

SSWG: Members welcome the outcome of WRC19

AUSTRALIAN SPACE AGENCY: New pacts with EOS, Thales

NSW GOVERNMENT: Awards satellite imagery contracts

ACMA

Launches review into space-based comms licensing arrangements

SPACE & SATELLITE AU

6 December 2019

The weekly newsletter for Australia's satellite & space sector

ISSUE 103

Australian startup partners Viasat to offer secure Internet provision across the Pacific

Australian communications and cybersecurity startup Internet 2.0 announced an exclusive partnership with Viasat to build secure Internet services across the Pacific Islands. The partnership will see Internet 2.0 act as **EXCLUSIVE** the exclusive provider of secure ISP services across Oceania. Self-funded Internet 2.0 plans to change the Internet landscape in the region by offering a secure and reliable service at more competitive Australian Internet prices.

An initial program is already underway in Papua New Guinea, where Internet 2.0 has partnered local PNG satellite communications and cybersecurity company Astro-lab PNG. The company is the only fully licensed, Papua New Guinean owned ISP that is not state owned.

Internet 2.0 plans to offer services to other Pacific Islands by around mid-2020.

Internet 2.0 co-founder and CEO Robert Potter told Space and Satellite AU the partnership will deliver a step-change in Internet in the region. "Despite being one of the fastest growing regions in the world, the Pacific has continued to have access to inadequate Internet, with low speeds, high-prices and lack of secure connections," he said.

Potter said Internet 2.0 exists to change the basic structure of the Internet by lowering costs while increasing protections - which sounds counterintuitive in the world of managed security services.

However, he said Internet 2.0's model works because cybersecurity is a relatively small cost compared with overall Internet connectivity prices in the region. "If your Internet is \$10,000 for a connection how do you patch your server?," he said. "You can't afford to do cybersecurity at that price. If you have the scale of an ISP with the latest technologies - using automation as much as possible - you can lower the price of cybersecurity to the end user by embedding it into the cost of their Internet."

The founders have a deep cybersecurity pedigree. Potter has a long record of cybersecurity posts including in the Australian Shadow Cabinet and Government and BAE Systems Applied Intelligence, mainly dealing with incident response such as with threat actor groups like the Lazarus Group and APT10. Europe-based co-founder and chair David Robinson has extensive experience in intelligence operations and cyber security operations at the Australian Army and was most recently head of strategy at WithYouWithMe.



At the heart of Internet 2.0's cybersecurity solution is its Black Core secure gateway in a Sydney facility. Black Core allows for transmission security of critical data, malware interception and distributed denial of service (DDoS) protection to provide high assurance connectivity as an embedded component of a next generation Internet. By securing metadata, with quantum resistant encryption, Potter believes "opponents can copy and paste information but they won't even be able to see IP addresses. It's a powerful way to anonymise Internet traffic."

He said Viasat was crucial to understanding advanced threats. "We aim to intercept threats before it gets to users," he said. "As a global ISP, Viasat gives us the ability to learn what threats are happening globally rather than just with my own customer set. We can distil this into actionable intelligence and use this to block malicious traffic straight off the cable."

Viasat's VP and CSO advanced networking and cybersecurity solutions John Korecki told Space and Satellite AU that it chose Internet 2.0 as its exclusive regional partner because of its cybersecurity credentials and links with regional and Australian governments. "The Black Core service is more than just encryption. It is a holistic cyber defence protection of a customer's data and transactions outside their network."

In addition to the secure gateways, Black Core comprises encryptors and network security monitoring tools deployed at local sites but he said the cost compared to satellite dishes was "trivial". He added: "Our price to market is sufficient that we are not struggling to sell."

Korecki said to support Internet 2.0, Viasat provides: "a hybrid adaptive network service model in which we can use many different sources of satcom bandwidth. This way we provide the best available services to our customers wherever they are."

"This is how we can drive the price of data down over the next five years as new and better services become available," he added.

