

January, 2022

SPACE & SATELLITE

Updates from the SA-ME-NA Region and Beyond



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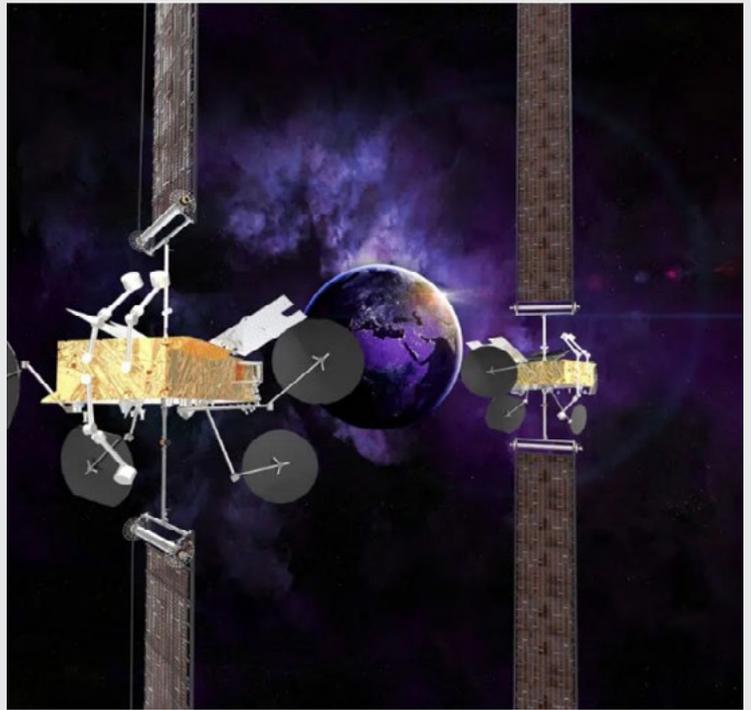
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Intelsat Taps Thales for Latest Satellites

Intelsat, which is set to emerge from bankruptcy protection this year, arranged the purchase of two satellites from Thales Alenia Space to support its aim to provide 5G services from space. The US-based satellite service provider signed an agreement with the joint venture company of Thales and Leonardo to build the geostationary orbit satellites. Intelsat 41 and Intelsat 44 (IS-41 and IS-44, respectively) are scheduled to be in service in 2025 and will complement two Airbus-built satellites, IS-42 and IS-43, which were announced in January 2021. IS-41 and IS-44 will provide capacity over Africa, Europe, the Middle East and Asia for commercial and government mobile services, and backhaul.

Intelsat CEO Stephen Spengler stated the latest satellites will enable it to “blanket the earth” with software-defined satellites, “progressing the world’s first global 5G software-defined network, designed to unify the global telecoms ecosystem”. Several companies are pursuing space-based connectivity. For example, aerospace and defence company Lockheed Martin is also developing a satellite-based 5G system to supplement terrestrial coverage, after teaming with start-up Omnispace. In January 2021, OneWeb secured \$400 million in additional investment from Hughes Network Systems and SoftBank Group, and is targeting completion of its first full commercial fleet this year. Vodafone Group-backed AST SpaceMobile plans to begin offering mobile service from its network of satellites in 2023, while Russian operator MegaFon is exploring options to close coverage gaps.



S. Korean Lab, EU Develop Intercontinental 5G-Satellite Network System

Omani Space Communication Technologies has launched a tender for the design, manufacture and launch of its first satellite called “Omansat-1”, Al Arabiya reported citing state television. The Sultanate intends to launch its first satellite dedicated to telecommunications in 2024. The company intends to launch a high-capacity communications satellite and its related services, covering the whole Sultanate, its economic waters and the foreign markets associated with it, the company said in a filing. It invited technical and commercial bids and said the last date to purchase the tender document is July 15, while bids are due by September 21. Space Communication Technologies is one of the Omani Telecom and Information Technology Group companies.



Digicel Satellite Link Restores International Calling in Tonga

Digicel has confirmed that limited international calling capabilities have been restored in Tonga, and that it is working on improving capacity. The operator group's regional CEO Shally Jannif stated that international calls were now possible on the islands of Tongapatu and 'Eua via a satellite link which uses 2G networks. Currently only 400 calls can be made at any one time, but Jannif confirmed that Digicel is receiving additional amplifiers and satellite modems to boost output power and capacity. TeleGeography reported that the islands of Ha'apai and Vava'u will be connected in the coming days by additional satellite antennas, although Jannif noted that damage to Tonga's international submarine cable must be repaired before normal services can resume, saying: "We expect to put up all basic services in the next few days and then we hope to install more equipment to bring GPRS and 3G basic data services up so bank ATMs, EFTPOS and other services can be up in Tonga." On 15th January, Tonga was hit by devastating tsunamis created by several eruptions of the Hunga Tonga-Hunga Ha'apai volcano, which is situated 65km north of Tonga's main island Tongatapu.



