

ISSUE 36 | JANUARY 2015

SATELLITE PRO

TECHNOLOGY INTELLIGENCE FOR THE SATCOM MARKET

MIDDLE EAST

GROUND CONTROL

Teleports evolve to address increased traffic

DIGITAL OIL FIELDS

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CHARTING THE COURSE

Ahmed Ali Al Shamsi, CTO of Thuraya, on the power of increased diversification across various verticals



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A New Beginning

Happy New Year, loyal readers. Another year has gone by and the satellite industry is only going from strength to strength. With the successful launch of so many satellites last year, not only have companies created new constellations, but also replaced aging birds. Satellite communications through MSS is at an all-time high, with almost every satellite vertical industry reaping the benefits of limitless connectivity.

The cost of satellite handsets have come down too, and with consistently evolving technology, being connected wherever you are in the world is now closer than ever. Throughput rates are improving, and with technology like 4G covering most countries, it's only expected to want those sort of bit rates through your satellite device. Companies like Thuraya and Inmarsat are helping the world achieve this, one step at a time, and who knows, 2015 might just be the year when everyone decides to get a satellite handset, albeit even for casual use.

On the homefront, EIAST is continually expanding its presence through initiatives like the Cubesat mission and its HAPS pseudo satellite. It has even tied up with the Higher Colleges of Technology, to recruit candidates that are interested in furthering UAE's space mission. Needless to say, a lot of young engineers have a brilliant future to look forward to, considering the clearly defined agendas of EIAST, and what they want to achieve in the next few years. Kudos to home-grown talent. If anything, that's what we need more of.

I'm curious to know what plans the rest of you in the industry have got brewing for 2015. A brand new year, full of opportunities and promise. It is the innate coherence of this industry that allows us to come up with services and products that clearly define the roadmap for growth. In no other industry has competitiveness taken a back seat, and the will to innovate been pushed forward. Continuing this way is the only way forward, because as we know, the pie is big enough for us all.

Clayton Vallabhan
Editor

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"We continue to select channel partners based on the quality of their programming, whilst serving our diverse and culturally rich viewers."

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"As bandwidth-hungry applications increase, teleports present a viable solution for higher bandwidth throughput, and cost-effectiveness."

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"In the past, there was a big gap between terrestrial and satellite industries, but we at Thuraya played a good role in bringing both industries closer."

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"For many customers, backward compatibility with existing hardware and existing satellite capacity is important, as is not being restricted to a single operator."

Jean-Philippe Gillet, VP, EMEA, Sales, Intelsat
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Today Sky Stream has established itself as a leading provider of managed and turnkey VSAT solutions across the Middle East, North Africa and South-West Asia for customers engaged in the Marine, Military and Oil and Gas sectors. Sky Stream provides flexible solutions to meet the ever changing demands of its customers, including the design, build and operation of networks. Its state-of-the-art control centre and hubs are complemented by a highly qualified and experienced team of engineers, project managers and customer service personnel.

Extreme conditions call for
exceptional connections

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Cisco is highlighting the concept of connected homes at IBC Content Everywhere MENA. The display will show the possibilities where everything and everyone is connected

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HTS: Focus on Applications

Jean-Philippe Gillet, Vice President, Europe, Middle East and Africa, Intelsat, says that network operators must focus on applications and not spectrum in order to take full advantage of HTS



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Thales Alenia Space to supply optical payload for UAE's Falcon Eye programme



Thales Alenia Space has been selected by the United Arab Emirates Air Force (UAEAF) to develop the very-high-resolution payload for their Falcon Eye programme, within the scope of a consortium led by Airbus Defence and Space. This contract was officially signed by the United Arab Emirates in August 2014 and is now entering into force. The contract includes building two satellites offering very-high-resolution optical capabilities and a ground

system for monitoring, receiving and processing images, as well as a training programme for the engineers from the UAE who will control and operate the satellites once in orbit.

"This contract with the UAEAF culminates a long effort by our teams with a total support of the French government, the French Ministry of Defence in particular. It underlines once again Thales Alenia Space's unique capabilities in high-resolution optical observation systems," said Jean-Loïc Galle, President and CEO of Thales Alenia Space.

www.thalesgroup.com

ARABSAT DELIVERS NEW SATELLITE HUB TO STC

As part of Arabsat and STC's long-term partnership, Arabsat has announced the successful accomplishment of its project with STC to renew and upgrade its satellite hub in Riyadh (Dirab), and eventually to support STC in the region by providing premium satellite communication and broadband services to both private and governmental sectors.

Khalid Balkheyour, President and CEO of Arabsat, said:

"The multi-million dollar renewal allows reliable communications throughout Arabsat Badr-5, the new state-of-the-art satellite on 26°E, with an extensive footprint which facilitates the operations of STC with high throughput links. Arabsat and STC continue to work very closely to enhance their presence in domestic and international markets."

Abdul Aziz AlSugair, chairman of the board of STC, said: "The establishment of the station, in partnership with Arabsat, will endorse the depth of experience in both organisations, in the field of developing communications services."



www.arabsat.com

INMARSAT AND ESA PARTNER FOR EUROPEAN AIR TRAFFIC MANAGEMENT

Inmarsat has announced that SwiftBroadband Safety will play an integral part in the future of European air traffic management (ATM) infrastructure. The announcement follows the signing of a contract between Inmarsat and the European Space Agency (ESA) for the Iris Precursor partnership at the House of Commons in London.

The Iris Precursor partnership will upgrade SwiftBroadband to meet the demanding standards set for ground-based VHF data links. This will enable Single European Skies ATM Research (SESAR) flight management concepts, where flight plans can be continually updated during flight to maintain an optimal trajectory to destination. These

trajectory management concepts allow air traffic control to offer better routings, sequence aircraft far in advance and maximise airport and airspace capacity. This benefits air operators by reducing flight time and airborne holding. It also supports other concepts, such as continuous descent operations. The combined effect is less fuel burn, reduced delays and lower CO₂ emissions.

Using SwiftBroadband to enable Iris is an extension of Inmarsat's over 20 years of experience as the leading provider of safety communications to 98% of airlines. This partnership is the next step in developing SwiftBroadband Safety, which has recently begun flight trials for oceanic

operational approvals. It is being developed in coordination with a dedicated project in the frame of the SESAR programme, P15.02.05 (also known as Iris Precursor), with pre-operational flight trials in 2016.

The Iris Precursor partnership results from a major funding commitment approved at ESA's 2012 Ministerial Council, with the UK as the main contributor, followed by Denmark, Norway, the Netherlands, Ireland and Portugal. Under the ESA Iris Precursor partnership, SwiftBroadband will be upgraded to provide a satellite overlay to terrestrial VHF networks.

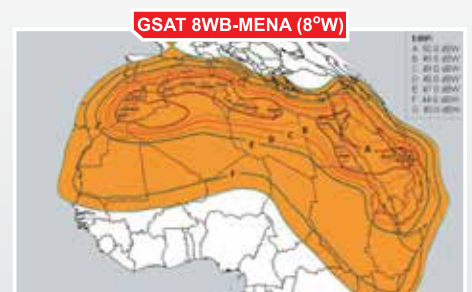
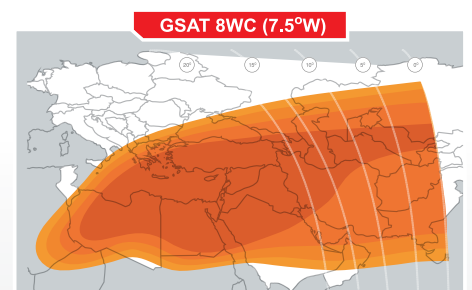
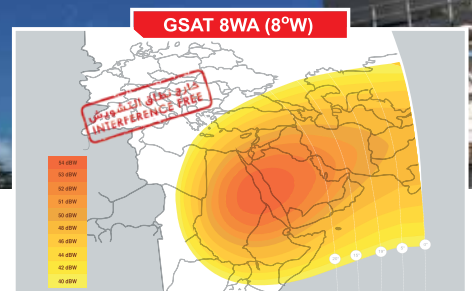
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Yahlive adds African TV channel Clouds TV to East beam

Yahlive has added African station Clouds TV International to its portfolio. Clouds TV joins Yahlive's growing portfolio of channels broadcasting from the East Beam across the Levant, GCC and Southwest Asia, with immediate activation.

With this addition, Yahlive aims to cater to the African communities, another key audience, and further drive success into 2015.

Focused on delivering entertainment programming to audiences across the African diaspora as well as lovers of world beat music, Clouds TV International will contribute to the continuing expansion of Yahlive's geographical and viewer traction across the priority East Beam region. The addition is also a demonstration of Yahlive's ongoing commitment to catering to diverse cultures and interests, bringing on board the most in-demand entertainment channels.

Speaking about the addition, Sami



Sami Boustany,
CEO, Yahlive.

Boustany, CEO of Yahlive, said: "We are delighted Clouds TV International has joined Yahlive's fast-growing satellite platform. We continue to select channel partners based on the quality of their programming, whilst serving our diverse and culturally rich viewers. As a result, the new addition is consistent with the

company's ongoing growth trajectory and in line with the East Beam's strategic focus to meet the needs of regional audiences across the Middle East, North Africa and Southwest Asia."

Joseph Kusaga, CEO of Clouds TV International, called the launch of Clouds TV International on Yahlive "the fulfilment of a vision we have had as an organisation for several years now to bring quality entertainment to the rapidly growing African diaspora within the GCC.

"Until now, there has been no broadcast medium targeting this demographic and I am proud to say today that Clouds TV International, with our partner Yahlive, is here to fill that void and to deliver the very best in programming from across the continent of Africa to our viewers, and to deliver exceptional ROI for our advertisers and sponsors."

www.yahlive.com

THURAYA UNVEILS VALUE-BASED SATELLITE PHONE

Thuraya has launched the first industry value-based satellite phone, Thuraya XT-LITE. The entry-level satellite phone provides users with instant satellite connectivity at unbeatable value. The Thuraya XT-LITE is built to make phone calls and send SMS messages in satellite mode anywhere under Thuraya's comprehensive satellite network.



