

APSCC Monthly e-Newsletter

OCTOBER 2019

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.apsc.or.kr. To unsubscribe, send an email to info@apsc.or.kr with a title "Unsubscribe."

News in this issue has been collected from September 1 to September 30.

INSIDE APSCC

Mark Your Calendar for APSCC 2019 on Nov 19 – 21 in Bangkok, Thailand! **Intercontinental Hotel Bangkok, Thailand**

APSCC is pleased to announce that the APSCC 2019 Satellite Conference & Exhibition will be held in Bangkok, Thailand on 19th – 21st November 2019. For the first time held in November as Asia's must-attend executive event for the satellite and space industry, APSCC 2019 will incorporate industry veterans and new players through the 3-day of in-depth conference program to a broader audience. For more information please visit www.apscsat.com

APSCC Shares Innovations with Industry Experts at New Space Pitch Competition

APSCC is pleased to announce The 1st Annual New Space Pitch Competition will be held in Intercontinental Hotel Bangkok, Thailand on November 21, 2019. It aims to encourage New Space startups to share their thoughts on developing/growing the New Space economy in Asia with established satellite operators, manufacturers, and investors. Join us to share your innovations with industry experts. For more information please visit <https://apscsat.com/newspace-competition/>

Inside APSCC

APSCC Board Appoints Christopher Slaughter

September 16, 2019 - The Asia-Pacific Satellite Communications Council (APSCC) has appointed Christopher Slaughter in an interim position to consult with both the APSCC Board and Secretariat to accelerate the organization's developmental and strategic goals.

"The Board of Directors recognizes the rapid changes in the Asian space industry and believes that APSCC can actively engage in and take a more prominent role in promoting the mutual interests of the entire industry," said APSCC President Gregg Daffner. "With his background in trade association leadership and membership relations, and his extensive experience in the Asia Pacific region, we are confident that Christopher will help the APSCC achieve its goal to enter a new era."

Previously CEO of the Cable and Satellite Broadcasters' Association of Asia (CASBAA), Slaughter has been living and working in Asia for more than 30 years. He started his career as a radio and television journalist, became Asia leader for a global TMT research and consulting group, and was Managing Director and Executive Producer for a regional independent production company.

"It's an exciting time in the regional satellite industry, with so much going on in new space and so many emerging commercial space endeavours," Slaughter said. "I'm also looking forward to working with all the APSCC Members, the Board, and the excellent staff at its Secretariat based in Seoul, South Korea to focus on key regulatory and market access issues, as well as the expansion of APSCC."

SATELLITE BUSINESS

EM Solutions Secures Multiple Project Wins with Australian Department of Defence

September 2, 2019 - EM Solutions, the Australia-based technology developer of innovative microwave and on-the-move radio and satellite products, has been awarded two contracts from the Australian Department of Defence Innovation Hub to develop next-generation satellite ground terminal capability. The first is a AUD\$ 1.9M contract to develop a low-profile, flat panel antenna satellite communications terminal. Based on a novel low cost 'leaky-wave' antenna developed in concert with researchers at the University of Queensland, this system is intended to provide improved communications capability from land, air or sea platforms to any satellite. In the same announcement from the Australian Minister for Defence Industry, the company was also awarded a AUD\$ 5.8M contract to continue its development of a ruggedised satellite communications terminal for potential deployment on current and future Royal Australian Navy vessels. This projects aims to deliver a prototype communications terminal for testing and demonstration.

Inmarsat's Satellite Technology Saves Lives, Supports Sustainable Fishing in Indonesia

September 3, 2019 - Inmarsat, working with the Indonesian Ministry of Marine Affairs and Fisheries, its Department of Fisheries, the UK Space Agency and other partners marked the successful closure of a three-year fisheries innovation project. Using low-cost, solar-powered satellite technology on smaller fishing vessels, the project aimed to enhance safety, efficiency, ship to shore contact and offer potential fish stock sustainability improvements. With Indonesia's long coastlines and more than 17,000 islands, it is difficult and costly to monitor vessel movements in the country's waters. Independent analysis by consultancy Poseidon Aquatic Resource Management Limited, published today, showed that applying modern, satellite-based technology to smaller boats below 30 gross tonnage (30GT), not currently legally required, supported the local industry's move towards safer, more sustainable and profitable operations. It also has potential to improve the ability of Indonesia's Ministry of Marine Affairs and Fisheries (MMAF) to address illegal fishing. With funding from the UK Space Agency and support from Inmarsat, this International Partnership Programme project was implemented to test the benefits and challenges of expanding the use of satellite-based Vessel Monitoring Systems (VMS). The tested satellite VMS system was expanded with various applications and is referred to as VMS+.

NTT DOCOMO Awards Gilat an LTE Satellite Backhaul Project to Expand its LTE Footprint English

September 3, 2019 - Gilat Satellite Networks Ltd. announced that NTT DOCOMO, INC., the largest mobile carrier in Japan, awarded Gilat a project for LTE satellite backhaul, to expand its LTE footprint. Gilat in partnership with SKY Perfect JSAT (JSAT) will provide NTT DOCOMO a solution for rural coverage extension, while ensuring secure and robust coverage even in the most challenging weather conditions. NTT DOCOMO is engaged in a project to extend LTE service to islands and other hard to reach regions to provide a superior user experience to their customer base throughout Japan. Gilat's satellite backhaul operated by JSAT's powerful JCSAT-4B satellite will enable this DOCOMO service in selected areas of Japan. In support of Japan's highly demanding cellular market, NTT DOCOMO is leading in development of 5G networks, leveraging network function virtualization (NFV) and other technologies, actively pursuing the next generation cellular networks. Gilat, as an active member in the SaT5G standard organization, looks forward to providing satellite backhaul to support NTT DOCOMO's 5G leadership.

Iridium and Thales Expand Partnership to Deliver Aircraft Connectivity Services

September 3, 2019 - Iridium Communications Inc. announced Thales as the newest Iridium Certus aviation service provider. While already developing the Iridium Certus-based FlytLINK terminal and antenna, Thales will now be able to offer both Iridium Certus terminals and Iridium Certus connectivity services to business jets, commercial aircraft, rotorcraft, general aviation and UAVs. Iridium Certus is the only L-band broadband platform providing truly global connectivity and upon aviation terminal availability, will provide a state-of-the-art solution for two-way flight deck and business cabin communications. Iridium Certus will turbocharge the company's existing suite of aircraft safety services, including providing Iridium Future Air Navigation System (FANS) applications such as standard and "enhanced" ADS-C, controller-pilot data link communications and ATS Safety Voice, once certifications are complete. Beyond safety services, Iridium Certus will deliver flight deck and business cabin-friendly internet capabilities such as electronic flight bag services, graphical weather, blackbox streaming, email, credit card processing, VPN access and social media posting and monitoring.

Eutelsat Statement on C-Band Alliance

September 3, 2019 - Eutelsat announces its withdrawal from the C-Band Alliance (CBA), which has been formally notified to the CBA members today. It appears that Eutelsat was not aligned with other members and the CBA leadership team on certain matters. In this context, leaving the CBA is the best way to have a direct involvement and to represent the interests of Eutelsat and its stakeholders in this C-band process. As a reminder, the CBA is an organization tasked with the clearing and repurposing of C-band spectrum to make a portion of this band available for 5G services in the United States. Eutelsat wishes to take a direct active part in the discussions on C-band clearing and repurposing. Meanwhile, C-Band Alliance members Intelsat, SES, and Telesat are fully committed to the market-based approach for clearing C-band spectrum in the U.S. The C-Band Alliance notes the statement of Eutelsat issued to withdraw from the Alliance. The CBA remains committed to delivering its expeditious, market-based proposal and the departure of Eutelsat does not impact the CBA's ability to do so. The remaining members of the CBA, which represent approximately 95% of the affected revenues of the US C-band market, are aligned and committed to the process of engaging with the FCC on the proposal of rapidly clearing C-band spectrum to support the deployment of 5G services in the U.S.

C-Band Alliance Issues Response to Eutelsat Decision to Withdraw from Alliance

September 4, 2019 - The C-Band Alliance notes the statement of Eutelsat issued to withdraw from the Alliance. The CBA remains committed to delivering its expeditious, market-based proposal and the departure of Eutelsat does not impact the CBA's ability to do so. The remaining members of the CBA, which represent approximately 95% of the affected revenues of the US C-band market, are aligned and committed to the process of engaging with the FCC on the proposal of rapidly clearing C-band spectrum to support the deployment of 5G services in the US.

Astrocast Announces Series A Funding Round to Go Commercial

September 4, 2019 - Astrocast announced the successful close of CHF 9M (\$9.2/€8.3 Million) Series A round of funding from new and existing investors. The company has raised CHF 16.6M to date and will use the capital to accelerate production of IoT modules, to begin our commercial phase and deployment of the Astrocast's Low Earth Orbit (LEO) IoT Network. Astrocast is the only IoT company partner with aerospace industry leaders Thruaya, the European Space Agency (ESA) and Airbus. The launch of second test satellite in April of this year makes Astrocast the first to prove its ability to launch, propel, accurately determine the position and communicate with their LEO nanosatellites in less than 2 hours after launch. The company is also the first to have commercial access to the L-band frequency enabling energy efficient and reliable two-way IoT communications, anywhere. Both satellites have completed a full system test and are functioning at full capacity. Astrocast is now engaging commercial discussions with partners. Its first three pilot customers, Actia, Marine Instruments, and Swiss Fresh Water have begun on-the-ground testing.

Speedcast Enhances Stena Drilling Communications Solution with Addition of Crew Wi-Fi

September 4, 2019 - Speedcast International Limited has been awarded a contract to add Crew Wi-Fi to their fully-managed communications services onboard Stena Drilling's global fleet. Stena Drilling is one of the world's leading drilling contractors and has been a valued customer of Speedcast for years. Speedcast manages Stena's global remote communications across their fleet of four drill ships and two semi-submersible rigs, and will now be adding Crew Wi-Fi to all assets following a successful pilot on a drillship currently operating in Guyana. Speedcast Crew Wi-Fi provides Stena's onboard personnel with fast and reliable internet access to communicate with family and friends, browse the web, engage on social media platforms and stream content, with personnel paying with credit card or PayPal through a self-service portal. Crew members can purchase vouchers, add credits or change plans as they wish by accessing the self-service portal and a direct billing gateway from their personal devices. Speedcast Crew Wi-Fi provides customers with a simple internet option for crew without the burden of administering or managing the service, letting customers' networking and IT teams focus on their business.

OneWeb Brings Fiber-like Internet for the Arctic in 2020

September 4, 2019 - OneWeb announced the details of its Arctic high-speed, low-latency internet service. OneWeb will deliver 375 Gbps of capacity above the 60th parallel North. With service starting in 2020, there will be enough capacity to give fiber-like connectivity to hundreds of thousands of homes, planes, and boats, connecting millions across the Arctic. The dense, flexible coverage of OneWeb's polar-orbiting satellites coupled with its high-speed service and low latency capabilities will provide a superior connectivity experience to the 48% of the Arctic currently without broadband coverage. In fact, OneWeb

most recently proved its system's capabilities through HD video streaming tests last month with its first six satellites that showcased extreme low latencies under 40 milliseconds and high speed services. A global network, OneWeb's Arctic service will be deployed significantly earlier and provide 200 times more capacity than planned systems. Substantial services will start towards the end of 2020, with full 24-hour coverage being provided by early 2021, supplying unprecedented blanket coverage to every part of the Arctic Circle.

Hughes in Partnership with Facebook Launches Wi-Fi Hotspots in Colombia

September 4, 2019 - Hughes Network Systems, LLC (HUGHES) announced a partnership with Facebook to launch Wi-Fi hotspots in Colombia, supported by the Facebook Express Wi-Fi software platform. Service providers and telecommunications integrators in Colombia can join Hughes to enable local merchants to offer affordable, high-speed Internet access to their customers on a prepaid basis anywhere in Colombia – even in the most remote and rural places – employing a compact Hughes satellite VSAT (Very Small Aperture Terminal) and Facebook's Express Wi-Fi software platform. Facebook's Express Wi-Fi is a software platform that helps service providers build, operate, grow, and monetize their Wi-Fi business in a sustainable and scalable way. Facebook partners with service providers and operators who expand the provision of fast, affordable, and reliable access to the Internet over Wi-Fi supported by the Express Wi-Fi platform. Hughes customers have deployed over 32,000 satellite-enabled Community Wi-Fi hotspots in Brazil, Indonesia, Mexico and Russia, bringing the benefits of Internet access to more than 25 million people around the world. With a Community Wi-Fi hotspot, any user can access the Internet with a Wi-Fi capable handheld or laptop, either on a prepaid or government-subsidized (USO) basis, depending on the service model. The solution can be readily deployed virtually anywhere within the satellite footprint, including areas unserved or underserved by wireline or wireless infrastructure.