Intersat Boosting Satellite Internet Services in Gambia, Guinea Bissau, Senegal Via Eutelsat Konnect

Intersat – a provider of VSAT internet solutions across Africa – has signed a multi-year deal with Eutelsat Communications to utilise the latter's Eutelsat Konnect high-throughput satellite for meeting the connectivity needs of enterprises, institutions and individuals in Gambia, Guinea Bissau and Senegal. A press release highlighted that Intersat will take advantage of Eutelsat Konnect's reach to 'provide a robust and high-quality Internet service to customers located beyond the limits of terrestrial infrastructure'. The agreement represents the entire available capacity of the satellite across the three countries ('several hundred Mbps').

SpaceX Completes 2nd Starlink Mission of 2022

SpaceX successfully launched 49 Starlink satellites to low Earth orbit Launch Complex 39A (LC-39A) at Kennedy Space Center in Florida. The Falcon 9 booster supporting this mission previously launched GPS III-3, Turksat 5A, Transporter-2, and six Starlink missions. The booster was recovered on the A Shortfall of Gravitas droneship in the Atlantic. Each of Falcon 9's fairing halves previously supported one Starlink mission.

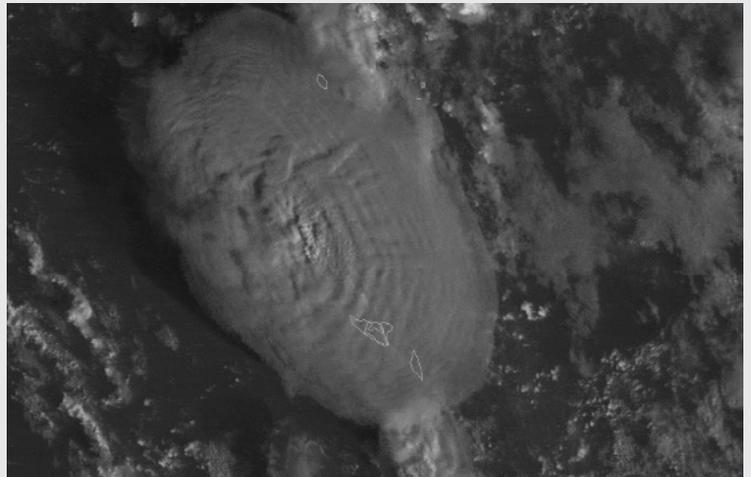


Rural Satellite Internet Service Initiative to Improve Internet Access in 200 Locations in Kelantan

The Kelantan government has identified 200 locations in the state that still do not have internet access, said Mentri Besar Datuk Ahmad Yakob. He said at the moment, the state government was working to improve internet access in all the locations through cooperation between Kelantan Gate and BinaNet. “Insyallah, through this cooperation, we will be able to provide internet services via satellite to the people in the state, especially those in rural areas,” he told reporters after officiating the Rural Satellite Internet Service (PeSAT) initiative at Jeram Mengaji, Selising, here, today. Elaborating, Ahmad said telecommunication transmitters would be installed in 50 schools under the supervision of Yayasan Islam Kelantan (YIK). “This will also enable students at the schools to get better internet access to facilitate their learning process,” he said. On the cost of using the Internet, Ahmad said it would be determined by the service provider. He added that, focus would also be given to improving internet access in 18 Orang Asli villages in the state with the support of the Malaysian Communications and Multimedia Commission (MCMC).

Intelsat Makes News in Both Disaster Relief and Aviation Services

Integrated satellite and terrestrial network operator Intelsat has made news recently – both in disaster relief and in the more sedate area of commercial and business aviation services. Intelsat has joined a number of big names in telecommunications that have been supporting the relief effort in Tonga, where last week a volcanic explosion and subsequent tsunami knocked out a number of undersea



internet cables, disconnecting a region that is home to over 100,000 people. Intelsat, in cooperation with Australian operator Telstra and New Zealand operator Spark, has deployed emergency communications services to support humanitarian aid to Tonga and the archipelago for Digicel Tonga (whose efforts we reported late last week) and Tonga Communications Corporation. Intelsat is providing space-based broadband connectivity on Horizons 3e and Intelsat 18, while partners Telstra and Spark are providing the ground infrastructure, including VSAT hubs at their teleports, uplink, internet access and remote kits. The services provided are now fully provisioned, expanding broadband and voice services. Additionally, Intelsat is providing services in conjunction with Optus, owned by Singapore’s Singtel, to the New Zealand Defence Force, which will provide humanitarian support in Tonga. Intelsat has also been in the news after satellite networking technology company Gilat Satellite Networks announced that it was expanding its strategic partnership in commercial aviation with the operator. To enable the expansion of commercial and business aviation services in Asia, Intelsat will be using Gilat’s SkyEdge II-c system, which, in addition to providing in-flight connectivity, is designed to deliver fixed and mobility services for maritime and land mobility. Its management system, TotalNMS, enables full configuration, control and monitoring of all system elements and remote terminals. SkyEdge II-c is a proven operational system that, Gilat says, allows aviation service providers like Intelsat to streamline service fulfilment and provide a superior user experience to airline passengers.