Potter said the company plans to use the Viasat-3 constellation which will give the region much more uniform coverage with vastly improved speeds and data capacity. The first Viasat-3 satellite is planned for launch in 2021. The second Viasat-3 satellite is expected to launch about six months later. And the third Viasat-3 class satellite is expected to launch in the second half of 2022. Each of the Viasat-3 satellites is expected to offer one terabit or more of total network capacity.

INTERNET 2.0 PLANS FOR AUSTRALIA: The company plans to introduce the technology to Australia once its initial targets have been reached. Potter said: "Our cybersecurity technology has a lot to offer Australia. We won't get the opportunity to do that at the ISP level in Australia but there is a compelling case to bring our tech here."

He added: "Our technology provides an additional layer of security to core networks. The business case here is to build a more trusted internet over time. It's something not enough people are tackling. We therefore have a compelling argument to work with the likes of Telstra, Optus and Vodafone. But at this stage we can't just go and do it in the Australian market by becoming Telstra."

"Besides," he joked: "We're more free to operate outside Australia, the [ISP] licensing here would kill me."

Simon Dux

ACMA reviewing space-based licensing procedures

The Australian Communications and Media Authority has commenced a review into its procedures for evaluating licence applications for space-based communications systems, and has launched a consultation in support of this review.

The review will be conducted in two stages, ACMA said in a discussion paper released for the consultation.

During the first stage, the regulator will consider whether to revise its procedures for assessing applications for space and satellite related apparatus licences to ensure a consistent regulatory approach is being taken.

In July, ACMA updated its business operating procedure for processing applications covering space and space receive apparatus licences for Ku band earth stations in motion. The changes were primarily intended to improve the management of interference risks.

Now the regulator is proposing to extend these updates to cover the assessment of all space/space receive and earth/earth receive apparatus licences – the two main regulatory pathways for securing approval to operate a space-based radiocommunications system.

Under the proposed changes, licence applicants would be required to complete additional procedures including demonstrating compatibility of non-geostationary orbit networks with very large earth stations, and providing a designated point of contact for interference management.

ACMA is also planning to introduce changes to the procedures for space/and space receive licence evaluation specifically.

These include a requirement to undertake an engineering assessment that considers the risk of interference to and from existing services in Australia.

Applicants for this licence type will also be required to demonstrate that appropriate interference management measures are in place for all fixed and mobile ubiquitous earth stations to be authorised.

The second phase of the review would cover more complex matters that ACMA has yet to raise with industry, the regulator said.

For example, ACMA will evaluate developing triggers to identify whether the risk of interference by a satellite or earth station is high enough to require further assessment. Such triggers could include calculations of orbital separation or power flux density limits.

During this stage, ACMA also plans to explore conducting a broader review of licence conditions and letter of assurance requirements, and whether to simplify existing procedures into a single streamlined document.

Other issues ACMA is proposing to evaluate will include developing non-geostationary orbit coordination requirements in relation to services operated by NASA and the European Space Agency and reconsidering the criteria for evaluating interference potential in short-term, non-ongoing earth and earth receive licences.

Dylan Bushell-Embling

Satellite industry welcomes WRC-19 decisions as a compromise in coexisting with 5G

Communications Alliance Satellite Services Working Group members who attended the ITU World Radiocommunication Conference 2019 (WRC-19) told CommsDay a mountain of progress had been made and both the satellite and terrestrial mobile industries making concessions necessary for co-existence.

Always present during the conference was the challenge of accommodating IMT/5G among other services while achieving a compromise in sharing and coexistence within the spectrum.

While the satellite industry came away from the conference with an assured future and guarantee of its place in the broader industry, the terrestrial mobile industry can also count its successes amounting to some 17 GHz of spectrum falling within its discretion towards global harmonisation.

The key contention around 28GHz and 5G was not really evident, according to SSWG attendees, and the conference was basically true to its WRC-15 requirements to consider a range of bands which did not include 28 GHz, despite a small number of countries favouring this band for 5G on a national basis. Attendees said this underpinned the pre-emptive position of the ACMA in deciding not to include IMT in 28 GHz for national consideration.