SES to Enhance and Expand O3b mPOWER System Capabilities with Dynamic Software Innovation

September 5, 2019 - SES has announced Adaptive Resource Control (ARC), a dynamic software solution under development in partnership with Kythera Space Solutions. This groundbreaking system will further enhance the market-leading flexibility and efficiency of O3b mPOWER, SES's next-generation medium earth orbit (MEO) communications system. ARC will enable the dynamic control and optimisation of power, throughput, beams and frequency allocation across the entire O3b mPOWER system's space and ground assets, resulting in the efficient delivery of low-latency, satellite-based data services with a superior end-user experience. ARC will deliver unprecedented levels of automation and adaptability for telco, government, and communications-on-the-move customers, enabling predictable, reliable services delivered over O3b mPOWER. ARC uses standards-based application programming interfaces (APIs) for easy integration into SES's service orchestration solution based on Open Network Automation Platform (ONAP). ARC and ONAP work together as a unified service delivery and optimisation solution, with ARC managing the physical network resources allocated to services orchestrated end-to-end by ONAP. SES's high-throughput low-latency O3b mPOWER communications system, scheduled to launch in 2021, will leverage seven next-generation MEO satellites, each capable of generating thousands of electronically-steered beams that can be dynamically adjusted to suit customer demand and geographic position.

Global Fishing Watch Extends Contract with ORBCOMM for AIS Data

September 5, 2019 - ORBCOMM Inc., a global provider of Machine-to-Machine (M2M) and Internet of Things (IoT) solutions, announced that Global Fishing Watch has extended their contract for another three years for ORBCOMM's satellite Automatic Identification System (AIS) data. Global Fishing Watch is an independent, international non-profit organization originally set up through collaboration by Oceana, Google and SkyTruth to advance ocean sustainability through greater transparency in global fishing activity. ORBCOMM provides Global Fishing Watch with tens of millions of AIS data points every day that show the movement of the world's largest commercial vessels over time. By leveraging ORBCOMM's AIS service, Global Fishing Watch can classify these time-stamped positional vessel data points as either "fishing" or "non-fishing" activities, enabling anyone in the world to have free access to a near real-time and/or historical global view of fishing activity.

VITEC Sets Course for Rapid Expansion in Middle East

September 6, 2019 - Riding a wave of increased spending by the military and defence sector, and bolstered by the pressing need for Oil & Gas and broadcast organizations to streamline operations and optimize operational costs through the use of advanced technologies, VITEC, a global leader in end-to-end video streaming solutions, has doubled down on its investment in the Middle East. Earlier this year, the company

established its presence in the region with the inauguration of an office in Dubai and has since expanded its workforce and customer base at an accelerated pace. Over the next year, the company intends to continue the expansion of its workforce, extend its channel partner ecosystem, and deepen penetration into key customer accounts across the Oil & Gas, Broadcast, and Military & Defence sectors, particularly in the UAE, Jordan and Turkey.

Saturn Satellite Networks Acquires NovaWurks Inc to Support Nationsat Program

September 9, 2019 - Saturn Satellite Networks Inc. (Saturn), a US Delaware Corporation that is building the world's first space qualified small digital GEO satellite platform named Nationsat has signed a definitive agreement to acquire NovaWurks Inc, a California based corporation that is the developer of the Hyper Integrated Satlet (HISat), a GEO qualified satellite platform that is modular and scalable to any payload mission in any orbit or power requirements. The transaction is due to take place over a course of three years for an undisclosed amount of cash and stocks. Upon the final closing, NovaWurks will become a wholly owned subsidiary of Saturn and its shareholders will become minority shareholders of Saturn. NovaWurks HISat will serve as the basis of the platform for Saturn's Nationsat program which will be built entirely in the USA and features fully digital payloads for both wide beam and HTS applications. Saturn Satellite Networks is a unit of Airspace Internet Exchange Inc. a US Delaware corporation which was founded by Mr. Tom Choi, a US Citizen and its majority shareholder. Mr. Choi, is an inductee to the Satellite Hall of Fame in 2017 and winner of Via Satellite's Satellite Executive of the Year Award in 2012. Mr Choi is also the founder of Speedcast and ABS Global.

Algérie Telecom Satellite Selects Hughes JUPITER System to Launch Satellite Internet Service

September 9, 2019 - Hughes Network Systems, LLC announced that Algérie Telecom Satellite (ATS), the leading public satellite telecommunications provider in Algeria, has selected the Hughes JUPITER™ System to enable satellite broadband service to home users and small-to-medium enterprise (SME) customers. The mission of ATS is to develop and promote satellite telecommunications throughout Algeria, the 10th largest country in the world and the largest in Africa. ATS will launch satellite Internet service employing the market-leading JUPITER System, including a hub and thousands of user terminals. The JUPITER System is the next-generation Very Small Aperture Terminal (VSAT) platform from Hughes for broadband services over both high-throughput and conventional satellites. Employing the DVB-S2X standard for highly efficient use of satellite bandwidth, the JUPITER System powers services on more than 40 satellites around the world, and is the foundation for HughesNet®, the flagship satellite Internet service from Hughes, with more than 1.4 million subscribers in the Americas. The JUPITER System supports applications such as Community Wi-Fi hotspots, cellular backhaul and in-flight connectivity services, in addition to broadband Internet access.

SES Extends Global Reach of Microsoft Azure ExpressRoute with Multi-orbit Satellite Systems

September 9, 2019 - SES announced it will provide dedicated, private network connectivity from any vessel, airplane, enterprise, energy or government site in the world to Microsoft Azure via its unique multi-orbit satellite systems. As a partner of Azure ExpressRoute, SES will provide global reach and fibre-like high-performance to Azure customers via its complete portfolio of Geostationary Earth Orbit (GEO) satellites, Medium Earth Orbit (MEO) O3b constellation, global gateway network, and core terrestrial network infrastructure around the world. SES will offer Azure customers opportunities to leverage its satellite-enabled managed services to connect locations and sites in rural, remote and underserved locations, as well as vessels and airplanes out at sea and in the skies that previously did not have access to cloud services. In addition to its global fleet of over 50 GEO satellites, SES also delivers managed data services over its proven O3b MEO satellite system, the only successful non-geostationary orbit (NGSO) broadband constellation. SES's 20 O3b satellites comprise the only operational system today that can deliver fibre-equivalent, MEF-certified data connectivity services, and certified cloud connectivity services.

Viasat Introduces Direct Cloud Connect

September 9, 2019 - Viasat Inc. announced its plans for a new business internet service known as Viasat Direct Cloud Connect, which will give Viasat customers expanded options for accessing enterprise-grade cloud services. The Viasat Direct Cloud Connect service is expected to launch in the second half of calendar year 2019, and will first offer cloud connection services to Microsoft Azure via Azure ExpressRoute. As a new Microsoft Azure ExpressRoute partner, Viasat will offer a secure, dedicated network connection to Azure. Azure ExpressRoute creates a high-speed, low-latency, private link between a customer's on-premises infrastructure or colocation facility and Azure cloud regions. This direct connection ensures

Viasat's business customers can reliably take advantage of Azure's integrated cloud services including: computing, database, analytics, networking, storage and more. The private connection also ensures remote facilities remain central to a business's cloud networking plans by ensuring these locations also have consistent access to a dedicated connection to Microsoft Azure cloud services. Viasat provides high-speed, high-quality satellite broadband solutions to businesses and commercial entities around the world. The Viasat and Microsoft Azure ExpressRoute collaboration will initially focus on the U.S., with an opportunity to expand globally.

Wavestream First to Market with an IFC Transceiver Supporting Multi-Orbit Constellations

September 9, 2019 - Wavestream announced the availability of a high-power transceiver designed for In-Flight Connectivity (IFC). The transceiver is the first to operate in extended Ka-band frequencies of 27.5-30.0 GHz over current GEO networks and is well-positioned to enable cutting-edge services for NGSO constellations. The state-of-the-art transceiver with 25W of output power was designed for IFC terminal integrators, commercial airlines and business jet owners wishing to access the abundant bandwidth resources to be made available over the coming LEO/MEO satellite networks. The new product is currently undergoing line-fit qualification for both Airbus and Boeing aircraft, in support of a leading tier-one service provider's production orders scheduled for delivery later this year.

Gogo and APSATCOM Partner to Enables High-speed Wi-Fi for Chinese Airlines

September 9, 2019 - Gogo and APT Mobile Satcom Limited (APSATCOM), a leading satellite operator in the Asia Pacific region, announced an agreement to provide inflight connectivity (IFC) service for Chinese airlines with Gogo's industry-leading satellite connectivity solution 2Ku. Gogo will leverage APSATCOM's Ku-band network to enable the fastest inflight Wi-Fi solution within China for domestic and international airlines. APSATCOM's network includes both wide-beam satellites and High-Throughput Satellites (HTS), with the APSTAR 6D satellite bringing significant HTS capacity and 100% coverage over China for inflight connectivity in mid-2020. The partnership will enable state-of-the-art network management services via APSATCOM's Network Operating Center (NOC) and data center in China, in tandem with Gogo's global Ku satellite network outside of China. With this partnership and regulatory clearance to operate in China, Gogo and APSATCOM will offer an end-to-end IFEC solution inclusive of inflight systems, inflight experiences and operational support – available to Chinese airlines across both retrofit and line-fit programs.

mu Space Signs First Customer Zeta IOS among 7 Partners for Upcoming High Throughput Satellite

September 10, 2019 - Satellite and space tech company mu Space announced has signed a contract with Malaysian telecom service provider Zeta IOS to provide broadband connectivity across Malaysia and Southeast Asia using mu Space's own high throughput satellite, to be launched in 2022. This marks the first time mu Space secured a customer to lease capacity for their upcoming satellite to be launched in the next 3 years. Zeta IOS is one of the seven regional partners that are expected to lease satellite capacity from mu Space. Zeta IOS aims to enable satellite broadband solutions that are easy-to-install and offer widespread coverage. By contracting capacity on mu Space's high throughput satellite, Zeta IOS will be improving the quality of life for Malaysia's citizens by providing cost-effective and reliable broadband service to local businesses and homes alike. According to mu Space's plan, the company expects to launch in 2022 its own high throughput geostationary satellite to fill in the growing demand for satellite connectivity in smart cities, Internet of Things (IoT), in-flight connectivity and connected vehicles. The satellite is planned to deliver 40Gbps capacity and equipped with technologically advanced steerable beams focused over Asia-Pacific.

Optus Selects Hughes JUPITER System to Enable Satellite Services throughout Australia

September 10, 2019 - Hughes Network Systems, LLC announced that Optus Satellite has selected the Hughes JUPITER™ System as its satellite platform to offer next generation services to its customers. The companies signed a multi-year master services agreement, under which Optus Satellite will purchase JUPITER System equipment to: extend 3G and 4G services; lay the foundation for 5G; power enterprise services such as satellite news gathering; and deliver mobility services for maritime vessels – all throughout Australia and New Zealand. Hughes JUPITER™ System, the market-leading satellite networking solution, backhauls all generations of cellular technologies. A high-performance platform, the JUPITER System delivers 300 Mbps throughput per terminal with acceleration supporting 16,000 simultaneous TCP sessions. Employing the DVB-S2X standard for highly efficient use of satellite bandwidth, the platform saves up to 60% of satellite bandwidth with integrated 4G/LTE optimization. The JUPITER System

supports applications such as broadband Internet access, Community Wi-Fi hotspots and in-flight connectivity services, in addition to cellular backhaul.

Avanti and Arabsat Agree Spectrum Resolution

September 10, 2019 - Avanti and Arabsat have reached an agreement that will allow both companies to operate their respective satellites – Avanti’s HYLAS 2 and HYLAS 3 and Arabsat’s 6A. The resolution follows successful inter-operator talks in Cyprus concerning HYLAS 2 and 3, located at 31E, and the Arabsat 6A satellite located at 30.5E – as well as the associated networks in the frequency bands 17.7-20.2 GHz and 27.5-30.0 GHz. The respective communications authorities in the UK and the Kingdom of Saudi Arabia, Ofcom and the Communications and Information Technology Commission (CITC), have notified the agreement to the International Telecommunication Union (ITU), which settles the dispute amicably. This was done on the basis of a range of engineering and spectrum usage solutions. The two operators can continue to provide vital communications to their customers, free from interference. The news comes at an important time for both businesses as they have recently launched new satellites – Avanti’s HYLAS 3 and Arabsat’s 6A. The ITU process played a crucial role in the settlement. Avanti and Arabsat want to express their appreciation for the efforts of their communications authorities (Ofcom and the CITC), the ITU Radio Bureau and the Radio Regulatory Board.

