APSCC Monthly e-Newsletter
JANUARY 2017

The **Asia-Pacific Satellite Communications Council (APSCC) e-Newsletter** is produced on a monthly basis as part of APSCC's information services for members and professionals in the satellite industry. Subscribe to the APSCC monthly newsletter and be updated with the latest satellite industry news as well as APSCC activities! To renew your subscription, please visit www.apscc.or.kr/sub4_5.asp. To unsubscribe, send an email to info@apscc.or.kr with a title "Unsubscribe."

News in this issue has been collected from 1 to 31 December 2016.

INSIDE APSCC

APSCC Session at PTC'17, What do End Users Actually Want?
16 January 2017, Honolulu, Hawaii, USA, www.ptc.org/ptc17

While new technology is good, as are lower prices, are we actually meeting end user needs in the Pacific? Why/why not? What is being provisioned now and future? What gaps we must fill? Where does the satcom model fall short? The session, "What do End Users Actually Want?" would discuss end user needs across various applications and markets.

Pierre-Jean Beylier, CEO, SpeedCast
Richard Swardh, SVP, Comtech EF Data
Imran Malik, RVP, O3b Networks
Jacques-Samuel Prolon, General Manager, Kacific Broadband Satellites
Moderated by Chris Baugh, President, NSR

APSCC members can enjoy discounted rate when PTC'17 registration.

Gregg Daffner Elected as APSCC President
Gregg Daffner (CEO, GapSat) was elected and inaugurated as the President of APSCC at the 2016 APSCC General Assembly held on 13 December 2016. As the main representative of APSCC, Gregg will be responsible for setting the policies and goals of APSCC in consultation with the APSCC Board of Directors, Vice Presidents and Executive Director. Gregg is CEO of GapSat, an innovative venture that leases or arranges for the lease of entire in-orbit satellites to satellite operators for use at their orbital slots for interim periods of time, generally until the operator launches its own custom-built satellite. Gregg is also president of G3 Global Communications, a satellite consulting firm focused on strategic planning, business development, transactional and regulatory advice. Previously Gregg co-founded and was president of Asia Broadcast Satellite (ABS). He is a former television producer and communications attorney who was the head of satellite services for Cable & Wireless Hong Kong Telecom, Vice President for PanAmSat and Lockheed Martin Corp, and Director of International Policy for the US Department of Commerce, National Telecommunications & Information Administration (NTIA) where he was instrumental in the promotion of private enterprise in space.

SATELLITE BUSINESS

SpeedCast Awarded a Multi-year Service Contract for VSAT Services in the North Sea
December 1, 2016 - SpeedCast has been awarded a three-year contract to provide a fully managed VSAT network service for INEOS platforms in the Clipper South and Breagh gas fields in the North Sea, United Kingdom. The service consists of two VSAT terminals connecting the platforms to the SpeedCast earth station in Shrewsbury, United Kingdom, providing both voice services and internet access. Internet access is used for mission-critical services for operation efficiency as well as crew welfare. The voice services allow local UK rate calls to be made and itemized call charges to be provided for better cost management.

Spacecom to Operate New Satellite at 4W AMOS Hot Spot

December 1, 2016 - Spacecom announced that it entered into an agreement with AsiaSat to relocate its AsiaSat 8 satellite from its current orbital position to Spacecom's 4°W orbital position. AsiaSat 8 will be co-located with AMOS-3, for a four (4) year period. AsiaSat 8 will complement AMOS-3 in offering a full range of communication services. The satellite, expected to begin service for Spacecom in Q1 2017, will replace AMOS-2. Spacecom has an option to extend the agreement for an additional year of service. Upon receipt of the required regulatory approvals, AsiaSat will relocate its satellite to the 4°W orbital position where it is expected to arrive within 45 days. Following testing AsiaSat 8's beams will cover the Middle East, Central Eastern Europe and Africa enabling Spacecom to provide additional capacity and services to its customers.

Klas Telecom Launches Government Network Service Device for Inmarsat Global Xpress (GX)

December 1, 2016 - Klas Telecom has launched the Government Network Service Device (NSD), the first software-defined tactical networking solution for use with Inmarsat's new Global Xpress (GX) satellite network services. The Government NSD combines Klas Telecom's ATLAS virtualization platform allied with a 5th Gen Intel® Dual-Core virtual machine server that enables Cisco 5921 routing and VDS-IS content distribution in an easy-to-use, two-pound, ruggedized module. The Government NSD provides a smart interconnection between proprietary military networks and the worldwide, high speed GX family of satellites. In addition to GX, the Government NSD also terminates BGAN services for L-band links and enables Inmarsat Over-The-Top (OTT) services like GX Voice, managed browsing services, content delivery and applications.

Com & Com Selects iDirect Evolution® to Power VSAT Service in Myanmar

December 5, 2016 - VT iDirect, Inc. (iDirect) announced that Com & Com has selected the iDirect Evolution platform to launch a new Ku-band satellite service in Myanmar. Com & Com is a joint venture between satellite service providers OSB Investment and Technology Joint Stock Company (OSB JSC) and Terabit Wave Company, Ltd. With the iDirect-based service, Com & Com will deliver high-speed satellite connectivity to organizations across Myanmar's enterprise, banking and government sectors. Com & Com has set up an iDirect hub in the region to deliver high-quality voice and data services over Ku-band satellite, such as VoIP, VPN internet access, streaming media and data backup. For government agencies, the service will provide secure, private networking from any location, integrating agency operations.

Cobham and SpeedCast Forge Strategic Partnership

December 6, 2016 - Cobham SATCOM and SpeedCast International Limited have concluded a global framework agreement covering the provision of maritime stabilized antennas, which offers high speed connectivity at sea. The commercial framework was awarded following a multi-vendor selection process by SpeedCast, based on a technical, commercial and supply chain evaluation criteria and will run three years. It is expected to generate a double-digit million-dollar figure in revenue for Cobham. SpeedCast offers high-quality managed network services in over 90 countries and a global maritime VSAT network serving customers worldwide. The new agreement confers SpeedCast with Distribution Partner status and is the basis of a strategic partnership that enables Cobham to extend the reach of Cobham SATCOM's SAILOR and Sea Tel Brand VSAT and TVRO antennas across SpeedCast's extensive global sales and support network. Customers will benefit from the superb service, reliability, and performance of both SpeedCast and Cobham.

AERO-SATCOM Helps Head of State Aircraft Move to Inmarsat's Aeronautical Global Xpress (GX) Service

December 6, 2016 - AERO-SATCOM, the joint venture (JV) between Eclipse and NSSLGlobal signed an agreement with Inmarsat's Global Government business unit which sees the JV appointed as Global Xpress (GX) Value Added Reseller (VAR) for the Government Aero market*. With Swift Broadband and Swift 64 distribution agreements previously signed, this latest development allows AERO-SATCOM to work alongside local partners to offer Inmarsat's high performance Ka-band services. AERO-SATCOM's first provisioning of aeronautical GX services will be through a local government-focused Inmarsat Service Provider for a fleet of Europe-based head of state aircraft. The head of state aircraft retrofit begins in December with the service expected to be fully operational from February 2017. AERO-SATCOM will add value to the core GX service by supporting the delivery of onboard solutions developed by Eclipse that provide on-board bandwidth management, bandwidth optimization and credit card payments for passenger internet access.

Microspace Communications Introduces DataBridge IP Satellite Solution using Eutelsat SmartLNB

December 6, 2016 - Microspace Communications, a pioneer in innovative broadband solutions for established and emerging enterprise applications, has selected the SmartLNB service platform of Eutelsat Communications to implement its new two-way satellite service called VELOCITY DataBridge. VELOCITY DataBridge is a next-

generation satellite service that sets a new standard for cost, performance, and convenience. Through inexpensive hardware and low monthly operational costs, it is ideally suited for customers seeking machine to machine (M2M), SCADA, and IoT solutions in sectors including oil & gas, digital signage, security, and corporate networks. The VELOCITY DataBridge service uses 76 cm satellite antennas and an integrated IP modem/router to offer connectivity no matter when or where it is needed. Using capacity on the powerful EUTELSAT 117 West A satellite, the service offers strong performance in the continental USA, Mexico and Central America. This extensive geographic reach is coupled with Eutelsat's SmartLNB platform that provides an innovative and cost-effective solution for low bitrate applications for M2M and connecting services.

Intelsat and Orange Partner to Expand 3G Connectivity in Cameroon
December 7, 2017 - Intelsat S.A. announced that the Orange Group has renewed an agreement for satellite solutions and support that will bring 3G services to existing customers of Orange Cameroon as well as expand the network's reach to remote regions of the country. Orange currently provides 2G services using satellite infrastructure provided by Intelsat. Under the new agreement, the Orange network will expand its geographic footprint and add a 3G offering by leveraging C-band solutions from the Intelsat 22 satellite at 72.1° East. The Intelsat solution optimizes the network to deliver the additional coverage and throughput that Orange needs to expand its reach in remote areas of Cameroon, deliver 3G services and provide more differentiated offerings to its subscribers. Orange will expand its service territory to currently underserved remote regions of the country and deliver data services for businesses in the region, stimulating economic growth in the country.

