something we have begun for our business and will continue moving into 2015.

The WRC-15 Defense

As mentioned, the more we educate the consumer, the

more we can help our case, but the story is slightly different. Rather than being about the technology, we need to highlight the plethora of vital services that simply wouldn't be possible without satellite. We're back to that service in Afghanistan, giving rescue services the vital connection to ensure they get to the emergencies in a timely manner. I know there are many more similar services that we, as an industry, should highlight.

Connecting rural communities is also a huge factor to highlight. In the West it means bringing business to those areas, which is vital for their survival. However, in other areas of the world, those rural communities are often far removed from vital services even. Getting them connected means they can get help when they need it, and that is a story we should be telling.

Connecting rural communities is one area where satellite technology is making a big impact.

I know this is something that a number of industry groups, including the SSI and the Global VSAT Forum (GVF) are currently gathering, and something we, as an industry, need to ensure we are feeding them to make sure they can help us protect that spectrum. We also need to make sure that those stories are being told far and wide, not just preaching to the converted.

Of course, the other important point with WRC-15 is that clearly the mobile industry needs a solution, and whilst the solution cannot be chunking off slices of our valuable C-band spectrum, we need to consider what that is.

Filling the Talent Pool

This topic has come up at a number of meetings recently. Indeed at IBC, I attended a conference session hosted by EUSatcom, where that very topic was discussed. Martin Coleman of the Satellite Interference Reduction Group (IRG) very carefully pointed out that the average age in the room was heading towards retirement age. Of course, there are young people coming through, but certainly not enough to sustain this industry in the long term.

To get that important talent, we need to demonstrate to children and students that this is an exciting industry with great career prospects. The European Space Association's recent Rosetta mission has certainly gone a long way to reigniting global interest, but we now need to build on that to demonstrate the wide range of opportunities out there.

There are a number of organizations across the globe promoting science and technology in schools, and the satellite industry needs to ensure it is a part of it. I myself have been active with a local group, with expansion plans, the East of England Engineering and Science Technology Association (EEESTA). I also know of others in the UK, such as STEM (Science, Technology, Engineering, and Mathematics), which invites its ambassadors into schools to talk to eager young people deciding where to go next.

Call to Action

I'd like to end with a call to action for everyone in this fantastic industry of ours. Firstly, let's make sure we are shouting about the technology improvements, secondly, tell the world about the good you are doing, and thirdly, find your local education organization and get involved with exciting the next wave of talent! After all, the result will benefit us all.

Don't forget, satellite has been a major part of the infrastructure since 1963.

Roger Boddy is the principal of **R H Boddy Associates Ltd** consultancy and sole owner of Global Teleports (UK) Ltd, to which he brings 39 years corporate experience in the international telecommunications industry in both the public and private sectors. Widely acknowledged as an expert in satellite systems, Roger has pioneered the introduction of digital services via satellite and initiated the utilisation of inclined orbit satellites for cable restoration and led a multi-national team of engineers in satellite operations and planning with responsibility for more than 70 major earth stations in 28 countries. He can be reached at **roger@globalteleports.com**

Crystal Solutions CEO Roger Franklin

Atlanta, GA-based provider of intelligent control solutions Crystal Solutions projects growth of 400% in the next seven years. The company, which has been growing steadily at around 20% per year, has ambitious targets to expand that growth significantly over the coming years.

This expansion will be driven mainly by innovation. Crystal Solutions has recently launched a number of innovative solutions for clients in the video distribution and satellite industries, enabling them to manage increasingly complex networks through dynamic management of systems and devices. As video content distribution models continue to evolve, Crystal Solutions is constantly developing solutions to manage that evolution and associated complexity. We spoke to their CEO Roger Franklin to provide more insights on his company:

For the benefit of our readers who are not too familiar with your company, can you give us a brief overview of your main product lines?

At Crystal, our products and solutions are built to simplify the operation of complex video, satellite and data networking systems. Our Intelligent Control system ties our clients' equipment together providing operators with dashboards that enable them to effectively manage their network. The system includes integrated business intelligence reports allowing for network efficiency and an automation capability facilitating recovery from network errors and minimizing human errors.

We have a range of stand-alone solutions aimed at the various complex processes involved in managing video, satellite, and data networks, such as Uplink Power Control, Carrier ID Detection, Spectrum Monitoring, and our recently launched Video Metadata Analyzer.

How do you see your position in the marketplace in the key segments that you serve?

We are fortunate to have a strong position with major clients such as Fox, CNN, ESPN, Disney, and Intelsat General, among many others. The increasing demand for personalized video content anywhere and anytime will continue to complicate content delivery. It is essential to intelligently control and manage the growing content contribution and distribution networks

The same is true of satellite networks, which serve an increasing number of applications and have an increased need to prevent or mitigate errors. Crystal Solutions is uniquely positioned to solve this complexity and enable our clients to concentrate on their core business.

What differentiates your company and your products from your competition?

We have decades of experience delivering network management and control solutions to the industry, with a heritage that dates back to 1986. Throughout our history, we have constantly evolved and engaged with our customers to deliver innovative solutions that address current and future challenges.

Our growth has paralleled the growth in the video and satellite industries, providing us with a unique understanding of the business models of our customers and informing the creation of solutions that benefit those business models.

Your company has been growing at an average of 20% per year and you are projecting growth of 400% in the next seven years. To what do you attribute your high growth rate and continued growth?

We've gained a wealth of knowledge about our customers' businesses over the past 28 years and are a trusted provider of reliable solutions that benefit those businesses. Our growth can be attributed to a combination of increased market awareness, reach, and new demand for our solutions.

Roger Franklin

Networks are more complex than ever and the need to simplify them will spike in the coming years, with many video providers and satellite networks looking for better ways to control their assets and processes. The industry is increasing its use of metadata to tailor products to the end user and gather important data and analytics. Crystal Solutions is in the perfect position to capitalize on these trends and with it we expect rapid growth over the coming years!

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Extending Broadband Internet

by Virgil Labrador, Editor-in-Chief

The Internet is an essential part of modern life, whether for broadening knowledge, shopping online or just staying connected with friends and family. Media Networks Latin America (MNLA) was searching for a solution to bring Internet services in an economical way to its complex to reach consumer base—many of whom already subscribe to its satellite television services—in Brazil, Mexico, Chile, Colombia, Argentina, Ecuador, and Peru.

The Requirement

MNLA, a B2B unit of Telefonica, an international telecommunications company, is the top wholesaler of satellite TV and Internet services in the Latin American market, providing "white label" services for local Latin American service providers. These service providers develop their own branding, pricing, and billing for re-selling MNLA service in local and regional markets.

In 2013, MNLA decided to add high-speed Ka-band satellite Internet service to its portfolio to help commercial partners further grow their residential businesses. The company was already Latin America's largest wholesale distributor of Ku - band satellite Internet service and Direct to Home (DTH) television. By operating over a new Ka-band, high-throughput satellite (HTS), MNLA is able to offer high-bandwidth applications such as music downloads, video streaming, and voice over IP (VoIP) at a cost-effective price.

