

Satellite Executive BRIEFING

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Industry Trends, News Analysis, Market Intelligence and Opportunities

The Future of Satellites and Broadcasting

by Carlos Espinós

The broadcasting sector is experiencing an exciting moment filled with changes and new developments of all kinds, from technology and consumer habits to business models. Some prophets of doom are already predicting, as a foregone conclusion, the death of linear television, the way we watch on screen at home and with scheduled sets. They argue that in an almost immediate future, television will only be watched via the Internet and on demand, on a variety of devices and in any place at all.

However, things are not going to play out exactly in this way, at least not for the next decade.

While it is true that new ways of watching television are coming into their own, the most accurate and recent data indicate, firstly, that the number of homes with a television set worldwide will have increased by more than 120 million between years 2012 and 2015. Additionally, among all of the technologies transferring this content, those that will grow the most are DTH television platforms, which broadcast via satellite, with an increase of 100 mil-

lion homes (in fact, according to a survey carried out by Digital TV Research, satellite television earnings will exceed those of cable television this very year), and cable broadcasting technologies, which will add 62 million more. Meanwhile, IP TV will not go beyond an increase of 45 million.



Despite the proliferation of new platforms for distributing content, broadcasting will continue to be a major driver for satellite services.

Therefore, traditional screens and formats continue to thrive when watching audiovisual content. Euroconsult expects the offer of linear channels to grow by 50% within 10 years, amounting to 48,000 by 2021. Among these, the increase in High Definition (HD) channels will be proportionally even higher, as they are set to triple, going from 5,600 in 2012 to an estimated 17,000 in 2021.

Television consumption has also increased significantly over the past years, but today linear television continues to be the clear leading trend as opposed to on-demand television. According to a survey carried out by IHS, this predominance will re-

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Ultra HD Going Mainstream



One of the biggest buzz at last month's CES show was Ultra HDTV or 4K TV. The successful demonstration of 4K TV during the FIFA Football World Cup held in Brazil last summer has helped hasten its adoption by consumers. 11.6 million 4K TV sets were shipped 11.6 2014, up nearly 700% year on year, with China accounting for over 70% of worldwide demand. In Western Europe and North America, share of 4K demand in 2014 will represent 10% and 8% respectively, with demand expected to grow at 72% CAGR until 2018.

Direct-to-Home service provider Echostar unveiled at CES the world's first 4KTV set-top-box. Dubbed the "4K Joey," the set-top-box is designed to easily integrate with DISH's Hopper Whole Home HD DVR system. Unlike other 4K Pay-TV options which are confined to an app on select TVs, the DISH 4K Joey is dedicated hardware that will be compatible with all HDMI 2.0/HDCP 2.2-compliant televisions. The 4K Joey will not only play back 4K ultra HD content, it will also enhance everyday viewing of television and sports programming by supporting side-by-side display of two programs, each in HD. This picture-in-picture (PiP) capability was not possible previously and is ideal for sports fans who want to watch two games playing at the same time. DISH will deliver 4K content from several providers. Specific announcements will be made closer to the consumer launch of 4K Joey, which is slated for the second quarter of this year, according to DISH.



The prospects for 4K TV in the U.S. market are definitely looking good this year. Prices of 4K TVs are dropping rapidly, they will soon be within reach of the majority of US consumers. According to Business Insider Intelligence, between 2012 and 2014, prices for 4K TVs in North America decreased nearly 90 percent. The U.S.' other DTH operator, DirecTV launched its DirecTV-14 satellite in December 2014. The satellite will be the first commercial satellite to use the "Reverse Band Direct Broadcast Satellite" spectrum which together with spot beam technology will provide advanced services such as 4K TV and local HDTV. DirecTV plans to launch live 4K programming this year.

So as Carlos Espinos writes in our cover story for this issue, satellite and broadcasting looks like both have a good future.

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The Future of Satellite Broadcasting ...From page 1

main steady throughout the coming years. Although the rate may increasingly decline, in 2017 traditional channels will still account for, at the very least, 75% or more of the television market, even in the most technologically developed countries. On the other hand, on-line television consumption will not surpass 7%, and pay video will reach a maximum of 5%. Within pay television, OTT services' market share will not surpass 10% by 2017 in the US, one of the countries where these services are most highly developed, despite the fact that they are expected to almost duplicate their business figures during these years.

Hence, all these data indicate that initial steps are being taken towards a paradigm shift in the world of audio-visual content, as well as in the way it is consumed. However, this change will not entail an end to television as we have known it so far. What is indeed evolving at a fast pace is users' own requirements with respect to the quality of images, and the ability to watch them wherever and whenever they want, as well as technologies that can meet these demands. It is these requirements that will define the future of television.

4K as a Spearhead

The technology that is making it possible to substantially increase image sharpness and enhance users' immersive experience is Ultra High Definition. 4K multiplies by four the number of conventional high definition pixels, achieving a much higher resolution (4,096 x 2,160). But that is not all: UHD also means a higher frame rate, which intensifies temporal resolution in order to perceive moving images with better quality. It also provides a wider range of colours and bit more depth, which helps to enhance colour transition, and increases the dynamic range in order to see details better under lower contrast conditions.

Image quality is one of the most relevant factors for pay TV customers; therefore having 4K channels will constitute a competitive advantage for television platforms. Moreover, UHD television prices dropped exponentially over the past year, and they are estimated to match current HD television prices in one or two years' time. On the other hand, there are already many contents, such as cinema productions, that are being originally produced in 4K. All this is leading us to believe this new technology will enjoy fast commercial development, even more than HD did in the past. We also expect that satellite—which already had a prominent role in the development of high definition or television digitalisation, because it is the most efficient channel to broadcast

“...Television consumption has also increased significantly over the past years, but today linear television continues to be the clear leading trend as opposed to on-demand television. ...”

such a large amount of information—might also be the reference medium for this new process.

Nonetheless, in order to implement this technology rapidly in homes, different plug-ins will be needed to make the process viable. One of them is the High Efficiency Video Coding standard, published in January 2013, and with the purpose of being a key element in the development of 4K broadcasting as it improves coding efficiency by 50% over the previous standard, MPEG-4.

This path is also being explored in the satellite sector. In order to achieve greater transmission efficiency an update of system DVB-S2, called DVB-S2X, has been developed, which makes possible to increase efficiency by 30-40% for two-way services, and by around 10% for one-way services, such as classic DTH platforms. The combined use of HEVC and DVB-S2X will enable a 60% improvement in efficiency, which will make it a great deal easier to implant UHD, by achieving a better use of frequency bands and fairer prizes. It is expected that in two years, coinciding with the Rio de Janeiro Olympics, these new codifying and transmission systems will enable 4K transmission on bandwidths similar to those of HD in its earliest stages. The schedule, similar to that of high-definition's implantation, could even become a reality in a shorter period of time, thanks to the enthusiasm raised by this new technology among industries, operators and consumers.

Multi-screen Freedom

Besides better image quality, consumers want to be able to access audio-visual content from any device, at anytime, anywhere. Linear television has not given up, and still reigns supreme among home screens, but now other devices and formats have joined in, and television is being consumed more and more outside the home, although still in small proportions. Multi-screen television is already a reality worldwide, but most television consumption continues to take place in the home through all kinds of devices: televisions, personal computers, laptops, smartphones or tablets. In short: if multi-screen audio-visual content consumption continues to grow, if it still takes place especially in the home, and if traditional channels are the most watched, the conclusion is that satellite constitutes the best medium to



Consumers want to be able to access audio-visual content from any device, at anytime, anywhere... but this does not mean the demise of linear TV.

transmit them, owing to its capacity, global coverage, high quality and versatility. The integration of satellite broadcasting services through Internet Protocol networks, and thus, the conversion of satellite signals to IP, forms the backbone of the multi-screen experience at home. It enables high-quality, simultaneous and personalised distribution of this content to any device connected to the domestic IP network. The advantages of IP distribution are apparent: it expands the experience of traditional television to new devices in any location; it frees up broadband networks from traffic, and adds value to pay operators' content.

This integration of satellite signals into IP networks will enable all of the improvements to satellite television content achieved so far, in terms of quality, quantity and ubiquity, to be enjoyed in the most profitable way for both operators and consumers, as existing networks may be used and optimised. At HISPASAT we work on different projects that aim at achieving this goal, such as implanting the SAT>IP telecommunications protocol. Through this protocol, the satellite signal is converted into IP right at the reception point, thanks to a small server that may be placed in the antenna itself, or in the user's home, without needing to carry out any complex installation or generating additional costs. Thus, this technology makes it possible to provide high-quality content more efficiently via satellite to all the screens in a home.

These same principles have guided the innovation project ICT2020, led by HISPASAT, which has worked on optimising Common Telecommunications Infrastructures. Its purpose is to make the most out of existing resources in buildings for new developments in telecommunication technologies and services, and to improve the way they are used so that they are able to support greater volumes of information, with solutions that allow for the integration of satellite and optical fiber.

A Hybrid Horizon

In conclusion, the satellite broadcasting sector is in its prime right now, offering an appealing horizon for technological innovation. It will have to face the multiple challenges posed by users' demands, the convergence of formats and networks, and the changes already taking place in the ways we watch television. This is horizon which, as we have already seen, will most certainly be a hybrid one, marked by the coexistence of very different forms of consuming audio-visual, linear and on-demand content, of transferring signals, and of screen types.

For satellite sector professionals, an interesting path is opening up in the field of broadcasting, as audio-visual content is becoming the service that users value most. The interest that telecommunications operators are showing in offering these kinds of added-value services to their customers has made this absolutely clear. Phone companies do not want to be left outside the increasingly growing content market, or to limit themselves to being mere conveyors of voice and data. Indeed, they are adapting their business strategies to integrate television and cinema.

In the context of all these developments, the role of satellite could be a very important one. It is already a key element in the distribution of audio-visual content, both directly by means of DTH platforms, which air via satellite, and of TDT and cable networks, where it often acts as a link between head ends. It will also be able to integrate with IP networks to distribute contents via satellite to all kinds of household devices. And it is already leading high-quality 4K content broadcasting. Because its large capacity allows it to air incredibly high levels of quality, because it can reach any place on Earth (something that land networks do not always succeed in doing), and because of its high technological development and the easy deployment of its networks, satellite is set to constitute one of the top technologies for broadcasting. Now we need to work on transforming all of this potential into competitive advantages that allow us to reach this goal. A thrilling challenge for all of the actors taking part in this film.



Carlos Espinós is Chief Executive Officer of satellite operator Hispasat. He was named to the post in 2011, after having served on the company's Board of Directors representing Aber-tis since 2008.



SCPC or TDMA? Wrong Question...

More apt questions are... Which satellite platform allows you to dynamically assign bandwidth network-wide to meet the ever-increasing demands of your growing business? Which solution has the intelligence and underlying resiliency to meet stringent jitter and latency requirements of your most crucial applications? Which platform provides the highest bandwidth efficiencies and processing power to support your most bandwidth-rich applications today? Which solution can remotely modify bandwidth allocations as requirements change tomorrow... without requiring costly upgrades or site visits?