Fugro's Airborne Technology Deployed to New Zealand
December 7, 2016 - Fugro's LADS technology is being deployed in New Zealand to assist in relief efforts following the damaging 7.9 magnitude earthquake near Christchurch on 14th November 2016. At the request of the New Zealand Government, the Royal Australian Navy (RAN) Laser Airborne Depth Sounder (LADS) Flight is to conduct a rapid hydrographic survey of the seafloor in the coastal margins of the north east coast of the South Island. The RAN's Airborne LiDAR Bathymetry (ALB) system has been developed by Fugro for safe, high speed and cost effective surveys of shallow coastal areas. Under a long term contract to the RAN, Fugro provides the LADS technology, a de Havilland Dash 8-202 aircraft and support services. The airborne survey equipment is operated by navy personnel from the main cabin of the aircraft to rapidly collect high resolution data of the seafloor. Fugro's system incorporates sophisticated sensors that utilize a high powered laser, and innovative scanner and receiver optics technology.

Air New Zealand Signs Contract for Inmarsat's GX Aviation Inflight Service
December 7, 2016 - Inmarsat signed a contract with Air New Zealand to provide Global Xpress (GX) connectivity across the airline's long-haul and short-haul fleets. GX for Aviation, the world's first globally available high-speed broadband network designed for mobility, will be deployed by Air New Zealand to deliver a reliable, seamless broadband inflight Wi-Fi experience across the world. For the first time, GX for Aviation connectivity will be integrated with Air New Zealand's Inflight Entertainment (IFE) system provided by Panasonic. This was specifically requested by Air New Zealand and all parties have embraced the opportunity to come together to meet their needs.

SKY Perfect JSAT Enters into a Strategic Alliance with Kongsberg Satellite Services
December 7, 2016 - SKY Perfect JSAT signed a Strategic Alliance Agreement with Kongsberg Satellite Services, AS (KSAT) in order to jointly develop and expand KSAT's ground station services for Low Earth Orbit (LEO) satellite operators in the Asia-Pacific region and remote sensing operational monitoring services using satellite images. SKY Perfect JSAT has started LEO-related businesses, such as an investment into a Japanese space VB Axelspace (2015), optical satellite images sales in Japan provided by U.S. based Planet (2016), and ground station services (to be started from Q2 of 2017). Driven by new space technology and the growing IoT business environment, many LEO satellites are expected to launch. The main fields of the Strategic Alliance are as follows: 1) Ground station services for LEO satellite operators - Joint development and expansion of KSAT ground station services for LEO satellite operators in the Asia-Pacific region. 2) Remote sensing services - Joint marketing of KSAT's existing remote sensing services using satellite images, such as the "ship detection service" and the "oil spill detection service" in the Asia-Pacific region. - Joint development of various remote sensing services using satellite images, targeting not only government sectors but also business intelligences and other new markets.

INTELLIAN FB250R and FB500R Terminals Approved for Use with Inmarsat's FX Service
December 8, 2016 - Intellian's FB250R and FB500R FleetBroadband terminals have received final approval from Inmarsat for use with the Fleet Xpress (FX) service and all associated Network Service Devices (NSD). With all

approvals now in place, Intellian can offer customers a complete, pre-integrated, pre-tested, turn-key FX hardware package, including FX racks and sourcing of all hardware components. Customers may also create customized configurations of their own. The latest generation FB250R and FB500R FleetBroadband terminals enable professional grade, global communications. Supporting simultaneous voice, data, SMS, fax, and streaming IP capability based on Inmarsat's I4/Alphasat-satellite global broadband network, they offer outstanding reliability and a robust backup to the high speed Global Xpress constellation for business-critical services, operation and remote support.

Cobham SATCOM Solution Selected for Hawaiian's Airbus Fleet

December 9, 2016 - Cobham SATCOM's AVIATOR 350D system has been selected by Hawaiian Airlines (HAL) for installation on its new Airbus A321neo (new engine option) fleet. The Cobham system, supporting Inmarsat's IP-based SwiftBroadband-Safety (SB-S) service, will deliver satellite connectivity to the cockpit for all voice and data applications on Hawaiian Airlines' new single aisle aircraft and will connect to Cobham HGA-7001 High Gain antennas that are being line fit by Airbus. The next generation IP-based broadband capabilities enabled by the Cobham solution enhance airline safety and operations through better communications and the availability of real-time, in-air information for pilots, crew and air traffic management.

Globalsat Group Obtains License for All Inmarsat Services through its Mexican Affiliate MultiSAT

December 9, 2016 - Distribución y Tecnologías SA de CV, which operates under the MultiSAT brand and is part of Globalsat Group, received official authorization and landing rights for foreign satellite signals in the Ka and L bands. The Ka band authorization includes Inmarsat I5 satellites, which deliver the new generation Global Express (GX) service, both for transmission (Earth to satellite) and reception (satellite to Earth), making it possible to legally provide mobile and fixed Internet or point-to-point maritime, land and aeronautical data connectivity anywhere within Mexican territory. Globalsat Group / Multisat has also been authorized for L band services. The Inmarsat Fleet Xpress service combines Ka and L band services, providing greater robustness and redundancy than any other maritime satellite connectivity solution.

Digicel Pacific and O3b Networks bring 4G/LTE Connectivity to Remote Micronesian Island of Nauru

December 12, 2016 - O3b Networks announced that telecom company Digicel Pacific has signed an agreement to increase satellite capacity and bring state-of-the-art mobile connectivity to the remote Micronesian Island of Nauru. Digicel Pacific has been providing connectivity over the O3b satellite-enabled network to the island since January 2015, and has since upgraded its bandwidth by 108.6% over a series of three upgrades. With this boost in O3b's connectivity service, Digicel Pacific has deployed 4G/LTE mobile services, supporting the island of Nauru in driving significant economic and social development through enhanced mobile services. The high-throughput, low-latency connectivity provided by O3b's constellation of Medium Earth Orbit (MEO) satellites will give Nauru residents the fast and reliable mobile data experience needed to join an increasingly digitized international community.

SpeedCast Launches 'SpeedMail Business Unlimited'

December 13, 2016 - SpeedCast International has announced the official release of SpeedMail Business Unlimited, a revolutionary service bundle offering unlimited business email for the maritime industry. The SpeedMail Business Unlimited solution is based on the SIGMA Net platform using SpeedMail+, a primary VSAT connection and an MSS backup link. The SpeedMail Business Unlimited package is designed to provide maritime business continuity with predictable and fixed monthly costs, removing the fear of unexpected overage fees. SpeedMail+ is a secure cloud-based maritime email system, delivering efficient email plus file transfer services between ship and shore. Managing SpeedMail+ has never been easier with SpeedMail+ Portal, a cloud-based management application allowing IT managers to remotely configure and troubleshoot via a browser wherever their vessels are located. Vessel IT Managers can also opt to use the SpeedMail+ domain for email, or permit SpeedCast to host a designated corporate email domain for their fleet.

O3b Networks and Zieltec Bring High Performance Broadband to Fernando de Noronha

December 13, 2016 - O3b Networks announced a partnership with technology provider Zieltec Telecom Innovations, to bring high-performance broadband to Fernando de Noronha. O3b's satellite-enabled network and Zieltec's Last Mile Solution were demonstrated to regional corporate and government entities during an event on Brazil's premier resort island on 7th December, 2016. The event showcased the superior capabilities of O3b technology in delivering high-quality internet.

EchoStar Mobile Selects Bentley Walker as First European-Wide Distributor of New Mobile Satellite Services Network

December 14, 2016 - EchoStar Mobile has selected Bentley Walker as the first European-wide distributor for its new satellite-based network that will provide reliable, IP-based Mobile Satellite Services (MSS) for voice and data. Bentley Walker will distribute equipment and provide service via the new EchoStar XXI satellite that is scheduled for launch later this month. The S-band satellite will provide coverage throughout Europe, including all 28 members of the European Union. EchoStar subsidiary Hughes Network Systems (Hughes) has designed and manufactured a portable data terminal (PDT) that will serve as an MSS hotspot supporting advanced IP services and providing 3G/4G-compatible voice and data services. One of the key features of the PDT, which will be able to provide connectivity across Europe, is its ability to offer separate and diverse connectivity in remote locations or where backup is needed, such as in an environment where terrestrial or cellular networks may have failed.

Vroon Extends 140-plus Vessel Contract for KVH mini-VSAT Broadband Solution

December 14, 2016 - KVH Industries, Inc. has announced that Netherlands-based Vroon has extended its contract for KVH's maritime satellite communications solution, choosing the mini-VSAT Broadbandsm network for connectivity services onboard more than 140 Vroon vessels. The multi-year contract also includes KVH's IP-MobileCast^{TM} service for news, sports, movie, and TV delivery, and preventive maintenance checks to ensure peak performance on all fielded systems as part of the KVH OneCare^{TM} program.