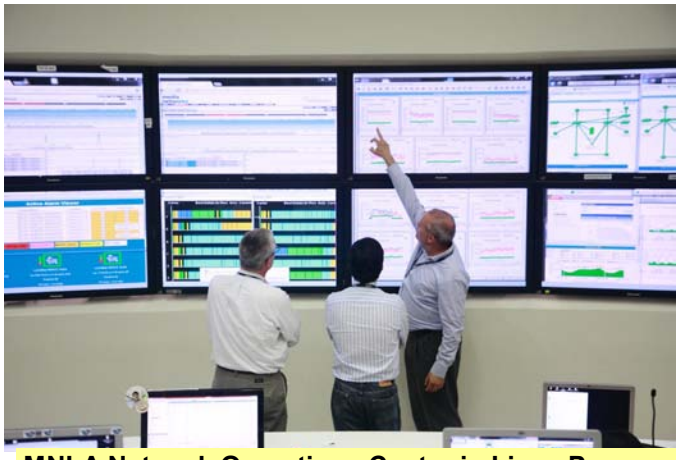
MNLA evaluated satellite networking equipment from virtually every major manufacturer using key criteria such as efficiency, performance, scalability, functionality, and ease of integration with existing support systems.

"MNLA conducted a very careful evaluation of the major satellite networking systems available and found the Hughes JUPITER™ System to meet all of our stringent requirements," said MNLA CEO Werner Schuler."

The Hughes JUPITER System for MNLA includes two gateway stations, remote terminals, and a comprehensive network management system, enabling MNLA to supplement its DTH offerings with high-performance satellite Internet access operating over the Hispasat Amazonas 3 Ka-band satellite to consumers across its service area. The highly scalable architecture allows MNLA to cost-effectively expand as needed.

Benefits

Among its many capabilities, the JUPITER System gateways



MNLA Netowrk Operations Center in Lima, Peru.

are designed for "lights-out" operation and can be fully managed from MNLA's Network Operations Center (NOC) in Lima, Peru. No personnel are required for daily operations at the gateway sites in Laredo, Texas and Arica, Chile. These locations are ideally located to provide coverage for the required regions and they also experience the least amount of bad weather that could interrupt service.

Features such as remote commissioning have allowed MNLA's resellers to quickly install new sites and hand them over to customers in just a few hours. Another feature of the JUPITER system known as On-site Verification Tool (OVT) ensures that revisits to sites are typically not needed because the installer can validate the installation prior to leaving the site by comparing it against adjacent sites.

These and other features help to significantly reduce operational expenses for MNLA and increase margins for local service providers.Hughes brought its decades-long experience in providing large consumer broadband services to MNLA, reducing implementation time and risk, resulting in system installation and commissioning within three months of contract signing.

Results

MNLA experienced significant customer pick-up after their system went live in Brazil and Chile; and as importantly, local service providers are also able to meet the demands of small to medium enterprises (SMEs)—not just consumers. Designed to scale to tens of thousands of users, the Hughes JUPITER system is opening new opportunities for MNLA and its resellers to bring a new generation of Internet services to their customers in record breaking time.

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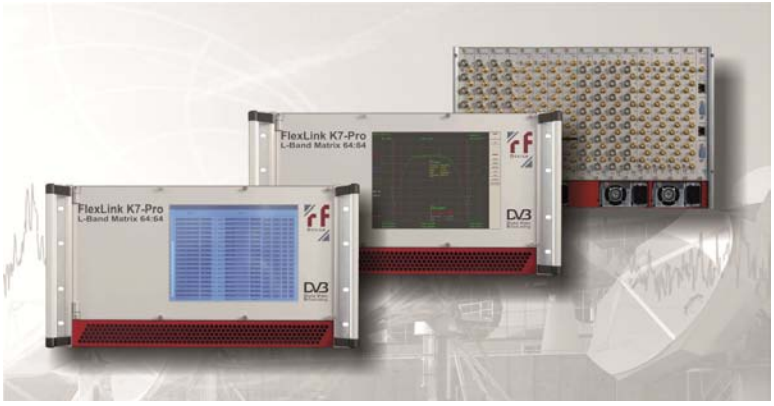
RF Design's New FlexLink-K7-Pro

The demand for expandable, space-saving, high-quality and last but not least reliable L-Band switch/routing matrix systems typically used for applications in satellite earth-stations, teleports but also in broadcast and cable-tv/iptv headend infrastructures is increasing constantly. The advantages of such systems are obvious and play a key-role for today's and future RF distribution infrastructures.

Till today finding a switch/routing matrix that provides all features and benefits the market requires is like searching the needle in a haystack although the industry already is offering a wide range of solutions. But an all-in-one device actually is what the market is looking for.

RF-Design headquartered in Lorsch, Germany has a long history and extensive experience in developing, manufacturing and marketing various RF distribution solutions including L-Band switch/routing matrices. It recently launched the next generation L-Band Switch-Matrix system of their FlexLink series , called "FlexLink -K7-Pro". Over the recent years they have sold more than 230 units of thisFlexLink matrix-series to major teleports, satellite earth-stations, satellite operators and system-integrators around the globe and RF-Design is very optimistic that their new "FlexLink-K7-Pro". will have a positive impact for the years to come, both for themselves but also for their clients and partners.



Their new "FlexLink-K7 -Pro". represents a unique, innovative and scalable L-Band switch/routing matrix that is the answer to the need for an "all-in-one" device that the market has been looking for. The development team of RF-Design, led by their company-owner and CTO, Ralf Mayr, together with their director of sales & marketing, Oliver Vogel, have evaluated the market requirements as well as the technical possibilities. Their goal was to design a space-saving solution offering unique functionalities and features in connection with a reduction in space and price. The result is represented by the "FlexLink-K7-Pro". It is built in a space-saving 6RU/19" rack-mount chassis with only 500mm depth so to fit into any standard 19" cabinet. The system performs as a scalable L-Band switch/routing platform allowing to switch/route any selected input to any or all outputs while it is available with various input/output configurations from 8:8 to 64:64 in one chassis and up to 256:256 with additional slave-chassis noticing that the modular and scalable concept alsoallows other input/output configurations as per the user´s requirements (increments of 8).

...designed for perfect signals

The "FlexLink-K7-Pro" covers the L-Band frequency range (950...2150MHz) and is designed for today´s and future signal management requirements offering a maximum in flexibility combined with state-of-the-art functionalities, features, excellent RF performance and various options that are unique on the market. All matrix boards (center, input, output) are hot-swappable while the input and output switch-boards are equipped with cascading-interfaces allowing to expand an existing system without the need of any other additional devices. This unique expansion concept requires less space, reduces power-consumption and avoids additional point-of-failures.

The flexible modular design makes it possible to mix the input and output connectors (increments of8) with various connector types (50Ohm SMA & BNC, 75Ohm F & BNC as well as optical inputs E2000 or SC/APC) giving the operator the flexibility he requires now and in the future. All combinations of inputs and outputs are freely configurable manually and remotely.