As the Resolutions revealed, use of the band 66 to 71 GHz for 5G and coexistence with other applications in the mobile area was agreed. The terrestrial component of 5G in 24.25 to 27.5 GHz was assured with practical measures to enhance sharing abilities including with passive Earth Exploration Satellite Services (EESS) at the lower end of the band.

In the bands 37 to 43.5 GHz and 47.2 to 48.2 GHz measures were established to allow for wide and contiguous blocks of spectrum to support the development of high definition 5G, through control of unwanted emissions and the development of harmonious frequency management in 44.5 to 47 GHz for 5G/IMT development. Guidance and recognition were also given to the use of IMT below 1 GHz, attendees told CommsDay.

In summing up the SSWG attendees stated that looking ahead, the Final Acts outline studies to be completed leading up to WRC-23 will consider IMT/5G identification in the frequency bands 3300 to 3400 MHz, 3600 to 3800 MHz, 6427 to 7025 MHz, and 10 to 10.5 GHz. It will include possible additional allocations to mobile services, and to consider high-altitude IMT base stations (HIBS) in mobile services in certain frequency bands below 2.7 GHz. Other higher band allocations for high-altitude platform stations (HAPS) are treated in the Provisional Final Acts.

All of the above outcomes should feature in the next generation of the ACMA Five Year Spectrum Outlook.

“Resolution 233 summarises IMT additional frequency bands identified for IMT, whilst Resolution 212 has found the magic bullet for sharing considerations between terrestrial and satellite components of IMT in the bands 1980-2010 and 2170-2200 MHz,” stated SSWG. “An accommodation of IMT and BSS (sound) was also found in the 1452-1492 MHz band, as was the use of the bands 694-790 MHz for IMT.”

Attendees also said the tremendous growth of inflight communications will see an

expansion of ESIMs in the 13 GHz band – an issue which was passed over at WRC-15 but which has now come to the fore given technology developments.

The Satellite Services Working Group represents and advances the interests of Communications Alliance members involved in the delivery of satellite-based network and facilities services on a wholesale and/or retail basis.

GLOBAL SATELLITE COALITION WELCOMES WRC-19: The satellite association organisation GSC was satisfied that a practical approach had been made that would protect the satellite industry as a result. “Not only was the satellite industry able to effectively contain the persistent encroachments on spectrum allocated to satellite services, but also achieved big wins in terms of added flexibility and new spectrum allocations,” it stated. In addition to earth stations in motion (ESIM) in the Ka-band, the GSC welcomed the decision to protect C-band downlinks in Africa and Asia using the 3.6 to 4.2 GHz range.

It also praised the decisions on defining a regulatory framework for non-geostationary satellites to operate in the Q/V bands, the new allocation of 1 GHz of spectrum for the fixed-satellite service in the 51.4 to 52.4 GHz band for feeder links and the decisions to make ample spectrum available to HAPS (High Altitude Platform Stations) and 5G, which both acknowledge the need to protect incumbent services.

GSC applauded new agenda items for WRC-23 around ESIMs communicating with geostationary satellite networks and NGSO satellite systems in Ku-band and Ka-band, respectively. “Future conferences will also look at making additional spectrum available to accommodate the growing demand for fixed and mobile satellite services to enable broadband and 5G applications,” it noted. WRC-23 will further study a number of issues including technical considerations related to space-to-space links, which will be important for global NGSO and hybrid NGSO-GSO networks.

Simon Dux

ASA collaborates with EOS on space situational awareness, links up with Thales

The Australian Space Agency has signed a collaboration agreement with NSW's EOS Space Systems aimed at expanding the nation's capabilities in space situational awareness. EOS currently operates a network of laser-based space situational awareness sensors at Mt Stromlo in the ACT and Learmonth in WA, which is used to track 10,000 space objects per week.