Addvalue Launches the Latest Generation of Maritime Communications System

December 15, 2016 - Addvalue Innovation Pte Ltd ("Addvalue"), a wholly-owned subsidiary of Singapore's Mainboard-listed company, Addvalue Technologies Ltd, announced the launch of its latest generation maritime communications system specifically developed for Inmarsat - Wideye iFleetONE. The Wideye iFleetONE, with its compact design catering to the needs of small and mid-sized fishing and leisure vessels, has built-in Wi-Fi to allow users to maintain connection, via smart phones, tablets or laptops, to useful applications, such as weather chart updates and fish catch reporting. The Wideye iFleetONE makes it easy to talk, text, as well as sending and receiving emails while out in the open sea with the ease of one's mobile devices.

OmniAccess Brings New Standard of Mobile Broadband to Caribbean Yachts with HTS Capacity

December 15, 2016 - Telesat and OmniAccess, a leading supplier of integrated communications solutions to superyachts and cruise ships, announced a significant expansion in their relationship with OmniAccess contracting for high throughput satellite (HTS) capacity on Telesat's Telstar 12 VANTAGE satellite to serve the Caribbean. Telesat was the first satellite operator to provide bandwidth to OmniAccess and the companies have been working closely together for nearly a decade. OmniAccess has been providing mobile broadband to cruise ships and yachts in the Mediterranean using Telesat's Telstar 11N and Telstar 12 VANTAGE satellites and also to the Atlantic using Telstar 14R in combination with Telesat's teleport in Mount Jackson, Virginia. For this latest agreement, OmniAccess chose the HTS Caribbean beam of Telesat's Telstar 12 VANTAGE to bring a new standard of broadband performance to superyachts and other passenger vessels operating throughout the Caribbean – performance that supports links with aggregate throughput in excess of 220 Mbps.

HUGHES Introduces ActiveClassifier™ Technology for Wide Area Enterprise-Grade Networks

December 15, 2016 - Hughes Network Systems, LLC (HUGHES) introduced the newest innovation in its suite of HughesON™ ActiveTechnologies™ that transforms ordinary broadband connections into fast, application-aware enterprise-grade Wide Area Networks (WANs). Hughes ActiveClassifier is a WAN optimization technology that automatically analyzes traffic flows in real time, intelligently classifying business critical applications such as POS, video, VoIP, and cloud apps. ActiveClassifier ensures applications are mapped to the right class of service, and in conjunction with other Hughes ActiveTechnologies, delivers effective prioritization over the WAN. Furthermore, ActiveClassifier technology eliminates the onerous administrative overhead typically associated with defining fixed traffic rules and access lists.

COMSAT Announces Multiple AISR Contract Awards

December 19, 2016 - COMSAT has been awarded numerous, multi-year Airborne Intelligence Surveillance and Reconnaissance (AISR) contracts each totaling several million dollars in annual business. COMSAT's continuing growth to multiple AISR customers and additional critical mission sets are a testament to the quality of services provided by COMSAT's recently fielded state-of-the-art Managed Services Operations Center (MSOC) in Herndon, Virginia. The COMSAT MSOC provides 24/7/365 real-time monitoring and control (M&C), ensuring the ISR customers' assets are at Full Operational Capability (FOC) wherever and whenever tasked. The MSOC proactively monitors and manages the entire End-to-End (E2E) solution, provides real-time fault isolation and

restoration through the state-of-the-art Network Management System, and delivers a seamless process for users and mission planners to gain real time situational awareness data and rapidly adapt to changing requirements.

Thuraya Confirms 100% Connectivity for Kenyan Elections
December 19, 2016 - Thuraya Telecommunications Company has confirmed 100% transmission results for recent local elections in Kenya held in remote county assembly wards, enhancing the credibility of the electoral process. The success rate followed the deployment of satellite coverage, extensive training and support work provided in conjunction with Airtel Kenya. The Independent Electoral and Boundaries Commission (IEBC), the regulatory agency responsible for conducting and supervising referenda and elections in Kenya, needs to achieve full and immediate transmission of results. A delay in the confirmation of election results and declaration of winners prompts credibility concerns. In October, the IEBC were facing a particularly difficult challenge. Four by-elections were being held in county assembly wards that had limited or no terrestrial coverage. A joint team from both Thuraya and Airtel created a 14-day support program. IEBC election officers were given comprehensive training, as well as a results simulation exercise and technical support on election day itself. The results were comprehensive: operating with Thuraya SatSleeve and Samsung J2 smartphones, the IEBC reported 100% transmission results in both Mosiro and Kalokol. Transmission was successful, using a specially developed mobile app that can be downloaded from Google Play Store and which is compatible with smartphones.

OneWeb Announces $1.2 Billion in Funded Capital from SoftBank Group and Other Investors
December 19, 2016 - OneWeb Ltd. (OneWeb), which is building a constellation of satellites to enable global broadband access, and SoftBank Group Corp. (SoftBank) announced that OneWeb has secured $1.2 billion in funded capital from SoftBank and existing investors, of which $1 billion will come from SoftBank. The $1.2 billion fundraising round announced today will support OneWeb's revolutionary technological development and the construction of the world's first and only high volume satellite production facility. The new facility, based in Exploration Park, Florida will be capable of producing 15 satellites per week at a fraction of the cost of what any satellite manufacturing facility in the world can produce today, and expediting construction, launch and operations of its communications network. The SoftBank-led investment will also support development to enable global access to affordable high-speed internet services for everyone, including every unconnected school in the world by 2022, as well as using OneWeb's leading technology for growing global markets including consumer broadband, connected cars, cellular backhaul and the Internet of Things. OneWeb will begin production at the new manufacturing facility in Exploration Park, Florida, beginning in 2018.

India's ONGC Selects Hughes JUPITER™ System for Major Satellite Network Upgrade
December 20, 2016 - Hughes Communications India, Limited, a majority-owned subsidiary of Hughes Network Systems, LLC (HUGHES), announced that Oil and Natural Gas Corporation (ONGC), India's largest producer of crude oil and natural gas, has selected the Hughes JUPITER™ System to revamp and upgrade its existing satellite network across India. Hughes India will implement the JUPITER System to augment its existing C-Band Network with the latest HTS (High-throughput satellite) technology, delivering reliable multi-service data, voice, and video traffic with high spectral efficiency across nearly 200 offshore and onshore oil and gas platforms, drilling rigs and vessels, including enterprise managed services in locations spread across the country. The new setup will upgrade ONGC's existing ICNET and MFTDMA networks to a state-of-the-art architecture employing four JUPITER gateways, SCPC carrier-grade modems and several large antenna and RF systems. Valued at over INR 45 crore (US$6.7 million) the project will be carried out on a turnkey basis and will include new network installations, upgrades and network transition across 94 fixed sites and 112 nomadic sites with comprehensive maintenance for two years.

Inmarsat and European Space Agency Complete First Test Flights for Air Traffic Modernization Project
December 20, 2016 - Inmarsat has successfully completed the first flight trials for Iris Precursor, a ground-breaking project to enhance and modernize air traffic management over European airspace. Iris Precursor focuses on the development and deployment of secure satellite-based data link communications to significantly optimize European airspace capacity, leading to overall reductions in flight times, fuel burn and CO2 emissions. Iris Precursor aims to complement existing terrestrial data link communications (VDL2), which are expected to reach capacity in the near future. Inmarsat is conducting the Iris Precursor program with a consortium of leading companies from across the air traffic management, air transport, aeronautics and satcom industries, under the European Space Agency (ESA) umbrella. The program, which is supported by ESA's program of Advanced Research in Telecommunications Systems (ARTES), will deliver services via Inmarsat's secure next-generation SwiftBroadband-Safety platform.

SpeedCast Meets the Yachting Season's Rising Demand for Capacity

December 21, 2016 - SpeedCast announced the expansion of its Ku-band High Throughput Satellite (HTS) beams covering the Caribbean region. The new HTS beams augment the SpeedCast global Ku-band network, and provide additional capacity to the busiest yachting areas via 3-beam technology. This provides increased reliability and connectivity of up to 60 Mbps for yachts sailing throughout the Caribbean, which ensures that yacht owners and crew receive the high speed connectivity they demand. SpeedCast recognized the benefits that HTS technology delivers to the yachting sector, and extended its capacity to meet the growing demand for bandwidth from yacht owners. The combination of SpeedCast's global Ku-band network augmented with regional HTS beams ensures that yachting customers are always connected, wherever they are.

exactEarth to Provide India's Navy with Satellite AIS

December 22, 2016 - exactEarth has signed a contract with Antrix Corporation Ltd., the commercial arm of the Indian Space Research Organization (ISRO), to provide Satellite AIS data services to the Indian Navy. The three-year subscription revenue contract is valued at USD $1.75 million in total. With more than 7,500 km of coastline and significant off-shore resources, keeping track of maritime activity is paramount to maintaining India's security and economic activity. exactEarth's Satellite-AIS technology will help our client to identify, detect and track vessels of interest and to secure the country's maritime borders.