Hughes India Launches Maritime Mobility Services

September 10, 2019 - Hughes Communications India Ltd, (HCIL) announced the launch of commercial maritime mobility services in India. HCIL was the first to receive a Flight and Maritime Connectivity (FMC) license in India, which permits the company to provide mobility services within 125 kilometers of the Indian coastline. Now, as the first to offer satellite maritime services in India, HCIL enables reliable and ubiquitous connectivity to vessels sailing in domestic waters – as well as internationally – through roaming partnerships with select maritime providers. HCIL’s maritime mobility services deliver high capacity and efficiency, enabling broadband access that can be used to monitor weather patterns, cut fuel costs, file regulatory documents, order supplies from sea to save time in port and improve safety, among other uses. For crew and passenger welfare, the services make it possible for people at sea to browse the Internet, check social media, watch videos and more – with the quality comparable to that of terrestrial broadband connectivity. The HCIL maritime service offering includes the Hughes JUPITER System platform domestically and provides for roaming among international waterways with global ecosystem partners. The JUPITER System is the next generation platform for very small aperture terminal (VSAT) networks, designed and optimized for broadband services over both high-throughput and conventional satellites.

ThinKom Phased Arrays Enable Satcom for Indonesian Federal Police

September 10, 2019 - ThinKom Solutions, Inc. has supplied its ThinSat 300 flat-panel phased-array antennas for Indonesian Federal Police command center vehicles to access satellite broadband on the move. The project is a collaboration of ThinKom, Skyreach, Heimdall Defence and Newtec. ThinKom supplied the antenna, integrated with the Newtec Dialog® Hub. Heimdall was responsible for system integration, installation, user interface and operator training, and Skyreach is providing VSAT connectivity. Initially, the systems have been deployed on two Indonesian Federal Police vehicles. Other installations are expected to follow in the coming months. The field-proven ThinSat 300 antenna is just 4.3 inches high and mounts on a standard roof rack. Total weight, including the radome, is 120 pounds. Based on ThinKom’s patented phased-array technology, the vehicle-mounted antenna enables robust IP networks, streaming video and voice-over-IP applications without stopping to deploy a fixed satellite terminal or waiting for a blockage recovery.

BridgeComm Signs Cooperative Agreement with Saturn Satellite Networks

September 10, 2019 - BridgeComm, Inc. has signed a cooperative agreement with Saturn Satellite Networks Inc. (Saturn), a leader in high performance mini GEO Satellites. Saturn has introduced its “NationSat” satellites to address the needs of developing economies by employing advanced digital processing to increase flexibility, improve performance, and reduce weight thereby providing disruptive economics for customers. Saturn is also developing other disruptive communications solutions for a much broader range of services to their customers. BridgeComm will support Saturn’s new communications architectures enabling secure, high-speed communications. BridgeComm will work to provide Saturn with optical communications system design and systems engineering. BridgeComm will also support Saturn in key design parameters as well as with ground communications services. Finally, Saturn and BridgeComm will jointly work to support both commercial and US Government customer solutions.

Mission Microwave Enables Intellian Ka-Band Terminals for HTS and LEO Satellite Networks

September 10, 2019 - Mission Microwave Technologies, LLC, a manufacturer of highly efficient Solid State Power Amplifiers (SSPAs) and Block Up Converters (BUCs) and Intellian, the global leader of mobile satellite communication antenna systems, confirmed their progress in building extremely high throughput terminals for newly launched Ka band capacity and the completion of early deployment trials on a LEO constellation. Intellian have designed high capacity mobile terminals for the rapidly growing Ka-band HTS (High Throughput Satellite) market and needed to be able to offer high power Ka-band solutions to support wide bandwidths and up to 32-ary advance modulation schemes. Based on Intellian's prior and on ongoing work with Mission Microwave the companies have aligned their engineering efforts to create an exceptional product offer for maritime, mobile and LEO/MEO satellite operators.

Collins Aerospace, SES and Vista Global to Launch LuxStream Connectivity Service

September 12, 2019 - Collins Aerospace Systems, a unit of United Technologies Corp., is teaming with leading satellite operator SES to bring business aviation customers the fastest broadband speeds available within the United States. The two companies are launching LuxStream – the only service that offers speeds up to 25 Mbps in the United States and 15Mbps globally via SES's managed Ku-band satellite network. Vista Global – providing worldwide business flight services with a fleet of 116 owned aircraft and access to 1,500 jets globally – will be the launch customer for the new system. Collins Aerospace will deliver the LuxStream service, as well as its new Collins Aerospace Cabin Router on Vista Global's fleet of aircraft for both of its brands – VistaJet and XO – starting with the company's 36 Global business jets under VistaJet, the group's leading brand and only global business aviation company. The higher bandwidth of the LuxStream service will enable more VistaJet Members to use more devices and more apps simultaneously whilst flying anywhere in the world. This new solution, available as part of Collins Aerospace's ARINCdirect portfolio of services, will provide both VistaJet and XO with additional benefits.

Intelsat General Introduces FlexGround: a Solution for Mobility without Sacrificing Speed

September 12, 2019 - Ground forces operate in an increasingly sophisticated, unpredictable environment, and the ability to instantaneously access high-data rate communications from even the most austere environments is critical to mission success. Many communications methods currently available have a cumbersome form factor, are expensive and do not satisfy the need for secure, high data rate bandwidth communications to the tactical edge. Intelsat General Communications (IGC), a wholly owned subsidiary of Intelsat, is changing this with today's announcement of FlexGround, a new service that provides military troops around the world with fast, resilient and secure communications for mobility applications requiring compact terminals. FlexGround supports a range of lightweight tactical and early entry user terminals, including Communications-On-The-Pause (COTP), Manpack and Emergency Responder communications. It enables data, voice and video communications including the ability to meet the High Definition Full-Motion Video (HD FMV) needs of intelligence, surveillance and reconnaissance (ISR) applications.

C-COM Antenna Tracks NSLComm LEO Satellite

September 13, 2019 - C-COM Satellite Systems Inc., the world's leading provider of commercial grade auto-acquire mobile satellite antennas, announced its successful integration of its 74cm Flyaway antenna system with NSLComm's Low Earth Orbit (LEO) nanosatellite. NSLComm is an Israel based pioneering nanosatellite telecommunications company that launched the first Gigabit per second Ka-band satellite into orbit in July of this year. This uniquely successful test completes a significant development project between the two companies. It will open new markets and create new opportunities for both companies. C-COM's engineering team developed the NSL ground station demonstrator terminals along with the required tracking software to NSLComm specifications, using the renowned iNetVu® 7700 series controllers. NSLComm provided access to their powerful Ka-band LEO nanosatellite and assisted with daily testing.

Cobham SATCOM Launches New VSAT Series and Low Profile BGAN On-the-Move Terminal

September 14, 2019 - Cobham SATCOM has announced the launch of its three new VSAT terminals: EXPLORER 6100 Ku, EXPLORER 6075LX and EXPLORER 3100 Ku, as well as a low profile BGAN on-the-move terminal EXPLORER 323. The latest VSAT addition to Cobham's market-leading EXPLORER portfolio, the EXPLORER 6000 Series is the first ever range of Fly-Away VSATs featuring the unique stabilization technology known from the EXPLORER 8000 Drive-Away systems. The EXPLORER 6100 Ku answers demands within the market for a lightweight and stabilized 1m Ku-band Auto-Acquire Fly-Away terminal

and offers high-performance connectivity across locations and environments. The EXPLORER 6075LX is the 0.75m Ka-Band variant specially developed for Inmarsat's Global Xpress Land service. With the embedded GX Modem the antenna offers a true global and lightweight solution that provides seamless access to high-speed, mobile satellite broadband. The system is easily deployed within minutes, and combined with DPC technology, it is ideally suited for the highly mobile nature of outside newsgathering, emergency response and military applications.

Viasat Gives International Sales Opportunities to its Telecom Channel Partners

September 16, 2019 - Viasat Inc. has expanded the reach of its business internet service offerings into Mexico, Puerto Rico and the U.S. Virgin Islands. While Viasat business internet service has been available in these regions since early 2019, this expansion enables key telecom Master Agents in the channel to increase sales opportunities by competitively selling Viasat's high-speed, high-quality business internet as either a primary or secondary connectivity service in these new target regions. As Viasat expands into new territories, it enables its channel partners to better support multi-site businesses whose operations span borders. These partners are now able to offer their business customers a more comprehensive solution with satellite-based high-speed internet they know can reach virtually any customer location to support their sales and businesses operations. Specific to Mexico, Puerto Rico and the U.S. Virgin Islands, Viasat will offer a variety of high-speed unlimited and metered data internet plans.

U.S. Air Force Selects Hughes to Develop Enterprise Management and Control Prototype for SATCOM Resilience

September 16, 2019 - Hughes Network Systems, LLC has been awarded a \$2.2M contract funded by the U.S. Air Force Space and Missile Systems Center (SMC), through the Space Enterprise Consortium (SpEC), to produce an Enterprise Management and Control (EM&C) prototype for satellite communications (SATCOM). The prototype will include the Hughes Flexible Modem Interface (FMI) which will enhance interoperability across military and commercial SATCOM networks to form a unified hybrid network architecture. Under the agreement, Hughes will demonstrate a solution that enables automated mission planning for SATCOM terminals to roam between networks through automated control processes. In this way, when an active transmission becomes degraded or disrupted, the terminals can "self-heal" to maintain connectivity using alternate networks, enabling higher resiliency.

Iridium Awarded 7-year Contract by the U.S. Department of Defense

September 16, 2019 - Iridium Communications announced that it has been awarded a \$738.5 million, seven-year, fixed-price contract with the United States Department of Defense through the U.S. Air Force Space Command (AFSpC) to provide unlimited satellite services from its unique Low Earth Orbit (LEO) constellation. Through what is known as the AFSpC's Enhanced Mobile Satellite Services (EMSS) program, Iridium will continue to deliver access to global secure and unsecure voice, broadcast, netted or Distributed Tactical Communications System (DTCS) and select other services for an unlimited number of DoD and associated DoD-approved subscribers. With an unprecedented seven-year term, this contract serves as a testament to the ongoing value Iridium provides in support of the DoD's vision for an integrated satellite communications (SATCOM) enterprise and in recognition of the significant investments the company has made into its network over the past several years.

DDC's New 3U SBC Incorporates Cobham Processor Technology

September 16, 2019 - Data Device Corporation (DDC) and Cobham Gaisler jointly announced that the radiation-hardened GR740 Quad-Core LEON4FT (Fault-Tolerant) Processor device will be used in DDC's latest Rad-Hard Single Board Computer (SBC), the SCS3740. The two companies signed a long-term agreement on the supply of GR740 processor devices for this SBC earlier this year. DDC, a US based leading global manufacturer of connectivity, power and control solutions for more than 55 years, with its Microelectronics group that specializes in a variety of products, including SBCs for Space, has a long successful history with its TRL-9 SCS750 series SBCs. Since the inception of its Space Microelectronics group, more than 20 years ago, their products have experienced zero failures in space. Cobham's GR740 device is a radiation-hardened SoC device featuring a quad-core fault-tolerant LEON4FT SPARC V8 processor, with integrated SpaceWire router and a variety of interfaces. The GR740 has been designed as the European Space Agency's Next Generation Microprocessor (NGMP). The GR740 is currently being qualified for US QML-V and QML-Q standards, as well as for the European ESCC 9000 standard. The development and qualification of the GR740 device is co-funded by the European Space Agency (ESA), the Swedish National Space Agency (SNSA) and Cobham.

iDirect Government Acquires Glowlink Communications Technology

September 17, 2019 - iDirect Government has acquired Glowlink Communications Technologies, Inc., a Mountain View, CA, leader in innovative solutions for mitigating satellite interferences and improving the quality of satellite communications. Today's breaking news means the company will add intellectual property, engineering personnel and proprietary technologies to iDirect Government's family and product portfolio. This includes Communication Signal Interference Removal (CSIR™) anti-jam technology and associated products, which will benefit defense and government SATCOM customers globally. Glowlink is an industry leader in innovative solutions for fighting satellite interference and improving the quality and integrity of satellite communications. Products span carrier and spectrum monitoring, interference detection and mitigation, geolocation and satellite capacity planning which will directly complement the iDirect Government product line.