The RF performance, its stability and quality of service within any RF distribution infrastructure is always a critical aspect and operators are constantly facing the challenge to assure excellent and stable RF performance 24/7, 365 days year round. Once a switch/routing matrix system is part of such an RF distribution architecture it also should allow the user to have access, to configure and to monitor all relevant RF values which are being distributed throughout the matrix.

Keeping this in mind RF-Design has equipped its new "FlexLink-K7-Pro" with very valuable features and function-

alities such as variable gain-control & slope-equalization (@ any input), RF power monitoring (@ any input & output) and internal monitoring of the amplifier-components (with error diagnosis). Furthermore the "FlexLink -K7-Pro" features 1:1 redundant dual power-supplies (with error diagnosis, hot-swappable) and internal airflow ventilators (with error diagnosis, hot-swappable).

The new "FlexLink-K7-Pro" represents a unique, innovative and scalable L-Band switch/routing matrix that is the answer to the need for an "all-in-one" device that the market has been looking for.

Additional flexibility is being provided by various available options like switchable LNB-supply 13/15/18V, 22kHz with 450mA current monitoring (@ any input) while this option also features the possibility to insert an external 10Mhz signal (@ any input). Of course all inputs can be individually selected and configured with/without having LNB-supply and/or 10Mhz feed locally via touchscreen and remotely via WEB-GUI.

A very special and unique optional available feature is the "K7SQA Signal Quality Analyzer" tool. It actually represents an add-on spectrum-analyzer/DVB demodulator board. This option allows measurement and monitoring of most relevant RF and DVB-S/S2 parameters (for any input & output of the matrix). At the RF section it measures and monitors parameters like RF-power and C/N. At the DVB section (DVB-S/S2) it measures and monitors channel-power, MER, BER, frequency-drift, symbolrate-drift, Network-ID, Service-ID, Service-Type and Service provider name. Furthermore it completely scans all inputs and outputs and its transponders. This option is equippedwith an RJ45/100MBit interface for IP output streaming (MPTS) of the configured transponder.

The "FlexLink-K7-Pro" matrix system can be accessed, configured and monitored locally via its front-side 10.4" colored touchscreen LC-Display. Remote configuration can be done over its rear-side ethernet-interface (WEB-GUI/SNMP). RF-Design´s local and remote configuration platform for the "FlexLink-K7-Pro" allows the configuration of all relevant settings of the matrix system including routing/switching settings, crosspoint-locking, signal-path backup routing, variable gain-control, slope-equalization and of course all available options such as LNB-supply, 10MHz feed andthe K7SQA Signal Quality Analyzer (if activated). The configuration software also supports user administration management and user rights assignment, logbook function, storage functions and various parameter monitoring functions for critical RF values but also for each individual switch-board, power-supplies and ventilators.

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- ✓ Remote control via WEB-GUI/SNMP
- ✓ Various parameter monitoring functions
- ✓ User administration management and and user rights assignment
- ✓ 1: 1 redundant dual power-supplies

CHOICE OF OPTIONS

- ✓ Switchable LNB-supply 13/15/18V, 22kHz, current monitoring 450mA (@ any input) inclusive 10MHz feed, external (@ any input)
- ✓ SQA Signal Quality Analyzer (@ any input/output)
  - RF monitoring (RF & Channel power)
  - DVB-S/DVB-S2 monitoring (C/N, MER, BER, frequency-drift, symbolrate-drift...)
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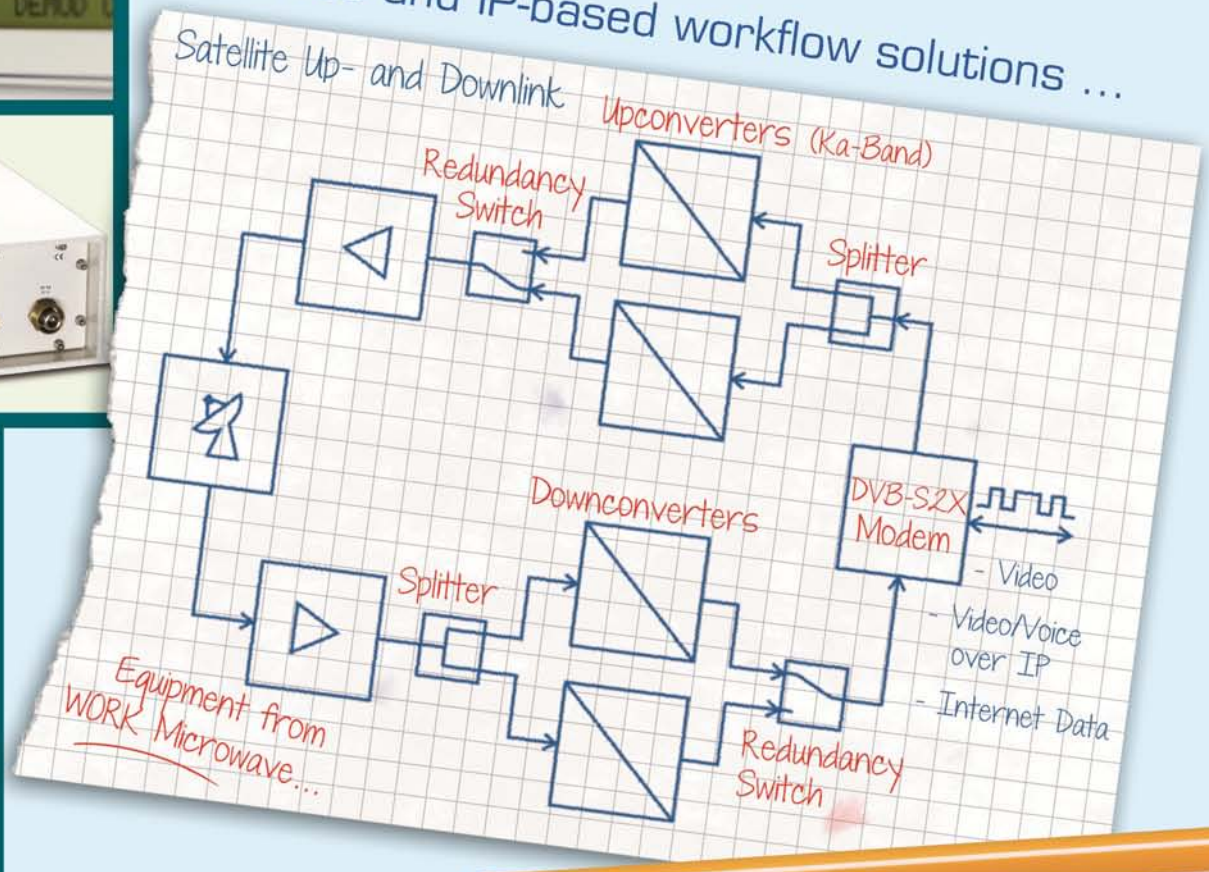

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NovelSat Names David Rubner Chairman of its Board

Ra'anana, Israel, November 30, 2014—NovelSat has announced that communications industry veteran **David Rubner** has been named Chairman of the company's board of directors effective immediately.