Rashid Baba, Director of Products at Thuraya, said: "Thuraya XT-LITE addresses the demands of users who need a simple satellite phone for work or travel in areas unserved by terrestrial networks. People need to stay connected no matter where they go, and we will provide them with the most reliable and cost-effective way of doing this."

Thuraya XT-LITE allows users to enjoy ubiquitous coverage in remote areas that are under-served by terrestrial networks.

www.thuraya.com

ARIANESPACE LAUNCHES FOUR MORE O3B SATELLITES

Following the successful launches of the first eight O3b satellites in two batches, on June 25, 2013 and July 10, 2014, Arianespace has orbited four new satellites in the O3b constellation. The 10th Soyuz launch from the Guiana Space Centre, Europe's spaceport in French Guiana, took place on Thursday, December 18 at 3:37 pm local time.

With this launch, Arianespace continues to deploy the O3b satellite constellation into an equatorial circular orbit, to provide high-speed, low-cost, low-latency internet access to emerging markets in Asia, Africa, Latin America, Australia and the Middle East. The coverage zone includes nearly 180 countries and the "other 3 billion" (O3b) inhabitants of the planet who do not yet enjoy broadband internet connectivity.

With the 11th launch of the year, Arianespace set a new all-time record since the introduction of its family of launchers, and passes the cumulative mark of 500 satellites orbited.

www.arianespace.com

INTELSAT APPOINTS DEPUTY CEO

Intelsat has announced that current Intelsat president and Chief Commercial Officer Stephen Spengler has been promoted to Deputy CEO, effective immediately. Under the company's succession plan, Intelsat chairman and CEO David McGlade will transition to the position of Executive Chairman, effective April 1, 2015, at which time Spengler will become CEO. Mr McGlade will have served as CEO for 10 years.



Spengler has been with Intelsat in various executive positions since 2003, including Executive Vice President, Sales, Marketing and Strategy, and has nearly 30 years' experience in the satellite and telecommunications industry. He has also overseen the development of Intelsat's next generation platform.

www.intelsat.com

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EIAST signs MoU with Higher Colleges of Technology

➤ Aiming to strengthen its relationship with academic institutions in the UAE, EIAST has signed a Memorandum of Understanding with the Higher Colleges of Technology (HCT). The MoU is in line with both parties' strategic visions, which aim to build local specialised talents for the benefit of the UAE.

The MoU aims to develop local human resources and prepare them to work in the field of space technology, and to contribute in developing space sciences in the UAE. H.E. Yousuf Al Shaibani, Director General, Emirates Institution for Advanced Science and Technology, and Dr Tayeb Kamali, Vice Chancellor of the Higher colleges of Technology, signed the MoU in the presence of senior officials from both sides.

According to the MoU, HCT will create and adjust its academic and training programmes in science majors related to the field of space and satellite technology, in order to better serve the UAE's public interest. In return, EIAST will create job opportunities for distinguished graduates who leave a mark



H.E. Yousuf Al Shaibani, DG, EIAST, and Dr Tayeb Kamali, Vice Chancellor of HCT.

in science, technology and space projects, in addition to providing scholarships for engineering and technology students who excel in their studies.

Al Shaibani said: "The MoU is the first agreement of its kind between EIAST and a leading academic institution in the UAE that hosts highly qualified talents. Furthermore, it is in line with our vision to train university students within the technology and space industry. We are confident that our cooperation with HCT will bear fruit. Both parties are keen to introduce new majors and programmes related to space sciences, in keeping with the national strategy for innovation."

+ www.eiast.ae

ERICSSON AND ETHIOPIA TELECOM TRANSFORM NETWORK IN ETHIOPIA

Ericsson has signed a framework agreement on 2G/3G mobile communication equipment and related services – such as design, planning, deployment, tuning and optimisation – with Ethio Telecom. The agreement allows Ethio Telecom to further improve the capacity and performance of its 2G/3G network. This will consequently ensure improved quality of network coverage, and richer, more innovative mobile communication services for subscribers in southern Ethiopia.

The agreement with Ericsson will be used for the procurement of Ericsson products and services, aiming to transform the current network and add additional capacity.

+ www.ericsson.com

MEMBERS TO BENEFIT FROM EUTELSAT'S GSM DEMODULATION TOOL

Members of the Satellite Interference Reduction Group (IRG) are to benefit from a new GSM demodulation tool developed by Eutelsat, offered to all IRG members including new members joining in 2015. The tool, demonstrated by Eutelsat at the recent IRG workshop in London, uses a simple detector unit, a PC and mapping software to locate GSM beacons. In most cases, the unit detects the mobile cell being received and thus pinpoints one or a number of VSAT terminals in the area that are generating interference.



Martin Coleman

The tool has been developed to identify GSM retransmission interference, which can result from incorrectly installed or maintained RF cables connecting a modem to a block upconverter.

"This GSM demodulation tool is an elegant solution which can quickly and efficiently identify the impact of GSM retransmissions," commented Martin Coleman, Executive Director, IRG.

+ www.eutelsat.com

THURAYA TELECOMMUNICATIONS PARTNERS WITH INSI

Thuraya has announced a partnership with the International News Safety Institute (INSI). The partnership addresses the rising need for safety training to protect journalists working in difficult and dangerous environments around the world. Sealed at EuroVision's News Xchange conference on November 13, the partnership includes sponsorship of a Thuraya SatSleeve and airtime that will be

used in INSI's safety preparation workshops.

John Huddle, head of Media & Broadcast at Thuraya, said: "News organisations are looking towards more innovative, portable and easy-to-use solutions to help them deliver news no matter where they are. Thuraya's sponsorship of the SatSleeve illustrates news organisations' reliance on highly reliable, easy-to-use and lightweight mobile satellite products that will protect journalists while accommodating the breaking news cycle. Over the last three years, Thuraya has supported non-profit organisations such as the Rory Peck Trust, Sebastian Meyer's Metrography in Iraq and Global Voices."



+ www.thuraya.com

+ www.newssafety.com

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



Charting The Course

Ahmed Ali Al Shamsi, CTO of Thuraya, speaks with Clayton Vallabhan about how the company is moving towards increased diversification, in order to bring its services to vertical industries as well as end users

Thuraya Telecommunications Company is a mobile satellite communications company that started off in 1997. The company believes in empowering people with tools to bring the organisations and communities they serve closer together.

Its global customers include industry leaders from a variety of sectors including energy, media, marine, military, government and NGOs. With a network covering two thirds of the world via satellite and across the globe through its GSM roaming capabilities, the company has gone from strength to strength every year and is backed by industry heavyweights. Board members include Ahmed Julfar, the Group CEO of Etisalat, and Khalid Balkheyour, President and CEO of Arabsat.

Ahmed Ali Al Shamsi, CTO of Thuraya, explains how the company found its roots: "It was in the early nineties when GSM started to be deployed in the market. At the same time there was a growing market for satellite broadcast in the region and new ideas of satellite constellation for

MSS (Mobile Satellite Services). At that time, we studied the satellite market to see what we can do. Definitely there was a strong demand for BSS (Broadcast Satellite Services) in that region, but the idea of MSS systems was growing fast. As a telecom company, the focus on the MSS was a natural behaviour, especially since the market study showed that it was a complementary growth to the GSM and a unique system and industry that we would like to grow and lead in the region."

Thuraya went forward with that idea, and at the time it was quite a challenge to produce compact satellite phones. The company took on the challenge and showed the industry that this was something that could be done. "The phone we developed was the smallest in the market, and had an extremely user-friendly interface. Today we continue to do this and innovate to bring additional features to that technology.

"We were the first MSS company in the region. We were the first company to own and operate a satellite in the UAE.

Etisalat was leading the project and it was able with key shareholders to form the company in 1997, and from there we grew,” says Al Shamsi.

Thuraya currently operates two satellites in geo-stationary orbit. Thuraya 2 covers Africa, Europe, the Middle East and part of Asia, up to India and China. This satellite is positioned at 44 degrees East, and was launched in 2003. The other satellite, Thuraya 3, covers the Far East, Australia and Japan at the 98.5 degrees East orbital position. It was launched in 2008. Thuraya’s coverage spans 160 countries, and in addition to the normal coverage it also offers a roaming service. This enables users to also use some of its handsets over a GSM network. For instance the XT Dual handset allows users to access the GSM network, whereas in the XT, a GSM SIM or a Thuraya SIM card can be used in the phone. Al Shamsi says that Thuraya is the only operator to do this, and it has an overlay coverage for roaming and satellite access.

There is a central facility in Sharjah where all the Thuraya gateways are stationed. This facility houses the voice and packet gateways for Thuraya 2 and Thuraya 3. Moreover, Thuraya uses core networks designed by Ericsson and Huawei and based on GSM, allowing smoother workflow with MNOs.

As the company grew, the corresponding growth of terrestrial mobile services via GSM brought new factors into the equation. Also, in the satellite industry there was a shift and overlap between FSS (Fixed Satellite Services) and MSS, as there is now between FSS and BSS, because the customer needs mobility and more IP throughput. Currently, there is a major overlap between FSS and MSS, especially in the maritime area.

“There was a lot of VSAT deployment when FSS was trying to tap the mobile segment and provide more throughput. Between the FSS and BSS, the boundaries started to blur. Personally, I feel this might happen as well for BSS. The reason is because today, no one sits at home and watches TV. That market is reducing. People watch what they want on their smartphones, tablets and even on TV when they went and based on what they want,

and that can be achieved through IP links. They download the movies that they like at any time at any location.

“This becomes an IP pipe rather than just TV streaming, and the customer is educated about this and expects it. They would also like to see this in the satellite segment, and it will come. So what’s going to happen is that FSS might again draw from the share of BSS and vice versa, because it’s going to be an IP pipe at the end. They have to provide a different service that can distinguish each market, otherwise there will be too much overlap between these sectors,” explains Al Shamsi.

“The world now is looking at high throughput satellites, where customers

“We were the first MSS company in the region. We were the first company to own and operate a satellite in the UAE... With key shareholders to form the company in 1997 we grew”

can get more bits at a lower cost. The challenge here is how small you can make devices for HTS services. Also, the mobility will be a big challenge here for certain market sectors.