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From Boyhood in Vietnam to the Satellite Hall of Fame

by Lou Zacharilla

On January 27, 2015, Dr. XT Vuong, Chief Scientist of Artel, was inducted into the satellite industry's Hall of Fame. Few engineers or scientists share the path to success of Dr. Vuong and few can be credited directly with the success of their companies in the satellite sector as he is by Artel and its CEO, Ted Hengst. During the 14 years of Vuong's tenure, the company has gone from managing no satellite capacity to actively managing bandwidth on about 60 of them during the DSTS-G contract and positioned Artel as the largest bandwidth provider to the U.S. Department of Defense and Department of Homeland Security. In a 10-year span from 2001 to 2011, Artel went from being a small business to a large business with substantial growth. XT's contributions over nearly 40 years in the industry are plentiful, and include the development of the IM Microscope and the Matrix Amplifier and Routing System (MARS). I wanted to find out more about him. Excerpts of our back and forth discussion follows:

Lou Zacharilla (LZ) : I want to start with an unscientific question. Everyone in the industry knows you as "XT." But your name is Xuyen Vuong. Where does the "T" come in?

XT Vuong: My Vietnamese name at birth was Vương Thanh Xuyên. In Vietnam as in many other Asian countries, your first name is a family name and your last name is your given name. I have used XT since 1984 after I realized that Xuyen was difficult for some to pronounce. I took action.

LZ: Pretty much in line with your character. You are obviously ambitious and aware of your talent. But as I read your life's story it could have been different. You arrived in the USA from Vietnam on a USAID Leadership Scholarship in the 1960's. What were the conditions by which you left your home country?

XT: I am very grateful to the U.S. Agency for International Development for granting me the scholarship. That scholarship covered all expenses for me to obtain a Bachelor's degree. Everything was covered: from airfare to English classes to tuition and room and board. Without it I wonder what my life

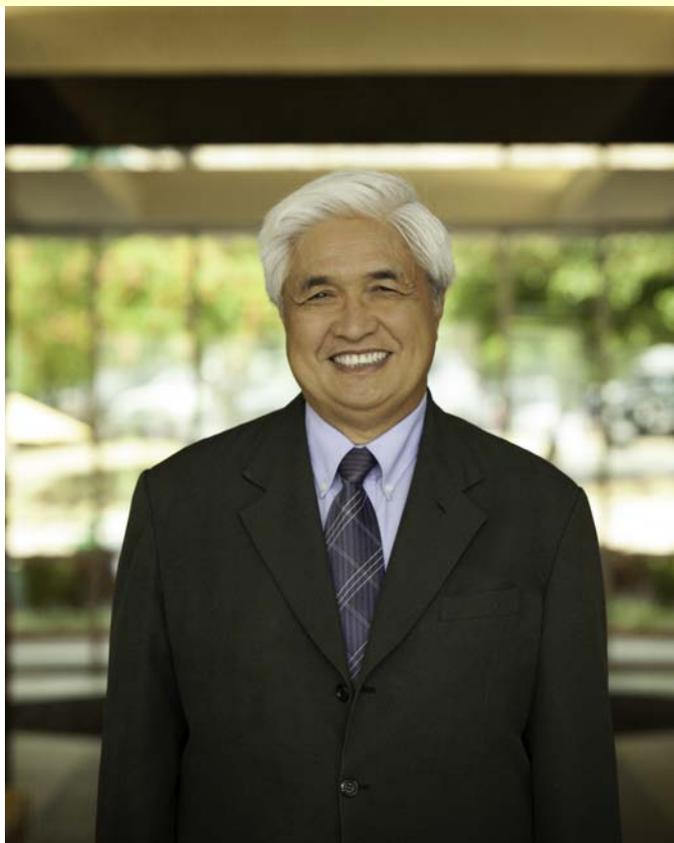
would have been like.

LZ: What was your life like in Vietnam?

XT: I came from what you would call a lower-middle-income family. My parents had nine children. I do not think my parents could even afford a one-way airline ticket, much less the other expenses that the USAID program provided to me.

LZ: So you did not arrive as a child of privilege?

XT: No. The scholarship was based on educational merits. There were no particular conditions imposed on me personally for accepting the scholarship.



Dr. XT Vuong

LZ: So you arrived in America in 1967. When did you become fascinated by satellites?

XT: I arrived in the U.S. in February



“....We will see more deployment of high throughput satellites (HTS). We will see expansion of growth in bandwidth requirements and managed network services. As a result, more emphasis will be placed on the management and quality of services to support the traffic on the network (e.g., latency, bit error rate) than monitoring the spectrum of the bandwidth (e.g., RF interference)...”

—Dr. XT Vuong

XT: This encounter also took place in Canada. This time at the University of Western Ontario. For my Ph.D. thesis I applied the same technique that controls the trajectory of a satellite to control the growth of a micro-organism. One of my advisors, a microbiologist, shook his head and said he did not think there was *anything* in common between a satellite and a bioreactor. I guess I failed to show him the wonder of mathematics as applied to modeling and control.

1967 and finished my BSEE degree at Sacramento State College (now California State University) in January 1971. But growing up in Vietnam, the news about Sputnik, the first man in space and later the landing on the moon had us talking about satellites. Although we referred to rockets. It was probably because there were no text books about satellite communications, but there were plenty on rocketry. Therefore, I was more fascinated by rockets than by satellites at first.

LZ: *Your first step was admission to the prestigious Phu Tho Polytechnic University. Was that where you studied satellites?*

XT: No, although gaining admission to Phu Tho Polytechnic is something I am still proud of, because it was the *ONLY* engineering school in South Vietnam at the time. I believe I stood out because I could think out-of-the box and was able to solve a rocketry problem, which was the main part of the entrance exam!

LZ: *“Out-of-the-box” how?*

XT: I was creative beyond the materials

and theories described in high school text books. I was able to solve a rocketry problem which was a main part of the university entrance examination.

LZ: *You aced it I’m sure. Where was your first encounter with the industry that in March admits you into its Hall of Fame?*

XT: It was in Canada. At the graduate school of Carleton University in Ottawa in the early ‘70s. The Canadian Department of Communications was working with NASA and ESA to develop an experimental high-power direct broadcast communications Ku-band satellite called Communications Technology Satellite (CTS).

LZ: *Hermes?*

XT: Yes. It was launched in 1976. Carleton and Stanford University conducted joint research and shared televised seminars and lecture courses via CTS.

LZ: *Something we take for granted today. The second close encounter was in micro-biology. Sort of a “weird science” meets satellite, right?*

In 1978, I left university to join a satellite manufacturer to gain practical experience with our industry.

LZ: *Was this where you found your love for satellites?*

XT: I loved to teach. This was supposed to be a temporary job. As I became increasingly involved with satellite work though I found it fascinating. I never looked back. It accelerated. At Spar Aerospace, I worked under Lorne Keyes, who had won a Sarnoff Award for outstanding contributions to the development of a cost-effective communication satellite, including frequency reuse due to polarization discrimination – a huge breakthrough.

LZ: *Do you remember your first assignment?*

XT: Vividly. It was supposed to be a study on passive inter-modulation products but I made a blunder by working instead on baseband inter-modulation products caused by an FM/FDM carrier passing through a linear filter.

LZ: *A good mistake.*

XT: I worked on other fascinating projects such as the Space Shuttle's arm and SARSAT (Search and Rescue Satellite payload), and led a group of technicians and engineers to perform integration and testing of the Anik-C's and Anik-D's.

LZ: *I am curious about your creative approach. You are legendary for having an ability to create the right solution to complex problems. The more I read about you, I see that your genius is an ability to arrive at a solution by reducing things to a simple essence. Am I right?*

XT: I am flattered you think that. I give credit to a formal college training in systems engineering and experiences that followed in the field at different stops. I strongly believe that my personality traits and values – upholding truth, continuous learning and dedication – have been fundamental to me.

LZ: *It is hard to identify the source of our passion and processes, isn't it?*

XT: You are right about my approach. It is not much different from any systems engineering process. First, I need to find out what the problem is by collecting all relevant data. What you call "simple essence" is for me the relevant data. This is the most important step in problem-solving. Experience teaches me which data is relevant, although it may not be readily available. With some problems, like interference, I need to find out the uncertainty of the data and whether it is biased or compromised.

The second step is to do modeling by presenting the problem in mathematical equations. The "elegance" evolves from mathematical equations or parameters.

The third step is to solve the mathematical problem using existing optimization or control techniques. If such techniques are not available, I create

one, or go back to step two to simplify the modeling process. The last step is to convert this to a real solution.

LZ: *The SSPI Hall of Fame induction notice refers to your work on the Matrix Amplifier and Routing System (MARS).*

XT: MARS is a satellite payload technology that I was fortunate to be involved with and to advance. I was doing work for Inmarsat on the performance of matrix amplifiers for their spacecraft prior to build. I did more extensive research at SAIC, and via a Broad Agency Announcements (BAA) award from the USAF Space and Missile Systems Center (SMC).

I generalized the power sharing concept of MARS, added its routing capability, characterized inter-port and intra-port inter-modulation products, and investigated possible implementation of MARS to the Phase III Defense Satellite Communication System satellites (DCSC IIIs).

LZ: *What is your view of how technology around bandwidth management will evolve during the next five years.*

XT: We will see more deployment of high throughput satellites (HTS). We will see expansion of growth in bandwidth requirements and managed network services. As a result, more emphasis will be placed on the management and quality of services to support the traffic on the network (e.g., latency, bit error rate) than monitoring the spectrum of the bandwidth (e.g., RF interference).

LZ: *We have a new global campaign to promote the industry called "Satellites Make the World Better."*

(www.bettersatelliteworld.com). Do you think about how your work has made a difference in the lives of people?

XT: When I worked at Spar Aerospace, I was involved with the design and test-

ing of the Canadian and Indonesian domestic satellites. While there was national pride involved here, these were not attempts to be more advanced but to be deployed because satellites were the only means for people to effectively communicate. This is so vital.

LZ: *We do not realize how the national pride, which looks like a losing financial proposition, is often in response to the need to get people into the game. Satellites can take pride here though.*

XT: On the seas as well. I used to work at COMSAT on the design of Inmarsat-A and B/M land earth stations. Prior to Inmarsat, people on ships did not have regular contact. Short-wave radios, an unreliable means of communication, were what was used. Today, because of satellites, people at sea are fully connected with the rest of the world and can even watch the Super Bowl!

LZ: *Who do you like in this year's game?*

XT: I have four siblings in Seattle with their families. So I definitely will cheer for the Seattle Seahawks.

LZ: *OK. Predicting that game is much harder than analyzing traffic passing through nonlinearities, right? Thanks.*



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Satellites Helping to Assess Risk of Epidemics

Learning about our enemy through satellites is helping us to combat diseases spread by insects and other pests.

Changes in the environment, global trade and travel are all factors in the ever-increasing numbers and movement of pests.