Argentina's State-Owned Satellite Company to Enable Free Internet Access

Arsat, Argentina's state-owned satellite company, is to run a 289 million peso (about \$2.8 million) project to provide connectivity for free internet access in towns across the country. Arsat will connect towns that still lack access to telecommunications services in the 24 provinces of the country. The installation of services will be carried out using fiber optic, satellite/VSAT and Wi-Fi infrastructure. News website bnamericas says that Arsat was among the bidders in a process launched by the open government and digital country undersecretariat, which is part of the public innovation secretariat (SIP). The site says that the 12-month agreement between Arsat and SIP includes the installation of 40 VSAT antennas, 231 local access loops, 1584 Wi-Fi subscriptions, 120 VSAT subscriptions, 1848 Wi-Fi and VSAT subscriptions and 6,804 subscriptions that integrate terrestrial and Wi-Fi links, along with just under 300 Meraki brand access points. We still await a comprehensive list of locations, though we do know that about 28 percent of the new facilities will be located in the central region, 23 percent in the city of Buenos Aires and Buenos Aires province, 18 percent in the northwest, 15 percent in Patagonia, 11 percent in the northeast and 5 percent in the Cuyo region. Arsat already operates a nearly 32,000-metre fibre optic wholesale network, while its geostationary satellites ARSAT-1 and ARSAT-2 offer coverage in Argentina and the entire Americas. The planned third satellite in the fleet, ARSAT-SG1, will become the first national satellite to operate in the Ka-band. This is not the only major win for the state-owned satellite company this year. Last week Arsat reported that it had received approval and funding for a satcoms and cellular-based IoT service for asset tracking.



China Launches New Communication Technology Experiment Satellite

China successfully sent a new communication technology experiment satellite into space from the Xichang Satellite Launch Center in southwest China's Sichuan Province. The satellite was launched by a Long March-3B carrier rocket at 0:43 a.m. (Beijing Time) and has entered the planned orbit. The launch marked the 405th mission of Long March series carrier rockets.



Google Cloud Inks Satellite Connectivity Deal with SpaceX

Google Cloud and SpaceX recently announced a new partnership to deliver data, cloud services, and applications to customers at the network edge, leveraging Starlink's ability to provide high-speed broadband internet around the world and Google Cloud's infrastructure. Under this partnership, SpaceX will begin to locate Starlink ground stations within Google data center properties, enabling the secure, low-latency, and reliable delivery of data from more than 1,500 Starlink satellites launched to orbit to-date to locations at the network edge via Google Cloud. Google Cloud's high-capacity private network will support the delivery of Starlink's global satellite internet service, bringing businesses and consumers seamless connectivity to the cloud and Internet, and enabling the delivery of critical enterprise applications to virtually any location. Organizations with broad footprints, like public sector agencies, businesses with presences at the network edge, or those operating in rural or remote areas, often require access to applications running in the cloud, or to cloud services like analytics, artificial intelligence, or machine learning. Connectivity from Starlink's constellation of low-Earth-orbit satellites provides a path for these organizations to deliver data and applications to teams distributed across countries and continents, quickly and securely. Urs Hölzle, Senior Vice President, Infrastructure at Google Cloud said that we are delighted to partner with SpaceX to ensure that organizations with distributed footprints have seamless, secure, and fast access to the critical applications and services they need to keep their teams up and running. SpaceX President and Chief Operating Officer Gwynne Shotwell said that combining Starlink's high-speed, low-latency broadband with Google's infrastructure and capabilities provides global organizations with the secure and fast connection that modern organizations expect.