Rubner also serves on the boards of a number of other public and private companies including Check Point, RadWare and cVidya. He is Chairman and Chief Executive Officer of Rubner Technology Ventures Ltd., a venture capital firm, and is a general partner at Hyperion Israel Advisors Ltd., a venture capital fund.

David Rubner

Prior to founding Rubner Technology Ventures, Mr. Rubner served as President and Chief Executive Officer of ECI Telecommunications Ltd., a provider of telecommunications networking infrastructure solutions, from September 1991 to February 2000

ABS Appoints Dolores Martos MD-Americas

Washington DC, November 12, 2014 – Satellite operator **ABS** announced the appointment of **Dolores Martos** as the Managing Director of the Americas. In this position, Martos is responsible for leading the sales, business development and operations for the Americas markets. She is based in Washington DC and reports directly to ABS CEO Tom Choi.

Choi said "Dolores brings significant leadership and commercial experience to our US team. As Head of Sales for the Americas, she will further enhance the ABS business and greatly contribute to the development of new markets in the entire region. She joins the executive group responsible for the development of the company's strategy."

Dolores Martos

Martos has over 20 years of experience in the satellite industry and has consistently proved herself in the development of new business and strategic opportunities. Prior to joining ABS, Dolores was the Vice President of Sales responsible for the Latin America & Caribbean markets at SES. She also spent eighteen years in various positions at Intelsat with her last posting as Regional Vice President of Sales for Latin America.

She holds a degree in Electronic Engineering with concentration in Telecommunications from Simon Bolivar University in Venezuela.

Hunter Communications Hires Julian Dunn as VP-Sales, EMEA

London, UK, 28 November 28, 2014— Service provider **Hunter Communications** has hired Julian Dunn as Vice-President of Sales for Europe, Middle East and Africa.

Dunn has over twenty years sales experience in the satellite industry, Most recently he worked with Onlime Business Communications (formerly CET Teleport) and has worked with various companies including BT Media and Broadcast, Loral Cyberstar, among others.

Julian Dunn

Inmarsat Hires Aviation Veteran as Head of Safety Services

London, UK, November 28, 2014—Inmarsat has announced the appointment of **Captain Mary I. McMillan** as Vice President, Aviation Safety and Operational Services.

A 30-year veteran of the aviation industry, Captain McMillan has recorded over 12,000 hours flight time in aircraft ranging from B747, B767 and Airbus 320.

Prior to joining Inmarsat Aviation, Captain McMillan was Senior Vice President, Aerospace Safety and Environment at Tetra Tech AMT. In this role, Captain McMillan was responsible for the development of safety risk strategies and safety management systems for air navigation service providers, airports and airlines, and subject matter expertise in the area of aviation safety reporting and data analysis.

In parallel with her role at Tetra Tech AMT, Captain McMillan was, from 2010, the independent safety advisor to the Airservices Australia's Board of Directors, the Canberra-based air navigation services provider.

From 2008 to 2011, Captain McMillan was engaged by CSSI, Inc., a Washington D.C. based engineering, technology and applied research firm, to provide development expertise and support for the creation of the FAA's Air Traffic Safety Action Program (ATSAP). ATSAP is the largest voluntary safety reporting system in the world and is providing key qualitative safety input to the U. S. National Airspace System.

For almost 20 years, Captain McMillan was a pilot, standards captain and flight operations duty manager with United Airlines.

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High Throughput Requirements Driving the Military Satellite Market

London, UK, November 25, 2014 – The demand for high throughput military satcom applications is growing as the use of unmanned aerial systems and implementation of command, control, communications, computers, intelligence, surveillance and reconnaissance of C4ISR systems increase. High throughput satcom applications can support imagery streaming and seamless connectivity across tactical and strategic networks – capabilities which have become vital in the military space.

New analysis from Frost & Sullivan, **Analysis of the Global Military Satcom Applications Market**, finds that the market earned revenues of US$ 3.05 billion in 2013 and estimates this to reach US$ 3.82 billion in 2022. The study covers man-pack/handheld, ground vehicle mounted, air platform mounted, naval platform mounted and fixed MilSatCom applications.

"To support MilSatCom suppliers and service providers, governments and commercial operators are launching high throughput satellite systems, which are driving Ka band capacity," saidFrost & Sullivan Aerospace & Defense Research Analyst Arun Kumar Sampathkumar. "Currently, unused satellite spectrum capacity is delaying the migration to high throughput frequencies and hence lowering MilSatCom hardware expenditures. Nonetheless, as military users migrate to Ka bandwidth and Internet protocol (IP)-based strategic military communication networks, spending on MilSatCom will rise."

Globally, spending is focused on upstream spectrum procurement. As a result, spending on hardware upgrades will go up in the coming decade and stimulate the use of MilSatCom applications.

With the recent amendment to the United States Defense Authorization Act, which necessitates the adoption of a long -term strategy for commercial spectrum procurement, the market will continue expanding. Hardware manufacturers are looking to offer multi-band satcom terminals to meet the upgrade trend, while allowing users to operate across existing and upcoming capacities.

However, reducing military budgets and force downsizing, especially among the western defense forces – the big spenders in the MilSatCom domain – are dampening the prospects of hardware providers. Of the various instances, the withdrawal of troops from Afghanistan, budget sequestration in the United States, and reduced deployment of special forces have especially restricted MilSatcom spending.

To win contracts globally, MilSatCom suppliers should offer cost-effective solutions that enable defense forces to reduce their overall upstream and downstream expenditure. This will help hardware suppliers secure satellite capacities and promote their new age MilSatCom capabilities as solutions rather than stand-alone hardware offerings.

"Strong opportunities for MilSatCom suppliers will come from the Middle East and Asia-Pacific markets, where defense spending and cross-border security concerns are increasing," pointed out Sampathkumar. "Suppliers must target these markets that have evolving MilSatCom needs not entirely met by proprietary systems."

Analysis of the Global Military Satcom Applications Market is part of the **Defence** (http://www.defense.frost.com) **Growth Partnership Service** program. Frost & Sullivan's related studies include: Global Military Helicopters Market Assessment, Global Civil Helicopters Market, Global Military Unmanned Aerial Vehicles Market Assessment, and US Airport Screening Technologies. For complimentary access to more information on this research, go to: http://corpcom.frost.com/forms/EU_PR_EGrabowska_MA5E-16_03Nov14.

OTT Expected to Soar to US$ 10 Bil. by 2018

Campbell, Calif., November 20, 2014—Market research firm Infonetics Research released excerpts from its latest ***Pay TV Services and Subscribers*** report, which forecasts and analyzes the cable TV, satellite TV, and telco internet protocol television (IPTV), and over-the-top (OTT) services markets.