“In the past, there was a big gap between terrestrial and satellite industries and not enough synergy, but we at Thuraya played a good role in bringing both industries closer to each other and tried to close this gap by bringing innovative solutions like Thuraya SatSleeve and Thuraya GSM, in addition to having good partnership relations with big MNOs like Softbank Mobile in Japan, SMART in the Philippines and Airtel in many African countries. Also, I can see more synergy happening in the coming years because the satellite might play a role there to

bring the services that do not need high throughput or a big pipe but can benefit from the large coverage that satellite can provide. An example of this is services like M2M, which might be an area where satellite and terrestrial can collaborate together to bring more value to the customer, with a smaller device. A device which can work on both systems.

“We tried to do similar things with Thuraya’s SatSleeve, and we were successful with that. It was well received by different people, and we are trying to push for MNOs to take this further and use it. It allows the use of GSM, along with a satellite component there to help you if you need it.”

With terrestrial networks trying to bring in additional services without investing a lot more, it’s only natural to partner with satellite players. This will allow telecoms companies to introduce solutions by using the current infrastructure, and satellite can also add to growing the current infrastructure further.

DIVERSIFICATION IS KEY

Al Shamsi says: “In the last few years, Thuraya has done different things to grow the company. Some of these areas are in distribution, technology, customer care and upgrading the systems, and bringing new products and solutions. Today when you look at IP and data services, the terminal becomes an enabler and what matters are the services, application and solutions around it. You need the customer to have a solution and applications that can work with that. What we have done is introduce many solutions, and the way we have done it is by allowing third parties to bring their own solutions that can work over Thuraya data terminals through IP or GmPRS links. We optimise the configuration of the solution in a way that will produce the best performance, and then we certify those solutions within Thuraya to allow the users to utilise them over our network. Once the solution is certified, we promote it to our customers to enjoy using it with Thuraya products and affordable packages.

“It’s important that when you do this, you don’t bring it to one specific



sector. Thuraya products are designed to serve multiple market sectors, so that's why we have introduced multiple types of terminals. We introduced data services in the handsets too. The initial Thuraya phones offered only voice communications, but now we have GmPRS built into the device with 60kbps down and 14kbps up."

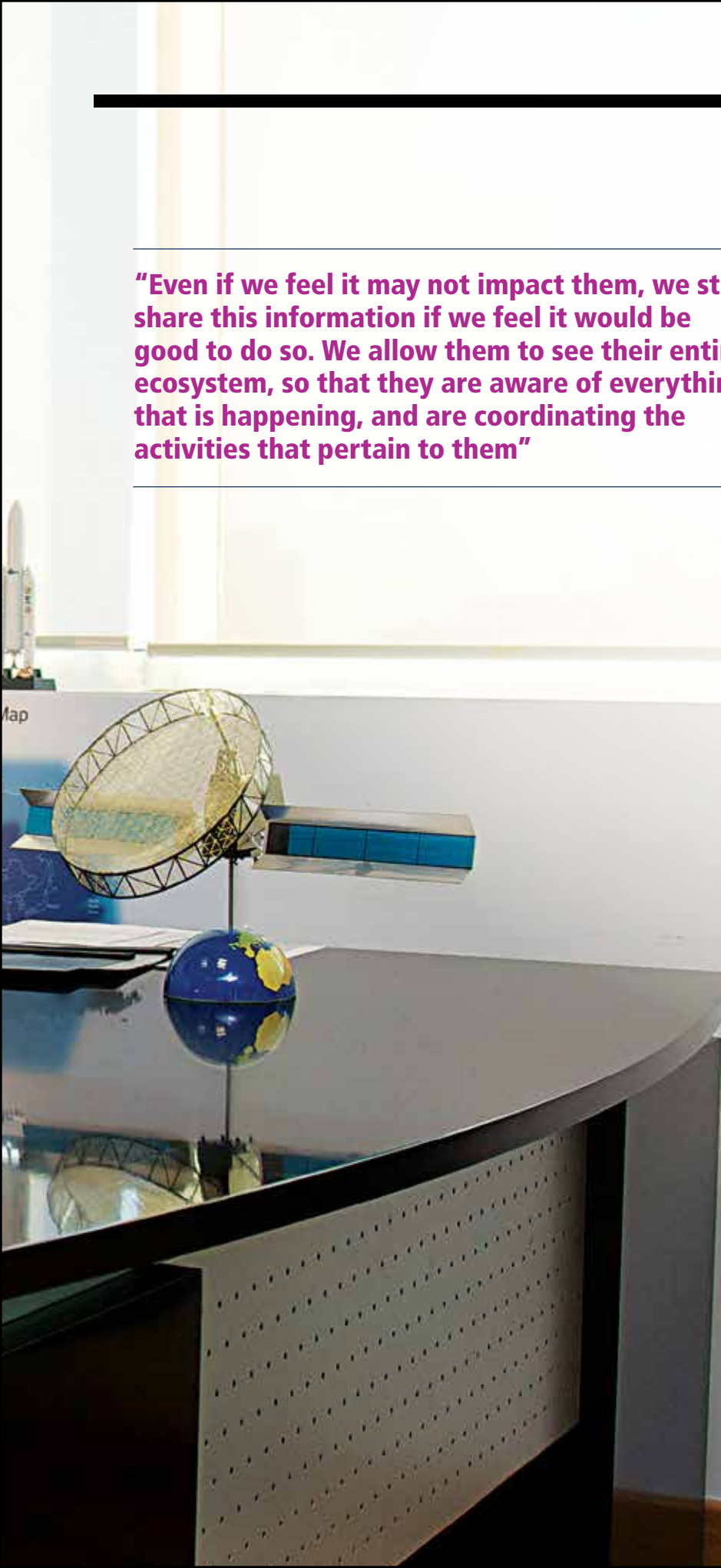
Thuraya has also changed the way it handles customer care. Al Shamsi explains that the company is very transparent with its partners and proactively informs them about any changes or upgrades in the systems. "Even if we know that such activities may not impact them, we still share this information if we feel it would be good to do so. We allow them to see the entire ecosystem so that they are aware of everything that is happening, and are coordinating the activities that pertain to them.

"We have received fantastic feedback

Al Shamsi: The initial Thuraya phones offered only voice communications, but now we have GmPRS built into the device with 60kbps down and 14kbps up.





A photograph of a desk with a model of a satellite dish and a globe. The dish is a large, gold-colored parabolic antenna mounted on a stand. The globe is a small, blue and yellow Earth model. The desk is white with a perforated metal front panel. In the background, there is a map and a small model of a rocket.

“Even if we feel it may not impact them, we still share this information if we feel it would be good to do so. We allow them to see their entire ecosystem, so that they are aware of everything that is happening, and are coordinating the activities that pertain to them”

and have managed to change the way that customers perceive Thuraya. The customer care and after sale support is what the customer is looking for. If you give them the best terminal and run away, they will not be happy because it is not what they've purchased the service for.”

The third change is actually in the system. Thuraya has created a five-year plan where it changes most of the critical components in the system. “We have done this over the last three years. We've changed elements starting from radio parts up to the core network. This was done element by element to maintain the system stability, and to provide the best availability and reliability figures. Thuraya network availability is the highest, and even better than some of the terrestrial networks. This made our customers really happy, and changed the perception and the way the customers regarded Thuraya. In addition, the flexibility of Thuraya system design and the capability and power of its satellites allowed it to tailor and introduce innovative products and solutions to the customers, by using the existing satellites.”

At the same time, Thuraya produced products to address multiple sectors. It introduced the Voyager series, which multiple customers can use, whether for the oil and gas sector, military purposes or for the media. In addition, Thuraya initially entered the maritime sector only with voice only terminals, but it is now introducing data services through the Orion and Atlas range of broadband terminals. Al Shamsi indicates that Thuraya has tested the market by allowing customers to use the Thuraya IP with a maritime antenna, and the results were successful.

“We have different packages in maritime, with different prices. There are also different features necessary for this customer which we've added on, like the SOS key for helping others in distress. In the voice side it's the same thing, where we're trying to attract the GSM customers and MNOs to use our systems. There is the Android SatSleeve and the iPhone SatSleeve.

“We even have the XT series of handsets,

which is very popular. We've recently launched the XT LITE, which allows people to use the handset casually and provides you the basic functionality that you need from a satellite phone. It has a very good battery life and a great quality of service. The phone, in terms of registration to satellite, is very fast. The quality of voice is very clear and comparable to GSM. In fact, people don't believe it's a satellite phone. There is also the ruggedness of the phone. We have customers who have said that it fell multiple times from their hands, but the phone was still working. Furthermore, it has a very easy-to-use MMI, and the price is a key point which is extremely competitive to others in the market. It is definitely one of the best satellite phones in the market today."

Thuraya serves many different types of customers, and Al Shamsi says the company always tries to have diversity. It has customers from the ranks of VIPs and government, media, maritime, and oil and gas, as well as individuals who use the handsets. Al Shamsi credits this diversity with keeping the company healthy, and the company intends to try and expand this.

"We are introducing M2M, which is a different sector that can help oil and gas and shipping. Hopefully by next year we should get that ready for our customers. The key thing for oil and gas is deployment. When oil companies go out for exploration, it is a very short period and there is a need to have mobile equipment that can be easily carried from one area to another. The Thuraya terminal is very easy to be deployed and very easy to use. The package is very easy, where you can have streaming with the standard package or an unlimited package where you can use it for whatever you need. So it's really the right solution for them.

"We have also introduced Thuraya GSM, where it enables the customers to use their own ordinary GSM phones over Thuraya coverage. The beauty here is that we can change the way the device is used for different sectors, so our customers are happy. The unlimited package, with the price point which we set, is loved by our customers. We've especially seen this in certain countries like Africa, where people

love to use this very reliable system, where connectivity is always there. Users can look at their budgets clearly, which makes it different from services like VSAT where you have to book it and charges follow accordingly. This is dynamic, and that is one of the beautiful things with dynamic resource allocations, where you will get it when you need it and you will not be charged extra for it, it's a one-time charge for all you can eat."