Oman Issues Omansat-1 Satellite Tender

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Argentina Takes Agricultural IoT into Orbit

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Russia's Sphere Satellite Constellation Moves Towards Implementation

After several stages of discussions and approvals in the government, the Federal Sphere project received a development plan supported by funding. In the coming years, emphasis will be placed on developing technologies and creating the first samples of spacecraft. The final decision on the number and composition of satellite constellations will be made based on the results shown. The pandemic and the need to address priority state tasks have made certain adjustments to the plans for the implementation of the federal project "Sphere". The creation of a national multi-satellite constellation of communications and Earth remote sensing (ERS) will continue, but the process will be phased and more variable. Behind the long – over two years – coordination in the federal executive bodies. "After we presented the project to the government for the last time, a number of meetings were held, including with the Ministry of Finance, under the leadership of Deputy Prime Minister for the Defense Industry Complex Yuri Borisov, as well as under the leadership of the President. As a result, the Ministry of Finance provided funding for priority work on the Sphere project – 7 billion rubles [US \$92.47 million] for this year [2021] and another 7 billion [US \$92.47 million] annually from 2022 to 2024," Sergey Prokhorov, Director of the Department of Prospective Programs and the SFERA Project, told Russian Space. The top manager of Roscosmos believes that a combination of circumstances had an effect: "Recently, there have been several well-known events that have entailed colossal government spending. This is both a pandemic, the consequences of which affected the socio-economic situation in the country, and sanctions, which affected a number of Russian enterprises and industries. "Nevertheless, all this time Roscosmos continued to develop and promote the frontal development strategy of the State Corporation, which is based on the Sphere project. In general, the upcoming three-year stage of the "Sphere" can be called preparatory: within its framework, various technologies will be tested and prototypes of equipment will be manufactured. It depends on the results of the stage, along which path the process of mass production and deployment of groupings in orbits will go. With all the changes, the main idea of the project – space for humans – remains the same. Sphere is one of the key projects of Roscosmos aimed at developing space information technologies and eliminating the so-called digital inequality. Thanks to it, the most modern communication and monitoring system will be created, including both the existing and future space infrastructure. A significant part of the territory of our country is located in high latitudes, where the population density is low, and the zones of taiga, tundra and permafrost interfere with the laying of fiber-optic communication networks. In such places, satellites will help to provide a full range of telecommunication services for stationary and mobile objects. It is planned to achieve these goals by deploying groups with Yamal and Express communication satellites in geostationary and Express-RV in highly elliptical orbits, with SKIF broadband Internet access devices in medium orbits and satellites to provide the Internet of things. Earth observation in various wavelength ranges will be conducted by the constellations of the SMOTR, Berkut-O, Berkut-VD, Berkut-X and Berkut-XLP spacecraft. As a result, integrated services will develop for the growth of all sectors of the country's economy.

SpaceX Now Has 1,469 Active Starlink Satellites

In July 2021, Musk said that laser links in orbit can reduce long-distance latency by as much as 50 per cent, due to the higher speed of light in vacuum and shorter path than undersea fiber. A recent report said that the satellite internet division of SpaceX now has more than 1,45,000 users across 25 countries globally. "We're, I think on our way, to having a few hundred thousand users, possibly over 500,000 users within 12 months," he added. He said Starlink is already running in 12 countries and expanding. Starlink shipped 100,000 terminals to customers recently. The project aims to provide global broadband connectivity via a constellation of satellites. Last year, Musk at the Mobile World Congress (MWC) conference said Starlink should have roughly 500,000 users within the next 12 months. Until November 2021, SpaceX had added roughly 11,000 users per month since beginning service in October 2020.

South Africa Makes Plans to Launch Communication Satellites

The South African government is fast-tracking plans to develop local satellites for connectivity and tracking. This is according to the Nation's Communications and Digital Technologies Minister, Khumbudzo Ntshaveni. Addressing a technology conference, Ntshaveni said the department is considering ways to condense the satellite program. Typically, the program would take between eight and ten years to develop. According to her, the revised program could be ready to launch in just three to four years. The minister said that this will depend on funding, with the government hopeful that telecommunications and mining companies will help co-fund the project. Furthermore, Ntshaveni has stated that they are targeting the financial year's end to finalize the revised proposal. She noted that they had started engaging with industries and satellite technology users to discuss pulling resources together. "We already have, as a country, capacity through the space-tech to manage satellites. There are satellites that at a particular level or orbit level, their management is done from South Africa, so we've got that capacity so we can go all the way and own a satellite," says Ntshaveni. Additionally, a President Cyril Ramaphosa-established commission had previously recommended that government build and launch a geostationary telecommunications satellite. The commission noted that it would offer its services to the entire Southern African Development Community (SADC) region. The SADC includes Angola, Botswana, Eswatini, Lesotho and Zimbabwe, Alongside South Africa The commission also noted that the satellite would provide free and quality connectivity for marginalized communities in the SADC region. This would enable them to access 4IR applications, especially for smart health, smart learning services. It would also allow access to smart ammunition, smart minerals, smart agriculture, smart contracts and smart financial services. "The satellite would create an enabling environment that opens opportunities for a shared economy that would empower all Africans to change their material social conditions and alleviate poverty, inequality and youth unemployment. We would create much-needed redundancy by large global enterprises," it said. The commission also expressed that the geostationary satellite would also add value in setting up an African central exchange for voice, data and other communication media – and enable smart contracts for the African Continental Free Trade Agreements (AfCFTA)



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