"Subscription-based OTT providers like Netflix, Hulu Plus, and Amazon have seen phenomenal growth over the last couple of years. With a combination of wide availability across end devices, user-friendly interfaces, and access to vast content libraries, these providers continue to challenge traditional pay-TV providers and are in the early stages of siphoning off revenue," notes Jeff Heynen, principal analyst for broadband access and pay TV at Infonetics Research. "But beyond this approach," conti-nues Heynen, "OTT providers are now expanding their relationships with traditional pay-TV providers to get their apps and services integrated directly onto consumer set-top boxes (STBs), gaining access to a much larger pool of current pay-TV subscribers."

Highlights of the report include:

- OTT) pay-TV revenue is forecast by Infonetics to grow from US$ 5.8 billion in 2014 to just over US$ 10 billion in 2018.
- The global pay-TV market totaled $117 billion in the first half of 2014 (1H14), an increase of 3.9% from the first half of 2013.
- Satellite and telco pay-TV service revenue continues to grow, driven by new subscribers and increased average revenue per user (ARPU) in North America and Western Europe.
- However, much of the increased revenue per user is being offset by ever -increasing content costs.
- Pay-TV subscribers reached 837 million in 1H14, growing 10% over 2013, with the strongest growth again coming from the telco pay-TV segment.

Over 500 Million Multichannel Homes in Asia-Pacific

Hong Kong, December 1, 2014–According to CASBAA's recently updated Asia Pacific Multichannel TV Advertising 2015 book, the Asia Pacific now boasts 500,639,000 multichannel homes across the region. An annual compendium of regional facts and figures and advertising research culled from a variety of sources, the Asia Pacific Multichannel TV Advertising 2015 is updated every year to provide essential data for the region's broadcasting industry.

"Our latest report reinforces the fact that the Asia Pacific is truly the growth engine for the multichannel TV industry today," said Christopher Slaughter, CEO, CASBAA. "When we look at non-terrestrial TV connections, 61% of homes in Asia now receive multichannel TV and the region is poised to strengthen its leadership as the largest multichannel video market globally in terms of subscribers."

The pay-TV advertising market also continues to grow in Asia Pacific with an estimated +9.4% year-on-year increase for 2014.

Jonathan Barnard, Head of Forecasting, ZenithOptimedia adds: "Television is the dominant advertising medium in Asia Pacific, attracting 40% of all ad expenditure this year, and ZenithOptimedia forecasts it to grow at an average of 5% a year until at least 2016. Meanwhile online video offers high-quality content that viewers can watch whenever they want and – using smartphones and tablets – wherever they want. Video advertising as a whole will remain the best way to build brand awareness and engagement for many years to come."

Additionally, data sourced from The Ericsson Consumer Insight Report 2014 illustrates the increasing importance of over-the-top services and digital delivery, with on demand content making up an increasing part of consumers viewing habits, especially streaming, and a greater acceptance of paying for non-linear TV content.

Their findings also showed a 25% increase in consumer willingness to pay for anywhere access compared to 2012 and a general upward trend in the use of tablets and smartphones to view video content both in the home and elsewhere.

The Asia Pacific Multichannel TV Advertising 2015 book provides both a global overview and Asia Pacific focused look at multichannel TV data along a measurement guide and research on advertising revenue.

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ITU Releases Annual Global ICT Data

Geneva, Switzerland, November 24, 2014 – Over three billion people are now online and information and communication technology (ICT) growth remains buoyant in just about every country worldwide, according to ITU's flagship annual *Measuring the Information Society Report.*

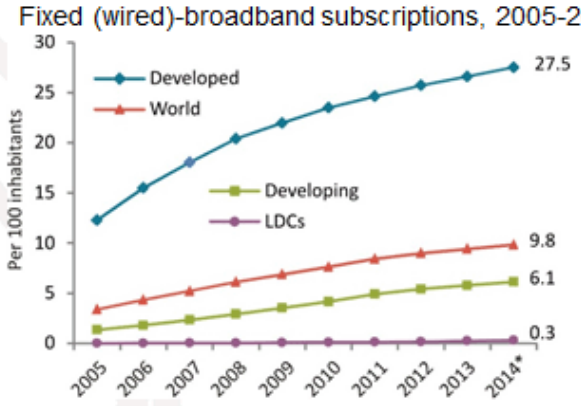
The report is widely recognized as the repository of the world's most reliable and impartial global data and analysis on the state of global ICT development, and is extensively relied upon by governments, financial institutions and private sector analysts worldwide.

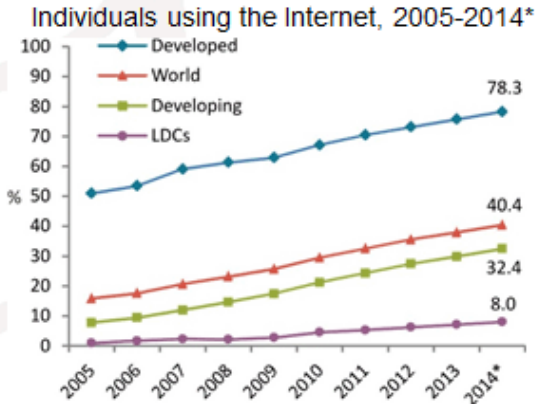
Latest data show that Internet use continues to grow steadily, at 6.6% globally in 2014 (3.3% in developed countries, 8.7% in the developing world). The number of Internet users in developing countries has doubled in five years (2009-2014), with two thirds of all people online now living in the developing world.

Of the 4.3 billion people not yet using the Internet, 90% live in developing countries. In the world's 42 Least Connected Countries (LCCs), which are home to 2.5 billion people, access to ICTs remains largely out of reach, particularly for these countries' large rural populations.

"ICTs have the potential to make the world a much better place – in particular for those who are the poorest and the most disenfranchised, including women, youth, and those with disabilities," said ITU Secretary -General Dr Hamadoun I. Touré. "This important report is a critical part of the global ICT development process. Without measurement we cannot track progress, which is why ITU gathers ICT statistics for 200 economies across over 100 indicators."

In the mobile cellular segment, the report estimates that by end 2014 there will be seven billion mobile subscriptions, roughly corresponding to the total global population. But it warns against concluding that everyone is connected; instead, many users have multiple subscriptions, with global growth figures sometimes translating into little real improvement in the level of connectivity of those at the very bottom of the pyramid. An estimated 450 million people worldwide live in places which are still out of reach of mobile cellular service.





Encouragingly, the report notes substantial improvements in access to international bandwidth in poorer countries, with developing nations' share of total global international bandwidth rising from just 9% in 2004 to over 30% today. But lack of sufficient international Internet bandwidth in many of the LCCs remains an important barrier to ICT uptake in these countries, and often limits the quality of Internet access.

ICT Index Country Rankings

Denmark ranked Number One in ITU's ICT Development Index (IDI)*, a composite measurement that ranks 166 countries according to their level of ICT access, use and skills (Chart 1). It is followed by the Republic of Korea.

The IDI top 30-ranking include countries from Europe and high -income nations from other regions including Australia, Bahrain, Canada, Japan, Macao (China), New Zealand, Singapore and the United States. Almost all countries surveyed improved their IDI ranking this year.