Likewise, Thuraya has also been busy in the maritime sector. Al Shamsi says it has done three main things. "We have introduced narrow band, which provides voice and GPRS functionality through Seagull. It was very well received by the

"Innovation is something we have in our spirit. We don't like to copy things from others, or do routine things. We have done this since day one, and were a pioneer to introduce multiple products in the industry"

customers and it is very cost-effective. We also introduced SF2500 for the fishery industry. It's got the same scale as the Seagull, with voice and SMS facilities, as well as geo-fencing, which allows to control the boat as well. We launched this in multiple areas – our customers in the Far East were happy with it, and use it for crew calling as well. After that we allowed customers to integrate Thuraya IP with a maritime antenna. We did this to further penetrate the maritime market, and it was successful. The pricing was perfect. In fact, at a time when competitors were increasing their pricing, we were keeping our prices the same and even attempting to lower them.

"We then introduced Orion, which is specifically for maritime, and now we're coming out with a new range called Atlas. The sales of the Orion terminal were overwhelming, and we have sold out all our stock and are now reordering to keep up with the demand. Additionally, we have hired a lot of new employees in the company to work solely on the maritime side of our business, as we are really focusing on this sector and intend to grow our market share in 2015."

KEY TO SUCCESS

"Our distribution and pricing has encouraged more customers to work with Thuraya. The trust has already been built, and many partners have moved to us because they have seen the performance and quality of service we offer with our terminals. In fact, we have a culture to serve and improve life that is at the core of the team that works with us. We strive to help people who need help, either in emergencies or disasters. This is what we are good at, and that is what drives our team to always go a step beyond. This is proven with Thuraya achieving double-digit growth while the competitor revenue is either stagnant or dipping," says Al Shamsi.

In 2014, Thuraya signed agreements with different partners like Smart and Airtel in Africa. Al Shamsi says that in the year to come the company is going to grow on this and strengthen its partnerships.

"There will also be a few product releases which will come at the right time for the right sector. Innovation is something we have in our spirit. We don't like to copy things from others, or do routine things. We have done this since day one, and were a pioneer to introduce multiple products in the industry. Prepaid and postpaid MSS, along with roaming, is another example of Thuraya's innovation. We were the first to introduce the smallest handset, the SatSleeve, and others. We will continue to do this and come up with different products and solutions that are innovative, affordable and something that will always surprise the customer," concludes Al Shamsi. **PRO**



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Ground Control

With increasing traffic through satellite communication, broadcasting and backhaul, *SatellitePro ME* takes a look at how ground-based infrastructure is evolving to take on the challenge



Teleports nowadays are having to deal with an increase in satellite communications on the go, and backhaul for clients. This creates growing demand for evolution of teleports, and the need to be future-ready.

In essence, a teleport is a ground station providing access to satellites – possibly from a single antenna, but more probably with multiple antennas pointing to multiple satellites – to serve remote antennas in either a point-to-point or point-to-multi-point (broadcast) topology. Teleports also provide interconnection to the national infrastructure for internet, PSTN and leased lines for user services.

Roger Boddy, CEO of Global Teleports, says: “Since the inception of satellite communications into the international infrastructure, participating nations have provided international gateway teleports primarily for telephony service. Having said that, the initial broadcast by Telstar was analogue video.

“It is a fact that many international gateway teleports’ contribution to their hosts’ revenues was in excess of 50%, but the capital expenditure being amortised over 25 years meant their impact on the balance sheet was negligible – so it was overlooked when it came time to report to shareholders.



“Since the inception of satellite communications into the international infrastructure, participating nations provided international gateway teleports primarily for telephony service.”

ROGER BODDY, CEO of Global Teleports

C&W reports and accounts focused on the billions being paid for sub-sea cables and supporting vessel upkeep, with very little coverage of the ROI from their satellite ground station [teleport] investments – which at the time were accounting for 55% of group profits,” continues Boddy.

Manuela Leitner, GM of Horizon Teleports, adds that with video and media traffic, teleports are facing an increasing demand. Satellite television first hit the market in the early 1990s, and now DTH broadcasting is rapidly increasing in regions such as the Middle East. “The content and TV signal will be managed by teleports depending on the client’s requests and on the target region. In this way, teleports can

distribute the broadcaster’s content directly via satellite to the home viewers in different formats from SD, DH or even 3D to the target region, to cable operators and IPTV platforms. Content from remote sources such as satellite news gathering (SNG) units can be transmitted via satellite to the studio or to the teleport.

“As bandwidth-hungry applications increase, teleports present a viable solution for higher bandwidth throughput and cost-effectiveness. The growing demand for bandwidth arises from services such as mobile applications, VoIP and GSM backhaul; to extend cellular coverage as an alternative or backup to terrestrial links; broadcasting – the contribution and distribution of programmes; and internet broadband services for networks and large satellite links.

“Teleports are capable of covering the growth in use of satcoms and backhaul, by using effective satellites with strong coverage and top-of-the-line equipment using the latest technology with best possible modulation – such as DVB-S2 or extended DVB-S2X, ACM option (Adaptive Coding and Modulation) – in order to maximise throughput regardless of link conditions, and carrier-in-carrier solutions,” explains Leitner.

So what happens in the event of downtime? Jean-Philippe Gillet, VP Sales MENA at Intelsat, says there are two types of downtime: planned and unplanned.

“Planned downtime is a coordinated effort between the operator and the customer, and due to the auto-redundancy of our network design, it has no real impact on customer operations. An example of a planned outage would be an equipment upgrade. When these operations are



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necessary, we coordinate with customers and use a restoration antenna to provide services while we complete the upgrades. Unplanned downtime occurs when there is equipment failure or degradation in the network. We have triple fibre redundancy at all of our commercial teleports, and our auto-switching redundancy keeps customer services online during any unplanned downtime. While customer operations continue via our redundant pathways, we fix the main path," says Gillet.

Boddy takes this a step further and explains that if designed correctly, the infrastructure of a teleport will include equipment redundancy to minimise the options for single point failure, with equipment held in either hot or cold standby.

"Hot standby is the term applied to

a component that is powered up and connected into the infrastructure ready to be switched into service, either manually or automatically (triggered by fault alarm). Cold standby is used to describe spare equipment that is kept on the shelf in readiness for use if required. Typically, a cold spare will be used to replace a faulty unit that has been hot switched out of use. The faulty unit is then replaced or repaired to become the cold standby unit. Service level agreements [SLAs] are an essential part of managing the customers' expectations. An SLA will define realistic time scales for problem-solving and escalation of attention. All events are logged."

Different teleports handle different satellite frequency bands. Most teleports handle spectra from C-band, Ku-band and

Ka-band services. While Ka-band satellite services have gained traction and general customer acceptance, traditional Ku-band SATCOM is generally known as the preferred band for applications such as broadband internet, GSM backhaul, direct-to-home TV and satellite networks. However, Ka-band does not fit all applications and environments.

"When Ku-band systems first started in the 1980s, many experts speculated that C-band would disappear from use in VSAT applications. However, it has turned out to be the opposite, as C-band continues to grow and remain an important band in industrial, military and especially maritime applications, where atmospheric attenuation is particularly acute. C-band is well suited to robust connections in equatorial countries in order to avoid rain fade and overcome the impact of heavy rain.

"By comparison, the Ka-band is sensitive to rain fade, has only spot-beams and can only be used from some gateways of the satellite provider, which could cause unwanted dependency for clients. In general, all frequency bands have their place in satellite communications and choosing the right provider is essential, as they would be able to guide the customer in selecting the



"As bandwidth-hungry applications increase, teleports present a viable solution for higher bandwidth throughput and cost-effectiveness"

MANUELA LEITNER, GM of Horizon Teleports



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right band for their specific application,” says Leitner.

Intelsat predominantly uses C-band and Ku-band. “We also have small packets of Ka-band services. In the government sector, there is also S-band and X-band. In general, all frequency bands have their place in satellite communications. It is the application environment that tends to determine the appropriate band, so teleports should be able to work with all bands to help provide the best value for the customer,” says Gillet.

He adds that the biggest changes he sees in the teleport industry is that the electronics involved in teleport operations have been getting smaller. Operations that previously required multiple racks of electronics can now be conducted using a fraction of a rack. This has resulted in less need for HVAC and less overall power at the teleports, so utility costs tend to go down.

“With the full integration of our teleports with our satellite fleet, we have the ability to efficiently cover the entirety of the globe, connecting multiple locations spread over vast distances. The combination of bandwidth, services and support enables network operators to design networks that provide reliable capacity to all end users, whether they are in metro areas, suburban areas or the most remote regions of their country. Many of our customers are doing business in multiple regions, and thus having a total solution with easy scalability



“Planned downtime is a coordinated effort between the operator and the customer, and due to the auto-redundancy of our network design, it has no real impact on customer operations.”

JEAN-PHILIPPE GILLET, VP Sales MENA at Intelsat

reduces complexity and operating costs from their standpoint,” says Gillet.

Boddy thinks the move to higher frequency bands, and improvements in technology and silicon chip manufacturing, have enabled smaller antennas at gateway Earth stations. “32-metre diameter gateway leviathans in 1963 have been replaced by 3.8m antennas, with VSAT antennas from 3.8m to 75cm now commonplace. Cryogenic cooled masers, travelling wave tubes and klystron amplifiers have given way to solid state amplifiers operating at ambient temperature, with low voltage dc supply requirement, as opposed to the three-phase needs of the TWTs and klystrons. And the computers used no longer require a dedicated clean room and massive magnetic storage drums. Today’s modern teleport can occupy far less real estate than the original international gateway Earth stations, and may be privately held and entrepreneurially managed.”

Leitner thinks one major point is the change from DVB-S modulation to DVB-S2, saving up to 30% of bandwidth. Moreover, the latest DVB-S2X extension uses even less bandwidth. The MPEG 4 compression format uses less bandwidth than the previous MPEG 2. Even for multiplexing, Horizon Teleports is using statistical multiplexing with VBR (variable bit-rates) to save bandwidth there as well.

Infrastructural changes have also made newer teleports more efficient. Leitner says: “At Horizon Teleports, we have significantly improved the infrastructure compared to teleports in earlier days, by using state-of-the-art equipment and implementing a comprehensive redundancy for all parts of the teleport. To connect antennas with the server room and the equipment, we earlier

used co-axial cable, but now we use fibre cables, which reduce the delay time and failure rate.