Eurowings will be First Low-Cost Carrier to Offer Inmarsat's GX Aviation In-flight Broadband Service

December 23, 2016 - Inmarsat has announced that Eurowings is the latest airline from the Lufthansa Group to select its advanced new GX for Aviation in-flight broadband solution. GX for Aviation will initially be equipped on 69 Airbus A320 family aircraft from the Eurowings fleet, with the option to add additional aircraft. The first installations have already been completed by Lufthansa Technik and testing is scheduled to commence in the New Year. All aircraft covered in this agreement are expected to be fitted out by the middle of 2017. Eurowings will be the first low-cost carrier to offer GX for Aviation, the world's only in-flight connectivity solution with reliable, seamless high-speed global coverage provided through a single operator. The service allows passengers to browse the internet, stream videos, check social media and more, with connectivity on par with broadband on the ground. In addition, Inmarsat's GX for Aviation service will be integrated with the existing in-flight entertainment system based on Lufthansa Systems' BoardConnect platform.

Roshan Signs with SpeedCast to Provide Cellular Backhauling Support in Afghanistan

December 23, 2016 - SpeedCast International Limited has been awarded a multi-year service agreement by Roshan, Afghanistan's leading telecommunications provider, to upgrade its cellular backhaul network to support 3G services over satellite in Zabul province in southwestern Afghanistan. Roshan has more than 6.5 million active subscribers across 287 districts and cities in all 34 provinces of Afghanistan. SpeedCast's cellular backhaul suite of solutions, under the CelCast™ name, are designed to optimize satellite traffic in telecommunication environments, lowering the total cost of ownership and bringing unrivalled quality of service to its customers' networks.

BROADCASTING

SES: MX1 Brings Sky Sport News HD Free-to-Air Channel via Satellite

December 1, 2016 - SES S.A. announced that MX1 will assist pay TV provider Sky in taking its first steps into free-to-air TV in Germany and Austria, by introducing Sky Sport News to audiences in these two markets. The 24-hour high definition (HD) sport news channel "Sky Sport News HD" will be free-to-air via satellite. In addition, Sky has contracted additional SES satellite capacity to also broadcast the channel in standard definition (SD). This provides Sky with access to more than 20 million households in Germany and Austria through ASTRA satellites. Global media services provider MX1 delivers the technical services, including uplink, signal encoding, and the transmission via ASTRA 19.2° East.

VSN Complements Roya TV Broadcast Systems with a New VoD and Streaming System for Multiplatform Content Creation and Delivery

December 1, 2016 - Roya TV, one of the most important private channels in Jordan founded in 2011, has once again trusted on VSN to go beyond traditional and linear TV Broadcast and start managing and delivering content in a multiplatform work environment, including Video on Demand offer and live Streaming broadcastings for its whole programming. To date, the Jordanian TV channel, a loyal customer of VSN since 2011, used for its daily operations a broad spectrum of VSN products, ranging from ingest and Media Asset Management (MAM), to

archive and storage, News system and MCR automation solution. That is, Roya TV has essentially been working with VSN's End-to-End broadcast system for the last years, which has been now completed even more thanks to the latest acquisition of VSNWEBTV system.

SES Adds 24/7 4KUNIVERSE Ultra HD Channel
December 5, 2016 - SES S.A. announced 4KUNIVERSE, a general entertainment Ultra HD channel, is the latest in a series of networks to join its fast-growing Ultra HD line-up being delivered to cable operators and other television platforms across North America. compelling mix of documentaries, sports, movies, and TV shows aimed at Millennials and Generation-X viewers, 4KUNIVERSE will make its debut in January on the SES-1 satellite, one of three satellites (SES-1, SES-3, AMC-18) hosting North America's leading Ultra HD distribution platform at the centre of the orbital arc. 4KUNIVERSE, licensed to multiple video program distributors (MVPDs) by Vivicast Media, is the fourth Ultra HD channel in less than two months to join SES's regional Ultra HD platform, home to eight linear Ultra HD channels as of January. SES has now inked distribution deals with over 30 Ultra HD channels globally.

Russian Channel Picks ATEME Contribution Technology
December 6, 2016 - ATEME has announced that JSC Channel One Russia, the premier company in the Russian Federation that broadcasts news, documentaries, feature film productions and entertainment programs, has selected ATEME's contribution technology to support its international TV content exchange. ATEME will be supplying its Kyrion encoder technology that has been designed for contribution over satellite and IP networks, with value added features such as ultra-fast-boot, ultra-low latency, and ABR output. Based on the ATEME fifth Generation STREAM compression engine, the Kyrion encoder provides the best baseband video quality at minimum bitrates. The ATEME Kyrion offers a software upgradable HEVC encoding option to support UHD video streaming as well as legacy MPEG2 to H264 compressions.

Euronews Partners GlobeCast to Deliver its First HD Channel on Eutelsat's Hotbird Satellite Platform
December 6, 2016 - International news channel Euronews has marked a new milestone following the launch of its first HD channel to viewers across Europe, North Africa and the Middle East on Nov 1 this year. With Globecast as its distribution partner, the new HD channel is encoded in MPEG-4 DVB S2 in Eutelsat's Hotbird satellite platform, which is designed to host international news and information channels. Prior to this announcement, both Eutelsat and GlobeCast had agreed to drive HD growth and increase transponder use across the Hotbird broadcast satellites.

SingTel OTT Movie Service Aims for 2017 Expansion to Malaysia and Vietnam
December 12, 2016 - Cloud-based movie and TV service Hooq, which is majority owned by SingTel, is planning to expand to Malaysia and Vietnam in 2017 followed by the Middle East and other regions. Hooq already operates an over-the-top (OTT) service in five countries and it has more than three million registered users since starting in early 2015, but its target market is one billion people. The company uses Amazon Web Services, Akamai and Microsoft Azure for its movies and TV programs. The SingTel group has a 67% stake in Hooq and the other two shareholders are Warner Brothers and Sony Pictures, splitting the remaining 33% evenly. The company was launched to compete against Netflix in the region. The company is already available to Globe Telecom customers in the Philippines, where the service launched in early 2015, and has since expanded to Telkomsel in Indonesia, AIS in Thailand, Airtel in India and SingTel in Singapore.

iDirect's DVB-S2X Technology Unlocks the Power of the Intelsat Epic[NG] Platform in Over-the-Air Tests
December 13, 2016 - VT iDirect, Inc. (iDirect) completed a successful round of over-the-air tests on the Intelsat 29e satellite leveraging iDirect's next-generation iQ Series remote. iDirect's ground infrastructure platform and iQ Series modem technology combined with Intelsat Epic[NG] satellites yielded a throughput rate of 5.71 bps/Hz – another demonstration of the up to 330% efficiency performance gains on the Intelsat Epic[NG] platform. This allows iDirect and Intelsat customers to exploit the full capabilities of the DVB-S2X standard so they can more efficiently meet demands for high-speed bandwidth. The tests were conducted in Intelsat's teleports from Oct 26-28, 2016 on the Intelsat 29e satellite, running on an iQ remote installed in Atlanta and iDirect's new Universal Line Card and Hub chassis installed in Mountainside, MD. The successful tests included the operation of DVB-S2X carriers with 64APSK, 128APSK and 256APSK modulation and coding, and roll-off factors of 5%. The user data tests demonstrated substantial efficiency improvements reaching an industry-leading 5.71 bps/Hz in throughput per remote.

Ukrkosmos Launches DTH Teleport Powered by Harmonic

December 13, 2016 - Harmonic, the worldwide leader in video delivery infrastructure, announced that Ukrkosmos, the state-appointed operator of satellite telecommunications systems in Ukraine, has selected a Harmonic video compression solution to support its new teleport offering for direct-to-home (DTH) service delivery. Harmonic's Electra™ X2 advanced media processor provides high-quality, low-bandwidth MPEG-2 and MPEG-4 AVC variable-bitrate encoding of SD and HD video content for live DTH services, enabling Ukrkosmos to deliver more channels with superior video quality. Due to several factors, including increased DTH delivery costs, the satellite TV industry is looking to adopt more efficient video delivery approaches, such as shared capacity via teleports. Harmonic's Electra X2 media processor boosts video compression efficiency for Ukrkosmos operators. Powered by the Harmonic PURE Compression Engine™, the Electra X2 media processor supports a variety of formats and codecs, including the next-generation HEVC codec, providing Ukrkosmos with a flexible and bandwidth-efficient solution. With the Electra X2 solution, Ukrkosmos can control multiple encoding and playout operations from a single interface. Reducing the number of discrete boxes in the broadcast chain reduces network complexity, resulting in an operation that is easier to set up, manage and maintain.