Identifying and predicting the distribution of existing local species as well as the spread of new exotic ones are essential in assessing the risk of potential epidemics.

A consortium led by Avia-GIS in Belgium and supported by the European Space Agency (ESA) has developed Vecmap – an all-encompassing software and services package including a smartphone app for field studies with a time and location information system, all linked to an online database.

The database pools satellite information with results from field research. Satnav adds location information, helps researchers find their way to testing sites and helps field teams locate traps for return and analysis in the lab.

Traps are left in target areas chosen from satellite observations. The information helps researchers choose the most representative testing sites, saving time and cost of fieldwork – traditionally the most expensive part of gathering data.

The results collected online ultimately enable researchers to map high-risk areas populated by a particular species spreading infection. This can be the early warning signal of a risk of an epidemic. The results collected online ultimately

enable researchers to map high-risk areas using a wide range of satellite images.

The new approach greatly reduces the complexity of tracking species compared to traditional methods.

Currently, public health authorities use field sampling and statistical analysis to predict those areas most at risk, but a lack of integration between the various services results in a

highly complex system requiring specialised knowledge.

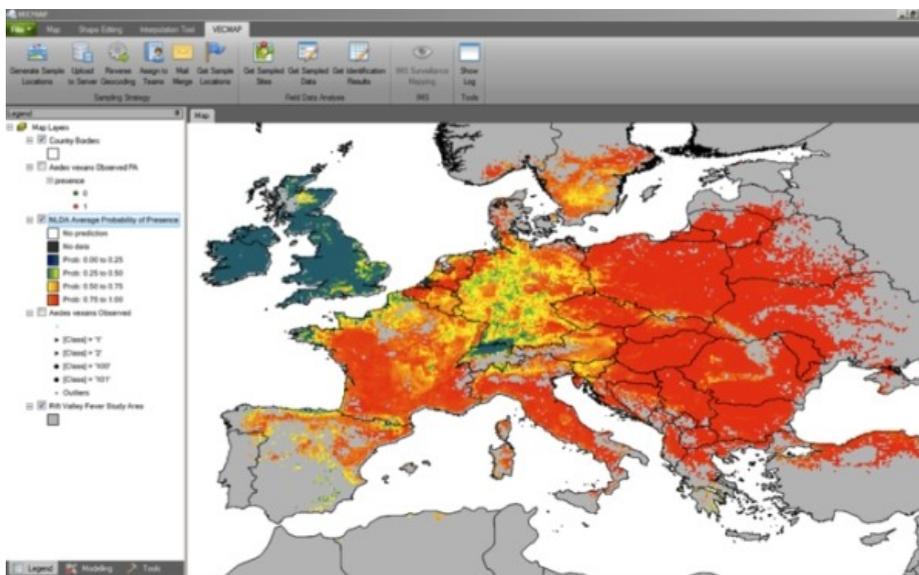
Vecmap provides all the data and services for vector mapping and acts as a single entry point for all information needed to predict and prevent infection, making it easy for researchers to collaborate on risk-mapping.

Twelve institutions in nine European countries tested Vecmap for producing area-wide

risk maps during the course of ESA's ARTES project, confirming its viability and the operational benefits for users.

Potential users range from governmental health organizations working with researchers to industry. In parallel, other applications are being developed to support landscape mapping in the Caribbean.

"The support given to us by ESA's ARTES Integrated Applications Promotion Programme was a critical step to enable us to embark upon the commercialisation of Vecmap," said Guy Hendrickx, CEO of Avia-GIS.



Potential users of Vecmap range from governmental health organizations working with researchers to industry to assess the threat posed by insects and other pests that spread infection. (courtesy: ESA)

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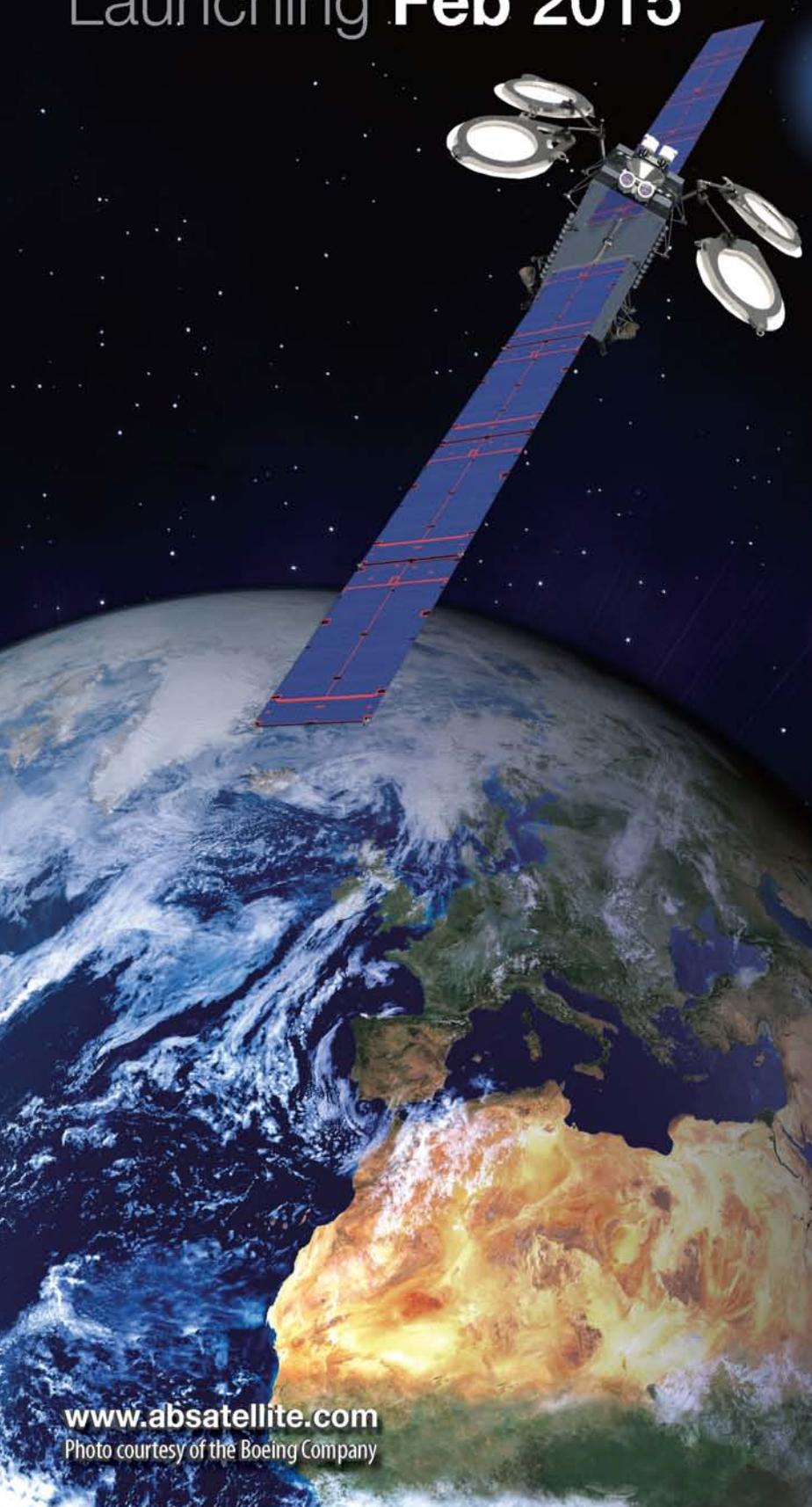
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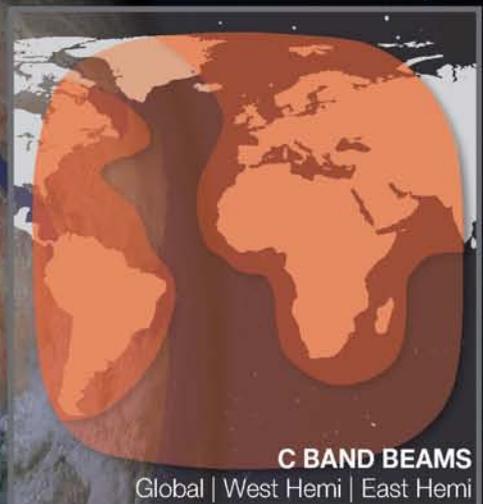
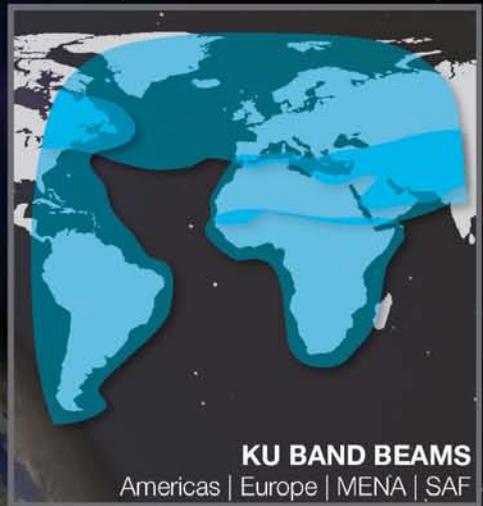
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ITU Telecom Focus on the Future



Doha 7-10 December

by Roxana Dunnette

The ITU Telecom World conference and exhibition took place in Doha, Qatar from 6-10 December 2014. The event gathered 3500 participants from all member countries, 205 speakers from 52 countries who delivered on a variety of topics in 51 Forum Sessions.

The exhibition had a lot of interesting demos either in national pavilions or telecom stands on future applications of new technologies for smart government, smart ehealth, smart cities, robotics, interactivity in daily life, next generation wireless data services, hybrid solutions for broadcast - telecom - satellite, assistive technologies for an all inclusive ICT society.

The spectacular opening ceremony featured addresses from: H.E. Prime Minister Sheikh Abdullah bin Nasser bin Khalifa al-Thani, H.E. Sheikh Abdullah bin Mohamed bin Saud al-Thani, Chairman of Ooredoo, H.E. Dr. Hessa Sultan al-Jaber, Minister of Information and Communication Technology, Qatar Dr. Hamanou Touré, Secretary General of the International Telecommunication Union.