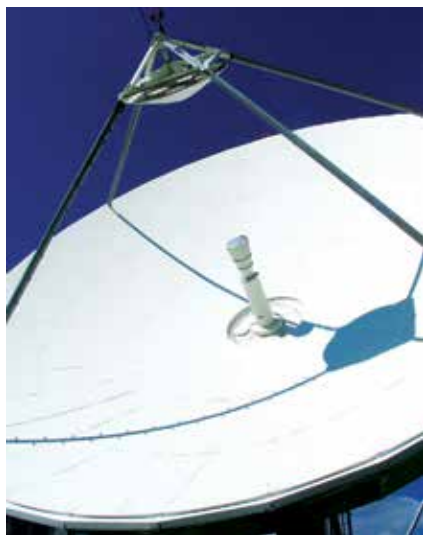
“In former times the antennas were made of steel or iron, but nowadays we use galvanised antennas, which are more durable and weather-resistant. We also use new generation antenna control units, which more precisely track satellites.”

Securing the facility

Per Roger Boddy, security has to be considered both at the physical level and from an operations viewpoint. The latter usually comes down to choosing the right IT platform and diligently updating software. The former is a staffing issue which must not be taken lightly. Any point of entry to a national network has to be secure from the threat of physical intrusion, as well as from cyber-attacks.

According to Gillet: “In regard to the physical infrastructure, we have a basic security posture at all of our teleports. For the network operations, the satellite operator is responsible for ensuring the availability of the service, or making sure the path between the customer hardware and the teleport is always available. We break the general security model into how we are protecting the perimeter and how we manage access to the network.

“For the elements of the system that are responsible for transport that we own, we maintain security measures on those. As the satellite operator, our goal is to gather as much information as possible on what is happening with network traffic in real time. For example, we have tools integrated into our ground network that allow us to mitigate denial of service attacks very quickly,” explains Gillet. **PRO**





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Connecting the **digital oil field**

Oil and gas exploration and production (E&P) is a high-stakes industry. There are multiple demands, such as safety, security, exploring new areas for oil and increasing visibility between the rig and headquarters, all while keeping operational costs in check. Therefore, rig operators are constantly being pressured to make faster decisions and run operations more efficiently.

Expensive rental costs and operations are the norm across the oil and gas industry. Data from IHS Petrodata shows that 2013 rental rates for jackup rigs averaged between \$100,000 and \$200,000, depending on the age of the rig and the depth it is capable of drilling. For semi-submersible rigs drilling in over 5,000 feet of water, average day rate

was between \$550,000 and \$600,000 depending on location around the globe.

Rigs and drill sites are also transitioning to more remote locations to search new areas for oil. On the offshore side, the investment in deep water drilling has yielded new discoveries of crude oil and is providing increased growth throughout the industry. In onshore operations, there

has been an increase in E&P tactics, such as fracking, that has pushed rigs into remote locations.

in developing territories. Pipeline operations are also growing, and energy companies need to meet an increased set of monitoring requirements such as pressure, temperature, flow rate and volume of gas produced.

As these trends continue to develop, oil and gas companies must rethink how to manage their operations. One way to improve is through satellite communications. This white paper explores the use of iDirect's advanced VSAT technology within the different segments of the energy industry. With satellite communications, rig operators will be able to make quick and more informed decisions, which will lower operating costs, raise productivity and provide safer working conditions for crew – regardless of location.

OFFSHORE EXPLORATION & PRODUCTION

The term 'offshore' in the energy industry generally refers to exploration or production activities beyond the coastline of a country, although there are a few exceptions on every continent. Inland waters, such as Lake Maracaibo in Venezuela, are often considered offshore.

Satellite communications is the de facto standard for communications with drilling rigs, drill ships and support vessels. and iDirect enjoys a commanding market share. The combination of iDirect's satellite routers with stabilised satellite antennas has become the mainstay of modern offshore communications, replacing expensive L-band satellite systems, which are usage-sensitive. iDirect's MPLS compatibility allows rigs and vessels to be integrated seamlessly into a corporate network and treated as remote campuses.

Due to the remoteness and inherent danger, energy companies impose strict safety protocols for operations on offshore drilling rigs. If there is a communication outage, drilling operations must cease. At the aforementioned day rates for offshore rigs, downtime is extremely costly and redundant satellite systems become the norm as the water depth increases.

In addition to office automation applications and voice communications, E&P companies, offshore drillers and oilfield service companies are demanding additional functionality to help drive down their cost of operations. One growing trend on offshore rigs and platforms is the integrated use of video in day-to-day operations. Video conferencing is certainly not new, but IP-based video solutions have accelerated the pervasiveness of video cameras on rigs and platforms.

Collaboration is helping drive the boom in video transmissions. Rather than

“Collaborative teams reduce the head count needed on drilling rigs and production platforms, thereby eliminating the cost of shuttling large numbers of employees back and forth. This also reduces the number of people who could potentially be in harm’s way”

operating as steel islands with significant autonomy, more and more offshore facilities have dedicated production teams assigned to them back on the beach. There are multiple benefits to this approach. The first is speed. Team meetings can be conducted in minutes via a satellite link, eliminating time-consuming and expensive helicopter trips back to land. Faster and better-informed decisions can shave days off the time it takes to drill a well, which translates into millions of dollars in savings.

Collaborative teams reduce the head count needed on drilling rigs and production platforms, thereby eliminating the cost of shuttling large numbers of employees back and forth by crew boat or helicopter. Fewer people onboard a rig also

reduces the number of people who could potentially be in harm's way should an accident occur.

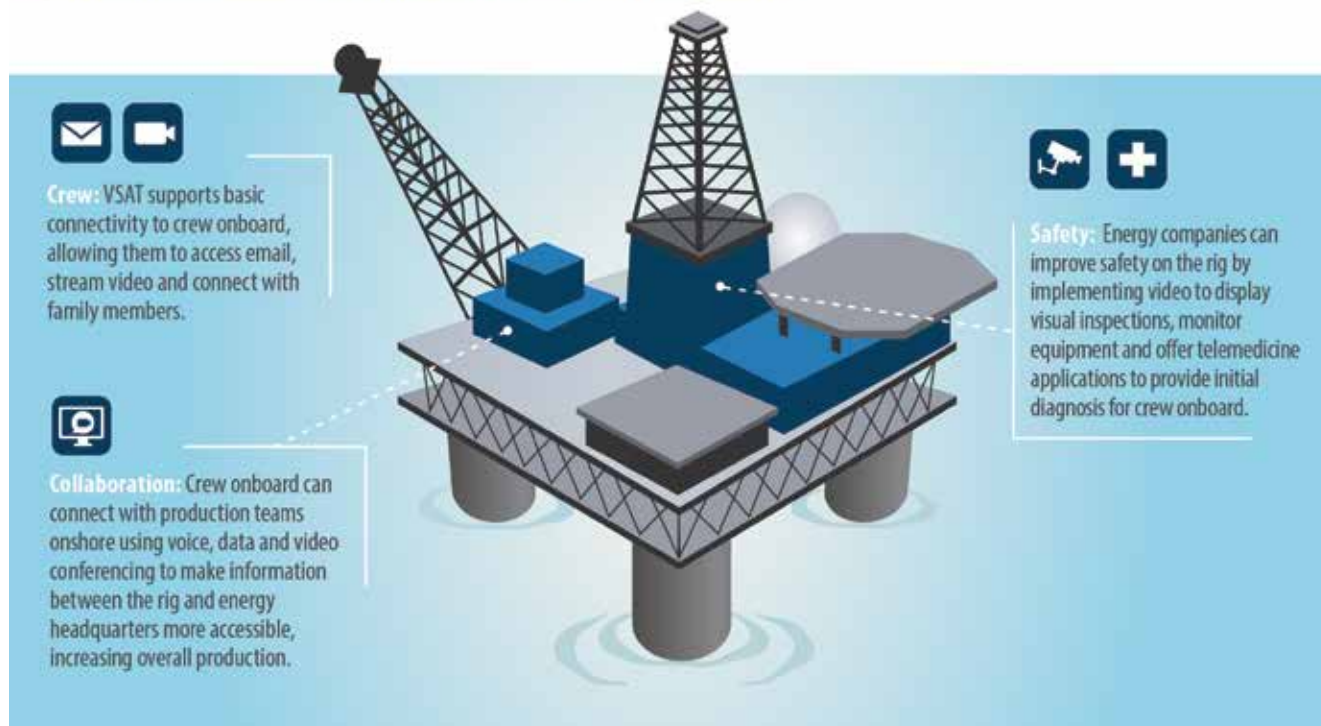
When severe weather, such as a cyclone or hurricane, threatens offshore facilities, all workers must be evacuated. After the storm, energy companies require a visual inspection of rigs and platforms to ensure they are safe for habitation. In basins like the Gulf of Mexico where there is significant offshore activity, even a modest storm can affect hundreds of rigs and platforms. There is tense competition between energy companies for a finite number of helicopters and fixed wing aircraft. The lost opportunity cost of a week's worth of production can be tens of millions of dollars. Video transmitted over satellite has also been successfully used in the Gulf of Mexico as a replacement for an aerial survey after a hurricane.

Streaming video has also become a mainstay for visual inspection of assets on the sea floor. Remotely operated vehicles (ROV) can operate at depths of up to 10,000 feet. In addition to tools and manipulator arms, which mimic human hands, ROVs can be outfitted with high definition cameras. An umbilical cord carries the video to the mothership on the surface, which then relays the video via satellite to the energy company's corporate headquarters.

One of the lessons learned from the Macondo Well (Deepwater Horizon) blowout in the Gulf of Mexico was that the events leading up to the tragedy haven't been easy to recreate, hampering investigators' ability to determine the cause of the accident. As a result, federal regulators are developing a set of requirements that will force drilling rig operators to compile status data from different subsystems onboard on an ongoing basis. Although the final requirements haven't been published, there is speculation in the industry that these data points will need to be streamed back to the beach, as well as stored on a 'black box' recorder of some kind. It is unclear how many data points, or the frequency of capture, but the amount of data transmitted from a rig will increase in the future.

The increasing use of video and advanced

Figure 1: Offshore Communications Above The Surface To Promote Safety And Collaboration



monitoring systems on offshore rigs and platforms is driving up the average consumption of bandwidth. Network planners must consider the effect of these increased demands on their satellite network. It is imperative to have a dynamic quality of service (QoS) system, which allows voice, video and data to peacefully coexist, especially on-demand video where usage isn't linear.