SES to Carry Eight TV Channels for Ukrainian 1+1 Media Group

December 15, 2016 - SES S.A. has signed a capacity deal with 1+1 Media Group, one of the largest media holdings in Ukraine. The long-term agreement is for the lease of one transponder on the ASTRA 4A satellite positioned at 5 degrees East. The capacity contracted by 1+1 Media will enable the group to host all of its eight channels on SES's satellite. Seven of the Direct-to-Home channels serve the Ukrainian market: "1+1", "2+2", "TET", "PLUSPLUS", "Bigudi", "Unian TV" and "Kvartal TV". The other channel of the group, "1+1 International", is oriented towards representatives of the Ukrainian diaspora in Europe, and is an international version of the popular "1+1" channel.

SES and CANAL+ in Long-term Capacity Agreement

December 19, 2016 - SES and CANAL+ Group have confirmed the signature of a long-term, multi-year, multi-transponder framework agreement for SES satellite capacity in both France and Africa. The contract conditions are beneficial to both parties, and reflect the volume, extended duration and payment terms.

Travelxp 4K Joins SES Ultra HD Line-up in North America

December 19, 2016 - SES has announced that Travelxp 4K, an international travel channel, will make its Ultra HD debut next month on SES's growing Ultra HD distribution platform serving cable operators and multichannel television platforms throughout North America. Offering audiences compelling stories from faraway places, the world's first 4K travel channel, Travelxp 4K, is set to launch on the SES-1 satellite, one of a trio of SES satellites (SES-1, SES3, AMC-18) that are home to the region's leading Ultra HD distribution platform. Travelxp 4K, licensed to multichannel video program distributors (MVPDs) by Vivicast Media, is the latest in a series of Ultra HD channels to join SES's Ultra HD platform, home to nine linear Ultra HD channels as of January. SES has now signed distribution agreements with more than 30 Ultra HD channels globally, of which 21 are commercial.

AsiaSat and GlobeCast Distribute DW's New HD Channel on AsiaSat 7

December 20, 2016 - Asia Satellite Telecommunications Company Limited (AsiaSat) has reached an agreement with GlobeCast to deliver Deutsche Welle's English-language program in HD to the Asia-Pacific region. DW in HD is an additional offering next to the existing TV channel in SD and radio services on AsiaSat 7. DW's German-language program will continue its service across Asia via AsiaSat 5. For the past 20 years, AsiaSat and DW have partnered to bring German information and culture to Asia. The enhanced service offering demonstrates their commitment to providing more high-quality and relevant content to Asia. The AsiaSat fleet's comprehensive access to Asian TV viewers has enabled DW to upgrade viewing experience as well as harness audience with different language interests.

NSSLGlobal Acquires Norwegian IPTV Specialist SnapTV

December 20, 2016 - NSSLGlobal announces the acquisition of Norwegian IPTV company SnapTV. The new partnership will see SnapTV and NSSLGlobal working together to promote and develop entertainment services for maritime and offshore companies. With advanced state of the art TV and media distribution rights for all of the major players, SnapTV is well positioned to enhance the working environment and crew welfare on ships and oil rigs. Established in 2006, SnapTV provides a range of infotainment software, hardware and services. Its infotainment software service (delivered via an easy-to-use GUI) includes television, recording (nPVR), video on demand and radio. The deal with SnapTV signifies the start of NSSLGlobal's new investment program where it proactively seeks out young innovative companies to invest in with applications that will work as an Added Value

Service to NSSLGlobal customers, whilst the two parties continue to work independently and attract their own clients. The investment program will see NSSLGlobal offer capital, contacts and expertise to help propel the start-ups to the next level.

MX1 and ASTRA Continue to Provide Discovery with Services and Reach
December 22, 2016 - SES S.A. announced that MX1, a wholly-owned subsidiary of SES and a global media service provider, and ASTRA, the largest European Direct-to-Home (DTH) satellite system, have extended their contracts with Discovery Networks Germany for capacity, content management and playout. The contract covers the broadcasting of the Discovery channels DMAX, TLC, Eurosport 1 and DMAX Austria in SD, and DMAX, TLC and Eurosport 1 in HD via the ASTRA satellites at 19.2 degrees East. The agreement also allows Discovery Networks Germany to use the innovative media service platform "MX1 360" for content management and playout. The "MX1 360" platform is fully integrated with the broadcaster's systems and facilitates the management of pre-broadcast features such as planning commercial breaks from a single interface.

ABS and Nepal Digital Cable (NDC) Launch a New DTH Platform on ABS-2 Satellite
December 23, 2016 - ABS and Nepal Digital Cable (NDC) signed a multi-transponder agreement to deliver Direct-to-Home (DTH) broadcast service into Nepal. The new platform will broadcast over 170 TV channels of local and international content. Audiences will be able to enjoy an array of high quality programming. This new service will commence in February 2017 on ABS-2, South Asia Ku-band beam at the prime location of 75°E covering Nepal and neighboring South Asia countries. ABS-2 was launched in 2014 as one of the most powerful satellites in the Eastern Hemisphere with 89 transponders. It is a versatile SSL 1300 spacecraft, and is designed to serve DTH requirements.

LAUNCH / SPACE

Arianespace Orbits an Earth Observation Satellite for Turkey Using the Vega Launcher
December 5, 2016 - Arianespace has successfully launched the GÖKTÜRK-1 satellite within the scope of a turnkey contract with Telespazio on behalf of the Turkish Undersecretariat for Defence Industries (SSM). The launch took place on December 5, 2016 at 10:51:44 a.m. local time, from the Guiana Space Center in Kourou, French Guiana. This was the 10th launch of the year for Arianespace and the second with Vega in 2016. It also marked the eighth successful launch in a row of this lightweight launcher, which made its debut at the Guiana Space Center in 2012. GÖKTÜRK-1 is the first Turkish Earth observation satellite launched by Arianespace in the six missions it has performed to date for Turkey. Featuring a very-high-resolution optical payload, this satellite will provide images for both civil and military applications. Telespazio, prime contractor for the GÖKTÜRK-1 program, is in charge of satellite integration and the associated ground support equipment.

NASA Awards Contract to SSL for Refueling Mission Spacecraft
December 5, 2016 - NASA has awarded the Restore-L Spacecraft Bus and Support Services contract to Space Systems/Loral. Restore-L is a robotic spacecraft equipped with the tools, technologies and techniques needed to service satellites currently in orbit. The contract has a firm-fixed-price and includes a three-year core period and a two-year indefinite-delivery/indefinite-quantity portion. The total maximum value of the contract is $127 million. Space Systems/Loral will provide spacecraft bus, critical hardware and services for the development, deployment and operations of the Restore-L mission. They also will provide related services to accomplish mission integration, test, launch and operations. The Restore-L Project is managed within NASA's Satellite Servicing Projects Division at the agency's Goddard Space Flight Center in Greenbelt, Maryland, for NASA's Space Technology Mission Directorate. The Satellite Servicing Projects Division at Goddard was established in 2009 to continue NASA's 40-year legacy of satellite servicing and repair. Restore-L is a free-flying mission projected to launch in 2020 to perform in-orbit satellite servicing on an operational government asset in low-Earth orbit.

Arianespace to Launch Inmarsat S-band / Hellas-Sat 3 Satellite
December 8, 2016 - Following the activation of an existing launch option, Inmarsat and Hellas-Sat have entrusted the launch of their telecommunications satellite Inmarsat S-band / Hellas-Sat 3 to Arianespace. The satellite will be launched by Ariane 5 launch vehicles at the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana, Q2 of 2017. Inmarsat S-band / Hellas-Sat 3 will provide Mobile Satellite Services (MSS), Fixed Satellite Services (FSS) and Broadcast Satellite Services (BSS). Built on the Spacebus 4000 C4 platform from Thales Alenia Space, it will deliver a multi-beam mission in S-band for Inmarsat as well as a powerful Ku/Ka-Band

mission of 44 Ku and 1 Ka transponders for Hellas-Sat. The satellite will weigh about 5.9 tons at launch and will offer payload power of about 12.3 kW. Inmarsat S-band / Hellas-Sat 3 will be positioned at 39° East.

45th SW Supports Successful Delta IV WGS-8 Launch
December 8, 2016 - The 45th Space Wing supported United Launch Alliance's successful launch of the WGS-8 spacecraft aboard a ULA Delta IV rocket from Space Launch Complex 37 here December 7 at 6:53 p.m. ET. The ULA Delta IV rocket is carrying the Air Force's eighth Wideband Global SATCOM communication spacecraft. WGS provides anytime, anywhere communication for soldiers, sailors, airmen, Marines, and international partners through broadcast, multicast, and point-to-point connections. The WGS constellation is the highest-capacity military communications system in the U.S. Department of Defense arsenal. WGS supports a wide variety of missions for Combatant Commanders around the world to perform missions, from search and rescue efforts to military operations. According to Brig. Gen. Wayne Monteith, 45th Space Wing commander and mission Launch Decision Authority, this launch is the culmination of many long hours and hard work by the entire mission team.