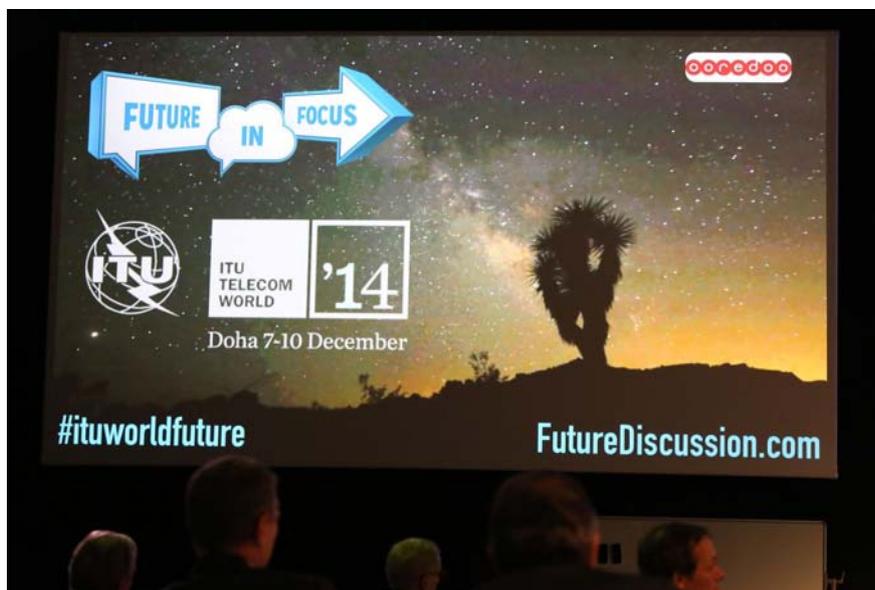
The importance the Qatar government attaches to telecommunications and its technologies is a significant part of Qatar's National Vision 2030.

Already the country has the second highest level of household broadband penetration, after Korea, and is the

17th in the world in the number of people per capita using the Internet. Nationwide 4G LTE has been deployed, high speed fiber connects 85% of homes. Qatar-based Es'hailSat launched the first national satellite in 2013 and the second one is scheduled in 2016. Qatar is facing tremendous challenges in communications in preparation of the 2022 FIFA World Cup to be held in Qatar. This made Qatar the ideal spot to discuss the future of ICTs.

for **Smart Stadium**, a spectacular 360 degrees perspective of a game weather on site or outside the venue, faster Wi-Fi network allowing people to buy tickets, order food, access real-time statistics and other high-tech application that will make a sport event unforgettable.

VODAFON, ERICSSON, and others demonstrated solutions in order to provide life-changing services to people while cutting cost and time spent.



The city of the future is one where citizens are not only connected to each other but to the information and systems that matter to them.

Mobility is driving the vision of the **Smart City** by enabling whole new developments to be built from ground up using

The future was not a virtual experience at Telecom World, a lot of companies demonstrating solutions for future Smart Living. OOREDOO launched during the event the **Smart Home** a prototype at the Pearl -Qatar to be commercialized in the next 4 months.

Mobile technology provides residents with full CCTV control, heating, lighting, locks, either from home or a remote location, 4G television experiences and much more.

NOKIA and Ooredoo offered a solution

the latest technology to connect devices, systems and infrastructure directly to their inhabitants.

Machine-to-Machine (M2M) technology is one of the fastest growing areas and the demos at the exhibition focused on three main segments: utilities and energy, automotive and transport.

Vodafone and Zelitron demonstrated how to drive sustainability through **Smart Energy** production, low carbon emission, concern for climate change Ericsson's **Smart Metering** experience station showed visitors how a simple

utility meter can work smartly to provide operational efficiency, real-time monitoring and flexibility to utility providers.

The **Connected Car** - Volvo, had a cloud-based Sensus Connectivity System on board, which gave visitors a window into the future making accessing information easier

then ever and has the potential to transform the entire automotive industry.

Smart Health, by Nokia, displayed a wide range of technologies available for health care providers, mobile applications how to run hospitals, tracking patients and scheduling appointments or monitor the health.

Smart AFRICA has 5 pillars: policy, access e-government, private sector entrepreneurship, and sustainable development which will contribute to economic and job creation in Africa.

The exhibition had much more but the discussion that matters was during the FORUM sessions .

The **Leadership Summit on the Future** held on the first day, launched debates into the future of ICT industry. Futurists and international experts explored potential scenarios, strategies, business models and regulatory approaches, maintaining a balance between humanity and technology . Prof.



The Sprawling ITU Telecom exhibition hall.

Rolf Pfeifer from Zurich University introduced ROBOY, a new breed of robot designed to provoke an emotional reaction.

The concept of ‘Singularity’—machines becoming more powerful than humans was explored as well.

Building a better connected world has showcased Huawei vision in a session on **“Enabling the digital future.”** “In the future, broadband networks will continue to be the critical infrastructure that enables content providers, app developers and network operators to collaborate and engage in joint business innovation,” said Ken Hu, Deputy Chairman of Huawei. “I would suggest all stakeholders to focus less on competition, but more on co-operation. The future for broadband can create diverse value for multiple winners, including customers, enterprises and investors” he added.

The word **cooperation** was widely used also in the session **“Broadcasting and Broadband.”** As the delivery of broad-

casting is changing following the shift in society’s behavior and viewing patterns, adding broadband delivery is a must.

There are 1 billion broadband subscribers, 8 billion mobile users, and 15% of the content is video. It is clear that traditional broadcasters are thinking not about “convergence” with telecoms, but of “cooperation” with telecom operators, but it is not easy. What will be the new policy for broadcasting and telecom together?

Public Broadcasting is conducting by “public interest” policy, Telecom by “common carrier” policy. A portion of the TV content is “free to air,” a plus for national identity, delivery of broadcast content over LTE networks could be cost efficient with linear and non linear content distributed in the same time, but details are available.

More than 1 billion viewers tuned to the last World Cup in Brazil, with high proportion of football fans watching the games from their smart devices.

High quality video experience is also requested.

And the advertisers revenues, how are going to be split? Not too much data is available; The work is in progress ...

“Big Data”, was also discussed in various sessions. With 2.5 billion people online today, 100 billion searches on Internet everyday, and 6 billion consumers coming online in the next 6 years – the digital space is very crowded.

More growth will come from ICT-related activities, mobile Internet, Internet of Things, Cloud automation, Machine-to-Machine, Autonomous Vehicles, Smart Cities etc, and a huge amount of data will be generated. There is massive demand for high speed and new devices to match the speed and perform faster.

Cybersecurity is key issue, together with regulatory aspects, copyrights, downloading the data, who has access, who own the data, etc.

Satellite Industry

“In the data-hungry connected world of tomorrow, satellite will play a central role in providing universal capacities and bringing to bear unmatched economies in one-to-many traffic,” said Karim Michel Sabbagh, President and CEO of satellite operator SES.

For the first time in a conference satellite operators, broadcasters, telecom and IT executives got together to discuss the issue of “Essential case for hybrid solutions?”

With the IP traffic increasing, with new applications on the line, with the growth of Internet of Things and smart environments and the request for high quality video on any device, anywhere, anytime – the hybrid solutions are essential.

“...In the data-hungry connected world of tomorrow, satellite will play a central role in providing universal capacities and bringing to bear unmatched economies in one-to-many traffic...”

—Karim Michel Sabbagh, President and CEO of SES

Not one technology is capable of delivering the data for the future, only by building on the strength of all technologies, solutions that can provide services that are in demand for an all inclusive society can be found.

Satellites already deliver Zetabyte of data a year of which 80% is video, to a global audience on land, air or sea. Today the average individual spends three and a half hours a day watching videos.

In this digital environment where tablets and smart phones accelerate the movement towards a connected world, where it will be more traffic over fixed and mobile networks, only the hybrid networks with satellites will meet the exponential demand.

Turki Al Shabanah, President of Rotana, Saudi Arabia, recognized the pressure on broadcasters to produce and deliver linear and non-linear HD content 24h on different screens as the video experience from the user perspective has been change and will continue to change. Satellites with huge capacity will be needed if we consider UHDTV to be on the pipeline soon.

Ahmad Abdulkarim Julfar, CEO of Etisalat, UAE, focused on the need to personalize the consumer services as consumers want more speed, better quality, lower cost and better experience. Only the implementation of ultra speed networks with satellites in the center and concern for reducing the carbon footprint, will deliver data, voice, HD broadcast on a variety of smart devices. The manufacturers are requested to come into the picture to

develop devices to match the speed and create a unique interface for all services using various technologies.

Advertisers should also be involved to go directly on-line with customized ads.

Interventions from Andrew Sukawaty, Executive Chairman Innmarsat, UK, and Eric Beranger, SVP, Airbus, France were in the same spirit. The perspective from satellite manufacturers’ is to build satellites with more capacity to fit the overall combination of applications and services and provide flexibility as the demand for future changes in unknown.

The networks are already connected satellite and terrestrial but connecting devices will create enormous demand of data. From all available technologies it is best to use the one that is needed for a specific application. The newly designed satellites have to bring relevant capacity and flexibility and be able to be reconfigured to serve different markets.

Mobility covering the aeronautical and maritime areas is in continuously increasing.

Emerging markets, remote and rural areas are a big market for satellite operators as terrestrial networks may not be available in a lot of places on the globe. The consumer wants to replicate the same experience everywhere including in emerging markets. Customized services, satellite and terrestrial, but with one user interface might be

Continued on page 18

Interview with ITU Secretary-General Hamadoun Touré

Roxana Dunnette (RD) : *Dr Touré you have been with the ITU for 16 years, first as Director of BDT and then as Secretary General. What were your biggest challenges in leading the oldest UN agency?*

Hamadoun Touré (HD): I would say adaptation to new environment, seeing the evolution of the ICT landscape and keeping ITU relevant at the front of innovation. The reward was to see results of ICTs in everybody's lives.

I was able to challenge everybody, head of states to do things they did, ministers to commit to broad band, regulators bring the right regulatory environment, ITU and world-wide engineers in study groups to energize and speed up the work.

Internally we are five elected directors , and when I took office in 2007 as Secretary-General, there was mistrust at all levels —among ITU members, and officials , management and staff, regulators and the private sector, and regulatory bodies and governments .

Eight years later we all work in harmony; we are all players in the same league.

I was very provocative in many areas to come to new solutions; we were able to position the Union as a bridge as it is normal.

I came from the private sector I speak many languages that allows me to communicate to people . I lived in multicultural environments, trained in Russia, work in the West , born in a LDC country and I was bringing cultures together . We are all different, but complementary and we understand each others when we sit down to talk.

I brought from private sector more transparency in our work, in reality nothing is hidden, but when you present a budget to the board for example, the way you present it makes the difference and the way you communicate to them is important.

Our members got all the papers when they were in early draft stage , yes there was a large deficit , but we ask for their ideas .As a result after my first board meeting two countries Korea and India doubled their contributions as they know where money goes . This style can't change anymore because people like it and things are moving.



Satellite Executive Briefing correspondent Roxana Dunnette on the left with ITU Secretary–General Dr. Hamadoun Touré. Dr. Touré's second term as Secretary-General ended in December 2014, a position he has held since 2007.

RD: *Population increase is very fast .How do you stay hopeful that ICT will be able to fix problems that seem insoluble?*

HD: Over the past few years meeting the Millennium Development goals has been our priority. ITU was able to position ICT as the solution to problems of the modern world, part of all solutions. Through ICT we will be able to improve health, education, culture, governments, and democracy.

Climate change cannot be solved with ICTs from only observing the world and climate change consequences. We need more and use alternative means to change the planet. ICT has a role, for ex: videoconferencing instead of traveling. The debates on Climate change are at the very high level, we are beyond blames, which is guilty, now we just fix it – and ICT is a solution.

