National Aeronautics and Space Administration

KEPLER

COMMUNICATIONS SERVICES PROJECT PARTNERSHIP

NASA's Communications Services Project (CSP) is pioneering a new era of near-Earth communications by partnering with industry to enable innovative networking options for future missions. CSP is leveraging commercial partnerships through Funded and Nonreimbursable Space Act Agreements to develop and demonstrate satellite relay communications services that meet the agency's needs and the needs of other potential users.

Kepler Communications US Inc. has partnered with CSP through a Nonreimbursable Space Act Agreement to exchange capability information as a means of growing the domestic satellite communications market and potentially expanding space-relay offerings for future NASA missions.

VISION

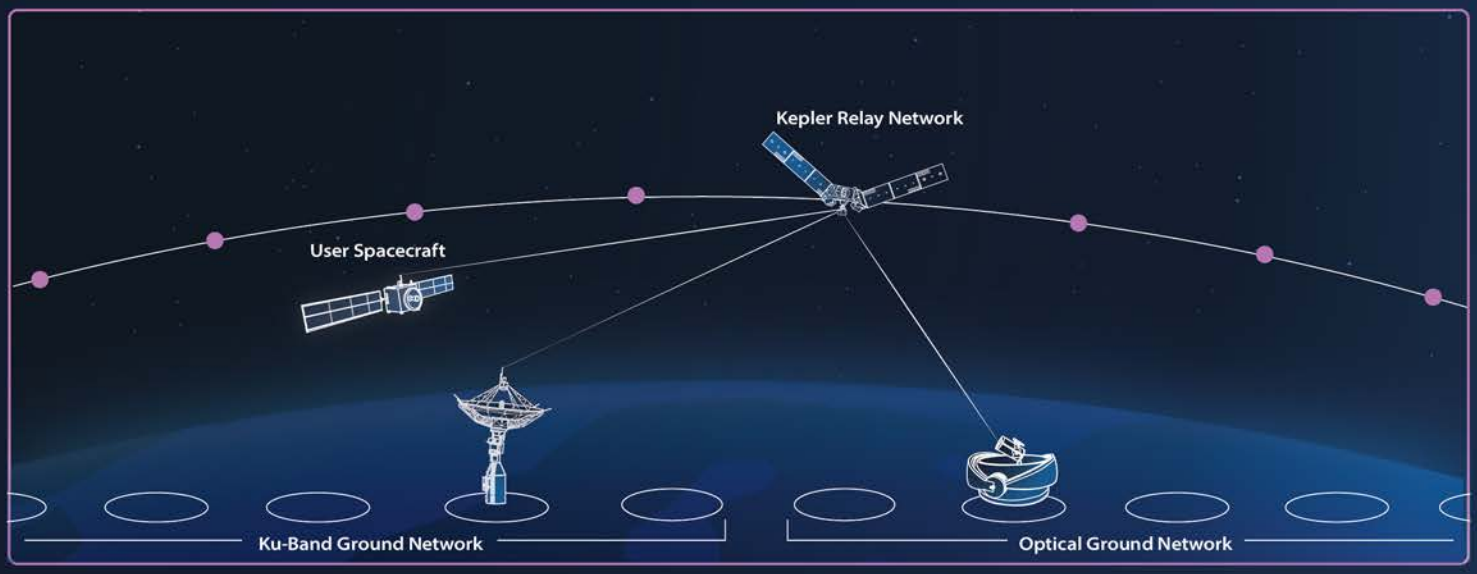
Kepler's vision is to provide real-time, continuous connectivity for space, making space-generated data instantaneously accessible, empowering humanity to become a spacefaring civilization. The Kepler Network provides customers with always-available coverage in low-Earth orbit (LEO) with sub-second end-to-end latency, gigabit throughputs, and onboard processing to enable real-time communications.

Kepler's optical data relay constellation provides space assets with on-demand, bidirectional gigabit optical communications links. Users can connect to the network and obtain direct low-latency Internet access for spacecraft using a selection of Space Development Agency (SDA) compatible optical terminals.

Kepler's optical network services are powered by two near-orthogonal planes of optically interconnected relay satellites, located in sun-synchronous orbits. Combined with a global network of Ku-band ground stations, The Kepler Network provides complete coverage to spacecraft in LEO.

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

NETWORK ARCHITECTURE



Kepler plans to deliver data through an SDA-compatible optical data relay network, connecting space and Earth communications with low latency, high throughput, and enhanced security. The Kepler Network plans to provide complete coverage of LEO above 400 km altitude.

KEY FEATURES

- **Secure and fully redundant space and ground segments**
- **Interoperable with all SDA-compatible optical terminals**
- **Low end-to-end latency and high throughput for real-time connectivity**
- **Up to 2.5 Gbps optical links**
- **95% availability to anywhere in LEO above 400 km altitude**

LEARN MORE

CSP is managed by NASA's Glenn Research Center in Cleveland, Ohio under the direction of the Space Communications and Navigation (SCaN) program. SCaN serves as the program office for all of NASA's space communications activities, presently enabling the success of more than 100 NASA and non-NASA missions.

To speak with Kepler Communications US Inc. about CSP architecture, contact Robert Conrad at **rconrad@keplerspace.us**

To speak with NASA about CSP architecture, contact Peter Schemmel at **peter.j.schemmel@nasa.gov**