Launch Success of the H-IIB Launch Vehicle No. 6 with H-II Transfer Vehicle "KOUNOTORI6" on Board
December 10, 2016 - Mitsubishi Heavy Industries, Ltd. and the Japan Aerospace Exploration Agency (JAXA) successfully launched the H-IIB Launch Vehicle No. 6 (H-IIB F6) with cargo transporter to the International Space Station, the H-II Transfer Vehicle "KOUNOTORI6" (HTV6) on board on December 9, 2016 (JST) from the Tanegashima Space Center. The launch vehicle flew as planned, and at approximately 15 minutes and 11 seconds after liftoff, the separation of HTV6 was confirmed. The H-II Transfer Vehicle (HTV) "KOUNOTORI", developed and built in Japan, is an unmanned cargo transfer spacecraft that delivers supplies to the International Space Station (ISS). Its first, "technical demonstration flight" was launched in September, 2009. HTV is scheduled to launch about once a year to contribute to the ISS operations.

Thales Alenia Space Wins European Commission Contracts to Support ESA and GSA for Galileo System
December 15, 2016 - Thales Alenia Space signed two new contracts with the European Space Agency (ESA) and the European GNSS Agency, GSA, respectively covering engineering services for the development of Galileo infrastructure and support for the beginning of operational services from this global navigation system. The contracts signed today are worth a total of 180 million euros and cover work during the period 2017-2020. The engineering contract concerning Galileo satellites exploitation phase will support the development of Galileo's infrastructure to provide initial services starting in 2017 and to make it fully operational by the end of 2020. Based on this contract, Thales Alenia Space Italy will carry out all design, safety, integration, inspection and in-orbit validation operations in support of ESA, while also supporting GSA for the validation and provision of services starting in 2017. Thales Alenia Space is also in charge of the design and development of the system ground segment, along with the production of some of its most important parts (tracking and time generation receivers), and significant parts of the space segment (antennas and onboard signal generators), to be produced and integrated at the company's Rome and L'Aquila plants.

Orbital ATK Successfully Launches NASA's CYGNSS Spacecraft aboard Pegasus Rocket
December 15, 2016 - Orbital ATK announced that its Pegasus rocket successfully launched the Cyclone Global Navigation Satellite System (CYGNSS) satellite for NASA. The successful launch was the 29th consecutive successful mission for the Pegasus rocket since 1997 and the 43rd overall flight of the world's first privately developed commercial rocket. Pegasus is the leading launch system for the deployment of small satellites into low-Earth orbit. As the only NASA Launch Services Category 3 vehicle in the small-launch class, Pegasus is certified to launch NASA's most valuable satellites. The CYGNSS constellation of eight satellites is a NASA Earth System Science Pathfinder Mission that will collect space-based measurements of the inner core of tropical cyclones. The CYGNSS constellation will provide scientists and meteorologists with the data necessary to improve tropical cyclone forecasting and tracking methods.

Thales Alenia Space Signs Contract with ESA for ExoMars 2020 Mission
December 16, 2016 - Thales Alenia Space signed the contract with the European Space Agency (ESA) to complete activities concerning the ExoMars 2020 mission. Following recent decision by the ESA Ministerial Council to approve additional funding needed to pursue ExoMars program, this last tranche of the industrial contract awarded to Thales Alenia Space, prime contractor, marks a key step forward to carry out final work for the ExoMars 2020 mission. ExoMars is a joint program between ESA, the Russian space agency Roscosmos and ASI, with NASA also playing a major role. As in 2016, the second ExoMars mission will also be led by ESA and Roscosmos, who will be taking a more extensive role than on the previous mission. The ExoMars 2020 spacecraft

comprises a Carrier Module (CM), a Descent Module (DM) and a 300-kg rover, carried by a Landing Platform (LP) and capable of exploring the planet's surface for 218 Martian days, or about 230 Earth days.

Agreement Signed between ISS-Reshetnev's Technology Platform and AeroNet Group

December 16, 2016 - The Technology Platform "National Information Satellite System" led by ISS-Reshetnev Company and the AeroNet working group of the National Technology Initiative signed a cooperation agreement. The agreement covers expertise of projects implemented by ISS-Reshetnev's Technology Platform jointly with the AeroNet group, coordinated examination of and support for applications submitted to various scientific and innovative foundations' competitions as well as federal and state subsidized programs. Additionally, the two parties agreed to work together capitalizing on ISS-Reshetnev Technology Platform's expertise with a view of developing other programs within the framework of the National Technology Initiative. The technology platform "National information satellite system" was initiated in 2011and is now coordinated by ISS-Reshetnev Company to act as a platform uniting business, science, education and public authorities. It embodies 108 Russia's leading companies and research organizations working together towards a mutual aim – to develop and efficiently apply various space-based systems and complexes, and to increase Russia's presence on the global satellite market.

Lockheed Martin Successfully Launches EchoStar XIX Satellite to Power HughesNet Gen5 Service

December 19, 2016 - Lockheed Martin Commercial Launch Services has successfully launched the EchoStar XIX communications satellite. An Atlas V 431 blasted off from Space Launch Complex 41, placing EchoStar XIX in orbit for customer Hughes Network Systems, LLC (HUGHES), an EchoStar company, and marking the 139th consecutive successful Atlas launch to date. The rocket, a United Launch Alliance (ULA) Atlas V 431, was provided by Lockheed Martin Commercial Launch Services. For commercial missions, Lockheed Martin is responsible for contracts, licensing, marketing, sales and mission management of Atlas. EchoStar XIX will enable HughesNet Gen5, the next generation of HughesNet satellite Internet service, delivering more speed, more data, and more advanced features for U.S. consumers and small businesses coast to coast who are unserved or underserved by terrestrial broadband Internet services.

GMV Contributes towards the Start of Galileo's Initial Services

December 19, 2016 - On 15 December the European Commission, owner of the system, formally announced the start of Galileo Initial Services, the first step towards full operational capability, expected by 2020. Until that time further launches will continue to build the satellite constellation, which will gradually improve system performance and availability worldwide. As well as supplying several key elements of Galileo's ground segment, GMV is currently the prime contractor for Galileo's essential Timing and Geodetic Validation Facility (TGVF) services; it is co-leading development of the European Union's GNSS Service Centre (GSC) and is leading the development of the Galileo Reference Centre (GSC) as well as Galileo's commercial service (CS) demonstrator. It is also responsible for design and development of the Return Link Service Provider (RLSP) of the program's Search and Rescue Service (SAR). Furthermore, on the strength of its long track record in navigation, GMV has also been busy developing user apps to exploit the priceless infrastructure it is helping to build. Over the years this ongoing effort has borne fruit in the shape of numerous GNSS products, initially developed for the traditional systems (GPS and GLONASS) and then gradually brought into line with the Galileo system.

ViaSat and Boeing Complete Preliminary Design Review for ViaSat-3 Satellites

December 20, 2016 - ViaSat Inc., a global broadband services and technology company, and Boeing, today announced that Preliminary Design Review (PDR) for the first two ViaSat-3 class satellites was completed on November 16, 2016. Concluding PDR is the first critical milestone toward confirming the ViaSat-3 satellites will satisfy performance specifications and requirements when operating on orbit. Completion of this step allows ViaSat and Boeing to begin detailed design work on each satellite. The first flight hardware is on schedule to arrive in ViaSat's Tempe, Arizona satellite integration facility in late 2017. The first ViaSat-3 class satellite is expected to launch in 2019. The ViaSat-3 class of Ka-band satellites is expected to provide unprecedented capabilities in terms of service speed and flexibility. The first two satellites will focus on the Americas and on Europe, Middle East and Africa (EMEA), respectively, with a third satellite planned for the Asia Pacific region, completing ViaSat's global service coverage. Each ViaSat-3 class satellite is expected to deliver more than 1-Terabit per second of network capacity, and to leverage high levels of flexibility to dynamically direct capacity to where customers are located.

Success of Epsilon-2 Launch with ERG Aboard

December 20, 2016 - The Japan Aerospace Exploration Agency (JAXA) successfully launched the second Epsilon Launch Vehicle with Exploration of energization and Radiation in Geospace (ERG) aboard at 8:00 p.m. on

December 20, 2016 (JST) from the Uchinoura Space Center. The launch vehicle flew as planned, and at approximately 13 minutes and 27 seconds after liftoff, the separation of ERG was confirmed. Japan succeeded in launching its second satellite-loaded solid fuel rocket. It was only three years and three months after the first solid fuel projectile was launched.

Addvalue's Inter-Satellite Data Relay Terminal Completes One-year of In-orbit Testing

December 20, 2016 - Subsequent to the successful launch of the VELOX-II satellite on 16 December 2015, Addvalue Innovation Pte Ltd (Addvalue), a wholly-owned subsidiary of Singapore's Mainboard-listed company, Addvalue Technologies Ltd, announces that its Inter-Satellite Data Relay System (IDRS) terminal, designed, built and tested in Singapore has successfully completed one year of on-orbit testing with all primary objectives met. These tests clearly demonstrate that IDRS based communications can significantly improve the operation of LEO satellites. The Addvalue IDRS terminal communicated over Inmarsat's proven, high reliability Broadband Global Area Network (BGAN), which operates exclusively from geostationary orbits, and operated in space aboard the VELOX II satellite platform built under contract by NTU. Addvalue's IDRS is an innovative new service that addresses a long standing constraint on the operation of low earth orbit (LEO) satellites. Currently, communications with LEO satellites is only available when the satellite is within sight of an earth station.