We are entering in a post 15 years of the Millennium goals and again I position ICT as one of the solutions, it can be a goal by itself but also a tool to accomplish other goals.

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Touré interview ... from page 16

RD; Broadband for sustainable development was one of your main initiatives it was at the center of all projects. What do you see coming up?

HD: I want to give credit to the two Co-Chairmen of the Broadband Commission, President Kagami and Carlos Slim and to all 60 commissioners, leaders from the industry that accepted to be members and their accomplishments; it was the right thing to do and the right time. The letter addressed to the ITU Plenipotentiary Conference was a very strong message, in Members policy statements Broadband implementation had a central role. And this is very important.

ITU will continue to stay relevant; we have a unique composition of member states, 700 private companies, new members from regulatory bodies, from academia, with such a mix you can't get wrong.

“...ITU will continue to stay relevant; we have a unique composition of member states, 700 private companies, new members from regulatory bodies, from academia, with such a mix you can't get wrong....”

As for myself, I hope I will be able to continue to do some of the things I was preaching, have time to teach more time for my family, for my country, start a new life as busy or busier and continue to do it with that spirit of enjoyment that counts for me most.



ITU Telecom....From page 15

the answer. Satellites will increasingly be used for mobile backhaul services to provide coverage to areas underserved by terrestrial infrastructure.

Hybrid Solutions

Hopefully the discussions initiated in Doha will continue with practical results in perspective soon. Some things might be considered include the following:

- Regulatory framework needs to be in place.
- Engagement in development of Ku – and Ka-Band hybrid satellites that not only optimize spectrum resources but also combine individual bands to roll out next generation of video and data networks.
- Come up with simple business models
- Work cross borders solutions for

4G LTE networks

- Have a competitive approach, add OTT content to address end users new demands.
- Develop low-cost solutions but with best delivery mechanism and best consumer's experience.
- Bring industries together, trust one another and have a clear mission. Global players and local operators to work together.
- Develop a new creative co-operation approach in partnership – moving the competition from individual industries to areas of activities.

Is Universal Broadband Implementation disrupting for satellite operators? NO – it is an opportunity to innovate, collaborate and create a new universal network architecture.

Future will be “connected,” winners in digital space will be winners in business, and if we look at the culture

around and beyond “Things”, we will all win as all techs and apps are social!



Roxana Dunnette is a correspondent of Satellite Executive Briefing based in Geneva, Switzerland. She is Executive Director, R&D MEDIA, Switzerland, has had an extensive career in Broadcasting

and media including senior management positions at Worldspace Corp., Washington D.C., CBS and PBS in New York and international telecommunications regulatory work at the UN in New York and ITU in Geneva as US government representative. She accomplished many development projects in Africa based on satellite technologies, broadcasting, Internet and accessibility. She can be reached at: roxanadunnette@gmail.com

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CABSAT 2015 to Highlight MENA Satellite Market Growth

With the Middle East and North Africa (MENA) media market expected to grow from US\$ 16 billion in 2014 to US\$ 24 billion in 2019 according to Strategy & Analysis of CABSAT will examine the global impact of industry-evolving mega trends and highlight how regional companies can adopt products and strategies to drive monetisation and growth opportunities.

CABSAT 2015, the leading platform for the broadcast, production, content delivery, digital media and satellite sectors

across the Middle East, Africa and South Asia (MEASA), will examine how global media and entertainment organizations are driving innovation into their businesses and content offerings amid the convergence of international broadcast, film, production, internet, telecom and consumer electronics sectors.

The show, which runs from 10-12 March at Dubai World Trade Centre (DWTC), will present three days of disruptive trends delivering transformational change to the region via an exciting roster of new and enhanced features. These include specialist conferences and training sessions, satellite talks, the all-new Content Market Place featuring MBC Group and Stargate Studios, and an enlarged Content Delivery Hub – a key attraction for exhibitors specializing in anywhere and everywhere connected content platforms.

“With the total advertising spend in entertainment and media across the Middle East and Africa due to increase from USD\$43.5 billion in 2014 to USD\$65.9 billion in 2018, CABSAT 2015 provides a dedicated industry platform for regional media companies to absorb innovation-driven, best

-practice business strategies to enhance their products for the benefit of viewers and consumers,” said Trixie LohMirmand, Senior Vice President, Exhibitions & Events Management, DWTC. “Research shows that emerging markets are due to surpass established markets in digital universe percentage share by 2020. CABSAT is the number one regional platform to connect live content opportunities and enhance collaboration between regional and international content owners, operators and distributors,” she added.



With CABSAT 2015 due to welcome more than 900 exhibitors from 60 countries, the show will boast an expanded conference format featuring the second annual CABSAT & NAB Show Collaborative Conference and the inaugural Middle

East Post-Production Conference.

The CABSAT & NAB Show Collaborative Conference will be opened by Corey Bridges - one of the original directors who launched Netflix in the USA, the founder of Multiverse, the CEO of Lifemap Solutions, and a member of the Producers Guild of America. He is also a former Vice President of Marketing and CMO of Hollywood visionary James Cameron’s firm CAMERON | PACE Group (CPG) and an advisor on the board of South by South West - a series of Texas-based film, interactive and music festivals and conferences.

Bridges will use a keynote address to highlight his experiences building disruptive and innovative content companies such as Netflix and James Cameron’s 3D technology company, as well as exploring how the business and production of multi-platform content is moving beyond delivering interactive content and towards fully-immersive, trans-media

experiences.

CABSAT and NAB Show, two of the biggest industry show brands in their field, have again collaborated on a world-class electronic media conference program covering the latest disruptive and converging trends in all filmed entertainment and digital media content, as well as connecting live content opportunities across the MENA markets.

"We are pleased to expand our relationships with these world class events and to extend globally NAB Show's brand and educational programs to convention goers around the world," said NAB Executive Vice President, Conventions and Business Operations, Chris Brown. "Together with our partners, we will uncover the best ideas, leaders and technologies and provide a forum that serves media and entertainment communities world-wide."

With a primary theme of 'Connecting Live Content Opportunities', key conference highlights include presentations by international heavyweights from entities such as ESPN, NBA (National Basketball Association), ITV UK, Huffington Post, Creative Grid and Ericsson Media Room amongst others.

The Middle East Post-Production Conference will boast two full days of world-class training presented in partnership with Future Media Concepts, Dubai Studio City and the Dubai Film & TV Commission. Delivered by certified instructors for Apple, Adobe and Avid amongst others, these valuable sessions include tutorials on time lapse photography, video compression, LOG and RAW video, green screen production and web video production strategies, as well as technical guidance on software programs such as DaVinci Resolve, Blackmagic Design cameras, GoPro cameras, Apple Final Cut Pro X, Premiere Pro, Sync Sound Workflow, Adobe Photoshop for broadcast graphics and video, and Avid Media Composer.

Catering for digital media professionals including editors, producers, directors, graphic artists, motion graphics designers and new media specialists in production and post-production, commercial video, distribution and delivery, and independent films, the introduction of a specialist Post-Production Conference supports CABSAT 2014's post-show survey results, where a significant proportion of exhibitors stated 'seeing technical and engineering professionals' as the most important factor in judging show participation ROI – the second ranked buyer audience request in 2014.

Elsewhere, the CABSAT Content Market Place – a new dedicated zone for creators, distributors and broadcasters of filmed entertainment content to showcase 'Pay-TV' and 'Free-to-Air' content offerings - will showcase multiscreen and second screen capabilities and associated monetization



opportunities. Primarily a content, distribution and exchange platform, the Content Market Place is aimed at MEASA's third party channel suppliers including Cable, Telco's, advertising agencies, Satellite content providers, 'Pay-TV' and 'Free-to-Air' operators, and all international broadcasters, TV channel owners and content owners.

In addition to the raft of new features, CABSAT 2015 will also boast enhanced offerings of features which helped attract a record 12,632 visitors to the 2014 event, including the GVF Satellite HUB - held in partnership with GVF - where senior level debates on technical trends and major satellite issues and challenges across the Satellite industry will take place.

Following a successful launch in 2014, CABSAT Connect will return with more than 500 senior executives meeting industry peers and recognizing top industry players at the dedicated evening network event, while the CABSAT Global Meetings Program will offer an enhanced one-to-one networking platform for all senior-level executives on the show floor. The launch of a new mobile app will allow executives more capacity to search and schedule meetings with the most relevant global and regional companies before the show.

With global Over-the-Top (OTT) streaming video on demand estimated to reach US\$22.7 billion by 2018 - up from US\$6.5 billion in 2013 - the Content Delivery Hub will be expanded to a full hall in 2015 with more than 60 exhibitors taking part in three days of live discussions relating to IPTV, OTT and online digital platforms, solutions and services with a supporting 'live connected' demo theatre.

The Content Studio Hub and CABSAT TV are also back to provide live feeds, social media updates, on-site interviews and daily event highlights with 40+ global and regional speakers and 900+ exhibitors, with dedicated live interviews and news feeds being broadcast directly from the show floor across a network of more than 12 screens and through the official CABSAT website. Visit www.cabsat.com to find out more.



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'Connectivity,' CABSAT and Cherry Blossoms



by Martin Jarrold

In my previous column I introduced the forthcoming GVF event "**Connectivity 2015**", an event with an unusually broad focus, beyond satellite communications alone, and which will look at connecting to the Internet, whenever you want, wherever you are, wherever you're traveling to, and however you're getting there, with broadband data speeds usually associated with fiber, which is, by definition, fixed.

As previously noted, for an ever-growing proportion of an ever-more demanding user base, this is not enough, particularly as the user-to-device/terminal relationship continues its migration away from interfacing with desktop/laptop PCs with local hard drive data storage and towards interfacing with tablets and smartphones with increasing volumes of data storage in the Cloud. This is a migration which places an overwhelming emphasis on the opportunity for Internet connectivity and access to multimedia services which meet the seemingly insatiable demand for increasingly video-based enterprise and social media applications, whilst the user is entirely mobile, whether pounding the urban street, taking a country stroll, driving a vehicle, riding a train, flying on a plane, or taking a trip across the sea.

This can only be achieved with a combination of different wireless telecommunications/broadband access technologies – a combination that will increasingly engage the most mobility-enhancing and nomadic communications technology of all, satellite.

'Connectivity 2015: Air, Sea, Surface & Rail: Evolving the "New" New Verticals' (www.gvf.org/index.php/news/events-calendar.html?view=eventslist) is going to look into such applications and user markets as: Next Generation Futures for Mobile Backhaul Solutions; Train Networks, Fleets of Aircraft and Cruise Liners; Vehicle Telematics... and beyond; Mining & Remote Resource Extraction; Hospitality & Unlimited Mobility Connectivity; What will the Satellite - Cloud Interface look like? Satellite and Terrestrial Wireless Technologies; Machine-2-Machine (M2M); Integrating the Digital World; Comms on the Move/Comms on the Pause; Network Cyber Security.