Iridium and OneWeb to Collaborate on a Global Satellite Services Offering

September 17, 2019 - Iridium Communications and OneWeb announced they have entered into a Memorandum of Understanding (MoU) to work together toward a combined service offering. This combined service offering would be designed to make it easier for their mutual partners to offer unique bundling and co-marketing opportunities for the Iridium Certus L-band services and OneWeb's Ku-band service. The offering would leverage the strengths of their respective low-Earth-orbit (LEO) networks. This is the first time that LEO operators have collaborated to deliver services in L-band and Ku-band. The MoU also creates opportunities for companies that manufacture both OneWeb and Iridium Certus™ terminals. Such new options could include Iridium-OneWeb companion packages in addition to providers being able to offer combined equipment or even new dual-constellation terminals. While both are LEO constellations, Iridium and OneWeb services have different capabilities on their respective bands (L-band and Ku-band), which can create a complementary, full-service option for applications such as heads of state comms, critical tactical services, maritime, disaster response and more.

Datasat to Provide Connectivity to Ferry Fleet in the Mediterranean Sea with SES Networks

September 18, 2019 - Datasat, a leading provider of gateway internet services via satellite, has partnered with SES Networks to bring cutting-edge, end-to-end connectivity to a ferry fleet in the Mediterranean Sea servicing passengers and cargo in multiple destinations in Greece, Italy, Spain and Morocco. Datasat will leverage SES Networks' Signature Maritime Solutions and ground infrastructure to deliver a premium experience for passengers and crew travelling onboard the modern and technologically-advanced vessels, which provide high-quality transportation services for passengers and private vehicles in the Eastern Mediterranean Sea. While on board, passengers now will find not only luxurious accommodation, fine dining, and a wide range of activities, but also market-leading connectivity services.

Cobham Introduces New Highly-integrated Power Switch Controllers for Space Applications

September 18, 2019 - Cobham Advanced Electronic Solutions (CAES), announced the availability of new highly-integrated smart power switch controllers, the first of their kind for space and satellite applications. The UT36PFD103 and UT05PFD103 Smart Power Switch Controllers (SPSC) provide extensive fault detection, isolation, and recovery capabilities as well as digitized telemetry of input voltage, output voltage, and load current into a single device. In addition, Cobham's new controllers feature PMBus protocol over I2C communication, thereby enabling significantly reduced size, weight, power and cost benefits, often yielding better than 75% area and 50% cost reduction over equivalent discrete implementations. With the availability of Cobham's UT36PFD103 and UT05PFD103 Smart Power Switch Controllers, developers can easily design 4.5V through 36V spacecraft power distribution systems, with the assurance that no load fault will cause undue harm to the bus and associated electronics.

Speedcast and Nelco Awarded Remote Communications Contract for Leading Indian Cruise Line

September 19, 2019 - Speedcast International Limited and India's fastest growing VSAT service provider Nelco Limited, a Tata Enterprise, have been awarded a new contract to deliver satellite communications onboard a leading Indian Cruise line catering to the Indian domestic and international cruise markets. The leading Indian Cruise line offers a rich experience of Indian culture, hospitality and cuisine to domestic and international travelers. The cruise ship will sail initially in India before proceeding to the Middle East. Throughout its journey, it will be able to enjoy seamless Ku-band connectivity in and out of Indian waters as a result of the recent partnership agreement between Speedcast and Nelco.

Thaicom and Russian Satellite Communications Company Enter into Partnership Agreement

September 20, 2019 - Thaicom Public Company Limited, Thailand's first satellite operator, announced the signature of an Agreement of Intention with Russian Satellite Communications Company (RSCC), a Russian leading satellite operator, to collaborate on the joint development of a service offering for maritime satellite broadband connectivity. According to the framework of the agreement, Thaicom and RSCC will initially study roaming options on their proprietary maritime VSAT networks. Roaming on Thaicom's network will be provided by Nava Roaming Solutions. Nava is Thaicom's new maritime broadband service platform, addressing the need of ship and offshore operators for fast, reliable, and secure satellite-enabled broadband connectivity and managed services. RSCC maritime VSAT network is the largest satellite broadband network in Russia connecting more than 300 maritime vessels operating in the waters surrounding Russia and Europe.

Comtech Awarded Orders for Solid-State Power Amplifiers for In-flight Connectivity Application

September 20, 2019 - Comtech Telecommunications Corp. announced that during the fourth quarter of fiscal 2019, its Santa Clara, California-based subsidiary, Comtech Xicom Technology, Inc., which is part of Comtech's Commercial Solutions segment, received multiple orders valued at more than \$3.7 million for solid-state power amplifiers (SSPAs) for the commercial in-flight connectivity market. As airlines move to offer higher speed satellite-based connectivity, these amplifiers will enable upgraded satellite services to planes around the world. Comtech Xicom Technology, Inc., a world leader in high-power amplifiers, manufactures a wide variety of tube-based and solid-state power amplifiers for military and commercial satellite uplink applications. The product range encompasses power levels from 8 W to 3 kW, with frequency coverage in sub-bands within the 2 GHz to 52 GHz spectrum. Amplifiers are available for fixed and ground-based, ship-board and airborne mobile applications.

Inmarsat's GX Aviation Inflight Broadband Now Available with Leading Low-Cost Airline AirAsia

September 20, 2019 - Inmarsat announced that its award-winning GX Aviation inflight broadband solution has entered commercial service with leading low-cost airline AirAsia. AirAsia is currently offering GX Aviation to passengers onboard a number of initial aircraft through its RedBeat Ventures subsidiary, ROKKI, marking a significant upgrade to their inflight entertainment and connectivity (IFEC) experience. The service integrates with the airline's entertainment and e-commerce platform, allowing passengers to access a variety of free entertainment, music, games, news and shopping using their personal mobile devices. It will be rolled out across AirAsia's Airbus A320 and A330 fleet over the next year. In addition, Inmarsat recently signed landmark agreements to develop a pioneering new generation of GX satellites, which represent a transformative step-change in inflight broadband capabilities. These include the ground-breaking GX7, 8 & 9 satellites, which feature thousands of dynamically-formed beams that direct capacity over high-demand areas, and the innovative new GX10A & 10B Arctic payloads, which will be the only broadband satellite service dedicated to this region.

Eutelsat Kicks off ELO, its Constellation of Nanosatellites Dedicated to the Internet of Things

September 24, 2019 - Eutelsat Communications has unveiled its ELO constellation project targeting the Internet of Things (IoT) market. The upcoming IoT market boom in sectors as diverse as transport, oil and gas, and agriculture means that tens of millions of objects will need to communicate with each other in areas unserved by terrestrial infrastructure. Eutelsat's ELO constellation will offer global IoT coverage enabling objects to transmit data, irrespective of their location. The construction of this nanosatellite constellation will begin with a first series of four satellites from Loft Orbital (ELO 1 and 2) and Clyde Space (ELO 3 and 4). With expected launch dates between 2020 and 2021, these four satellites will enter commercial service as soon as they are delivered into orbit. If this new initiative proves successful, other satellites will be added to the constellation, to reach a total of 25 satellites operational by 2022. The investment required for the constellation is included in Eutelsat's existing Capex outlook. The cost associated with each satellite will not exceed 1 million euros. This constellation project follows on from an initial nanosatellite ordered by Eutelsat from Tyvak International last year. Planned for launch early next year, the objective of this test satellite will be to confirm the technical performance of various waveforms between a satellite in low Earth orbit and objects on the ground.

Eutelsat Announces Strategic Partnership with Sigfox

September 24, 2019 - Combining satellite technology with terrestrial IoT will be key to accessing the economies of scale required to deploy satellite IoT. Through ELO, Eutelsat's aim is to position itself as the partner of choice for IT integrators and terrestrial operators seeking to offer their customers worldwide

coverage. Eutelsat has signed a strategic partnership with leading IoT player Sigfox, which runs a unique global narrowband network dedicated to this segment across 65 countries. Based on hybrid connected objects, whose data can be captured by both terrestrial networks and satellite, Sigfox will integrate the global coverage provided by the ELO constellation into its existing range of IoT connectivity services. This enhanced network coverage will open the door to many new use cases in areas like maritime transportation or logistics, but also the safety of people in emergency situations.

Hughes Expands Service Offerings in Mexico, Launches High-Speed Satellite Internet

September 25, 2019 - Hughes Network Systems, LLC announced the launch in Mexico of HughesNet®, its flagship high-speed satellite Internet service. The introduction of HughesNet marks the expansion of Hughes' presence in Mexico, where the company offers commercial enterprise and government services, through its partner Star Group/StarGo. Beginning October 1, HughesNet will deliver fast, reliable Internet access virtually everywhere in the country, including in areas where other Internet services are not available today. HughesNet service in Mexico offers speeds of 25 Mbps for downloads and 3 Mbps for uploads. Plus, built-in Wi-Fi is included so customers can connect different devices to their HughesNet service; and Customer Care is available around the clock. With HughesNet, customers can browse the web, watch video, send and receive email, enjoy social media, conduct online banking and more.

Kratos to Advance the Satellite Enterprise Management and Control Architecture

September 26, 2019 - Kratos Defense & Security Solutions announced that it received a \$7.5 million award to enhance the Enterprise Management & Control (EM&C) architecture with a Satellite Situational Awareness, Common Operating Picture (SA-COP). In addition, Kratos will introduce new orchestration capabilities that automate the configuration of terminals and supporting networks and scale this capability to support a worldwide network of satellite gateways, terminals and terrestrial infrastructure. The SA-COP and orchestration capabilities are a continuation of Kratos' work supporting EM&C, a strategic program designed to enable roaming among heterogeneous MILSATCOM and commercial SATCOM networks and optimize wideband satellite communications. The new award expands on functions previously developed under Pilot I and II programs. The SA-COP will provide enterprise-level information in a single system by assimilating data previously accessible only via separate, disjointed systems. Critical data displayed includes: health and status of satellite links; current and historical status and events associated with terminal, gateway, and networking equipment; data throughput metrics and statistics for each service; system-wide bandwidth/capacity availability and utilization; cybersecurity alerts; and radio frequency (RF) interference detection and reporting.

Intellian's Pioneering v85NX Antenna Excels in Castor Marine Tests

September 26, 2019 - Dutch maritime connectivity and IT service provider Castor Marine has completed extensive network performance testing of the new Intellian v85NX, reporting that the world's first Ku- to Ka-band convertible 85cm VSAT antenna system displays RF capabilities well on par with larger, heavier and more costly VSAT antenna system alternatives. With clients in shipping, offshore and superyachts, Castor Marine was keen to assess Intellian's pioneering antenna system in a series of working trials. Intellian's innovative new industry benchmark system enables new levels of flexibility for global operation across a variety of vessel sizes and types, making it highly attractive to service providers with a diverse client base. The proven RF performance on Castor Marine's iDirect network positions the v85NX as a strong and viable alternative to 1m VSAT systems, while delivering significantly better link capabilities than current 80cm antenna systems. Ultimately, this enables Castor Marine to offer more choice with fewer inventory requirements, plus straightforward conversion between Ku- and Ka-band today, while retaining flexibility for customers wishing to move to new constellations and 2.5GHz wideband Ka networks when they become available.

Speedcast Awarded Contract Supporting Leading Oil & Gas Engineering Services Customer in Iraq

September 26, 2019 - Speedcast International Limited announced that the company has been awarded a new multi-year contract with an Oil & Gas engineering services customer for fully managed internet services and IT support across the company's base in Iraq. This company is an existing customer of Speedcast in EMEA that, with this new contract, is extending the scope of services that Speedcast will deliver. This new solution will supply the main base camp in Basra, Iraq with high-speed fibre internet and backup, as well as 24x7 on-site IT maintenance and troubleshooting support. The expansion of the scope of products and services Speedcast provides to customers is a key part of the company's growth strategy, and this win is another sign that this strategy is materializing.

BROADCAST

SES Redefines Live Events with Synchronised Satellite and OTT

September 4, 2019 - SES's latest solution synchronises over-the-top (OTT) and satellite broadcasts by delivering IP signals to OTT platforms as fast as satellite to create enhanced live viewing experiences, SES announced today. The new solution, named Satellite and OTT in sync, gives broadcasters the power to deliver a more consistent experience to viewers watching any screen, or even multiple screens, by eliminating the delay between their TV broadcast and OTT services. Even a few seconds of delay between different screens can spoil the live event experience, and this has been a challenge to eliminate. SES's unique solution achieves that synchronisation, giving broadcasters confidence that their viewers will be able to enjoy unforgettable moments. SES's Satellite and OTT in sync solution takes the source signal on its way to the satellite and distributes it via IP in tandem with satellite. By applying low-latency encoding and tuning to the IP stream at the source, the solution can deliver the content to OTT platforms in sync with the satellite signal. The technique shaves off the seconds of delay between a traditional television broadcast and other low-latency OTT solutions or regular OTT broadcasts.