Keith Johnson, president, Oil & Gas Division at Harris CapRock Communications, points to the increased usage of bandwidth in the offshore E&P market, saying, "There are several key applications which are driving bandwidth usage up. The first is the widespread adoption of real-time drilling systems. Measurement while drilling [MWD] data is streamed back to an energy company's offices for evaluation. Energy companies and drillers are all developing expert systems which allow a team of senior drilling engineers and geologists to monitor multiple wells at the same time. With the real-time data, the team can participate

in decisions such as drilling fluid rates and pressure changes, as well as monitoring the speed and direction of the bit. Real-time drilling systems improve efficiency and shave time off the time it takes to drill a well."

Video streaming and surveillance is on the rise offshore as well. Health, Safety and Environmental (HSE) initiatives are a big driver in the use of video. A good example of this is telemedicine applications on rigs and platforms. Brazil's operational standards for drilling rigs now require medical support personnel to be on the rig. A remote telemedicine solution is becoming a preferred solution to support the new requirement. Due to the deepwater nature of these rigs, satellite is the only feasible solution for telemedicine applications.

"Last, there is a general push towards remote automation of rigs and platforms. Traditionally, rig hands have been used to monitor pressures and flow rates, and to make changes to settings. But now, those types of production activities are becoming automated. Many E&P organisations have

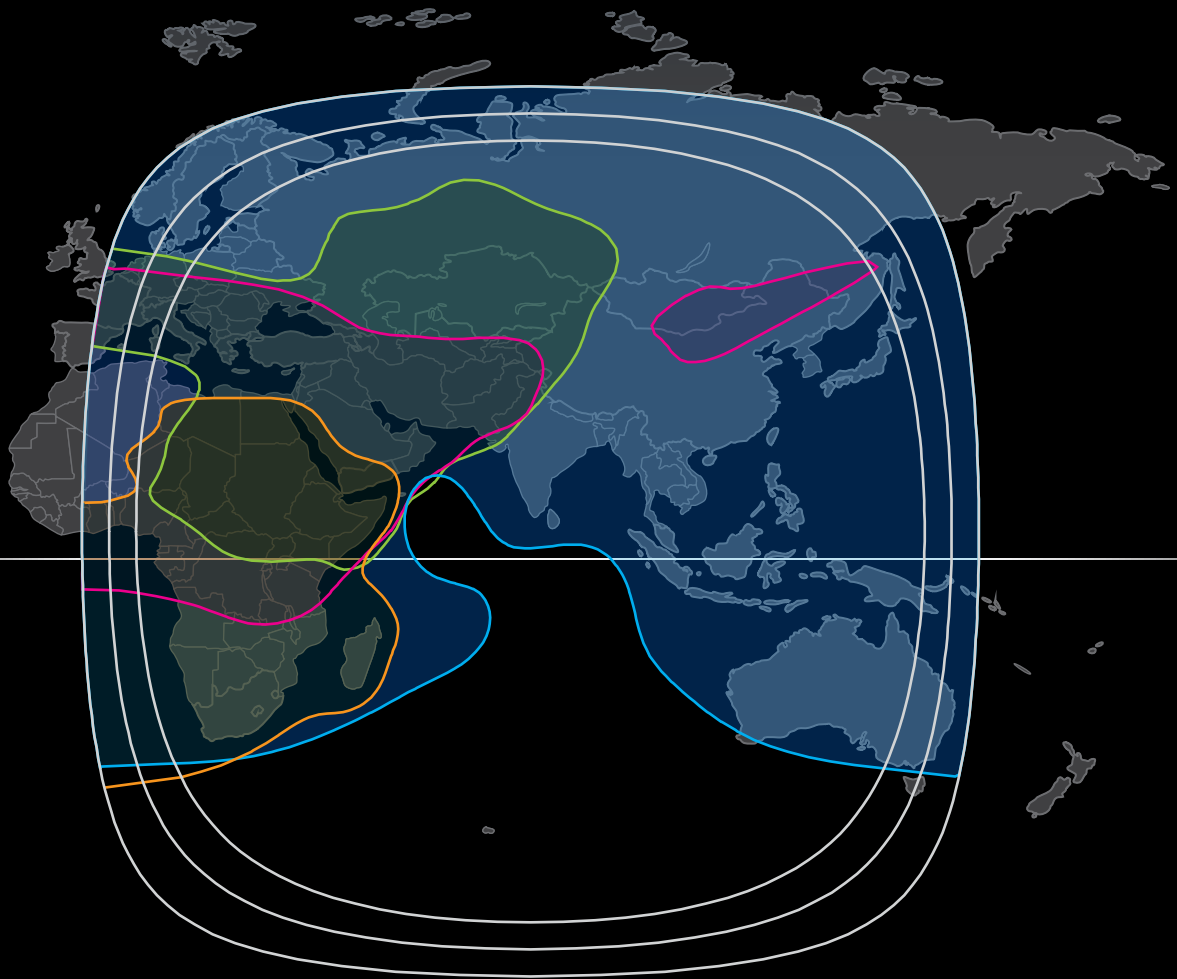
undertaken automation initiatives to reduce the number of personnel in offshore environments with a focus on HSE," Johnson concludes.

iDirect's current release of its Evolution X7 remote ushers in a new level of throughput for customers with high bandwidth requirements, such as those in the offshore E&P market segment. The X7 remote is iDirect's most powerful satellite modem to date, featuring new multi-core hardware and improved networking components, allowing the remote to achieve much higher inbound and outbound link speeds.

ONSHORE EXPLORATION & PRODUCTION

Companies engaged in E & P activities onshore use satellite communications for many of the same reasons as their offshore counterparts. While wireless carriers compete with satellite on a limited basis in certain countries, the footprints for cellular systems are generally limited to cities and the roads connecting them. Oil and gas wells are typically drilled in remote areas,

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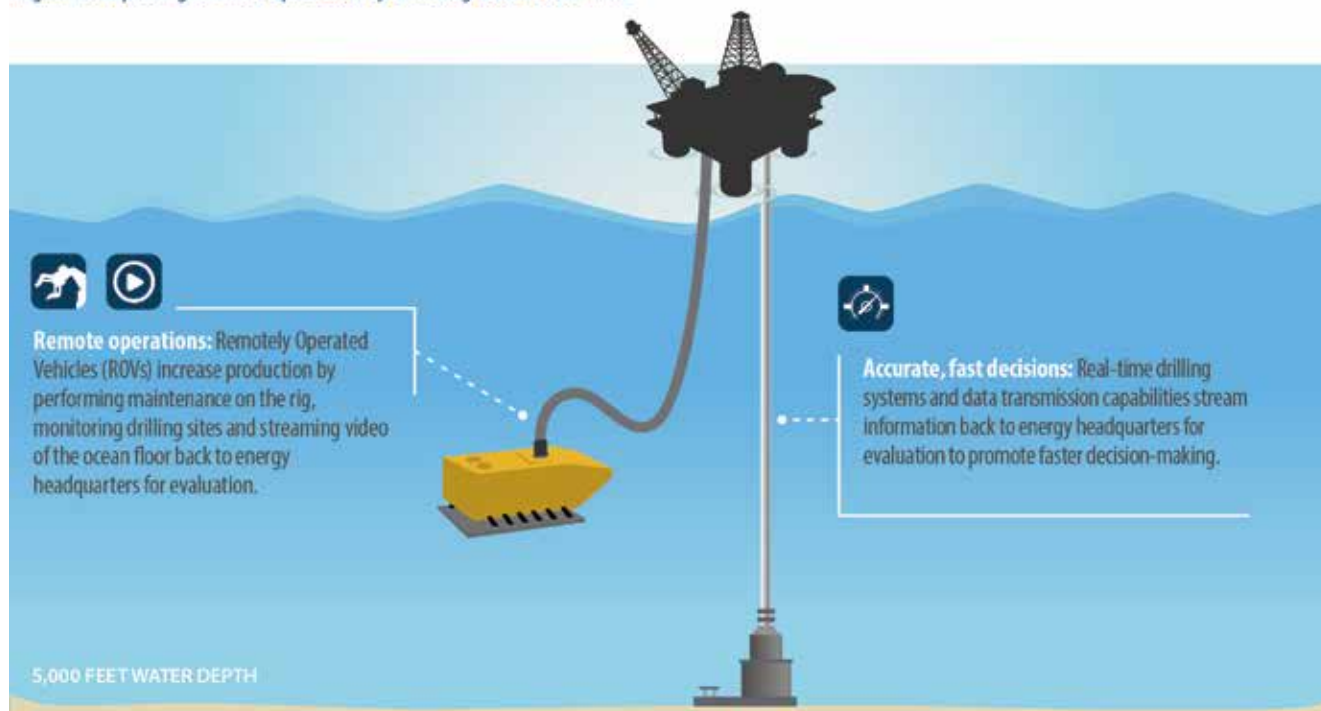
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Figure 2: Improving Offshore Operations By Accessing Data In Real-time



far beyond the nearest wireless coverage. Satellite technology provides ubiquitous coverage of landmasses and allows drillers to rapidly move from location to location with the assurance they will have broadband connectivity.

Office automation applications are required at drilling sites, as well as access to the internet. Depending on the size of the rig and the number of oilfield service companies supporting it, voice requirements range from a single voice line to 10 or more concurrent voice calls. Three-way calling from rig phones requires two talk paths per phone, which increases the total number of talk paths per rig. iDirect's voice prioritisation system allows multiple voice connections to be made at the same time, with voice packets prioritised over other data packets.

In Canada and the United States, satellite service providers must provide 911 support on all voice lines. While 911 support is adjunct to a satellite service provider's core service, an effective packet prioritisation scheme is a critical component if 911 services are to be effective.

Much like offshore applications, land-based drillers are integrating the use of video systems into their day-to-day activities. Access control applications have seen the greatest uptake, but other applications, such as visual safety systems and triage medical systems, are being investigated. One interesting example is an integrated video camera and gate system to control access to a drilling site. The video camera and intercom system eliminate the need and expense of a traditional gate guard.

RigNet acquired LandTel, the largest provider of satellite services to land-based drilling rigs in the United States, in 2006, and the company provides networking services to both offshore and onshore E&P companies.