Through the collaboration, EOS will look to expand on this capability by building more sites across Australia.

Australian Space Agency deputy head Anthony Murfett said the low light and radio interference in much of Australia's regional areas leaves Australia well placed to expand its commercial industry for tracking space objects.

Murfett added that SSA and debris monitoring is one of the seven national civil space priorities outlined in the Australian Civil Space Strategy, the federal government's ten-year plan for transforming and growing the local space sector to a \$12 billion industry by 2030.

“EOS Space Systems are building, operating and developing the infrastructure to track the growing number of objects in space and keep Australians safe, on Earth and

in space,” he said.

“Australia’s geographic location in the Southern Hemisphere enables monitoring of parts of space from our unique view into the Solar System.”

EOS Space Systems’ parent company Electro Optic Systems (EOS) was founded in 1983, and also has subsidiaries in the defence and satellite communications sectors.

SSA was also one of the areas of focus of the collaboration agreement with satellite technology company Speedcast that the Australian Space Agency entered into in August.

Last week UNSW Canberra and the ACT’s Clearbox Systems meanwhile jointly secured federal grant funding for a collaborative research project focused on SSA.

ASA LINKS UP WITH THALES: The Australian Space Agency has also signed an agreement with French space and defence giant, Thales, further strengthening Australia’s international space connections.

Minister for Industry, Science and Technology Karen Andrews said: “Engaging with big international players like Thales will allow Australian businesses, including our advanced manufacturers, to carve out a place in the international space supply chain.”

The statement is designed to mutually identify key areas of investment as well as potential research, development and commercial opportunities.

“The Government plans to triple the size of the Australian space sector by 2030, adding \$12 billion to our economy each year, and creating 20,000 new jobs,” she said.

Thales Australia CEO Chris Jenkins said: “Thales has been a long-term investor in Australia’s advanced technology sector, through comprehensive technology transfer and close collaboration with research agencies and specialised Australian SMEs.

“Together, Thales and the Australian Space Agency can build and develop the Australian workforce and SME sector to meet the future needs of the growing space economy.”

Dylan Bushell-Embling and Simon Dux

Geospatial Intelligence delivers state-wide satellite imagery for NSW

Canberra-based company Geospatial Intelligence has won a contract to deliver state-wide, very high resolution satellite image mosaics to bushfire-ravaged New South Wales. Geospatial Intelligence has teamed up with Brisbane imagery production company Geoimage and Airbus Defence and Space to deliver detailed satellite imagery that will assist in analysing bushfire and drought affected areas.

The NSW Department of Customer Services’ Spatial Services office has requested NSW-wide satellite imagery for temporal analysis at multiple time points during 2019 and 2020.

Geospatial Intelligence CEO Rob Coorey said the state will be able to use the imagery to help better coordinate its disaster response.

“A lot of this imagery was taken before the devastating bushfires ripped through New South Wales and will give the government a clear indication of damaged and drought-ravaged areas,” he said.

“The satellite images are layered and very high resolution, which means you can compare vegetation change, water and so on.”

GeoSpatial Intelligence has been using Airbus SPOT 6/7 satellites since June to capture more than one million square kilometres of 1.5 metre resolution imagery over NSW and Lord Howe Island. A second capture will begin in early 2020.

Geoimage is processing the resulting data to provide a state-wide colour balanced mosaic and tiled product solution for each of the biannual captures.

The collaboration with Airbus will meanwhile provide Spatial Services with the ability to purchase imagery from the entire Airbus satellite archive - representing over 100 billion square kilometres of satellite imagery - from Airbus' online Geostore.

Dylan Bushell-Embling

Advanced satellite technology enables first live feed from Antarctica

Remote comms specialist Pivotel has deployed its satellite technology to enable a live video feed from the Southern pole of inaccessibility on the Antarctic Plateau.

According to Pivotel, Dr Geoff Wilson reached the point on 1 December and broadcasted a live video from the Antarctic Plateau which offered a glimpse into the "harshest terrains on the planet."