New Dalet CubeNG Brings Advanced Broadcast Graphics to Dalet Unified News Operations

September 4, 2019 - Dalet, a leading provider of solutions and services for broadcasters and content professionals, announced today the release of its next generation platform for news graphics and workflows, Dalet CubeNG. Fully integrated across the Dalet Unified News Operations solution powered by Dalet Galaxy five, the state-of-the-art, full-featured Dalet CubeNG graphics platform leverages the industry-leading Brainstorm real-time graphics engine to deliver superior 2D and 3D branding and visuals. Suited for both on-air and file-based graphics creation, the Dalet CubeNG unified approach enables news broadcasters to easily create dynamic branding and up-level visual storytelling across traditional, digital and social channels. A major upgrade to the existing Dalet Cube graphics platform, Dalet CubeNG offers a redesigned, highly scalable architecture and modern web-based UI. The embedded, high-performance Brainstorm real-time 3D graphics engine significantly expands on-air and file-based graphics capabilities with its support for 4K and user-defined options, added primitives for building 2D and 3D graphics, support for Unicode fonts and languages, and outstanding transition logic. Noted news broadcasters that rely on the Brainstorm real-time graphics engine include CNBC, NHK, RAI, RTHK, RTVE, TVN and many others.

Bridge Technologies to Demonstrate 8K IP Network Probe

September 6, 2019 - Bridge Technologies announced that the company will demonstrate its VB440 IP network probe operating in an 8K environment. The VB440 is equipped with dual 100 Gigabit interfaces, making it more than capable of handling the 48 Gbits of data/33 million pixels required for 8K resolution network traffic. Any customer taking delivery of a VB440 today is assured that, out of the box, it will provide support for SD, HD, 4K, and 8K networks of the future. That will make migration easier and significantly more efficient – something we believe is truly unique in the industry. The demonstration of the VB440 handling 8K network traffic is a further example of the innate power and capability of the industry's most advanced IP network probe. Also being showcased is another innovation – the Wigtlets™ API HTML5 embedded video monitor for the VB440 network probe - that enables it to become a truly multifunctional device beyond its current worldwide deployment for monitoring IP networks, extending its usefulness well beyond today's test and measurement applications.

SES to Deliver Premium Broadcast-grade Cloud Service for Media Delivery on Microsoft Azure

September 9, 2019 - SES announced it is developing a broadcast-grade managed cloud service offering on Microsoft Azure as a result of an expanded collaboration with Microsoft. Benefitting from Azure's extensive cloud and AI capabilities, and its own expertise in providing managed services for leading broadcasters and media companies worldwide, SES is transforming media service delivery via the cloud. This service will provide end-to-end, service-level agreement (SLA)-based media delivery services on Azure, giving broadcasters and media companies the flexibility and scalability that are essential in today's rapidly changing media environment. Bringing the most relevant content to the cloud and providing innovative services covering the entire video value chain – ingest, playout, and delivery – will enable media companies to scale and address the consumer's growing demand for a premium viewing experience on every screen. SES leads the industry with its worldwide reach of over 355 million TV households (or 1 billion people) and distributes over 8,200 channels via satellite. With SES's recent unification of its wholly owned video services subsidiary, MX1, with its SES Video business unit, SES now manages over 525

channels and delivers more than 8,400 hours of online video streaming, including over 620 hours of premium sports and live events per day. Going to market with a unified solution for video infrastructure and services means that SES will accelerate the rollout of hybrid linear and non-linear content delivery services and solutions with unprecedented global reach.

Encompass Digital Media Singapore Optimizes its Operations with DataMiner

September 10, 2019 - Skyline Communications, the global leader in end-to-end multi-vendor network management and OSS software solutions for the broadcast, satellite, cable, telco and mobile industry, further strengthens its presence in Asia. The company announces that Encompass, a global technology services company that delivers end-to-end video solutions to television networks, broadcasters, sports leagues and OTT service providers, has selected DataMiner to unify its operations and service assurance. The project at Encompass comprises an end-to-end DataMiner system that is designed to unify operations across the entire multi-vendor infrastructure. The Singapore business unit also benefits from the DataMiner expertise of Encompass Buenos Aires. Those teams already have long-standing and vast experience in the administration and operation of the DataMiner platform, and built the system without any involvement from Skyline. Rather than deploying siloed EMS systems to manage the new infrastructure elements, DataMiner now also monitors Encompass' new satellite infrastructure and provides full earth station uplink and downlink management.

Casablanca Online Enables Live Broadcasts of Copa America with SES and Newtec Dialog

September 10, 2019 - Casablanca Online, a leading Brazilian SNG and service provider, provided IP connectivity to broadcasters' outdoor production teams during the 2019 Copa America football event this summer. Broadcasters are often faced with unstable connectivity whilst covering live events. In order to ensure a stable service, Casablanca Online sought a reliable and cost-effective solution. Based on Newtec Dialog®, SES's OU Flex product combines live video transmission and IP connectivity via satellite to enable both data and video applications for Occasional Use (OU) services. It was installed for Casablanca Online – which has a fleet of more than 20 Outside Broadcast (OB) trucks – at the Morumbi Stadium, São Paulo, where the opening game of the Copa America between Brazil and Bolivia was held. This enabled a two-way connection between the stadium and the studio, providing greater flexibility to facilitate remote production and distribute video content to online platforms. As a result, Casablanca Online was able to provide guaranteed and glitch-free internet connectivity over a 40/40 Mbps bidirectional link, allowing the field teams to operate optimally.

EchoStar Completes Spin-off and Merger of its BSS Business

September 10, 2019 - EchoStar Corporation announced today the completion of its spin-off and subsequent merger with DISH Network Corporation of the portion of its business that manages, markets and provides (i) broadcast satellite services primarily to DISH, Dish Mexico, S. de R.L. de C.V. and their respective subsidiaries and (ii) telemetry, tracking and control services to satellites owned by DISH and a portion of EchoStar's other businesses, and certain related assets and business operations. The transaction was announced on May 20, 2019 and a record date of August 19, 2019 was announced on August 9, 2019. The transaction is structured in a manner intended to be tax-free to EchoStar and its stockholders.

ZTE to Unveil Four Innovative Big Video Solutions

September 11, 2019 - ZTE Corporation plans to unveil its four innovative Big Video Solutions including 5G Live TV solution, the 5G+8K service, operator tier customized IPTV dual-ecosystem and smart home. Addressing the problems of the traditional live streaming apps like limited viewing angles, ZTE's 5G Live TV solution delivers an innovative viewing experience by providing the audience with three distinctive 5G scenarios, including multi-angle views, flexible zooming, and free viewpoint. Moreover, in the field of 8K video, ZTE will provide visitors of IBC with a vivid experience of ultra-HD and ultra-fast smooth 8K videos, backed up with ZTE's end-to-end 5G+8K solution, the ultra-strong decoding technology and super-high CDN throughput capability of its 8K smart set-top box. As for the integration of OTT and IPTV, ZTE will showcase a customized 4K Hybrid STB for operators. Integrated with IPTV and Google ecosystem, this STB can provide users with a wide range of Google apps, such as Google Music and Google Games, thereby allowing them to enjoy both the IPTV and OTT services at the same time. In the field of smart home, ZTE will demonstrate its far-field 4K AI STB S200 in support of voice commands. By virtue of functions of IPTV/OTT services, smart speaker, home control, home media sharing, and home networking, S200 is an all-in-one home assistant. In addition, ZTE will also showcase many other series of powerful STBs,

including the new Dongle STB, 4K IP Media Gateway supporting Wi-Fi AP, and the highly cost-effective satellite STB and cable STB.

4KUniverse Expands across Asia-Pacific via AsiaSat 9

September 13, 2019 - The new 4K HDR TV channel, 4KUniverse, and Asia's leading satellite operator, AsiaSat, have entered into a multi-year agreement for the distribution of a 24-hour feed via AsiaSat 9 across the Asia-Pacific. 4KUniverse was part of AsiaSat's 4K-SAT UHD demo channel initiated back in 2015, broadcasting a few hours of UHD programming a day. Now, with the 4K TV market share and 4K set-top-boxes seeing exponential growth, TV operators want to offer the best possible resolution (4K HDR High Dynamic Range) for their customers to enjoy the best ever viewing experience. 4KUniverse is broadcasting in Asia via AsiaSat 9 at 122°E, in 4K HLG (Hybrid Log-Gamma) HDR with WCG (Wide Color Gamut), which is presently the highest quality, commercially-viable image in broadcasting today. The channel will be available through local licensed distribution partners across the satellite's extensive C-band footprint including key Asian markets such as Hong Kong, Mainland China, Thailand, Singapore, Taiwan, South Korea, Japan, Indonesia and the Philippines.

Eutelsat 117 West A selected by Orby TV for New United States DTH Satellite Service

September 13, 2019 - Eutelsat Americas has been selected by Orby TV for capacity on the Eutelsat 117 West A satellite. The multi-year, multi-transponder agreement between the companies was announced at the International Broadcast Convention (IBC 2019) following Orby TV's recent launch of its new and affordable satellite service across the lower 48 continental United States. Orby TV is leveraging Eutelsat 117 West A's exceptional Ku-band coverage of the US to distribute its satellite television service, featuring pay-as-you-go flexibility, dozens of popular networks, free local channels, with no credit checks or contractual commitments. Orby TV has two base programming packages priced at \$40 (Essentials) or \$50 (Extras) per month for up to four rooms, with optional premium network programming packages and DVR service available. All fees and taxes are included in the monthly prices. Local channels and unlimited use of the Orby TV interactive program guide is provided at no additional charge, even if the subscriber decides to turn off the monthly paid Orby TV service.

Newtec Reinforces Commitment to Developing Universal OTT Services with DVB Demo

September 13, 2019 - Newtec, a specialist in the design, development and manufacturing of equipment for satellite communications, has teamed up with DVB to showcase the future of universal Over The Top (OTT) television services at IBC 2019. Taking place at DVB's booth 1.B71, the DVB demonstration - which will use Newtec's MCX7000 Multi-Carrier Satellite Gateway as a receiver - will reveal the 'single hybrid offering' that DVB-I brings. DVB-I is an ongoing initiative to develop technical standards for delivering television services over IP. With DVB-I, which will stand alongside the existing DVB-T (terrestrial), DVB-S (satellite) and DVB-C (cable) broadcast standards, deployments can be standalone, or can combine broadcast and IP delivery to create a single hybrid offering. The latter would incorporate services delivered via both methods, making optimal use of the different characteristics of each channel. For broadcasters, DVB-I will provide the opportunity to take advantage of the unique capabilities of IP delivery, both technically and commercially, supporting video on-demand as well as linear television. At IBC, the demonstration will use Newtec's MCX7000 to provide the content for the DVB-T2 and OTT transmissions. The hybrid reception at the consumer site is a combination of DVB-T2 (this could also be DVB-S2) and OTT.

Imagine Communications Upgrades Playout at Australia's NPC Media

September 13, 2019 - Imagine Communications has been selected by NPC Media Pty Ltd, a venture formed between Australia's largest commercial broadcasters, Seven and Nine, to provide an extensive infrastructure upgrade of the National Playout Centre (NPC) in Sydney, Australia. The National Playout Centre was first established by Nine Network 10 years ago, and today provides playout facilities for more than 106 free-to-air broadcast channels. Already one of the largest and most innovative broadcast operations in the APAC region, the center relies on Imagine Communications' market-leading Versio™ playout and master control, D-Series™ playout automation and Nexio® media servers and content management services to provide end-to-end media management for program integration, live sport and multimedia distribution.

ViewMedia to Establish Digital Broadcast Platform to West Africa on Spacecom's AMOS-17

September 14, 2019 - Spacecom, operator of the AMOS satellite fleet, today announced that ViewMedia, the new commercial name of Viewsat the UK-based media content distributor, will launch a new digital

broadcast platform on the AMOS-17 communication satellite located at the 17°E orbital position above Africa. ViewMedia's platform on AMOS-17's KU-Band frequency will provide DVBS-2 broadcast services to West Africa for a primarily Francophone audience. Spacecom is partnering with Satellite Mediaport Services Ltd. (SMS), located in Rugby, U.K. to provide uplink services for the platform. ViewMedia is an established operator within the global broadcast and transmission services industry. Its high-quality infrastructure provides digital satellite services to broadcasters in the Middle East, North and sub-Saharan Africa, Asia, Europe and North America. The Ku-Band platform on AMOS-17 will allow broadcasters to distribute video content easily to the French speaking region.