Morten Hansen, vice president Business Services, notes several trends in onshore E&P. "We are seeing traditional offshore producers pushing into the onshore market. As they do, they are looking to deploy a single solution across their fleet of drilling rigs, just as they do offshore. They want to ensure that all of their applications operate

the same on every rig. This standardisation not only improves performance, it also minimises the amount of troubleshooting required."

Hansen also comments on the increasing amount of data transmitted from land-based rigs, saying, "Just about every application on a rig has increased in size, and the amount of data sent from a rig back to headquarters has increased as well. This has resulted in larger data circuits."

"Video conferencing on terrestrial rigs will become common in the very near future. As such, being able to add capacity dynamically is extremely important. Having a contention scheme in your satellite network that can actively manage multiple data streams on a satellite link is critical for the successful implementation of video surveillance and video conferencing," Morten concludes.

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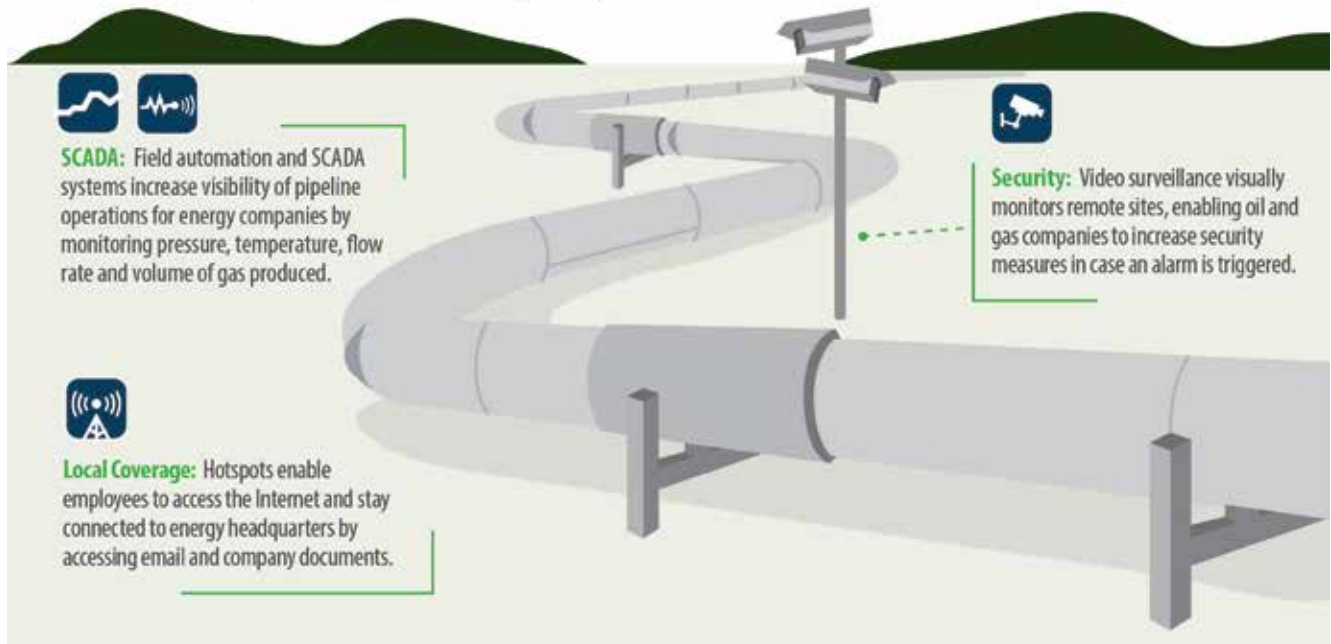
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Figure 3: Meeting Increasing Monitoring Requirements In Pipeline Operations



remote computing devices, called Remote Terminal Units (RTU), via telecommunications. If something must be changed in the pipeline, the host computer sends out control commands to the RTU, which interconnects with pumps, compressors and valves.

SCADA systems are used worldwide to control pipelines. SCADA systems differ from Distributed Control Systems, which are used inside refineries and other industrial facilities. DCS systems use Programmable Logic Controllers (PLC) instead of RTUs, and the PLCs are hardwired to the host computer instead of using telecommunication links. Electronic Flow Measurement (EFM) systems are similar to SCADA systems but primarily collect data from natural gas or oil wells and have limited ability to send out control commands.

All three types of systems are used extensively in the energy industry and have similarities. The term SCADA is used collectively in this white paper for all of these monitor and control applications.

Pipelines can stretch several thousand miles and are controlled from a single host computer. As such, pipelines require

constant communications between the host computer and RTUs. The time it takes to collect a new set of data from all RTUs is known as the scan rate.

Another important measure is response time, which is the time it takes for the host to query the RTU and receive a response. Natural gas will compress and response times, which can range from seconds to minutes, aren't as stringent as those required by liquid pipelines. Liquid pipelines typically transport crude oil, refined products and liquefied gases. Since a liquid won't compress, a sudden spike in pressure can burst the steel pipe, thereby interrupting operations and causing a spill, which must be remediated. To keep close tabs on the contents of the pipeline, liquid pipelines have much shorter response times than natural gas pipelines.

The use of video complements traditional sensor networks, and its adoption is growing at a rapid rate within SCADA networks. Video surveillance can be used not only for traditional security purposes but also for a 'look-around' of the site to determine if everything is safe after an alarm is triggered in the

SCADA system.

The price of IP cameras has dropped dramatically, but the cost of dedicating bandwidth to individual RTU sites is still prohibitive. iDirect's packet prioritisation scheme allows multiple RTU sites to share a common video channel or channels, thereby significantly lowering the cost of providing on-demand video.

iDirect's advanced satellite architecture is well suited for SCADA applications. iDirect's Evolution X1 Router is a cost-effective solution that allows SCADA users to meet their current bandwidth needs, with the flexibility of scaling up the bandwidth to one or all of their RTU locations in the future.

Pipeline right-of-ways are primarily chosen for geographic reasons, and RTUs are often in remote locations. Pipeline companies must lease or purchase land for small buildings to house their RTUs and telecommunication equipment. iDirect's new Evolution X1 Outdoor Router is designed for outdoor use and comes with an IP67 weatherproof case that can be mounted on a simple pipe mount. If an RTU in a weatherproof case can be used, the building and the foundation it sits on

can be eliminated – a significant saving.

Commercial electrical power is often non-existent, so solar arrays or thermoelectric generators must be used to generate power for the VSAT and RTU. To minimise the power required at the remote site, electronics rugged enough to withstand a non-air-conditioned or heated environment are preferred.

Field automation involves the installation of an entire field of oil or natural gas wells with small flow computers, which are then polled to see how much oil or gas was produced over a specified period. A field may include anywhere from a handful to hundreds of wells in a geographic area.

Point-to-multipoint radio systems dominate field automation projects because they can be capitalised over a long period, there are no monthly recurring costs for bandwidth, and radios can be powered with a very small solar panel. While radio systems are the accepted standard for field automation projects, there is a place in many field automation systems for VSATs.

Point-to-multipoint radio systems use a centrally located master radio, which polls the slave radios to inquire if they have data to send. Different radio frequencies are available, but many require line of sight. The higher the antenna of the master radio, the greater its range.

Once data has been collected from all the slaves, the master radio then sends it to the host computer, which is often in a different location. VSATs are an ideal option for backhauling the aggregated data to the central computer. Large pipeline companies may collect data from tens of thousands of wells and operate large numbers of independent radio networks to cover all of the wells. Having a common backhaul technology is advantageous. Satellite technology provides predictable and stable pricing, regardless of location, for the backhaul circuit, and allows the pipeline company to deal with a single vendor for all backhaul connections. The solution is scalable should the size of the backhaul circuit need to be increased.

Hotspots have become quite popular

in remote oilfields, allowing employees to drive up to a well site and log onto the internet to access email and company documents. The increasing number of hotspots at SCADA and EFM sites are pushing the demand for bandwidth up. Historically, the scalability of a communications link in a SCADA system wasn't a high priority, as low-speed modems and transmission of hundreds of bytes of data were the order of the day. Deployment of hot spots and increasing use of video in the field have changed that paradigm.

While drilling rigs, platforms and producing oil and natural wells get

“Field automation involves the installation of an entire field of oil or natural gas wells with small flow computers, which are then polled to see how much oil or gas was produced over a specified period. A field may include anywhere from a handful to hundreds of wells”

most of the mind share when people think about the energy industry, there are tens of thousands of small offices dotting rural settings, used to house field support personnel. Many of these locations have limited access to modern telephony, and satellite technology can provide the communications to improve their connectivity. Rarely do these remote sites have the benefit of diversely routed terrestrial connections to different central offices, as offices in cities enjoy. Network down time idles everyone in an office, and lost productivity is a thief. Leveraging iDirect's bandwidth management system allows satellite service providers to offer cost-effective business continuity

solutions to small offices, to ensure operations continue even if the primary telecom connection is down.

Kevin Franciotti, VP Global Operations at ITC Global, explains some of the distinct needs that their users require. “In high-priority applications, customers need to know if a modem is active and if the circuit is active. In satellite networks which use slotted aloha, the hub cannot tell me whether the modem is in or out of the network. In lower level monitoring applications this isn't important, but in higher end SCADA applications, such as burner control solutions, it is critical to know if the modem is up and running. You need to provide the customer some assurance that the satellite link is viable.”

Link verification is an important aspect of communications, which has a negative connotation with satellite communications. Franciotti continues: “Without the verification of link viability, companies which operate SCADA networks could never be 100% confident that a state change occurred after a command was issued. Electric utilities are good examples of end users that require positive link verification. iDirect's system architecture opens the door to higher-end SCADA solutions and allows iDirect partners to sell services to companies that previously wouldn't consider a VSAT solution.”

CONCLUSION

The energy industry has changed significantly over the last few decades. Parochial and regional concerns have blossomed into global conglomerates. Robotics and supercomputers are as common as producing hydrocarbons from a subsea well in 10,000 feet of water. Sensors and video cameras have become pervasive in all facets of the industry. The energy industry is truly global in reach, and decisions which used to take weeks, can now be made in hours. iDirect's advanced satellite technology has played a key role in energy industry initiatives and will continue to play a leadership role in the future. **PRO**

Whitepaper by iDirect, www.idirect.net

Keeping an eye on the ball

Teleports can only contribute to satellite industry growth if they stay ahead of the competition, advises *Andrew Bond*, Sales Director, ETL Systems

In 2013, the satellite manufacturing and launch industry generated almost \$35 billion globally, according to the latest figures from Northern Sky Research (NSR). More than 100 new satellites were ordered, and another 100 were launched. The sector is clearly expanding, and a number of indicators suggest this will undoubtedly continue as we move into 2015 and beyond.