To achieve this the conference has, so far, attracted a significant number of major companies and other organiza-

tions to engage with the program, including: **Access Partnership; Advantech Wireless; BeaconSeek; Comtech EF Data; Euroconsult; Eutelsat/Skylogic; Exede Mobility at ViaSat; Futureonautics; Globecomm; Hispasat; Hughes; iDirect; HIS; Inmarsat; Integrasys; Intellian; Intelsat; NewSat; OnAir; Satellite Applications Catapult; Satellite Interference Reduction Group; SES; SpeedCast; Squire Patton Boggs; Stream Technologies; Talia; Telesat; TSAT; ViaSat; Winegard;** and others – including Aviation Management; Ericsson; European Space Agency; Gilat Satellite Networks; Panasonic Aero; Signalhorn; Thuraya; and Yahsat – may potentially join the program which takes place in **London, 19 & 20 February 2015**.

For more information on this and all other 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 find out more about all GVF-EMP events at www.uk-emp.co.uk.

CABSAT

The **GVF MENASAT Summit @ CABSAT** has been an embedded, key, added-value, feature of the annual CABSAT exhibition for many years, and 2015 will continue the complementary relationship between exhibition and summit program. GVF and CABSAT 2015 have announced a dedicated satellite hub summit as a part of the CABSAT conference, bringing an event with a brand new format, and new and innovative content, as the **GVF Satellite Hub Summit @ CABSAT 2015**.

The event, presented over two days as per previous years, will take place physically within the satellite area of the CABSAT exhibition, using a dedicated, purpose built, centrally located and high-profile meetings facility in Hall 8. Not only will this bring the GVF Satellite Hub Summit closer to the exhibition space and to CABSAT's thousands of visitors, but will offer participating organizations – sponsors and speakers – a higher level of visibility for their support for the event program, and for the vitally important dialogues and opportunities for networking that the program facilitates and promotes.

The GVF Satellite Hub Summit program will feature a range of key themes and topics, many of which are new to the

GVF CABSAT program this year, and which have been included because they are at the very core of the current global satellite communications solutions discussion arena.

These key themes and topics will include:

- **MENA's Satellite Broadcast & Telecoms: An Overview of Today's Market Environment**
- **Satellite Spectrum: Potential Implications of the 2015 ITU World Radiocommunication Conference**
- **Cyber Security: How the Satellite Industry is Addressing the Challenge**
- **High Throughput Satellites: New Markets, New Services & New Technologies in Key Verticals**
- **Big Data & the Cloud in UHD Broadcasting**
- **Satellite News Gathering... the Video Uplinker**
- **Developments in Communications on the Move & Communications on the Pause**
- **The Cloud and the Marriage of Mobility & Web 2.0**
- **Integrating the Digital World: The Internet of Things (IoT)/Internet of Everything (IoE) & Machine-to-Machine (M2M)**
- **Satellite and Humanitarian Assistance & Disaster Response (HADR)**
- **Proactivity and Reactivity to Ensure Interference-Free Satellite Services**
- **FTTP/FTTH – Versus Satellite Broadband?**

The GVF Satellite Hub Summit @ CAB-

SAT 2015 takes place on **11 & 12 March at 'The Satellite Hub' in Hall 8 at the Dubai World Trade Center/ Dubai International Convention & Exhibition Center**. For further information you can contact me at martin.jarrold@gvf.org. Additionally, more information about the Hub Summit will appear in this column next month.

Cherry Blossom

I always associate the annual SATELLITE show in Washington DC with cherry blossom, although I recall one year when several feet of snow was the predominant feature of the cityscape. I also associate the event with a very high-profile and comprehensive program of GVF events. This year brings a particularly busy schedule, with the SATELLITE 2015 venue itself, the Walter E. Washington Convention Center, featuring the following GVF programs:

Cyber-Security Symposium

Monday, 16 March – Room 207B

This two-part symposium, moderated by Rakesh Bharania, Chairman of the GVF Cyber-Security Task Force, will feature one session on securing IP networks while enhancing performance and another session on addressing possible resolutions and recommendations for solutions to mitigate cyber-attacks. Sessions will include case study presentations, an in-depth discussion focusing on applications and techniques, network requirements and solution implementation, and a comparison of results and benefits.

Maritime Satcom Forum Pre-Day Summit

Monday, 16 March – Room 209AB

The Maritime Satcom Forum at SATELLITE 2015 will highlight the 'Remaking the Maritime Broadband Business Case' as it focuses on current trends and the latest technologies affecting the maritime communications business, with insight into the users and providers in the maritime satellite communications market. The sessions will feature five sessions on key drivers for

global market growth:

- Keynote Address & Executive Roundtable: "Maritime HTS – Beyond Bandwidth?"
- The Best Defense: Achieving Military Maritime Objectives with Commercial Off-the-Shelf Solutions
- Remote Maritime Energy Discoveries: Enabling the Right Decision at the Right Time
- The Customers vs. The Vendors: Taking the Conversation Forward
- The Internet of Things and Maritime Communications

with speakers from the following GVF Members: Access Partnership, Astrium Services BC Maritime, Comtech EF Data, Harris CapRock, Globecom, iDirect, Inmarsat, IntegraSYS, Intellian, Intelsat, ITC Global, Iridium, KVH, MTN Government, SatProf, SES, SpeedCast Telenor and ViaSat.

Regional Focus Forum

Wednesday, 18 March – Room 207B

The focus of these well-attended, popular programs in the Regional Focus Forum will be the current trends, recent events, and the latest technologies affecting the satellite industry in each region, with insight into the operators, providers, and users that drive each region in the global satellite market.

The SATELLITE 2015 Regional Forum sessions will feature four sessions on the following dynamic markets:

- Europe – 'A Regional Industry Goes Global'
- Americas – 'Open Skies, Green Fields, and the Hockey-Stick Promise'
- Middle East and Africa – 'Politics, Plague and...Market Potential?'
- Asia Pacific – 'It's Complicated (And It's Worth It)'

Each of these sessions will discuss and examine, in-depth, the market de-

mand, anticipated growth sectors, opportunities, and threats to progress in the specific regions. Participants will gain inside knowledge on which particular strategies, services, and business models have and can thrive, as well as some of the specific issues and concerns for stakeholders operating in each region, directly from the professionals that operate within each of the featured regions.

Interference Prevention Summit Thursday, 19 March – Room 209AB

GVF will hold its 5th annual Interference Mitigation and Prevention Summit in room 209AB. The Summit will focus and discuss what successful measures have been active within the last year, where more work is needed, what prevention measures on operational effectiveness exist and discuss current GVF initiatives.

The Intelsat Offices in Tyson's Corner, Virginia, will host a further GVF event:

GVF Global Satellite Spectrum Executive Summit

Monday, 16 March

Organized by GVF in coordination with APSCC, CASBAA, ESOA, SIA, SSPI and other industry partners, the Executive Summit will address the global and regional current status, potential implications, and the future co-ordination of next steps of the Satellite Spectrum Initiative campaign leading up to the ITU World Radiocommunication Conference in November this year (WRC-15). Please Note: Seating is limited, so register your interest with my colleague Angie Mar (angie.mar@gvf.org) as soon as possible.



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

Calendar of Events

February 10-12, 2015, **WEST 2015**, San Diego Convention Center, San Diego, Calif., USA, contact Paul doCarmo, phone +1-703-631-6130

events@afcea.org web: www.afcea.org/events/West/

February 19-20, 2015, **GVF Connectivity 2015**, London, UK, Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.uk-emp.co.uk/current-events/connectivity-2015/

March 10-12, 2015, **CABSAT 2015**, Dubai World Trade Centre, Dubai, UAE. Contact: cabsat@dwtc.com, phone +971 4 308 6230, web: www.cabsat.com/

March 11-12, 2015, **GVF Satellite Hub Summit @ CABSAT 2015**, Dubai International Convention & Exhibition Centre, Dubai, UAE Phone: +44 (0)1727 884 51, E-mail: martin.jarrold@gvf.org Web: www.cabsat.com/Content/GVF-Satellite-Hub-Summit-1-2/10_80/

April 7-8, 2015, **GVF Oil and Gas Communications Brazil 2015**, Rio de Janeiro, Brazil, Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.uk-emp.co.uk/current-events/o-g-comms-rio-2015/

Conferences: April 11-16, 2015; Exhibits: April 13-16, 2015, **NAB 2015**, Las Vegas Convention Center, Las Vegas, Nevada, USA, Contact: info@nab.org web: www.nabshow.com

May 12-13, 2015, **GVF Oil and Gas Communications Europe 2015**, Aberdeen, Scotland, UK, Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.uk-emp.co.uk/current-events/o-g-comms-aberdeen-2015/

May 19-21, 2015, **Space Tech Expo and Conference 2015**, Long Beach Convention & Entertainment Center, Long Beach, California, USA. Contact: +1 855 436 8683, Email: info@spacetechexpo.com, Web: www.spacetechexpo.com

June 2-5, 2015, **CommunicAsia2015**, Basement 2, Level 1 and Level 3, Marina Bay Sands, Singapore. Contact: Evelyn Tan, Phone: +65 62336638, E-mail: evelyn.tan@sesallworld.com, Web: www.CommunicAsia.com

June 2 – 5, **BroadcastAsia2015**, Level 4 & 5, Marina Bay Sands, Singapore, Contact: Email: broadcastasia@sesallworld.com Web: www.Broadcast-Asia.com

June 17-18, 2015, **GVF HTS-The DC Roundtable**, Washington, D.C., USA Phone: +44 7802 612 924, martin.jarrold@gvf.org & paul.stahl@uk-emp.co.uk Web: www.uk-emp.co.uk/current-events/

June 23-25, 2015, **Global Space Innovation Conference 2015**, Munich, Germany, Contact: Phone: +33 1 45 67 42 60 Web: www.glic2015.org

Imagine Communications Latest Acquisition: RGB Networks

Dallas, Tex. Jan. 26, 2015 — Imagine Communications announced it has signed a definitive agreement to acquire the assets of RGB Networks, Inc., a provider of multiscreen video delivery solutions based in Sunnyvale, California. The transaction, subject to customary approvals and closing conditions, will include the majority of RGB Networks' employees.

The acquired assets will be integrated into the Imagine



Communications advertising management and video infrastructure portfolio. RGB Networks provides IP cloud-based video delivery solutions that help enable media providers to streamline and monetize TV Everywhere and OTT services with reliability and scalability. With core technology strengths in video packaging, cloud DVR, and ad insertion, RGB Networks' products are deployed in over 400 communication service providers worldwide. RGB Networks' technology enhances Imagine Communications' end-to-end video playout and distribution portfolio, extending the capabilities of the most comprehensive and widely deployed TV Everywhere and video processing and compression solutions available.

"We are at an inflection point in the expansion of TV Every-

where, and Imagine Communications is delivering the end-to-end portfolio required to lead the industry through this disruptive period being defined by IP, software and the cloud," said Jef Graham, Chairman and CEO of RGB Networks.