Pivotel provided Wilson with a Thales MissionLINK (Iridium Certus Data Terminal), which provides critical connectivity even in adverse weather conditions using a portable antenna and terminal attached to his sled, and two Iridium Extreme Satellite Phone Handsets in support of the expedition.

Pivotel claimed it was one of the first company to provide the Iridium Certus L-Band services. "The introduction of the Iridium Certus service marks a new era of satellite communications, empowering explorers like Dr Wilson with compact voice and data solutions that allow them to stay connected and operate in some of the harshest and most remote environments on the plane," said Pivotel Group CEO Peter Bolger.

"Ten years ago, updating your Facebook status or making a video call from Antarctica was unimaginable, and even now, there's nothing else currently available on the market that enables this level of connectivity using small portable terminals.

We're looking forward to seeing Geoff's journey demonstrate the extensive capabilities of the technology."



Jessica Taulaga

SmartSat CRC appoints new independent board

The SmartSat Cooperative Research Centre has appointed its new independent board, which will be chaired by Dr Peter Woodgate.

Established in July 2019, the SmartSat Cooperative Research Centre is a research collaboration bringing together more than 100 international and national partners who have invested more than \$190 million. Together with \$55 million of Australian Government support through the Cooperative Research Centres Program, this represents a \$245 million research effort over seven years.

The board comprises Dr Michele Allan, Julie Cooper, Dr Jacqueline Craig, Adjunct Professor Michael Davis, Dr Rosalind Dubs, Professor Margaret Harding, and Professor Andy Koronios.

The board will guide the centre in its mission of developing leapfrogging space technologies that will ensure that Australia builds a new space industry and transforms major sectors.

These include telecommunications, agriculture and natural resources, transport and logistics, mining and defence and security.

The new SmartSat CRC will help create a sovereign space and satellite capability and position Australia as a leader in the \$400 billion global space sector, bridging the gap between research and the development and commercialisation of new products and technologies.

Woodgate said the founding partners of SmartSat carefully guided the appointment process and expressed strong support for their new board. "The composition of the Board respects a commitment made to the Government in the original CRC proposal".

CEO-designate Professor Andy Koronios added: "I look forward to working with this dynamic board chaired by Dr Peter Woodgate who is highly experienced and knowledgeable in the space and spatial domain and together we will make a big contribution to Australia's space economy and global competitiveness."

Monica O'Shea

NZ SPACE AGENCIES OPEN APPLICATIONS FOR SPACE SCHOLARSHIP

The New Zealand Space Agency has opened applications for its New Zealand Space Scholarship which will allow those selected to take part in NASA's International Internship Programme in August 2020. Recipients of the scholarship are nominated by the Ministry of Business, Innovation and Employment and if accepted, the cost of their participation will be paid for by the government. Students will travel to NASA's Ames Research Centre in California to work with NASA's mentors on cutting-edge research and will be involved in the development of world-leading technology such as robotics and sensors for planetary exploration. The NZ Space Agency is now accepting applications until 19 December.

INTERNATIONAL

ADB reveals first satellite financing: US\$50m to back Kacific

The Asian Development Bank has revealed it has signed a US\$50 million financing deal to back the Kacific Broadband Satellite International's new satellite. The deal is ADB's first satellite project.

According to ADB, the financing will support the construction, launch and operation of Kacific1, a geostationary satellite scheduled to be launched this month on board a SpaceX Falcon 9 rocket.

ADB said the project will bring "affordable satellite-based, high-speed broadband internet connections to countries in Asia and the Pacific, especially in remote areas of small island nations in the Pacific and larger island nations like Indonesia and the Phil-

ippines.” Further, ADB said the “Asia Pacific Remote Broadband Internet Satellite Project” will help make broadband internet connections more widely available to some 2 billion people in the region that do not have reliable internet connections due to inadequate infrastructure, geographical challenges and high cost of services.