When it comes to exploring the drivers of this growth, there is one overriding factor which immediately comes to mind – the large, and relatively fast, change we have seen in consumer technology use.

In some ways, ten years is a long time. The Rosetta mission, for instance, the most detailed study of a comet ever attempted, was launched in March 2004 and only in November delivered the lander Philae to the comet's surface. Yet in terms of technology, if we think back to just ten years ago, the iPhone, the first smartphone as we now know them, did not exist. Today, household items such as the smartphone have become slicker and slimmer and televisions are bigger and better – driving demand for a clearer, higher quality picture.

Both trends are only going to get bigger too. Forget high definition television – ultra-high definition televisions are already appearing on the market and are likely to instigate a surge in demand, with many buyers choosing to either upgrade their HD

sets or bypass HD altogether and choose UHD instead.

The result of this change in consumer behaviour is a demand for more: more portability, more bandwidth and more feeds. For satellite, the only technology which can reach people regardless of whether they are in an inner city, up a mountain or at sea, all of this equates to one thing – growth.

Where, then, do teleports come into this equation? The role they play is unquestionably important – for operators, one of the big questions always asked by their customers is whether their infrastructure is up to the job of handling their signal requirements. This will, of course, only become more important as the amount of content being distributed continues to grow.

To remain ahead of the curve, investing in tomorrow's technology today through the upgrade of teleports is essential to maintaining quality of signal and reliability of equipment. Whether a satellite teleport contains two or 200 dishes, downtime is an

evil word; but as traffic density increases, so too does downtime risk. Thankfully, technology has evolved to negate this risk. Here at ETL Systems, for example, we have developed multiple layers of redundancy, hot-swap and remote control and monitoring facilities on our RF distribution equipment, to provide peace of mind during live satellite feeds. In addition to built-in reliability, there have also been big breakthroughs in RF performance, such as isolation.

In order for the satellite industry to continue to expand, now is the time for teleport operators to act. While increasing demand for content, both over mobile devices and DTH, is undoubtedly driving growth, implementing the right teleport infrastructure is key – not just for the development of individual businesses, which it will undoubtedly contribute to, but also for the continued expansion of the entire satellite market.

For operators that choose not to invest, not only is the risk of failure during downtime greater, but there is also a

danger to the industry as a whole. Those not convinced this risk exists need look no further than the impact of the smartphone, which less than ten years ago might not even have been conceived as an idea but today is viewed by the industry as a game-changer. Right now, satellite technology is the only equipment that can provide connectivity anywhere and everywhere in the world, no matter how remote a location. However, if operators cannot guarantee their customers the backbone to deliver new services and to handle the increased traffic those services will bring, all that could change – and quickly.

With the right infrastructure, then, continued success is guaranteed for the satellite industry, although the driving force behind this remains the huge demand for data from new and exciting inventions like the smartphone. With even more data-hungry trends such as virtual reality on the horizon, future growth of this demand and therefore the satellite industry is extremely positive. **PRO**

By Anthony Boni, Sales Director, ETL Systems



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The Connected Home

Cisco is highlighting the concept of connected homes at IBC Content Everywhere MENA. The display will show the possibilities of how everything and everyone is connected

One of the highlights of IBC Content Everywhere MENA will be the connected home demonstration presented by Cisco. Visitors to the first IBC Content Everywhere event in the Middle East will be able to see and understand the revolution that will be brought about by the internet of everything – the near future when every device will be online.

Cisco's presentation itself is stunning. It uses 3D projection mapping to create life-sized, lifelike people who explain how their

lives have changed through connectivity. This remarkable presentation has been seen at CES in Las Vegas and IBC in Amsterdam, and now Cisco and IBC are bringing it to Dubai in January 2015 for IBC Content Everywhere MENA.

"We think the presentation is great fun, but this is not about the technology, it is about the vision," said Cisco's JT Taylor. "Sitting down and seeing it is fun, but these are new ideas that need to be addressed. These are real opportunities for service

providers and for consumers that will change our lives fundamentally."

The heart of the presentation is that every device is becoming more intelligent. With better bandwidth now widely available, each of those devices can be connected, talking to each other and sharing data.

Cisco's own research suggests that a boundary was crossed in 2010, with more things connected to the internet than people. In 2010 there were 12.5 billion connected devices, a number which will



double by 2015 and double again – to 50 billion connected devices – by 2020. No wonder Taylor talks about “the internet of everything”.

“The intelligence, the connectivity moves into devices, so they are all working together to provide better services,” he explained. “Life becomes more efficient. This may happen slower than technologists predict, but certainly faster than consumers realise today.”

What does this mean for the service providers who will attend IBC Content Everywhere MENA? Taylor’s view is that they hold the key to making the home hub work seamlessly, which is critical for consumer acceptance. Already we have three or four remotes in the living room, and separate apps and controllers for other functions. Service providers should be wrapping all of these into a one-stop shop, delivering a common user interface whether you want to choose a programme from catch-up TV or adjust a thermostat.

He also suggests that the smart service provider will take it beyond that, using the home gateway as a means of managing the machine-to-machine communication

“The intelligence, the connectivity moves into devices, so they are all working together to provide better services, life becomes more efficient. This may happen slower than technologists predict, but certainly faster than consumers realise today.”

JT TAYLOR, Cisco

that is the real benefit of the internet of everything. An energy company, for example, would be able to bill usage much more accurately, varying prices between peak periods and quieter times, but the home hub will counter-balance that by managing usage to avoid running into peak consumption, maybe by delaying

the dishwasher or reducing the air conditioning by a degree.

“As technologists we get very excited by the possibilities,” Taylor concluded. “For the promise to be fulfilled, it has to be made simple and effective to ease the way for consumers. Our presentation at IBC Content Everywhere MENA gives a glimpse into our vision. I hope visitors will see and get excited by what is available now and in the very near future.”

IBC Content Everywhere MENA is part of a new series of global events spanning Europe, MENA and Latin America. These unique events – powered and created by IBC, the premier annual event for the electronic media industry – cover rich media production, devices, apps, digital marketing, social media, content personalisation, big data, cloud services, second screens, investment and more. Presentations like the Cisco vision of the internet of everything add value to all those who attend, by expanding the reach beyond media to the possibilities of the connected world. **PRO**

Source: IBC Content Everywhere MENA

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Network Operators Must Focus on Applications – Not Spectrum – to Take Full Advantage of HTS

By Jean-Philippe Gillet, Vice President, Europe, Middle East and Africa, Intelsat

The Middle East and Africa will likely experience mobile data traffic growth at a CAGR of 70% through 2017, the fastest rate of any region in the world, according to a February 2014 Cisco report. Satellite capacity and services provide the quickest means to improve mobile network capabilities, helping network operators address many of the challenges they face today in meeting end user needs.

As the demand for more bandwidth, improved security and faster connectivity on the move continues to grow, high throughput satellite (HTS) options promise to be the most reliable means to deliver cost-efficient, reliable capacity to the entire region. But companies exploring how to integrate satellite services into their networks, or expand them, face conflicting and sometimes confusing information about HTS, namely around the use of Ku-band and Ka-band spectrum for providing services.

Spectrum is one of the most misunderstood technologies in the satellite communications sector. The C- and Ku-bands are well established as the primary spectra for providing satellite services, but in recent years, the Ka-band spectrum has emerged. Now, in some circles, it is perceived as the only spectrum providing high throughput satellite capacity. That is not the case, as evidenced by Intelsat's high throughput satellite platform Intelsat EpicNG, which is spectrum agnostic and capable of providing HTS in Ku-band, C-band and Ka-band frequencies.

At Intelsat, we understand that there is no single frequency that meets all customer needs. All frequency bands have their place in satellite communications, and different applications and regions have different spectrum needs. Intelsat



Jean-Philippe
Gillet

believes that network operators should view the selection of spectrum type as the final consideration of network design, and that they must first analyse end user applications and reliability requirements, service regions, and capital and operational expenditures, all of which play a factor in determining the appropriate spectrum band.

PREPARING YOUR NETWORK TO SATISFY FUTURE DEMAND

Intelsat has responded to these network operator needs by developing Intelsat EpicNG, a high-performance, next-generation satellite platform that delivers throughput in the range of 25-60Gbps per satellite and, as stated above, can be deployed in C-, Ku- or Ka-band frequencies, providing the right spectrum for the right application and region.

Building an HTS platform that uses all frequency bands is a key component of the ability of Intelsat EpicNG to provide the lowest total cost of ownership for network

operators. The backward-compatible design enables operators to leverage existing network hardware, resulting in quicker, cost-effective improvements in throughput and service expansion, while the open architecture design allows the delivery of differentiated services with flexible network topologies, service characteristics and speeds.

For many customers, backward compatibility with existing hardware and existing satellite capacity is important, as is not being restricted to a single operator for the life of that hardware. For customers who need customised or backward compatible solutions to leverage existing investment in hardware, the high-powered spot beams of Intelsat's EpicNG satellites will be a logical option and will be seamlessly integrated with the existing Intelsat fleet and IntelsatOne network. The use of legacy frequency bands also increases the chances of rapid upscaling, offering opportunities to bring costs down further.

The Intelsat EpicNG platform, which includes seven announced satellites to date, is fully integrated with our existing fleet. The first satellite, Intelsat 29e, is scheduled to launch in 2015, providing capacity for the Americas. Intelsat 33e, scheduled for launch in 2016, will provide HTS capacity for the Middle East and Africa.

The greater efficiency of Intelsat EpicNG will change the market dynamics and create a larger and more profitable addressable market for our customers, enabling new applications and solutions in every sector – broadband, cell backhaul and mobility.

By leading the way with advanced HTS technologies, Intelsat is ensuring that satellite services remain an integral and growing part of the region's communications infrastructure. **PRO**



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