In terms of regional comparisons, Europe's average IDI value of 7.14 remains well ahead of the next best-performing region, the Commonwealth of Independent States (CIS - 5.33), followed by the Americas (4.86), Asia & the Pacific (4.57), the Arab States (4.55), and Africa at 2.31.

The CIS and the Arab States showed the highest improvement in regional IDI averages over the past 12 months.

The Third Annual Vision Awards at SATCON 2014

The Third annual edition of the VISION Awards held a reception and awards ceremony on the first day of the SATCON Conference and Exhibition in New York City on November 12, 2014. The winners of Third Annual Vision Awards were: **Gary Hatch**, Co-founder and CEO of ATCi Communications, **Visionary Executive of the Year**; **Integrasys' Satmotion Pocket, Innovative Product of the Year** and **Advantech Wireless**, **Most Promising Company of the Year.**

Nominations for the Third Annual Vision Awards was open to the public. Companies, products and individuals that received the most nominations were selected to be one of finalists for the award, from which the Board of Judges comprising leading industry analysts and consultants selected the winner.

ATCI CEO Gary Hatch accepting the "Visionary Executive of the Year" award Vision Awards. With him are on the right is Dan Freyer, Principal of Adwavez Marketing and on the left is Virgil Labrador, Satelltie Markets and Research Editor-in-Chief.

Among the finalists honored during the ceremony included **Andy Start**, President of Inmarsat Global Government; for the Visionary Executive of the Year; **Newtec's Mx-DMA technology** and **ScheduAll's Portal** for the Innovative Product of the Year.

Gary Hatch, this year's Visionary Executive of the Year awardee has been in the satcom and electronic media industries since 1981. Gary has extensive domestic and international experience in satcom, cable TV, broadband, telephone, Internet and the broadcast entertainment industries. He is the co-inventor of the pioneering Simulsat satellite dish system, which is an innovative dish that is able to uplink and downlink to multiple satellites. The company he co-founded, ATCi is unique among equipment manufacturers in that it is also a teleport operator and service provider heavily involved in the content management and distribution business. He is a regular speaker at satellite and broadcast conferences and he forecasted the importance of broadband and social media networks way before they were deemed as the viable enterprises that we see today.

The Third Annual Vision Awards were presented by Satellite Markets and Research, Application Technology Strategy LLC and SATCON and sponsored by Crystal Solutions.

In his speech honoring the awardees, Crystal Solutions CEO Roger Franklin said that their company shares the spirit of innovation and visionary thinking that the finalists of the Vision Awards represent.

The awards are given annually during the SATCON exhibition. The criteria for winners include:

Visionary Executive of the Year- Awarded to an outstanding senior executive of a satellite company that demonstrated a keen sense of mission for his company and a forward-looking vision of where his company and the industry is heading.

Most Promising Company of the Year- Awarded to a company that has experienced growth in the markets they serve and demonstrated long-term viability of their enterprise.

Most Innovative Product or Service of the Year – Awarded to a product or service launched during the year that makes a substantial improvement to existing technology or performs a vital service.

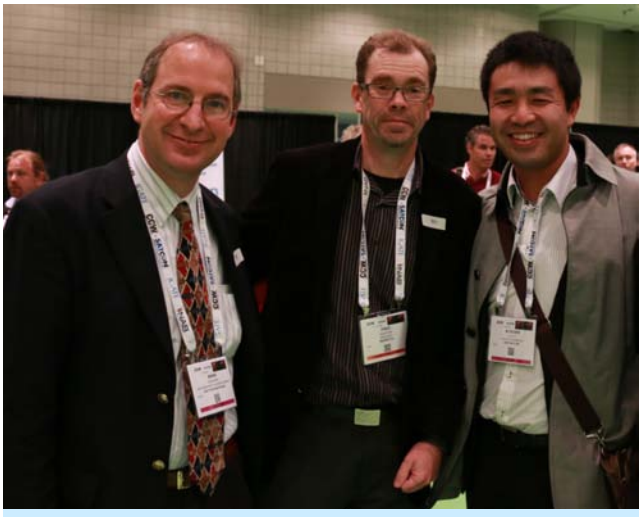
View a video of the 2014 Vision Awards ceremonies:
www.satellitemarkets.com/vision2014

Who's Who at the 2014 Vision Awards

Jacob Javits Convention Center, New York City, November 12, 2014

Over 100 industry executives attended the reception and awards ceremonies.

David Gelerman, CEO of Advantech Wireless, winner of the Most promising company of the year Award with Elisabeth Tweedie, Satellite Executive Briefing Associate Editor.



Fred Dugourd of iMarket4u (center) with Mark Lekowski (left) and Atsushi Ayuta (right) both of JSAT International.

Dan Freyer, Principal, Adwavez Marketing with Crystal Solutions Marketing Director Kamy Merrithew and CEO Roger Franklin.

HTS Technologies: Solutions Engineering, Services, Users and ... The 'Money'

by Martin Jarrold

The latest in the series of GVF-EMP **High Throughput Satellites Roundtables** takes place in London on 2nd & 3rd December 2014. The London Roundtable is the third annual event of its kind for Europe (two further events have been held in Washington DC in 2013 and 2014), and is sponsored by **Intelsat**, **Inmarsat**, **Avanti**, **C-COM Satellite Systems**, and **Advantech Wireless**.

Organizations from the solutions provider and user communities were invited to contribute to the event program which features an Opening Keynote Presentation by **Stéphane Chenard**, **Senior Analyst**, **Euroconsult**, followed by a series of interactive Roundtable/ panel sessions, each differently themed, as will be explored below.

The Roundtable, strap-lined "The Game Changer in Action", follows closely on the 22nd conference in the GVF-EMP **Oil & Gas Communications Conference Series.** The Kuala Lumpur conference closed on 20th November 2014 after two-days of dynamic and informative dialog amongst a total of 115 delegates and speakers. As chairman of the Kuala Lumpur conference I noted that it was significant that many of the conference presentations, and much of the following audience interaction, focused on HTS, which fully anticipated the wider HTS-related dialog at **High Throughput Satellites – London Roundtable 2014: The Game-Changer in Action**."