Spacecom Orders Multi-band HTS from Boeing Satellite Systems International

December 21, 2016 - Spacecom, operator of the AMOS satellite fleet, entered into a satellite procurement agreement with Boeing Satellite Systems International. The deal is worth US$161 million. The new satellite, AMOS-17, expected to be launched in 2019, will operate from 17°E and will expand and strengthen Spacecom's coverage of the growing satellite service markets in Africa, the Middle East and Europe. AMOS-17 will be designed for an in-orbit life of more than 15 years with payload power of approximately 8.5 kW. AMOS-17 will offer Ka-band, Ku-band and C-Band services. It will have a combination of broad regional beams and high throughput spot beams to maximize throughput and spectral efficiency. By providing extensive Ka-Band coverage over the Middle East, Europe and Africa, Ku-Band and C-Band over Africa, it will be a catalyst for Spacecom's growth plans over the next decade.

Arianespace's 11th Successful Mission of 2016 Orbits the Star One D1 and JCSAT-15 Satellites

December 21, 2016 - Arianespace has successfully launched two satellites: Star One D1 for Embratel Star One, and JCSAT-15 for SKY Perfect JSAT Corporation. The launch took place on December 21, 2016 at 5:30 p.m. (local time) from the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana. This was the 11th and final launch of the year for Arianespace, the seventh with Ariane 5 in 2016, as well as the heavy-lift launcher's 76th consecutive success and its 90th launch overall. Star One D1 was built by SSL (Space Systems Loral) in using an SSL 1300 platform. To be positioned at 84° West, it is fitted with 70 Ka-, C- and Ku-band transponders. It will cover Brazil, Latin America (West), Mexico, Central America and the Caribbean. JCSAT-15 was built by SSL (Space Systems Loral) using an SSL 1300 platform. It had a mass at liftoff of approximately 3,400 kg. and offers a design life of 15 years. Positioned at 110° East, it will replace N-SAT-110, launched in 2000, and will cover Japan, Oceania and the Indian Ocean region.

Bank Guarantee to Support GLONASS Development

December 22, 2016 - Academician M.F. Reshetnev Information Satellite Systems – ISS-Reshetnev Company obtained a bank guarantee enabling it to continue working with a view of developing the GLONASS satellite navigation system. A guarantee exceeding 8.1 billion roubles was issued to the Reshetnev Company by the VTB Bank. The guarantee which is valid till 2021 will enable the company to conduct research and development work within the framework of the GLONASS state contract without having to use substantial amounts of working capital. ISS-Reshetnev Company is prime contractor responsible for the space-based complex of the GLONASS global satellite navigation system. To develop the system, the company is currently building advanced Glonass-K and Glonass-K2 navigation satellites featuring increased capabilities and technical characteristics.

JSC ISS Reshetnev and Thales Alenia Space to Build Express-80 and Express-103 satellites

December 28, 2016 - Commissioned by RSCC, the two space hardware manufacturers have been building two new satellites that will join the Russian state-owned orbital satellite constellation in 2019. The two spacecraft, Express-80 and Express 103, are scheduled to be orbited in the third quarter of 2019. The satellites will be placed in the 80° and 103° E orbital slots, respectively. The mission of the Express-80 and Express 103 satellites is to provide communications and broadcasting services in the C- and Ku-bands over the territory of Russia and CIS countries. In June 2016, RSCC signed a contract with JSC ISS Reshetnev Company for delivery of spacecraft platforms for the two satellites. Another contract was signed with Thales Alenia Space to build payloads for them.

The initial contractual payment by the customer has been made on 28 December 2016. RSCC is having the two spacecraft built using financial support of (Russia's largest) savings bank (the Sberbank), which provided a loan to fund activities under the contract with the Reshetnev Company. Also, under the terms of a credit agreement, another bank, the Alfa-Bank, is providing the funding to build payloads for the Express-80 and Express 103 spacecraft.

EXECUTIVE MOVES

KVH Industries Announces Appointment of Chief Financial Officer

December 2, 2016 - KVH Industries, Inc. appointed Donald Reilly to serve as Chief Financial Officer effective December 19, 2016. Reilly will succeed John McCarthy, who has served as Interim Chief Financial Officer since May 2016. McCarthy will remain with KVH to facilitate the transition. Reilly most recently held the position of Vice President, Corporate Controller and Chief Accounting Officer at Nortek, Inc., a publicly traded manufacturer and distributor of produts and systems for use in building and remodeling homes and commercial structures.

Newtec Appoints Sjoerd De Clerck as a New Sales Vice-President for the Asia-Pacific Region

December 8, 2016 - Newtec has appointed a new sales Vice-President for the Asia-Pacific region. Sjoerd De Clerck will be responsible for leading the Asia-Pacific team and ensuring the company's continued growth across the continents. The appointment follows Newtec's partnership with leading Asian players and several important customer wins. All leading satellite operators, the majority of broadcasters, service providers and Satcom partners are among customers served by Newtec in the Asia-Pacific region. De Clerck's previous appointments include positions at Barco N.V. – a global technology company that designs and develops virtualization solutions for a variety of professional markets – where he held various VP positions. He will be based at Newtec's Singapore office and report to Newtec's global Chief Commercial Officer (CCO) Thomas Van den Driessche.

SES Joins Newly Elected Board of 5G Infrastructure Association

December 12, 2016 - SES S.A. announced that Christine Leurquin, Vice President, Institutional Relations and Communications at SES, has been elected to the Board of the 5G Infrastructure Association. The role of the 5G Infrastructure Association in the 5G Infrastructure Public Private Partnership (PPP) is to be the counterpart to the EU Commission on the private side of the 5G PPP. Its work includes preparing contributions to the dedicated 5G PPP work program in Horizon 2020. Its aim is also to contribute to 5G policy-oriented topics on standards, spectrum and trials, as well as interaction with international partners. Once deployed, 5G will be the key enabler for the further digitalization of the European economy, accommodating the diverse connectivity needs of industrial applications such as high speed, low latency, resilience and ubiquity. 5G networks will serve a broad range of industries, especially the automotive, transportation, healthcare, energy, manufacturing and media and entertainment sectors.

Eutelsat Appoints Sandrine Téran as New Group Chief Financial Officer

December 13, 2016 - Eutelsat Communications announced the appointment of Sandrine Téran as Group Chief Financial Officer and member of the Executive Committee. She will join Eutelsat on 9 January 2017. Sandrine Téran was formerly Managing Director of Louis Dreyfus Holding (based in the Netherlands) and has occupied other key executive positions in the Louis Dreyfus Group during the past eight years, notably Global Head of tax and Corporate Secretary, and subsequently Global CFO of Louis Dreyfus Company. From 2000 to 2008 she was head of taxation, corporate finance and internal audit at Eutelsat, contributing to significant structural changes including the privatization in 2001 and the IPO in 2005. She began her career at Ipsen as risk manager in charge of tax and insurance before joining Euro Disney where she was Head of tax.

Kratos Appoints Kevin Walden as Chief Information Officer

December 13, 2016 - Kratos Defense & Security Solutions, Inc., a leading National Security Solutions provider, announced that Kevin Walden has been appointed as Chief Information Officer of the Company. Walden has been serving as acting Chief Information Officer since earlier this year. In his capacity as CIO, Walden will be responsible for all information technology of the Company, including information security, information compliance and data communications. Walden has over 30 years of experience in the Information Technology field, including the last twelve years working in various capacities at Kratos.

Eutelsat Appoints Antoine Mingalon as new Chief Human Resources Officer

December 15, 2016 - Eutelsat Communications announced the appointment of Antoine Mingalon as Group Chief Human Resources Officer and member of the Executive Committee. He will join Eutelsat on 2 January 2017. Mingalon is a seasoned professional in human resource leadership, with more than 20 years of experience managing cross functional teams, articulating Human Resource needs, developing talent and improving business performance through digital transformation. He joins Eutelsat from Vimpelcom, the international telecom services group, where he was Group Human Resources Director - Technology Function, based in Amsterdam.

Advantech Wireless Appoints New Director of Operations

December 20, 2016 - Advantech Wireless, a global leader for High Throughput Satellite (HTS) broadband communications solutions, is pleased to announce the new Director of Operations, Michel Miglia. Miglia joins Advantech Wireless with over 20 years of experience, with strength in implementing lean manufacturing technology to reduce manufacturing lead times and improve customer satisfaction. In his past success, Miglia, was instrumental in similar positions for a variety of companies such as Honeywell, PerkinElmer, Emerson, and Harris Corporation. In his new role, Miglia leads the Operations Team at Advantech Wireless to ensure the supply chain and manufacturing operations elevate to the next level of efficiency meeting the growing demand of the business.