RGB Networks' Dynamic Ad Insertion (DAI) technology is designed for ABR and virtualized data-center/cloud environments, and is structured to dynamically manage and execute addressable ad and alternate content campaigns in unison.

By integrating RGB Networks' streaming Dynamic Ad Insertion capabilities into its media portfolio, Imagine Communications will enable the delivery of personalized advertising in real-time, across all video stream types, and on subscribers' preferred viewing devices. This allows each component to optimize cloud and virtual instance resources, increasing subscriber engagement and revenue generation. RGB Networks' advanced packaging and transcoding portfolios ensure large-scale, cost-effective video delivery to any IP-enabled device, according to the company.



designed for ABR and virtualized data-center/cloud environments, and is structured to dynamically



L-3 Acquires MITEQ

Hauppauge, NY, January 23, 2015-- L-3 Communications (NYSE:LLL) announced that it acquired the assets of MITEQ, Inc. for US\$ 41 million..The business will be combined with L-3's Narda Microwave-East business located in Hauppauge, N.Y., and the new organization will be called L-3 Narda-Miteq.

The Miteq business develops and manufactures specialized RF microwave products and solid-state SATCOM components that complement the existing Narda product line according to the company. The combined L-3 Narda-Miteq business will employ approximately 700 people, providing products for the U.S. military,

government agencies, prime contractors and commercial customers. The Miteq acquisition is expected to generate approximately US in sales for the year ending December 31, 2015.



"Miteq adds key products, technical capabilities and other synergies, strong engineering talent and new customers to L-3's Advanced Communica-

tions sector within our Communication Systems segment," said John S. Mega, president of L-3 Communication Systems.

Headquartered in New York City, L-3 employs approximately 48,000 people worldwide and is a prime contractor in aerospace systems and national security solutions. L-3 is also a leading provider of a broad range of communication

and electronic systems and products used on military and commercial platforms. The company reported 2013 sales of US\$ 12.6 billion.



Chris Walters Appointed CEO of Encompass Media

Atlanta, GA, January 27, 2015—Encompass Digital Media announced the appointment of **Chris Walters** as its Chief Executive Officer. Walters will be responsible for day-to-day operations of Encompass on a worldwide basis.

William Tillson will assume the role of Executive Chairman. Tillson will continue to provide executive leadership focused on global customer initiatives, technology partnerships and next-generation media delivery strategies.



Chris Walters

Prior to joining Encompass, Walters served as CEO of The Weather Company where he collaborated with the leadership team to successfully position the company for rapid growth and drove new technology developments that enabled The Weather Company's expansion across all platforms. Before joining The Weather Company, Walters served in leadership roles at Bloomberg where his last position was leaving as Chief Operating Officer of the Bloomberg Industry Verticals Group. In this position, Walters drove significant expansion of subscription services in multiple industry verticals via organic growth and acquisitions. Prior to Bloomberg, Walters was a partner at McKinsey & Company where he led client engagements defining video distribution strategies and growth opportunities including next-generation business models for traditional media, digital media, technology and information services companies.

Walters holds an MBA from The Uni-

versity of Chicago - Booth School of Management with a focus on Finance and Strategic Management and a BS in Business Administration from the University of Vermont.

Dr. Hamadoun Touré Joins Inmarsat Board

London, UK, January 29, 2015—Inmarsat (LSE:ISAT.L), announced that **Dr. Hamadoun Touré** will join the Board on March 1, 2015 as a non-executive director. Dr. Touré was Secretary General of the International Telecommunication Union (ITU), the specialised agency of the United Nations dedicated to the information and communication technologies from 2007 to 2014.

Since 2007, he has worked to fulfil the ITU's mandate to 'connect the world' and help achieve the Millennium Development Goals. He actively promoted the ITU Connect series of events, with the first one, Connect Africa, being held in Kigali, Rwanda, in 2007. Connect Africa raised US\$55 billion in investment pledges to improve Africa's telecommunications infrastructure over seven years.

Dr. Touré was the founding member of the Broadband Commission for Digital Development which was launched in May 2010 by the ITU and UNESCO and he served as co-vice chair until his retirement from the ITU. Dr. Touré was Director of the ITU's Telecommunication Development Bureau (TDB) from 1998 to 2006 when he championed the Right to Communicate. During his tenure as Director of TDB he actively participated in the preparation of the World Summit on Information Society (WSIS) and created the Global Symposium for Regulators (GSR).

Prior to joining the ITU he had a distinguished career in the satellite industry. Dr. Touré is also on the International Multilateral Partnership Against Cyber Threats (IMPACT) International Advi-

sory Board which was the ITU's Cybersecurity Executing Arm. Dr Touré was an active member of the UN Chief Executive Board where he consistently raised awareness of cyber threats and the need for international cooperation to tackle them.



Hamadoun Touré

MEASAT Appoints Alex Tan as Sales Director

Kuala Lumpur, Malaysia, 26 January 26, 2015—MEASAT Satellite Systems Sdn. Bhd. announced that Alex Tan had been appointed as Senior Sales Director – Broadcast Sales. Tan is moving from his previous role as Senior Sales Director, Telecoms & VAS – Asia Pacific.

In his new role in Broadcast Sales, Alex will be working with MEASAT's Vice President of Broadcast Sales to develop and drive sales strategies and programs in the broadcast segment.

Alex has 18 years of experience in the satellite and telecommunications industry and has been with MEASAT since 2008.

He holds a Bachelor of Engineering in Electronic Engineering (Hons), majoring in telecommunications, from the University of South Australia.



Alex Tan

ABS Appoints Khattar as President-South Asia

Washington D.C., January 22, 2015—ABS announced the appointment of Rajiv Khattar as the President - South Asia. In this newly created role, Rajiv will be responsible for business development and sales for this market.



Rajiv Khattar

Tom Choi, Chief Executive Officer of ABS said, "We are delighted to have Rajiv on board as the new head for this region. Rajiv brings along a wealth of experience of the cable and satellite industry with extensive knowledge of the Direct-To-Home (DTH) and broadcast sector in the India market."

Khattar has over 20 years of experience in the cable and satellite industry. Before joining ABS, Rajiv spent 10 years at Dish TV India, Ltd as the President of Projects. In this role, he gained a wide range of experiences covering business, operations, regulatory procedures and strategy development. Prior to this, he held various leading positions with other cable and telecommunication companies.

He holds a Diploma in Production Engineering (Delhi Board of Technical Education), a Diploma in Business Management (Rajendera Prasad Institute of Communication and Management, Mumbai) and a Diploma in Materials Management (Faridabad Productivity Council).

SES Government Solutions New President and CEO

Washington, D.C. 19 January 19, 2015—SES Government Solutions (SES GS) announced the appointment of a new President and CEO, Brig Gen Peter

Hoene, USAF (Ret), effective March 2, 2015. He will be replacing Tip Osterthaler, who recently announced his retirement.

As the Corporate Vice President for Development at SES GS, Hoene led the company's fleet development initiatives on behalf of U.S. Government requirements, as well as most of the company's business development and capture efforts. In 2014, despite weak market conditions caused by a rapid decline in defense spending, he led the SES GS team that won the company's most new business in the past decade.

Hoene retired from the U.S. Air Force in 2010 as a Brigadier General, following 30 years of service.

He is a graduate of the U.S. Air Force Academy, as well as a distinguished graduate of both the Air Command and Staff College and the National War College. He holds two masters degrees and served in a wide variety of Space, Command and Control, and research, development, acquisition, test, staff and command assignments.

In his last active duty position, Hoene served as the Defense Information Systems Agency (DISA) Program Executive Officer for Command and Control, where he managed a portfolio of Joint Coalition Command and Control and Information Sharing programs.

Prior to his DISA assignment, he was Commander, 350th Electronic Systems Wing (C2&ISR Wing), Electronic Systems Center, Hanscom Air Force Base, Mass., where he managed a portfolio of 49 command and control (C2), ISR, Space and Cyber programs valued at more than US\$9 billion.



Peter Hoene

Work Microwave Appoints New Sales Director

Holzkirchen, Germany, Jan. 7, 2015—WORK Microwave, a leading European manufacturer of advanced satellite communications, navigation, defense electronics, and sensors and measurement equipment, announced the appointment of **Andreas Lermann** as the new director of sales and marketing. Lermann is responsible for driving product strategy and global business development for WORK Microwave's SatCom, Defense, and Sensor units to increase the company's worldwide sales presence and revenue streams.



Andreas Lermann

Prior to joining WORK Microwave, Lermann was the senior manager of business development and strategic customers for the aerospace and defense division of Spinner and business development manager for satellite technology at Airbus D&S. In both positions he was instrumental at implementing new products and strengthening companywide sales.

Lermann has also served as the head of the department of navigation as a professor at Bundeswehr Geoinformation Service where he developed instrument calibration processes and lectured on GNSS positioning, navigation, and radar remote sensing at the University of German Federal Armed Forces.

Lermann holds an engineer's degree in Geodesy and Geoinformation from the University of German Armed Forces Munich; an MBA from the University of Applied Sciences Turku, Finland; and Ph.D. in science from the University of Salzburg.

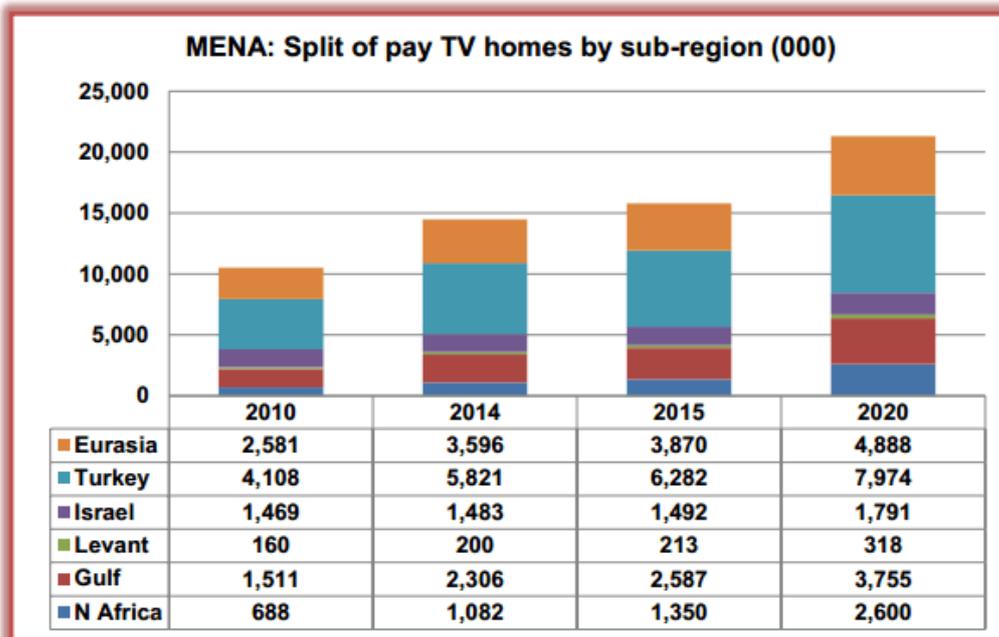
MENA Pay TV Subs Growing Despite Piracy

London, UK, February 2, 2015--The number of pay TV homes in the Middle East and North Africa will double between 2010 and 2020 to 21.3 million, according to a new 208-page report from Digital TV Research. Turkey will account for 37% of the 2020 total.