Leading Asian Broadcaster Teams up with NovelSat for Satellite Broadcast Content Security

September 16, 2019 - NovelSat, a world leader in content connectivity over satellite, announced that a major Indian broadcaster has selected NovelSat's content security solution for its network's satellite broadcast of feeds for live and non-live high value content. By adopting the only satellite broadcast content security solution based on virtually unbreakable AES 256-bit encryption, the customer will be implementing the highest level of content security available today for satellite broadcast. NovelSat's content security solution is a multi-layer solution includes AES 256-bit encryption to secure valuable content, AES keys encryption, a secured OTA channel for exchanging AES keys and access protection based on each receiver's viewing entitlement rights, defined per video channel (PID). With easy-to-use management tool for key generation, distribution and activation, and for event scheduling and content entitlement, the broadcaster will be able to confidently secure and easily distribute its content to thousands of satellite broadcast receivers.

Irdeto Secures Airtel Xstream 4K Set-Top box

September 16, 2019 - Bharti Airtel, India's largest telecommunications service provider, has selected Irdeto to securely deliver content on its new Airtel Xstream 4K Hybrid Box, powered by Android. The new STB, based on Android 9.0, seamlessly brings satellite TV and OTT content together on a single device, with this innovative experience secured by Irdeto Cloaked CA. Part of Airtel's converged Airtel Xstream platform, the new hybrid box offers more than 500 TV channels and the Airtel Xstream app pre-installed, as well as Netflix, Amazon Prime Video and YouTube. It also boasts Wi-Fi and Bluetooth connectivity and built-in Chromecast. The selection of Irdeto Cloaked CA follows an initial partnership in 2018 for Irdeto to secure all content offered on Airtel's Digital TV services. Irdeto Cloaked CA is a key solution offered in the Irdeto 360 Security suite, which is designed to ensure future-proof end-to-end security that can quickly and easily react to changes in the market in a cost-effective fashion. By partnering with Irdeto again, Airtel ensures that its Xstream STB offers the highest levels of security, as required by content owners.

iKO Media Group and VISIO PRODUCTIONS Begin Partnership to Distribute 4K HERITAGE to Asia Over MEASAT-3a

September 18, 2019 - iKO Media Group, and VISIO PRODUCTIONS, international content producer, distributor and channel operator of 4K HERiTAGE, have joined forces to expand distribution for a major 4K channel via MEASAT-3a at the Asian video hot-slot 91.5E providing satellite coverage across Asia. The first-of-its-kind 4K channels offer programs about Archaeology, Discovery, History, Architecture, Culture and more. 4K HERiTAGE, the first 4K linear channel focused on World Heritage Sites, Sacred Sites and Historical Monuments is happy to announce its launch on MEASAT-3a leveraging on the satellite's excellent 4K/UHD channel neighborhood to reach its audiences across the Asia region. Thanks to the broadcast platform Evrideo - playout in the cloud, and operations from IKO Media Group, 4K HERiTAGE will be available to millions of households.

ZEE5 Chooses Kaltura TV Platform Player for its Cloud TV Service

September 25, 2019 - ZEE5, India's fastest growing ConTech brand announced its partnership with Kaltura, the leading video technology provider, for the deployment of the Kaltura TV Platform Player. The Kaltura TV Platform Player provides ZEE5 with market-leading Quality of Experience (QoE), while supporting over 8,000 devices, and providing elastic scale to accommodate ZEE5's global audience of over 76 million users. The Kaltura TV Platform Player also includes native support of advertising insertion and measurement. With its native mobile SDKs, multi-language support and ability to provide a smooth streaming experience across the widest range of network connections and devices, the Kaltura TV Platform Player is at the heart of ZEE5's OTT service. The company also plans to introduce new features such as innovative advertising formats, and gamification of the video experience.

LAUNCH / SPACE

China's KZ-1A Rocket Launches Two Satellites

September 1, 2019 - Two satellites for technological experiments were sent into space by a Kuaizhou-1A, or KZ-1A, carrier rocket from the Jiuquan Satellite Launch Center in northwest China. Kuaizhou-1A, meaning speedy vessel, is a low-cost solid-fuel carrier rocket with high reliability and a short preparation period. The rocket, developed by a company under the China Aerospace Science and Industry Corporation, is mainly used to launch low-orbit microsattellites. One of the newly launched satellites was developed by the Innovation Academy for Microsatellites of the Chinese Academy of Sciences (CAS), and will be used for microgravity technology experiments. It will conduct on-orbit experiments on ultra-high precision control and measurement technologies under microgravity conditions, according to the CAS. The technologies will lay a solid foundation for space science tasks and frontier basic science research, such as space-based gravitational wave detection and ultra-high precision inertial navigation. The other satellite, developed by Spacety Co., Ltd. (Changsha), a privately owned Chinese commercial space company, will be used to test solar sail technology.

CGWIC to Provide Gateway RF Front-End System for New Indonesian High-Throughput Satellite

September 6, 2019 - China Great Wall Industry Corporation (CGWIC) and Indonesia PT. Satelit Nusantara Tiga (SNT) signed a contract for 13M RF front-end system for Ka-band Gateway to serve a new high-throughput satellite over Indonesia. Indonesia's Ministry of Communication and Information Technology (Kominfo) has selected the consortium led by the domestic satellite operator Pasifik Satelit Nusantara (PSN) to lead this most powerful satellite project in the region, connecting tens of thousands of schools, hospitals and public buildings across the country. The Consortium PSN has formed SNT as an operating company to carry on the project. The shareholders of SNT are PSN, PT Pintar Nusantara Sejahtera (Pintar), PT Nusantara Satelit Sejahtera, and PT Dian Semesta Sentosa (subsidiary of PT Dian Swastatika Sentosa Tbk). PSN and Pintar are the majority shareholders of SNT and both will maintain majority ownership in the operating company throughout the project lifetime. CGWIC together with North West China Research Institute of Electronics Equipment (NWIEE) are honored to be chosen by SNT to provide 13M RF front-end system for this project, making contribution to Indonesian digital infrastructure development with their longstanding customer PSN and its Consortium. Prior to this contract, on June 27, 2019, CGWIC signed the contract to provide 9M RF front-end system for C and Ku-band gateways with PSN for Nusantara Dua Satellite (formerly PALAPA-N1).

SES Selects SpaceX to Launch O3b mPOWER MEO Communications System

September 9, 2019 - SES has selected SpaceX as a launch partner to deliver its next-generation Medium Earth Orbit (MEO) satellite constellation into space on board Falcon 9 rockets from Cape Canaveral. The two companies have disrupted the industry in the past when SES became the first to launch a commercial GEO satellite with SpaceX, and later as the first ever payload on a SpaceX reusable rocket. Their next launch, in 2021, will be another one for the records as the revolutionary terabit-scale capabilities of SES's O3b mPOWER communications system disrupt the industry again. The global O3b mPOWER system comprises an initial constellation of seven high-throughput, low-latency MEO satellites, each capable of generating thousands of electronically-steered beams that can be dynamically adjusted to serve customers in various markets including telecom and cloud, communications-on-the-move and government. O3b mPOWER also will include a variety of intelligent, application-specific Customer Edge Terminals integrated with SES's terrestrial network and dynamically optimised using the recently announced Adaptive Resource Control (ARC) software system, further boosting O3b mPOWER's market-leading flexibility. The O3b mPOWER system leverages the proven concept of the current O3b MEO constellation and its success delivering fibre-equivalent connectivity services to customers operating in nearly 50 countries today. The O3b system is the only technically-, operationally- and commercially-proven non-geostationary system for delivering low-latency data communications today.

Airbus and Telespazio Join Forces to Sell Syracuse IV Capacity

September 9, 2019 - Airbus and Telespazio (Leonardo/Thales) have set up a partnership to market military telecommunications services using the future Syracuse IV satellites. This partnership will lead to the creation of France's leading private operator of military satellite telecommunications. It demonstrates the desire for cooperation by European industrial prime contractors Airbus, Thales and Leonardo, as well as the French State, in marketing Syracuse IV satellite capacity for the benefit of armed and security forces in Europe and around the world. The French Defence Procurement Agency (DGA), Airbus, Thales Alenia

Space and Telespazio have put together an innovative financing initiative, enabling any excess satellite capacity to be sold to third-party customers, thereby bringing down the total cost of ownership of the Syracuse IV system. These sales contracts, scheduled for a 10-year period, will enable allied countries or organisations to be offered simple, flexible and reactive access to a strategic resource, thus strengthening France's international cooperation arrangements in the field of defence and security. With this partnership, Airbus and Telespazio will be able to sell Syracuse IV satellite capacity and various high-added-value services such as anchor capacity (connection of satellite communications to the ground networks of third-party customers), end-to-end services with capacity and throughput guarantees, engineering and maintenance services.

New Boeing 702X Satellites Offer Unique Multi-Mission Flexibility

September 9, 2019 - Boeing unveiled its 702X family of software-defined satellites, highlighting a 1,900kg variant for geosynchronous orbit. The 702X technology enables operators to adapt to changing market conditions by dynamically allocating bandwidth. The 702X builds on Boeing's existing success with the 702 series satellites. The 702X platform incorporates a mature design, with a medium Earth orbit version already in production. Advanced manufacturing processes dramatically reduce cost and schedule risk while allowing the 702X to be delivered to customers within three years. The 702X satellites will allow operators to distribute capacity to a variety of end users, connecting businesses, ships, airplanes, autonomous vehicles and broadband internet users around the world. The 702X is available to customers today. Boeing estimates the first 702X geosynchronous variant will be operational as soon as 2022.

Thales Alenia Space Introduces Fully Digital Satellite to Address Fast Moving Market Needs

September 10, 2019 - Thales Alenia Space has launched its new Space Inspire satellite product line (INstant SPace In-orbit REconfiguration) which allows seamless mission and services reconfiguration, instant in-orbit adjustment to the demand, transition from video broadcasting to broadband connectivity services while maximizing the efficiency & effective use of the satellite resources. Over the past several years, Thales Alenia Space has invested in digitization of its offer, leading to new skills, new products and strategic partnerships to anticipate this transformation. These efforts, supported by CNES (French space agency) and ESA (European Space Agency), are bearing fruits for communication satellites and in particular allowed Thales Alenia Space to match the connectivity needs by leading the VHTS (Very High Throughput) market and to be the first worldwide company to offer a fully digital payload processing up to a terabit class. Transforming a Direct to Home TV satellite into a High Throughput connectivity satellite and changing its coverage in quasi real time was unconceivable a few years ago. Thales Alenia Space has designed its newest Space Inspire Satellite product line in order to meet this challenge at unprecedented price point. This new, software defined, smaller mid- sized satellite solution, joins Spacebus NEO satellite line to enrich the Thales Alenia Space' portfolio.

MDA Selected to Design, Manufacture Advanced Navigation Antennas for KASS

September 11, 2019 - MDA announced that it will design and manufacture advanced space-based L-band navigation antennas as part of a hosted payload on the MEASAT-3d satellite, which is currently being built by Airbus. The MDA-built navigation antennas will be integrated on a hosted payload for South Korean KTSAT that will support the Korea Augmentation Satellite System (KASS). Scheduled for launch in 2021, the KASS navigation payload will deliver L-band regional civil navigation services over South Korea to enhance aviation safety and airplane navigation capability through improved accuracy, reliability and availability of GPS positioning signals. MDA and its parent company Maxar have successfully hosted more than 10 payloads on the company's highly flexible 1300-class satellite platform since 2001, covering a wide variety of essential customer missions. In 2012, the company delivered a powerful multi-mission satellite for SES, which included an L-band payload for the European Geostationary Navigation Overlay Service (EGNOS).

Airbus to Develop Technology for Ultra-High-Resolution Satellites for UK MOD

September 11, 2019 - Airbus has won a design study from the UK's Defence Science and Technology Laboratory (Dstl) to develop the technologies for a cluster of ultra-high-resolution Synthetic Aperture Radar (SAR) satellites for the UK Ministry of Defence (MOD). The satellites will also have the ability to collect radio frequency (RF) signals. Called "Oberon" the project will see Airbus develop the technologies that could lead to an in-orbit demonstration in 2022 and potentially an operational capability as early as 2025. The innovative techniques and technologies developed within the project will allow the ground to be seen in outstanding detail regardless of darkness, or of cloudy weather conditions. Oberon follows the

success of the SAR satellite, NovaSAR, designed and developed by Airbus and SSTL, which was launched in September 2018. Since NovaSAR was conceived, Dstl and Airbus have made significant leaps in technology, allowing the Oberon system to achieve high performance from a small and compact satellite system.