“Better access to reliable, high-speed internet can help improve education services, expand access to information, attract investments, reduce rural-urban development gaps, enhance trade and connectivity, and stimulate local economies,” said ADB private sector operations director general Michael Barrow. “It will also help improve communication, especially during emergencies and times of disaster when terrestrial networks might be damaged.”

ADB is also working with GuarantCo – a Private Infrastructure Development Group company that is backed by various governments, including Australia, as well as the UK, Switzerland, Sweden and the Netherlands – to guarantee additional private co-financing for the project.

As reported previously in Space & Satellite AU, Kacific1 will feature 56 high-power Ka-band spot beams covering 25 countries in South East Asia and the Pacific. The spot beams will cover New Zealand, as well as American Samoa, Bhutan, Brunei, Cook Islands, East Timor, Fiji, French Polynesia, Guam, Indonesia, Kiribati, Malaysia, Micronesia, Myanmar, Nepal, Niue, Northern Mariana, Papua New Guinea, Philippines, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

“ADB’s role was key in getting this transaction closed,” said Kacific CEO Christian Patouraux. “ADB’s involvement has helped secure the necessary financing for this highly developmental project. The benefits of connectivity are life-changing – from increased tourism, access to information, financial services, to health care and education for many remote communities in the region.”

Tony Chan

PNG adopts new approach to air surveillance

Papua New Guinea Air Services Limited has adopted a new approach to its surveillance capabilities by deploying Aireon’s space-based Automatic Dependent Surveillance-Broadcast air traffic surveillance service in the Port Moresby Flight Information Region. Aireon was founded to deliver global air navigation and aircraft tracking services via Iridium’s NEXT constellation of satellites.

Aireon CEO Don Thoma said that its surveillance technology will place PNGASL as “a leader of aviation safety and efficiency in the region,” and is certain that the benefits will extend to the broader Asia-Pacific.

PNG previously relied on ground-based infrastructure capabilities and third-party communication links. However, because of the country’s challenging terrain, unpredictable weather and ongoing power supply disruption, it has been a challenge for PNGASL to install and maintain ground stations and third-party solutions.

Over the next few months, PNGASL will have access to real-time air traffic surveillance over the Port Moresby FIR which shares common borders with the Brisbane, Oakland Oceanic and Ujung Padang FIRs.

According to PNGASL CEO Ted Pakii, the announcement will provide the company with: “the highest standards of safety and efficiency for air traffic within and routed through our airspace.”

Pakii added that Aireon’s technology will strengthen and improve its operations and

facilitate seamless services for the aviation industry in PNG.

“PNGASL plays a significant geographic role, being a main thoroughfare for traffic going from the north to the south and vice-versa,” Thoma said. “They are looking to provide the best-in-class services to their customers and stakeholders and real-time oceanic and terrestrial air traffic surveillance will absolutely accomplish that.”

Jessica Taulaga

UK LoRa-based satellite system to enter commercial trials in 2020

UK-based Lacuna Space, which is building satellite network using LoRa networking to support Internet of Things applications, will start commercial trials as early as 2020 following a deal with Swiss IoT device developer Miromico.

Under the scope of a collaboration agreement, Lacuna Space and Miromico aims to develop “space ready and off-the-shelf communications devices” that use “ultra low-power and low cost satellite links.”

According to Lacuna Space, which launched its first demonstration spacecraft in April 2019 followed by three more nodes in orbit this year, the companies have already completed successful tests earlier this year and plan to start the first commercial trials with Miromico devices and selected enterprise clients of the Swiss firm in agricultural, environmental monitoring or asset tracking beginning 2020.

“A low-cost and low-power satellite link like Lacuna Space’s technology built directly into every smart device will ignite a second IoT revolution,” said Miromico IoT & LPWAN Marcel Wappler. “We are facing a skyrocketing but yet unmet demand for smart devices with low power, affordable, and global connectivity. The lack of global connectivity is holding back endless applications. Some of which will help to solve the most difficult challenges of our times such as enabling solar powered local grids in South America and elsewhere, improving agricultural yield, or tracking the global flow of goods or assets and monitor their carbon footprint.”