11.8% in 2020, with subscriber numbers doubling from 5.01 million to 10.32 million. Of the 10.32 million total in 2020, Turkey will contribute 5.32 million and Saudi Arabia 1.24 million. Penetration in 2020 will reach 37% in Qatar, but will be less than 5% in 10 other countries.

According to the fourth edition of Digital TV Middle East & North Africa Forecasts, 18% of TV households legitimately paid for TV signals by end-2014. This proportion will climb to 24% by 2020. Qatar will record 72% pay TV penetration by 2020, with Israel (71%) also high. However, pay TV penetration will be below 10% of TV households in Algeria, Jordan, Morocco, Syria and Tunisia.

Simon Murray, Principal Analyst at Digital TV Research, said: "Pay satellite TV has grown due mainly to the expansion of OSN and beIN Sports. We estimate that OSN had 1,162,000 residential satellite subscribers [excluding non-residential satellite subscribers and subscribers to non-satellite platforms] at end-2014, with beIN Sports providing a further 819,000."



Source: Digital TV Research Ltd

Legitimate pay TV revenues for the 20 countries covered in the report will grow by 75% between 2010 and 2020 to \$5.63 billion. Turkey and Israel are expected to contribute 51% of the region's pay TV revenues in 2020; down from 61% in 2014.

Satellite TV will continue to dominate pay TV revenues, taking two-thirds of the 2020 total (similar to the 2014 proportion). Satellite TV revenues will be US\$ 3.76 billion in 2020. Turkey will account for US\$ 1,572 million of these revenues, followed by Saudi Arabia with US\$ 674 million. Saudi Arabia will take second place from Israel in 2015.

Pay satellite TV penetration will climb from 6.9% in 2010 to

He cautioned: "Piracy remains a major problem, despite many efforts to eradicate it. There are 34.3 million free-to-air satellite TV homes in the Middle East and North Africa sub-regions [excluding Israel, Turkey and Eurasia]. We estimate that at least 10% of these homes also receive pirated premium satellite TV signals. This represents considerable revenue loss to the legitimate players."

There will be 6.16 million legitimate IPTV subs across the whole region by 2020; triple the 2014 total. Turkey (1,631,000 subscribers – five times as many as 2014) will be the IPTV subscriber leader in 2020. However, Qatar (35%) will lead in penetration terms by 2020. IPTV revenues will grow tenfold between 2010 and 2020 - to US\$ 1,071 million.

European AV Industry Losing Global Market Share

Strasbourg, France, January 21, 2015-- Over the five year period from 2009-2013, the European audiovisual industry lost 5.3% of their global market share according to the 20th edition of the The European Audiovisual Observatory's Yearbook on *Television, Cinema, Video and on-demand Audiovisual Services*.

Despite the rapid rise in on-demand services in 2013, the audiovisual sector experienced its second year of stagnation. Between 2008 and 2012, the operating revenues of the non-European groups established in the European Union rose from EUR 48.2 to 53.1 billion.

This reference publication contains pan-European figures on 40 countries on the various branches of the sector. Using the different indicators available, the Observatory reveals that the entire

audiovisual sector experienced a second year of stagnation in 2013.

For the third year running, the market generated revenues in the order of EUR 133 billion, with even, for the first time, a very slight fall in its revenues in 2013 (-0.1%). The sector most affected is physical video (-11.3%), but 2013 was also a year of recession for cinema receipts (-4.3%), video games (-1.8%) and broadcasting services (-0.5%). The growth in the activities of pay-TV platforms (+2.7%) and in the production of online VoD services (+46.1%) was unable to compensate for the decline in the other activities .

The stagnation of the European market and the fact that the two growth areas are mainly controlled by American groups means the European groups lost 2% of their global market share between 2012 and 2013 and a total of

5.3% between 2009 and 2013.

The number of subsidiaries of foreign groups identified as established and operating in the European Union rose from 833 in 2008 to 1019 in 2013. The operating income of these companies went up from EUR 48.2 billion in 2008 to 53.1 billion in 2012. The number of subsidiaries of American groups operating in the European Union rose from 548 in 2008 to 666 in 2012. Their operating income increased from EUR 31.8 billion in 2008 to 40.1 billion in 2012.

In 2012, the activities of distributors of audiovisual services (cable, satellite platforms) became the primary source of revenues of the subsidiaries of foreign groups in the European Union. At EUR 12.9 billion, the figure is slightly higher than for the more customary ways of distributing audiovisual programs (EUR 12.8 billion).

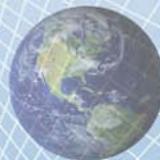


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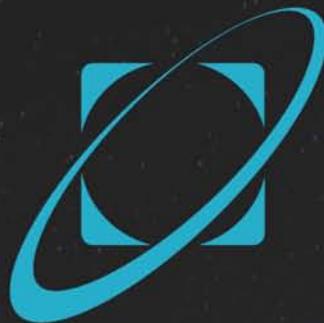
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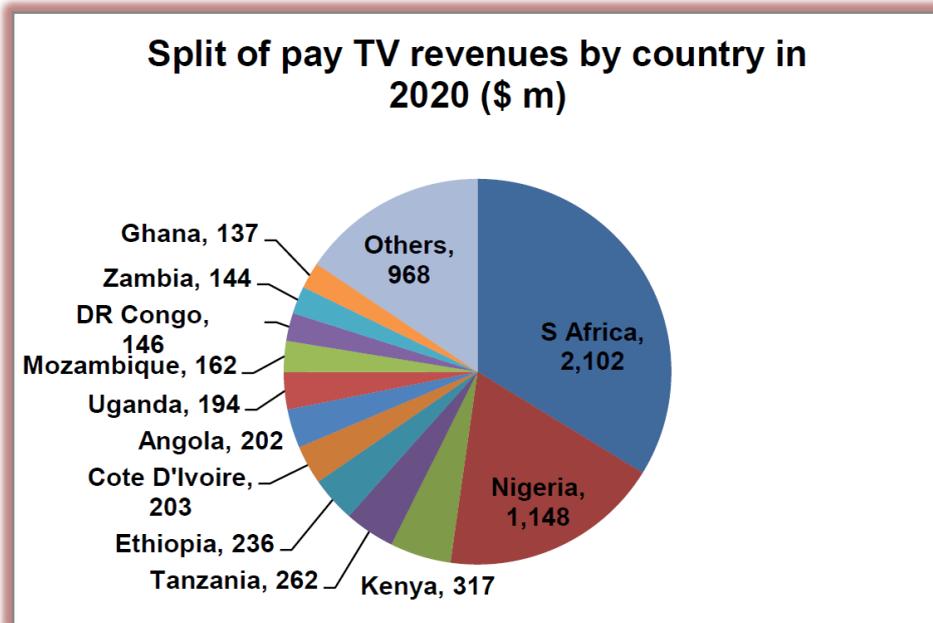
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Source: Digital TV Research

Pay TV revenues in Sub-Saharan Africa will reach US\$ 6.22 billion in 2020, up from US\$ 3.54 billion in 2014 and \$1.92 billion in 2010, according to a new report from Digital TV Research. Excluding South Africa, pay TV revenues will climb from \$0.83 billion in 2010 to \$1.73 billion in 2014 and onto \$4.12 billion in 2020.

Satellite TV accounted for 92% of the 2014 pay TV revenues, although pay DTT will make inroads (contributing \$802 million in 2020 – quadruple the 2014 total). Competition and take-up of the cheaper DTT packages will force ARPU down in most countries.

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The Satellite Markets 25 Index™

Company Name	Symbol	Price (Feb 04)	% Change from Last Month	52-wk Range		% change from 52-wk High
Satellite Operators						
Asia Satellite Telecommunications	1135.HK	26.50	-1.49%	25.60	35.00	↓ 24.29%
Eutelsat Communications S.A.	ETL.PA	30.56	14.03%	22.205	30.84	↓ 0.92%
APT Satellite Holdings Ltd.	1045.HK	10.50	-4.20%	8.10	13.50	↓ 22.22%
Inmarsat Plc	ISAT.L	863.50	9.30%	653.00	865.00	↓ 0.17%
SES GLOBAL FDR	SES.F	32.30	9.12%	23.70	32.50	↓ 0.62%
Satellite and Component Manufacturers						
The Boeing Company	BA	147.75	13.63%	116.32	148.25	↓ 0.36%
COM DEV International Ltd.	CDV.TO	3.86	-4.22%	3.45	4.36	↓ 11.47%
Lockheed Martin Corporation	LMT	192.81	-0.48%	147.43	198.88	↓ 2.95%
Loral Space & Communications, Inc.	LORL	71.13	-8.70%	64.23	81.53	↓ 12.58%
Orbital Sciences Corp.	ORB	28.09	5.90%	22.00	34.16	↓ 17.42%
Ground Equipment Manufacturers						
C-Com Satellite Systems Inc.	CMLV	1.19	-13.77%	1.01	1.89	↓ 37.04%
Comtech Telecommunications Corp.	CMTL	34.23	8.29%	29.27	40.69	↓ 15.97%
Harris Corporation	HRS	69.05	-3.64%	60.78	79.32	↓ 12.83%
Honeywell International Inc.	HON	101.12	0.72%	82.89	103.92	↓ 2.72%
ViaSat Inc.	VSAT	56.77	-8.77%	51.50	74.78	↓ 24.15%
Satellite Service Providers						
Gilat Satellite Networks Ltd.	GILT	4.7380	-0.88%	4.42	5.71	↓ 17.02%
Globecom Systems Inc.	GCOM	14.10	0.00%	-	-	-
International Datacasting Corporation	IDC.TO	0.03	-60.00%	0.03	0.14	↓ 78.57%
ORBCOMM, Inc.	ORBC	5.68	-13.28%	5.40	8.10	↓ 29.88%
RRSat Global Communications Network Ltd	RRST	7.5399	4.29%	6.06	9.60	↓ 21.46%
Consumer Satellite Services						
British Sky Broadcasting Group plc	BSYBY	55.74	5.41%	-	-	-
DIRECTV	DTV	88.07	1.59%	68.07	89.46	↓ 1.58%
Dish Network Corp.	DISH	76.92	6.32%	55.45	79.57	↓ 2.84%
Globalstar Inc.	GSAT	2.4750	-7.65%	1.56	4.53	↓ 45.47%
Sirius XM Holdings Inc.	SIRI	3.61	3.59%	2.98	3.66	↓ 1.37%

INDEX	Index Value (Feb 04)	% Change from Last Month	% Change Jan. 02, 2015
Satellite Markets 25 Index™	1,928.26	5.11%	5.11%
S & P 500	2,046.99	-0.64%	-0.64%

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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