Relativity Space Signs Launch Services Agreement for Multiple Launches with Momentus on Terran 1, World's First 3D Printed Rocket

September 11, 2019 - Relativity Space has signed a Launch Services Agreement (LSA) with Momentus, the provider of in-space shuttle services that move satellites between orbits, to launch Momentus' small and medium satellite customers on Relativity's Terran 1 rocket, the world's first and only entirely 3D printed rocket. Momentus will then deliver their customers' small and medium sized satellites to geosynchronous orbit (GEO) using the Momentus Vigoride Extended in-space shuttle service. The agreement includes Momentus' purchase of a first launch, scheduled for 2021, with options for five additional launches with Relativity. The agreement opens access to a more diverse range of orbits for Terran 1 including geostationary transfer orbit (GTO), Lunar and deep space orbits, lower inclinations, and phasing of multiple spacecraft in low Earth orbit (LEO) and medium Earth orbit (MEO). Small satellites will have access to even more flexible launch capabilities with Momentus-enabled missions combined with Terran 1's class-leading features.

Soyuz-2 to Launch First Demo Mission for Pixxel Constellation

September 13, 2019 - Pixxel has signed a launch contract with GK Launch Services for its first tech demo mission to be launched in Q2-Q3 2020 from Baikonur on GK-operated Soyuz-2 mission. The contract was arranged with the support of Precious Payload's launch booking platform. Pixxel is an Indian space startup based in Bengaluru, India. Pixxel is building a constellation of earth imaging satellites to provide global coverage every 24 hours. The startup is the only Asian participant in the Techstars Starbust Space Accelerator where it is working with JPL NASA, US Air Force, Lockheed Martin, SAIC and IAI among other space stalwarts. GK Launch Services is an operator of commercial launches. The company was established by the decision of Roscosmos and is authorized to conclude commercial contracts for the launch of spacecraft using Soyuz-2 family launch vehicles from the Russian spaceports. Precious Payload is building a digital space mission management platform. The company helps with launch procurement, ground segment support, insurance, and regulatory aspects of access to space via an online service.

CGWIC Successfully Launched ICE-PATHFINDER and Taurus-1

September 12, 2019 - 5-meter Optical Satellite is successfully launched by Long March 4B (LM-4B) launch vehicle from Taiyuan Satellite Launch Center (TSLC), aboard with two small satellites, ICE-PATHFINDER (also known as BNU-1) of Beijing Normal University and Taurus-1 of Shanghai ASES Spaceflight Technology Co. Ltd. ICE-PATHFINDER is the first in-orbit delivery small satellite program conducted by CGWIC as the prime contractor. It is designed and manufactured by Aerospace Dongfanghong Development Ltd. Shenzhen, China, and its customer is College of Global Change and Earth System Science of Beijing Normal University. As a polar observation scientific experimental satellite, ICE-PATHFINDER is dedicating to the observation of key channel area in polar region. Taurus-1 is designed and manufactured by Shanghai ASES Spaceflight Technology Co. Ltd. It is a satellite for in-orbit verification of de-orbit sun solar sail payload. The main passenger of this mission, 5-meter Optical Satellite, is the first hyperspectral satellite of natural resource satellite observation system, which is led by Natural Resource Department, and it is capable to sufficiently collect multispectral with wide width and hyperspectral data. It has broad application prospects in resource and energy exploration, land science and technology innovation, and environmental pollution monitoring. 5-meter Optical Satellite is designed and manufactured by China Academy of Space Technology (CAST). The LM-4B Launch Vehicle is designed and manufactured by Shanghai Academy of Spaceflight Technology (SAST).

KASI Space Mission will be Launched on Soyuz-2 in 2021

September 17, 2019 - Four KASI 6U Cubesats will be launched on Soyuz-2.1a as part of the rideshare mission scheduled for the Q1-Q2, 2021 in two 12U deployers from the Baikonur Cosmodrome. A new and very challenging space mission was initiated by KASI in 2017. KASI designed the innovative concept of multi-satellites mission, named as the Small scale magNetospheric and Ionospheric Plasma Experiments (SNIPE). The SNIPE mission consists of four 6U nanosatellites (~12kg), which will be launched into a polar orbit at an altitude of 600 km. Four satellites will be deployed in orbit, and the distances between each satellite will be controlled from 100 m to 1,000 km by a formation-flying algorithm. The science targets of the SNIPE mission are fine-scale morphology of high-energy electron precipitation, background plasma

density/temperature, field-aligned currents, and electromagnetic waves. Hence, the mission will observe micro-scale structures of the following geophysical phenomena: high-latitude irregularities such as polar-cap patches, field-aligned currents in the auroral oval, Electro-Magnetic Ion Cyclotron (EMIC) waves, hundreds keV electron precipitations such as electron microbursts, subauroral plasma density trough, low-latitude plasma irregularities such as ionospheric plasma blobs and bubbles. The Korea Astronomy and Space Science Institute (KASI) is a government-funded research institute located in Daejeon, Republic of Korea. GK Launch Services is an operator of commercial launches. The company was established by the decision of Roscosmos and is authorized to conclude and implement commercial contracts for the launch of spacecraft using Soyuz-2 family launch vehicles from the Russian spaceports.

HawkEye 360 Awards Contract to Build Next-Generation Satellite Constellation

September 18, 2019 - HawkEye 360 announced it has awarded the manufacturing contract for its next generation of satellites. Enabled by the company's \$70 million Series B financing in August, this contract will substantially boost on-orbit capacity to serve the company's rapidly growing customer base. The contract will expand the constellation to eighteen satellites, achieving routine revisits of less than an hour for increased global persistence. UTIAS Space Flight Laboratory (SFL) will manufacture the bus and integrate the new RF payload developed by HawkEye 360. The satellites will geolocate more signals across a wider frequency range with improved accuracy and reduced data latency for more timely delivery to customers. HawkEye 360 launched its current cluster of three satellites in December 2018 to validate the technology and inform continuous innovation for the next generation of satellites. Since achieving commercial operations in April, HawkEye has been working closely with customers to test and bring multiple products to market, such as RFGeo and RFMosaic. The RFGeo product identifies and maps the location of emitters and the RFMosaic product provides broad surveys of RF activity across a region of interest.

Rocket Lab Readies Launch Complex 2 for Electron Launches from U.S. Soil

September 18, 2019 - Rocket Lab, the global leader in dedicated small satellite launch, and Virginia Space at the Mid-Atlantic Regional Spaceport (MARS), have completed a major construction milestone ahead of the first Electron launch from U.S. soil. The recent installation of the launch platform at Rocket Lab's second launch site, Launch Complex 2, marks one of the final steps in the construction of the new pad being built by the Rocket Lab and Virginia Space teams. Construction on Launch Complex 2, located at the Mid-Atlantic Regional Spaceport (MARS) on Wallops Island, Virginia, began in February 2019. In the few months since then, more than 1,400 cubic yards of concrete have been poured to create the pad on which Electron's launch platform is mounted. The 66 ton launch platform was installed into its final position this month, ready for the 44 foot, 7.6 ton strongback to be mounted to the platform in coming weeks. Both the launch platform and strongback were built by Steel America in Norfolk, Virginia. The launch site largely mirrors Rocket Lab's first launch location, Launch Complex 1 in New Zealand, where the Electron launch vehicle transports horizontally down the launch ramp, and then is lifted vertically by the strongback to be ready for launch.

Thales Alenia Space Inaugurates Automated Production Plant for Photovoltaic Assemblies on Satellite Solar Panels

September 20, 2019 - Thales Alenia Space inaugurated a new plant in Hasselt, Belgium, dedicated to the automated production of photovoltaic assemblies (PVA), which generate electrical power on satellite solar arrays. Representing an overall budget of about 20 million euros, including strong support from Belgium, this plant showcases Thales Alenia Space's Industry 4.0 approach and is the only one of its kind in Europe. It also perfectly complements the Leonardo center of excellence in Nerviano, Italy, which designs and builds photovoltaic assemblies for all the major programs conducted by the European and Italian space agencies (ESA and ASI, respectively). With this new "Factory 4.0", the Space Alliance (between Thales Alenia Space and Telespazio) will be able to deliver a complementary and highly competitive range of PVA solutions for all types of satellites. Thales Alenia Space is developing the production of photovoltaic assemblies by calling on state-of-the-art technologies, while also capitalizing on the skills of the teams that underpin the process. It deploys new techniques such as robotized assembly of the panels, digital management of data and traceability, augmented reality and online tests and inspections. People and machines share the workplace, for a harmonious blend of cognitive and physical capabilities, thus opening new possibilities in terms of greater efficiency and agility. The PVAs will now be made in-house at the Hasselt plant and then be sent to Thales Alenia Space's plant in Cannes, southern France, for integration in the solar panels.

AAC Microtec Wins Order from Eutelsat

September 24, 2019 - AAC Clyde Space has won an order from leading satellite operator Eutelsat to deliver and launch two Internet of Things (IoT) 6U CubeSats. The spacecrafts will be designed, manufactured, and made fit for launch at AAC Clyde Space in Glasgow. The payload, built around a sophisticated Software Defined Radio, will be developed in-house. The spacecrafts will host the first propulsion system onboard an AAC Clyde Space satellite. The satellites are scheduled for launch into a low Earth Orbit (LEO) during first quarter of 2021 and will together with two other spacecraft, start to deliver the mission's first commercial services. The contract value amounts to EUR 2 M up to potentially EUR 5 M depending on chosen options and services. If proven successful, Eutelsat plans to expand the mission into a full commercial constellation of 25 satellites dedicated to IoT services by 2022. The constellation will offer global coverage for IoT, enabling objects to transmit data whatever their location.

China Launches Two New BeiDou Satellites

September 23, 2019 - China sent two satellites of BeiDou Navigation Satellite System (BDS) into space from the Xichang Satellite Launch Center in Xichang, southwest China's Sichuan Province, Sept. 23, 2019. Launched on a Long March-3B carrier rocket, the two satellites entered the orbit. They are the 47th and 48th satellites of the BDS satellite family. After in-orbit tests, the new satellites will work with those BDS satellites already in orbit to improve positioning accuracy of the system. The new satellites and the carrier rocket were developed by the China Academy of Space Technology (CAST) and the China Academy of Launch Vehicle Technology, under the China Aerospace Science and Technology Corporation. After in-orbit tests, the new satellites will work with BDS satellites already in orbit to improve the positioning accuracy of the system.

Thales Alenia Space Transfers Technology to the Brazilian Space Industry

September 26, 2019 - Thales Alenia Space and the Brazilian Space Agency under the authority of the Ministry of Science, Technology, Innovation and Communications (MCTIC) signed an agreement to transfer technology that will enable Brazil to enhance its capability to design and develop optical instruments for Earth observation satellites. The contract is part of the Brazilian Government Geostationary Defence and Strategic Communications Satellite (SGDC) program that aims to provide internet services to 100% of the national territory and a secure and sovereign digital environment for Brazilian government strategic communications. The satellite, developed, manufactured and delivered by Thales Alenia Space, was launched successfully in 2017 and already brings high speed internet to more than 7,000 Public Schools through the Brazilian e-Government Initiative, GESAC. Thales Alenia Space signed the SGDC contract with Visiona (a joint venture between Embraer and Telebras) at the end of 2013. This program plays a key role in the Brazilian Space Agency's Space / Telebras development plan, while also addressing the Ministry of Defense's strategic requirements. Thales has been committed to the transfer of technology to Brazil since 2013. Five companies and more than 40 Brazilian engineers have already been trained in France in different space technology departments, overseen by the Thales Alenia Space programme team. In 2015, the company opened its Space Technology Centre in São José dos Campos, to consolidate the position of Thales in Brazil in the space domain.

EXECUTIVE MOVES

SES Announces Andrew Browne will Step Down as CFO in October

September 2, 2019 - SES announced that Andrew Browne, Chief Financial Officer of SES, has decided to step down for personal and family reasons and pursue other endeavors. The search for a successor is underway and an announcement will be made in due course. Andrew has a long and successful history with SES, starting with the acquisition of New Skies in 2006, when, in addition to being CFO, he was acting CEO during the integration of operations into SES. He rejoined SES in 2010 as CFO, leading the company through an important period of consolidation and alignment. In 2013, Andrew became CFO of O3b Networks, a business in which SES had a meaningful stake. Together with Steve Collar, then O3b Networks' CEO, Andrew developed O3b Networks into a successful business before the full acquisition by SES in 2016. With the appointment of Steve as the CEO of SES in April 2018, Andrew once again joined SES as CFO, reshaping and streamlining the finance organisation and reinforcing SES' position with the investment community.

