National Aeronautics and Space Administration

SES SPACE & DEFENSE

COMMUNICATIONS SERVICES PROJECT PARTNERSHIP

NASA is commercializing satellite relay communications for science missions near-Earth. The Communications Services Project (CSP) is leading agency efforts by investing in the U.S. satellite communications industry to develop and demonstrate powerful services for missions launching as early as 2031. In 2022, CSP awarded $278.5 million to commercial industry through six Funded Space Act Agreements to demonstrate a variety of capabilities, including near-instant delivery of high-rate science data, critical support for launch operations, and reliable exchanges of telemetry, tracking, and command information.

SES Space & Defense (SES SD) was awarded $28.96 million to demonstrate a geostationary orbiting C-band and a medium-Earth orbiting Ka-band relay network that can provide high and low-rate SATCOM services to spacecraft in low Earth orbit.

VISION

SES will develop a real-time, high-availability connectivity solution enabled by their established geostationary (GEO) and medium Earth orbit (MEO) satellite constellations.

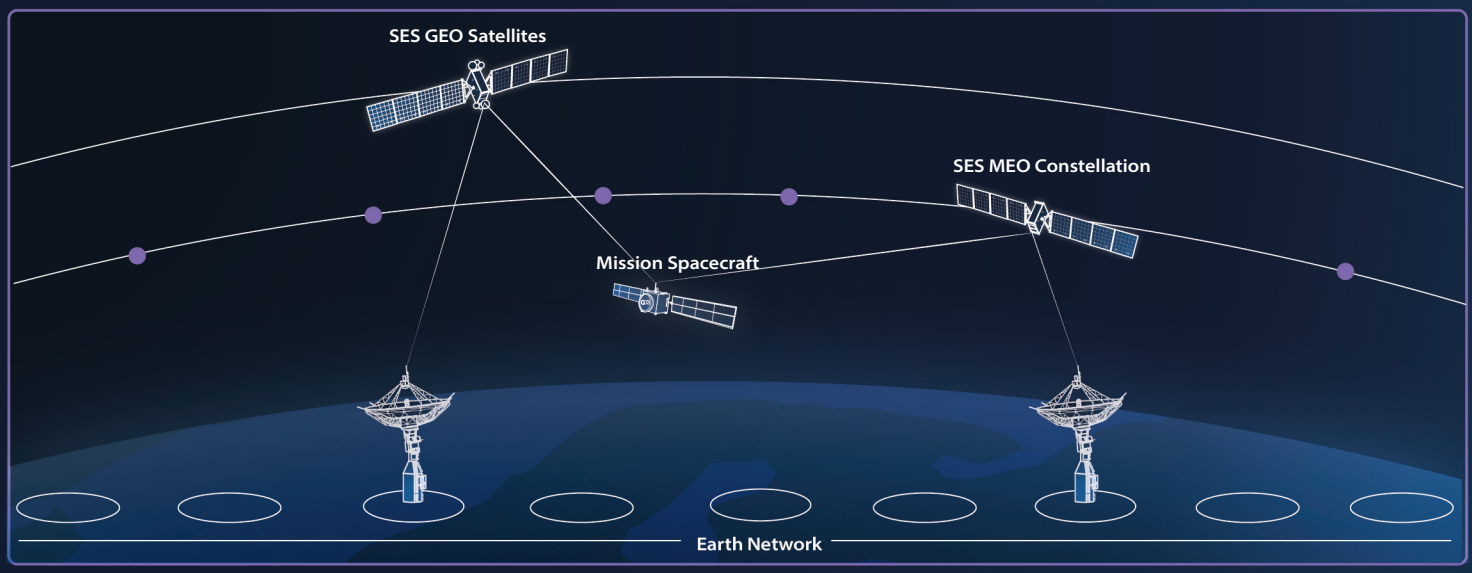
SES's established GEO constellation provides C-band global coverage and enables robust low data rate, continuously on C-band services.

O3b mPOWER, SES's second-generation MEO system, is comprised of 11 high-throughput satellites and an extensive ground infrastructure. Building on the proven commercial success of the established O3b MEO constellation, O3b mPOWER will enable high data rates coupled with low-latency data relay communications to and from near-Earth orbit.

The high-throughput O3b mPOWER constellation and existing GEO satellites will join forces with SES's newly established O3b mPOWER constellation to deliver the industry's only multi-orbit, multi-band offering, that provides unprecedented network resiliency.

All illustrations are an artistic interpretation of future space communications architecture.

NETWORK ARCHITECTURE



SES' multi-orbit, multi-band offering will support routine missions, contingency operations, launch and ascent, and early operations phase communications across multiple bandwidths for spacecraft in low-Earth orbit.

KEY FEATURES

- **Multi-band, multi-orbit satellite services**
- **Proven non-geostationary orbit (NGSO) innovative technology**
- **5000 customer beams per O3b mPOWER satellite**
- **Designed to meet stringent cybersecurity requirements**
- **High throughput – up to 100 Mbps per LEO spacecraft**

LEARN MORE

The Communications Services Project is managed by NASA's Glenn Research Center, under the direction of the SCaN (Space Communications and Navigation) Program within NASA's Space Operations Mission Directorate. SCaN operates and manages the communications and navigation systems that are critical to every NASA missions, while facilitating a seamless transition from near-Earth government-owned communications assets to commercial alternatives.

To engage with NASA's Communications Services Project, contact **scan@nasa.gov**.