Hughes Announces New JUPITER System Features to Power Higher Efficiencies and Performance

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Newest JUPITER System Release to Support Return Channel ACM, Yield Up to 30% More Satellite Bandwidth Efficiency

GERMANTOWN, Md., July 29, 2020 /PRNewswire/ -- Hughes Network Systems, LLC (HUGHES), the global leader in broadband satellite networks and services, today announced the release of the newest set of features for the JUPITER™ System, the company's Very Small Aperture Terminal (VSAT) platform for broadband satellite services. Already the most widely used VSAT system in the world, the JUPITER platform is the system of choice for network operators, governments, mobile networks, and aeronautical and maritime service providers. Packaged into Release 7.4 are the company's latest improvements in return channel performance and efficiency as well as new functionality supporting Layer 2 network implementations.

"More and more mobile network operators, governments, mobility service providers and satellite operators around the world are coming to us for technology solutions to extend network reach, fulfill Universal Service Obligations and help connect the unconnected," said Bhanu Durvasula, vice president, International division, Hughes. "That's why our latest innovations boost the efficiency and performance of the JUPITER System in transporting ever increasing amounts of broadband while interoperating seamlessly with terrestrial networks."

Some of the enhancements now available in JUPITER System Release 7.4 include:

- **Adaptive Coding and Modulation (ACM) on Time Division Multiple Access (TDMA) return channels.** For many years, satellite operators have enjoyed significant efficiencies through the implementation of ACM on the DVB-S2X forward channel. Now, with ACM on the TDMA return channel, operators can realize similar efficiencies – up to 30% bandwidth savings, in some cases.
- **Dynamic Return Channel Switching.** Another new feature is the ability to switch return channels automatically, based on traffic characteristics, processing MF-TDMA (with ACM) and DVB-S2X transmissions.
- **New Functionality for Layer 2 Transport Support.** These advances enable higher efficiency through extended implementation of acceleration of higher level protocols within the Layer 2 transport scheme.

Creating one of the largest Layer 2 satellite backhaul networks in the world, JUPITER System technology has been installed at more than 1,500 cellular base stations providing universal services to citizens throughout Indonesia. The project, which was announced last year, involves multiple service providers, including Pasifik Satelit Nusantara (PSN), deploying cellular backhaul and Internet access sites throughout the country.

"We are pleased with the performance of the Hughes JUPITER System in supporting Layer 2 backhaul connectivity," said Adi Rahman Adiwoso, chief executive officer at PSN. "Layer 2 is an important capability for deploying cellular backhaul over satellite as it greatly simplifies network planning."

For more information about the Hughes JUPITER System, please visit the Hughes website.

About PSN
PT Pasifik Satelit Nusantara (PSN), is the first private satellite telecommunications company in Indonesia and was established in 1991. PSN provides various telecommunication and multimedia solutions. From a humble beginning as a lessor of satellite transponder, PSN has grown to become a full-range satellite telecommunications provider. PSN provides data communication service through satellite for the cellular, banking, plantation, and other industries, through its VSAT or SCPC technology. PSN also provides data connectivity to institutions and retail customers throughout Indonesia. PSN is also known as one of the 5 (five) satellite operators in Indonesia and pioneered the innovation of extending satellite lifespan. For further information regarding PSN, please visit www.psn.co.id and follow @PSNengage on Twitter & @PSNengage on Facebook.

About Hughes Network Systems
Hughes Network Systems, LLC (HUGHES) is the global leader in broadband satellite technology and services for home and office. Its flagship high-speed satellite Internet service is HughesNet®, the world's largest satellite network with over 1.5 million residential and business customers across the Americas. For large enterprises and governments, the company's HughesON™ managed network services provide complete connectivity

solutions employing an optimized mix of satellite and terrestrial technologies. The JUPITER™ System is the world's most widely deployed High-Throughput Satellite (HTS) platform, operating on more than 40 satellites by leading service providers, delivering a wide range of broadband enterprise, mobility and cellular backhaul applications. To date, Hughes has shipped more than 7 million terminals of all types to customers in over 100 countries, representing approximately 50 percent market share, and its technology is powering broadband services to aircraft around the world.

Headquartered outside Washington, D.C., in Germantown, Maryland, USA, Hughes operates sales and support offices worldwide, and is a wholly owned subsidiary of EchoStar Corporation (NASDAQ: SATS), a premier global provider of satellite operations. For additional information about Hughes, please visit www.hughes.com and follow @HughesConnects on Twitter.

About EchoStar
EchoStar Corporation (NASDAQ: SATS) is a premier global provider of satellite communication solutions. Headquartered in Englewood, Colo., and conducting business around the globe, EchoStar is a pioneer in secure communications technologies through its Hughes Network Systems and EchoStar Satellite Services business segments. For more information, visit echostar.com. Follow @EchoStar on Twitter.

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