Lacuna Space’s platform, dubbed LoRa-based Space Gateway, is based on nanosatellites that use the LoRaWAN, or low-power long-range wide area network protocol. The company’s plan is to have a constellation of 32 nanosatellites in low earth orbit (500 kilometres) to offer direct narrowband connectivity for IoT devices.

According to Lacuna, the use of LoRa, which supports “short data messages from IoT sensors on the ground or at sea,” battery life of IoT devices can be “increased by Years,” saving operation and maintenance cost. The standard-based deployment also allows Miromico to “easily and quickly adapt their hardware” for Lacuna’s network.

“We have been really impressed by Miromico and their depth of knowledge with LoRa devices was of great importance,” said Lacuna Space co-founder and CEO Rob Spurrett. “We are being very selective in our choice of initial partners for the development of our devices because these first steps are vital for us. Once the satellite constellation becomes operational, the demand will scale really quickly. In Miromico we have found a company that can match those demands.”

In addition to satellite-based IoT connectivity, Lacuna said the devices on the Lacuna Network will seamlessly integrate with any LoRaWAN network on the ground with-

in reach. "This will provide the uninterrupted connectivity that is needed between terrestrial LPWAN," Lacuna said.

Tony Chan

Inmarsat sale cleared despite late opposition from shareholders

The US\$6 billion acquisition of Inmarsat by a consortium that includes Apax Partners, Warburg Pincus, Canada Pension Plan Investment Board and the Ontario Teachers' Pension Plan Board, is set to proceed after a group of shareholders that objected to the sales price dropped their opposition.

The deal, which was challenged in court in London over its price, is now cleared for completion after Oaktree Capital Management Limited and at least two other funds, Rubric Capital and Kite Lake Capital, dropped their challenge of the price.

Despite being outvoted by the majority of Inmarsat's shareholders, the three funds, which held about 4.4% of the voting shares of Inmarsat, resorted to legal action to seek a higher price for Inmarsat, arguing the company's valuation omitted the potential proceeds from a major deal with US satellite-based 5G service provider Ligado, the remnant of bankrupted LightSquared that once wanted to build a 4G network in the US but failed to attain regulatory approval over concerns of interference to existing satellite services.

According to Oaktree, Ligado, which is now seeking regulatory permission to develop a satellite-based 5G service – presumably using capacity from Inmarsat – could add some US\$300 million of value to Inmarsat if it gets the nod from the US Federal Communications Commission.

However, the bidders for Inmarsat dismissed the claims, countering that there's been no change in the status of Ligado's applications. The refusal to offer more money left Oaktree and its affiliates with the choice of backing down or continuing to seek to block the deal against the majority shareholder approval for the deal. They decided to drop their opposition, clearing the way for the deal to go through.

Tony Chan

Space & Satellite AU

Published every Friday and read by satellite companies, space entrepreneurs and industry visionaries.

PUBLISHED BY DECISIVE PUBLISHING

Mail: PO Box A191 Sydney South NSW 1235 AUSTRALIA.

Fax: +612 9261 5434 Website: www.commsday.com

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Contacting us

Chief Editor: Simon Dux, simon@commsdaymail.com

Editor at large: Tony Chan, tony@commsdaymail.com

Journalist: Monica O'Shea, monica@commsdaymail.com

Journalist: Jessica Taulaga, jessica@commsdaymail.com

Columnist: Kevin Morgan, kevinlmorgan@bigpond.com

Founder and CEO: Grahame Lynch, GrahameLynch@commsdaymail.com

Subscription inquiries: Linda Salameh, linda@commsdaymail.com

CommsDay Summit/Congress/Edisons sponsorship: Veronica Kennedy-Good, veronica@mindsharecomms.com.au

Satellite Forum sponsorship: Kevin French, kfrench@talksattee.com

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