The **first Roundtable** on **Technology** features contributors including myself as moderator; and, Krishnan Raghavan, Senior Program Director, Business Development, Orbital Sciences Corp; Simon Gatty-Saunt, Regional Vice President, Europe Data & Global Mobility Services, SES; Paul Dodson, Program Manager, Hughes; and, Paul Harris, Regional Director, EMEA, Customer Solutions Engineering, Intelsat. Discussion will examine the setting of the satellite broadband scene by asking such questions as **"How high is High Throughput?"** and "**Is HTS another example of evolution in the satellite industry, or a game-changing revolution?"** Other questions will include **"Is there a single uniform, global geography and marketplace for HTS?"** and **"Are HTS revenue stream realities and projections the same across all world markets, or do they differ?"**

Enabling and Delivering Services forms the central theme of **Roundtable 2**. Moderated by Stéphane Chenard, Senior Analyst, Euroconsult, this session will feature Renato Goodfellow, Head of Global Satellite, BT; David Harper, Chief Executive Officer, iSAT Networks; and Dave Nicoll, Business Manager, Sematron. Questions for discussion amongst this group and with the audience will include **"The HTS new service provision paradigm. How different is it to traditional satellite services?"; "Is all High Throughput alike in its service delivery capabilities?"; "How are regional market variations being reflected in the offerings which comprise regional operator initiatives?"; "HTS applications & the VARs. Is the inter-relationship different to that with traditional satellite?"; "Monetising HTS service provision. Is it understood as to how to achieve this? How is it being done? What else needs to be done to achieve improved revenues?";** and**, "HTS & SNG – What's the meaning of technology convergence into the IP cloud?"**

Returning to the moderating role, in **Roundtable 3** on **Deployment** I will facilitate discussion around such questions as **"Deploying the HTS mobility application in the air, at sea, on land. How does it progress?"**; **"HTS-enabled terminals & user expectations: Understanding rain fade issues, and device portability. Is the volume of user take up on track? Are users satisfied with the technology and ser-**

vice?" And on user verticals: **"HTS and SNG: What are the new dynamics in video uplinking on the move?"** ; **"HTS and Oil & Gas: What's the deployment status today?"** ; **"HTS and NGOs: Are deployment practicalities being satisfied?"; and, also, "What is the status of HTS product development?" Looking into these questions will be** Kevin Blyth, Strategic Marketing Manager, Harris CapRock; Drew Klein, Director, Business Development, C-COM Satellite Systems; Brendan O'Mahony, Director, Market Access & Licensing, Access Partnership; and, Mark Lambert, Vice President, Sales & Marketing, Managing Director, EMEA, Advantech Wireless; Domenico Mignolo, Head of Ground Segment Technologies & Products Section, TIA-TTG, European Space Agency; and, Paul Febvre, Chief Technology Officer, Satellite Applications Catapult.

Solutions Engineering comprises the substance of the **fourth Roundtable**, again moderated by me. Contributing to this dialog will be Denis Sutherland, Senior Systems Engineering Manager, iDirect; Alvaro Sanchez, Sales Manager, Satellite Monitoring Systems, Integrasys; and, Martin Coleman, Executive Director, sIRG. In examing the **Engineering of the HTS solution, questions will include "What does this require? Is a paradigm shift involved?"** On the issue of **"Infrastructure evolution: The planning, design, deployment & managing of HTS terminals/earth stations."** We will ask **"How might this be profiled?"; "Where are hybrid technology solutions to be positioned?"** ; and with **"Antenna technology product quality and installation. What are the key dynamics?"**

Roundtable 5, moderated by Elisabeth Tweedie, Owner, Definitive Direction will focus on the **Users.** Featuring in this dialog will be Bill Green, Global Account Director, Hermes Datacomms; Nigel Fry, WBU-ISOG and Head of Distribution, BBC Global News; Martyn Hopkins, Product Sales Director, SISLive; Ric VanderMeulen, Vice President, General Manager, Government SatCom, ViaSat; and, Mark Brady, International Director, RuralWeb. This session will address such questions and issues as **"What do users need from HTS?"; "From the enterprise to the consumer: Has satellite broadband really been redefined?"; "Development of multi-band service strategies as part of the HTS play. What does this mean? How do these strategies progress?";** and, **"Are there obstacles to the adoption of HTS solutions? What's the word from the front line in user markets?"** Some case studies on **"Implementing the HTS solution from the supplier and customer perspective."** will also be cited.

David Howgill, President of Huckworthy and Chairman of the GVF Wireless Backhaul Initiative will moderate **Roundtable 6** on **Backhaul**. Discussion with Kumar Singarajah, Director, Regulatory Affairs & Business Development, Avanti; Bob Cupples, Chief Executive Officer & President, SCS Networks; Mark Briggs, Director of Sales, SiRRAN Communications; and Trevor Willoughby, Senior Key Account Director, Intelsat, will cover **"How has satellite backhaul re -defined for Small Cells, LTE & everything in between?"** ; **"What are the new and emerging synergies of VSAT and wireless services?"** ; **"The backhaul business plan… How can it be characterised?"**; **"Where will the key revenue streams come from? Which applications? Which verticals?"** ; and, **"Current HTS backhaul deployments… How are the balance sheets looking?"**

Another **Roundtable session, number 7**, will include a focus on **Network Security** and the formation, earlier this year, of the **GVF Cyber Security Task Force** which is headed by **Rakesh Bharania, Tactical Operations, Cisco Systems**. This session will also include contributions from **Andrew Faiola, Director, Europe, Sales, with Intelsat**, and **Paul Febvre, Chief Technology Officer, Satellite Applications Catapult**. The issues to be covered will include **"Cyber-Security & HTS: Has network resilience & robustness been re-defined?"**; **"Challenging the cyber -threat… What are the dynamics of technology innovations & adaptations?"** ; **"Do HTS solutions represent a stronger defence against cyber-attacks… or a point of vulnerability?"** ; and, **"Network-security features for the entire end-to-end HTS delivery system to customers: from the Network Operations Centres, to hardware and software security protection embedded in the satellite terminal on the customer premises. What are the latest developments?"**

The final Roundtable will take an overview of the two days of discussion, and formulate conclusions as to the ongoing state of play – with the technologies, the services, the applications, the users, and the revenues – of the 'Game Changer in Action'.

Speaking before the London Roundtable, Paul Stahl, Managing Partner of EMP, pointed out that, "It is particularly noteworthy that there will be significant emphasis during the London programme on just how to more effectively 'monetize' HTS – an issue which has assumed a considerably heightened profile of late, including at our recent conference in Malaysia."

For more information on all GVF-EMP conference programs please contact the Series organizers: Either me at martin.jarrold@gvf.org, or Paul Stahl at paul.stahl@uk-emp.co.uk. Additionally, you may consult all the conference websites at www.uk-emp.co.uk.