Newtec Names Thomas Van den Driessche as New CEO

December 22, 2016 - Newtec announced that after ten years of dedicated and successful leadership CEO Serge Van Herck has decided to resign and move his career in another direction. Newtec is grateful to Van Herck for his leadership over the past decade and wishes him all the best with his new undertakings. Newtec's Board of Directors has appointed Thomas Van den Driessche, who was named Chief Commercial Officer four years ago, to succeed Van Herck as CEO, effective from January 1, 2017.

XCOR Aerospace Announces Organizational Changes

December 28, 2016 - XCOR announced two organizational changes. Michael Valant has been named Vice President of Engineering and CTO. Geoffrey Nunn has been named Vice President, Operations & Programs. In 2006, Michael Valant joined XCOR working on the design and development of various propellant systems at XCOR, including the engines for the XCOR Lynx spacecraft. He has taken increasingly more responsible roles within the company and has most recently served as Director of Engineering and Acting CTO since 2015. Mike has over 20 years of experience in rocket propulsion system design, thermodynamics and numerous other areas of industry experience. With an extensive background in mechanical engineering, Geoffrey Nunn has over 30 years of experience in program management, working for companies including Honeywell, Alliant Techsystems, Hughes Aircraft, Raytheon and SAIC. In 2015, he started working at XCOR as program manager for the Lynx program, and was promoted to Director of Programs shortly after joining the company.

REPORTS

Unmanned Aircraft Systems – A $23.6 Billion Revenue Opportunity for Satcom and Geospatial Industries

December 5, 2016 - NSR's Unmanned Aircraft Systems (UAS): Satcom and Imaging Markets, 3rd Edition report projects cumulative revenue opportunity of $19.9 billion for UAS satellite communications and $3.7 billion for commercial UAS imaging service during the 2015-2025 period. The persistent demand for Intelligence, Surveillance and Reconnaissance (ISR) by the Defense & Intelligence community in hostile areas drives the demand for unmanned airborne solutions. Ongoing conflicts across the globe have pushed this demand from government and international organizations, who are increasingly using UAS for peacekeeping, border patrolling, and humanitarian efforts. However, such demand for large UAS platforms is becoming difficult to match with supply, as most manufacturing programs across the globe are delayed. NSR projects more than 5,000 active UAS Satcom units by 2025, with Medium Altitude Long Endurance (MALE) airframes accounting for 80% of the growth.

WTA Publishes New Research Report: The Effective Strategic Partnership for Teleport Operators

December 8, 2016 - The World Teleport Association (WTA) released The Effective Strategic Partnership for Teleport Operators, a new research report. The Effective Strategic Partnership for Teleport Operators explores the factors that produce or prevent success in developing strategic partnerships in a more networked world. It explores issues of strategy and objectives, management focus, alignment of staffing and incentives with the

partnership strategy, and best practices in qualifying potential partners, reaching agreement and monitoring and managing the partnership over time.

Euroconsult Report Targets Satellite Value Chain
December 12, 2016 - Euroconsult's latest report, Satellite Value Chain: The Snapshot 2016, brings together a selection of key trends and indicators on supply and demand from Euroconsult's 2016 reports complemented by additional dedicated research on the commercial satellite business to give a snapshot of the commercial satellite value chain. Along with the introductory/overview section, the report includes sections on satellite manufacturing & launch services, satellite communications, Earth observation, and satellite navigation. Designed as a customized executive presentation of nearly 40 PowerPoint slides, each including multiple graphs with explanatory text, the report proposes a selection of Euroconsult's 2016 key graphs and data complemented by additional dedicated research on the commercial satellite business. The report covers each segment of the value chain, from upstream to downstream, and commercial satellite applications.

NSR Report Sees Long Term Potential in the Land-based Mobility via Satellite Market
December 12, 2016 - NSR's newly released Land-Mobile via Satellite, 4th Edition (LMvS4) report projects cumulative revenue will top $18.1 billion during the 2015-2025 period. The market is highly dependent on new products and timely launch of higher bandwidth satellites, which leverage increased bandwidth demand brought about by use of personal electronic devices in the field. The recent Iridium NEXT launch delays just add to a growing list of 'bad' news that puts a damper on industry expectations. The picture is far from depressed with more services using new capacity from GEO-HTS and eventually Non-GEO-HTS systems that give better cost-per-bit economics, which NSR estimates to add approx. $2.8 B in cumulative HTS retail revenues by 2025. The traditional satellite handheld business is still adding new subscribers, but the focus has shifted towards linking personal electronic devices to the world via satellite, which drives the addition of new products and multi-mode connectivity solutions such as consumer handhelds, hotspots and push-to-talk.

WTA: The Effective Strategic Partnership for Teleport Operators
December 13, 2016 - In the WTA report, The Teleport of Tomorrow, teleport operators told us that strategic partnerships will become their primary channel to market in a more networked world. Developing effective partnerships, however, is a major challenge. What should teleport operators seek in a strategic partner? What must they bring to the table in their particular market niche? And how does the way a teleport operator does business have to evolve to become truly effective at creating and maintaining partnerships that produce results?

UPCOMING EVENTS

CES 2017, January 5-7, Las Vegas, USA, www.cesweb.org

PTC'17: *Changing Realities*, January 15-18, 2017, Honolulu, USA, www.ptc.org/ptc17
PTC's annual conference is the Asia-Pacific's premier telecommunications event. Now in its 39th year, the conference serves as the strategic springboard for the global telecommunications industry. The conference provides all attendees with a three-and-a-half-day platform to focus on planning, networking, and discovering what the new year will bring. Join us at PTC'17: *Changing Realities* from 15–18 January 2017 to explore the shifting landscapes of business, customer demands, the global economy, and the global regulatory environment. Come learn how these new realities will affect you and how you can chart your own path through the dynamic changes of our industry. Visit ptc.org/ptc17 to learn more.

APSCC - PTC'17 Session: What do End Users Actually Want?
January 16, 2017, Honolulu, Hawaii, www.ptc.org/ptc17
While new technology is good, as are lower prices, are we actually meeting end user needs in the Pacific? Why/why not? What is being provisioned now and future? What gaps we must fill? Where does the satcom model fall short? The session, "What do End Users Actually Want?" will discuss end user needs across various applications and markets.

Maritime Reconnaissance and Surveillance Technology 2017, January 30-31, 2017, Rome, Italy, www.maritime-recon.com/satnews

Global Space Congress, January 31-February 1, 2017, Abu Dhabi, UAE, http://globalspacecongress.com

Convergence India 2017, February 8-11, 2017, New Delhi, India

25th Convergence India 2017 expo, Convergence India is South Asia's biggest & most influential trade event for the Telecom, IT, broadcast & digital media industry. Now in its 25th edition, Convergence India 2017 expo will be held during 8-10 February 2017 at Pragati Maidan, New Delhi. For more information, please visit: http://www.convergenceindia.org/

MilSatCom Middle East 2017, February 21-22, 2017, Abu Dhabi, UAE, http://milsatcom.me/

Global Space & Technology Convention, February 22-24, 2017, Singapore, http://space.org.sg/index.php/gstc

SATmob: Government & Commercial Satellite Mobility Forum, February 22, 2017, Singapore, http://www.talksatellite.com/satmob2.htm

Satellite 2017, March 6-9, 2017, Washington DC, USA, www.satshow.com

ABU Digital Broadcasting Symposium 2017, March 6-9, 2017, Kuala Lumpur, Malaysia, www.abu.org.my

Telecoms World Asia 2017, March 21-22, 2017, Bangkok, Thailand, www.terrapinn.com/conference/telecoms-world-asia/

CABSAT 2017, March 21-23, 2017, Dubai, UAE, www.cabsat.com

CABSAT is the leading professional content entertainment event in the MEASA region. An exciting, interactive event featuring all the major global technology and content service providers for this growing industry, CABSAT continues to extend its global and regional reach. The show is the dominant broadcast, digital media and satellite communications technology platform for anyone wishing to target broadcasters, production houses and studios, animation houses, content owners and creators, software developers, telcos, systems integrators and distribution channels in the MEASA region.

DRIVING THE "TRANSFORMATIVE" MENA ENTERTAINMENT MEDIA MARKET- CABSAT: 21-23 March 2017 Dubai World Trade Center

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About APSCC

APSCC is a non-profit, international organization representing all sectors of satellite and space-related industries. The aim of the organization is to exchange views and ideas on satellite technologies, systems, policies and outer space activities in general along with satellite communications including broadcasting for the betterment of the Asia-Pacific region. Conferences, forums, workshops, and exhibitions are organized through regional coordination with its members in order to promote new services and businesses via satellite as well as outer space activities. APSCC membership is open to any government body, public or private organization, association, or corporation that is involved in satellite services, risk management or associate fields such as data-casting, informatics, multi-media, telecommunications and other outer-space related activities with interests in the Asia-Pacific region. More information is available at www.apscc.or.kr.