NSSLGlobal Appoints Staffan Iveberg as Chief Technology Officer

September 2, 2019 - NSSLGlobal announced the appointment of Staffan Iveberg as Group Chief Technology Officer (CTO). Staffan will work alongside the NSSLGlobal leadership team to roll out the company's technology roadmap and bolster its R&D division as it continues to forge a reputation as an engineering powerhouse. Staffan brings over 20 years' experience to this role, having held various senior R&D and business positions within the wireless and high-tech industries. Prior to joining NSSLGlobal, Staffan was CTO of Cobham SATCOM, where he was responsible for the company's product and technology roadmap and strategy as well as leading the global R&D organisation.

Robert Rainhart Promoted to Chief Operating Officer of HawkEye 360

September 4, 2019 - HawkEye 360, the first commercial company to use formation flying satellites to create a new class of radio frequency (RF) analytics, announced that Robert Rainhart has been promoted to Chief Operating Officer. Rainhart brings more than 20 years of experience in engineering complex systems and leading teams developing software, firmware, and hardware. Before the promotion, Rainhart served as Executive Vice President of Engineering, where he led development of the first satellites and products from visionary concept to live capabilities. As COO of HawkEye 360, Rainhart will oversee technology development, product creation, and corporate operations. The next priority is growing the constellation to improve on-orbit capacity and revisit rates while delivering higher levels of service to customers. Prior to HawkEye 360, Rainhart held various engineering and technical leadership roles with RT Logic and Harris Corporation.

Dalet Appoints Patricio Cummins as General Manager of Dalet Asia-Pacific

September 11, 2019 - Dalet, a leading provider of solutions and services for broadcasters and content professionals, today announced the appointment of Patricio Cummins as General Manager of Dalet Asia-Pacific (APAC). Based out of the Dalet regional headquarters located in Singapore, Cummins will be responsible for Dalet sales, project and customer success teams across the APAC territory. Cummins, who joined Dalet through the acquisition of the Ooyala Flex Media Platform business, was previously vice president of sales for Ooyala Asia-Pacific and Japan (APJ).

Northrop Grumman Announces Organization and Leadership Changes

September 18, 2019 - Northrop Grumman Corporation has announced organization changes to its operating sectors to better align the company's broad portfolio to serve its customers' needs. There will be four operating sectors: Aeronautics Systems, Defense Systems, Mission Systems and Space Systems. The changes are effective Jan. 1, 2020. In addition, Patrick M. Antkowiak, corporate vice president and chief strategy and technology officer, and Christopher T. Jones, corporate vice president and president of Technology Services, have announced their intent to retire. Aeronautics Systems, an innovative manned and unmanned air system provider, with a proven track-record of systems engineering, manufacturing excellence and reliability. This sector will be led by Janis Pamiljans, current corporate vice president and president of Aerospace Systems. Defense Systems, a broad-spectrum provider of critical technology services, sustainment and modernization, including integrated battle command systems, directed energy, tactical weapons and information systems, focused on evolving threats and quick-turn requirements for a wide variety of national security, military and civilian customers. Mission Systems, a technology leader in open, cyber-secure, software-defined systems for defense and intelligence applications across multiple domains. This sector will be led by Mark Caylor, current corporate vice president and president of Mission Systems. Space Systems, a space and launch systems provider serving national security, civil and commercial customers. Blake Larson, current corporate vice president and president of Innovation Systems, will lead the Space Systems sector.

Andrew Stanniland Named CEO of Thales Alenia Space in the UK

September 24, 2019 - Andrew Stanniland has been announced as Chief Executive Officer of Thales Alenia Space in the UK commencing from Monday 23 September 2019. Thales Alenia Space in the UK provides global excellence in the design, assembly and testing of propulsion systems, Earth observation and Science mission subsystems and next generation payloads for telecoms, military satellites and has advanced technology facilities in Bristol, Harwell and Belfast in the UK. Andrew Stanniland has over 25 years' experience of multi-disciplinary and international management experience, selling complex solutions to government and defence customers across the world. A graduate of Imperial College London, where Andrew studied Aeronautical Engineering, he started his career in Systems Engineering, before becoming Head of Service Development at EADS Astrium (now known as Airbus Defence and Space) developing the

service specifications for the UK military communications satellite system Skynet 5. In 2003, he joined the commercial satellite communications company Paradigm, where as VP of Business Development, Sales and Marketing, he led the export sales team. Since 2013, Andrew was VP of Market Development and Strategy at Inmarsat where he led the sales and market development team in delivering the Global Government business unit's strategy, resulting in growth and diversification of customer revenues and geographical reach.

Speedcast International Ltd Director Appointment/Resignation

September 27, 2019 - Speedcast International Limited pleased to announce that Peter Shaper and Joe Spytek have agreed to join the Board as independent Non-executive Directors. These appointments follow the global search for additional independent non-executive Directors to underpin Speedcast's Board renewal process, which was previously announced on 27 August 2019. Peter Shaper is currently a Partner of Houston-based private equity firm Genesis Park. He has extensive business and Board experience, particularly in the satellite telecommunications sector, having previously been Chairman and CEO of CapRock Communications (a company acquired by Speedcast in 2017) and Chair of ITC Global, also a global satellite services provider. Joe Spytek has more than 25 years of experience in leadership and international business. Most recently, Joe served as the Founder and CEO for ITC Global, providing end-to-end satellite communications to energy, mining and maritime companies operating in remote and harsh environments; prior to the business being sold to Panasonic's mobility communications division. The Company's earlier announcement on 27 August 2019 anticipated that another Director would retire from the Board once a suitable appointment was made. Caroline van Scheltinga has informed the Company of her retirement from the Board effective immediately. Ms van Scheltinga has been an independent Non-executive Director of Speedcast since April 2018 and has made an outstanding contribution to the business during her time on the Board.

REPORTS

Euroconsult Projects In-Flight Connectivity Market to More than Double by 2028

September 5, 2019 - According to Euroconsult's newly released research report, *Prospects for In-Flight Entertainment and Connectivity*, the number of connected commercial aircraft will increase from 8,200 at the end of 2018 to more than 20,500 over the next ten years. The research suggests that satellite operators and service providers stand to benefit the most from the market growth with increased revenues associated with aircraft connectivity. A trusted resource for manufacturers, service providers, airlines and investors, the report quantifies how many airlines will add cabin connectivity to their fleets and which regions will see the most demand. It also includes a discussion of the various business models that airlines are considering and how flexibility in service options will become a key decisive factor. It addresses the growing demand for real-time data on aircraft systems, operations and maintenance, and the impact of the "Smart Plane" concept on the amount of satellite bandwidth airlines will need. Euroconsult's analysis over the period from December 2018 through December 2028 points to increasing competition among service providers, which it predicts will result in decreasing bandwidth cost. However, this is expected to be offset by the dramatic growth in data consumption both by passengers and by the aircraft themselves.

NSR Report Finds Large(r) Satellites Still a Long-Term Growth Market

September 9, 2019 - NSR's *Satellite Manufacturing and Launch Services, 9th Edition* report finds despite a few slow years, 1,155 satellites over 500 kg are expected to be ordered, with 1,285 to be launched, in the next decade. Between end of life replacement demand from most G&M heavy applications, such as Situational Awareness, and new demand from Science and Communications applications, the market for satellite launch and manufacturing is expected to grow robustly over the next decade. Both GEO and Non-GEO markets will remain stable. The latter is expected to dominate, with over \$140 billion in cumulative manufacturing and launch revenues. Government/ Military satellites will dominate the overall non-GEO market, as most commercial non-GEO systems are <500 kg. The GEO commercial market will experience a steady transition, as manufacturers and launch service providers try to creatively address the tailored requirements of operators.

Inmarsat Landmark Study Identifies Critical Role for Maritime Startups

September 10, 2019 - New and original research into maritime startups conducted for Inmarsat by UK GovTech venture firm and research house, PUBLIC, concludes that more bandwidth connecting ships to

shore at lower cost than ever before is empowering a new breed of single-minded innovators to bring the true benefits of digitalisation to the shipping and offshore sectors. The report, *'Trade 2.0: How Startups are driving the next generation of maritime trade'*, co-authored by Nick Chubb and Leonardo Zangrando, locates the maritime sector at an inflection point; open to big data, blockchain, artificial intelligence (AI) and cloud computing, at a time when emissions regulations are pushing it away from the fossil fuels that have framed its business model. Estimating that the Ship Technology (ShipTech) market is worth US\$106bn as a whole today, the report predicts its value rising to US\$278bn by 2030. Significantly, in what represents the first ever market value estimate, it goes on to predict exponential growth for maritime startups. The projection is based on direct input from 100 startups and two years of tracking 240 active startups by the authors' database of maritime innovation.

New Report from WTA "High Performance: Service Management" Provides Key Insights for Improving Management of Services for Customers

September 13, 2019 - The World Teleport Association (WTA) released *High Performance: Service Management*, the second report in the High Performance series, which examines the most common under-appreciated issues that can have an impact on quality of service and how teleport operators can address them. WTA produced this report based on its complete data set on Provisional and Full Certification of teleports completed from 2016 through May 2019. Provisional Certification is based on answers to a questionnaire covering facilities, technologies and the operating procedures used to manage them and deliver service.

HAPs Market Materializing into \$2.6B Cumulative Opportunity by 2028

September 18, 2019 - NSR's *High Altitude Platforms, 3rd Edition (HAPs3)* report forecasts \$2.6 B in cumulative revenues over the next decade for airships, balloons, and pseudo-satellite platforms. Amongst the three, the balloon market is expected to be the main driver of units and revenues. While North America and Europe lead by taking up nearly 83% of the global market opportunity with equipment revenues, Latin America, Middle East & Africa, and Asia will generate service revenues across multiple applications, particularly for communications and remote sensing.

Euroconsult Projects Satellite Communications Market to Reach \$19.4 Billion by 2028

September 25, 2019 - Euroconsult, the world's leading authority on space and satellite-based applications, released its flagship research, which predicts the satellite communications market will grow to \$19.4 billion by 2028. Following a decline that began in 2014, the research forecasts a return to revenue growth beginning in 2020, driven by demand for broadband applications, including rural connectivity, in-flight communications, as well as cellular backhaul. The satellite communications market is heading towards an inflection point in 2021, where wholesale revenue for voice & data applications will equal traditional broadcast revenues. Post 2022, the satcom market should enter an era of market expansion, driven by anticipated demand elasticity in price-sensitive verticals, such as consumer broadband access, Wi-Fi hotspots, inflight connectivity and cellular backhaul.

UPCOMING EVENTS

Satellite Innovation 2019, October 8-10, Silicon Valley, CA, USA, <https://2019.satelliteinnovation.com/>

IAC 2019, October 21-25, Washington DC, USA, www.iac2019.org

37th International Communications Satellite Systems Conference (ICSSC), October 29 – November 1, Okinawa, Japan, <http://www.kaconf.org/call4papersICSSC.php>

China Satellite 2019, October 30 – November 1, Beijing, China, www.china-satellite.org

Asia Video Summit 2019, November 4-6, Singapore, <https://asiavia.org/insight/events/>

Global MilSatCom 2019, November 5-7, London, UK, <https://www.smi-online.co.uk/defence/uk/global-milsatcom>

APSCC 2019 Satellite Conference & Exhibition, November 19-21, Bangkok, Thailand,
<http://apscsat.com>

APSCC 2019 Youth Development Workshop, November 21, Bangkok, Thailand,
<https://apscsat.com/workshop/>

Broadband India Forum, November 27-28, New Delhi, India, www.broadbandindiaforum.com
Broadband India Forum is organizing 5th International Summit - India SatCom 2019 on 27 & 28 November, 2019 at New Delhi. The conference would deliberate on Policy and Regulatory measures required to facilitate rapid and barrier free deployment of Next Gen Satellite communications technologies to achieve the objectives of Govt's flagship programme on Digital India.

PTC'20: Vision2020 and Beyond, January 19-22, Honolulu, Hawaii, USA, www.ptc.org
PTC's Annual Conference is a strategic springboard for the global communications industry, providing all attendees with a three-day platform to focus on planning, networking, and discovering what lies ahead for the ICT industry. Start the new year off right at PTC'20: Vision 2020 and Beyond, 19-22 January 2020. See you in Honolulu!

Editorials and Inquiries

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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.apsc.or.kr.