Martin Jarrold is Director of International Programs of the **GVF**. He can be reached at: martin.jarrold@gvf.org

The Satellite Markets 25 Index™

Company Name	Symbol	Price (Dec 01)	% Change from Last Month	52-wk Range			% change from 52-wk High
Satellite Operators							
Asia Satellite Telecommunications	1135.HK	27.10	0.56%	25.60	35.00	↓	22.57%
Eutelsat Communications S.A.	ETL.PA	26.435	1.67%	21.065	26.745	↓	1.16%
APT Satellite Holdings Ltd.	1045.HK	12.36	3.34%	8.10	13.50	↓	8.44%
Inmarsat Plc	ISAT.L	787.50	14.13%	653.00	796.50	↓	1.13%
SES GLOBAL FDR	SES.F	29.652	10.19%	21.50	30.115	↓	1.54%
Satellite and Component Manufacturers							
The Boeing Company	BA	132.39	6.58%	116.32	144.57	↓	8.42%
COM DEV International Ltd.	CDV.TO	3.75	-5.78%	3.42	4.36	↓	13.99%
Lockheed Martin Corporation	LMT	191.10	0.72%	135.39	192.94	↓	0.95%
Loral Space & Communications, Inc.	LORL	78.64	1.76%	64.23	82.13	↓	4.25%
Orbital Sciences Corp.	ORB	26.30	8.77%	22.37	34.16	↓	23.01%
Ground Equipment Manufacturers							
C-Com Satellite Systems Inc.	CMI.V	1.16	-4.13%	1.15	1.89	↓	38.62%
Comtech Telecommunications Corp.	CMTL	39.82	3.59%	29.27	40.48	↓	1.63%
Harris Corporation	HRS	71.72	1.41%	60.78	79.32	↓	9.58%
Honeywell International Inc.	HON	97.40	0.71%	82.89	99.35	↓	1.96%
ViaSat Inc.	VSAT	65.67	8.65%	51.50	74.78	↓	12.18%
Satellite Service Providers							
Gilat Satellite Networks Ltd.	GILT	4.81	-1.43%	4.09	5.71	↓	15.76%
Globecomm Systems Inc.	GCOM	14.10	0.00%	10.49	14.91	↓	5.43%
International Datacasting Corporation	IDC.TO	0.06	0.00%	0.05	0.18	↓	66.67%
ORBCOMM, Inc.	ORBC	6.04	-3.51%	5.40	8.21	↓	26.43%
RRSat Global Communications Network Ltd	RRST	8.04	7.34%	6.06	9.60	↓	16.25%
Consumer Satellite Services							
British Sky Broadcasting Group plc	BSYBY	55.74	-2.14%	51.38	63.79	↓	12.62%
DIRECTV	DTV	87.73	-0.10%	64.62	89.46	↓	1.93%
Dish Network Corp.	DISH	77.14	22.35%	52.55	79.57	↓	3.05%
Globalstar Inc.	GSAT	2.76	11.29%	1.56	4.53	↓	39.07%
Sirius XM Holdings Inc.	SIRI	3.61	3.44%	2.98	3.89	↓	7.20%

INDEX	Index Value (Dec 01)	% Change from Last Month	% Change Jan. 03, 2014
Satellite Markets 25 Index™	1,851.03	7.91%	8.19%
S & P 500	2,053.44	1.48%	12.13%

The Satellite Markets 25 Index™ is a composite of 25 publicly-traded satellite companies worldwide with five companies representing each major market segment of the industry: satellite operators; satellite and component manufacturers; ground equipment manufacturers; satellite service providers and consumer satellite services. The base data for the Satellite Markets Index™ is January 2, 2008--the first day of operation for Satellite Market and Research. The Index equals 1,000. The Satellite Markets Index™ provides a benchmark to gauge the overall health of the satellite industry.

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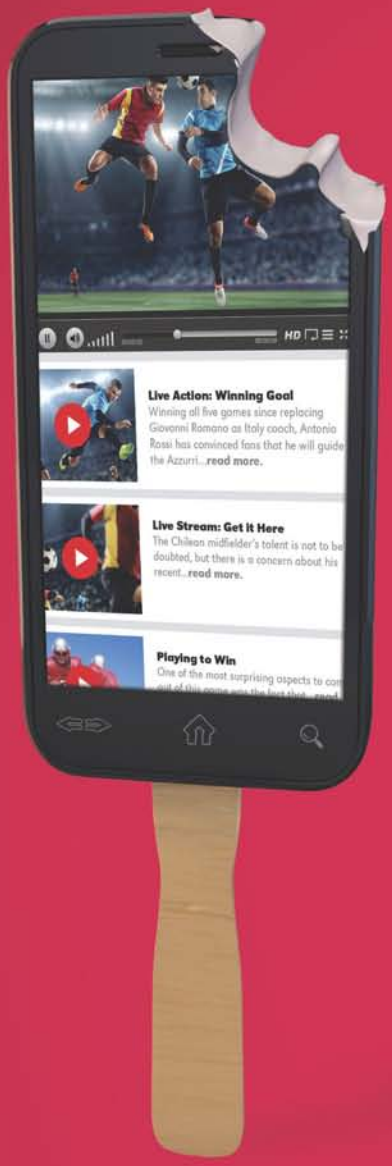

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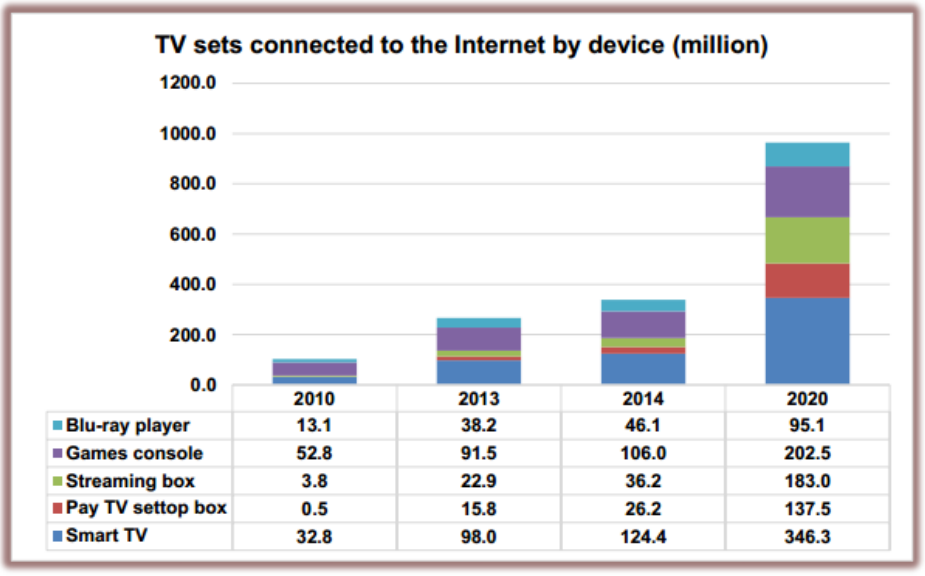
Vital Statistics

Internet-Connected TVs



	2010	2013	2014	2020
Blu-ray player	13.1	38.2	46.1	95.1
Games console	52.8	91.5	106.0	202.5
Streaming box	3.8	22.9	36.2	183.0
Pay TV settop box	0.5	15.8	26.2	137.5
Smart TV	32.8	98.0	124.4	346.3

Source: Digital TV Research

The number of TV sets connected to the Internet will reach 965 million by 2020, up from 103 million at end-2010 and the 339 million expected at end-2014, according to a new report from Digital TV Research. Covering 51 countries, the Connected TV Forecasts report estimates that the proportion of TV sets connected to the Internet will rocket to 30.4% by 2020, up from only 4.2% at end-2010 and the 12.1% expected by end-2014. South Korea (52.7%) will have the highest proportion by 2020, followed by the UK (50.6%), Japan (48.6%) and the US (47.0%).

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