LOON HELPS COUNTRIES CONNECT THE UNCONNECTED

Billions of people around the world lack access to the internet, and many others are underserved by existing solutions. Due to the feasibility and economics of providing service in larger areas with lower population density, the problem of connectivity is often an infrastructure challenge. Suburban and rural areas are most often impacted by the lack of network infrastructure.

Loon is helping to overcome these challenges and drive toward a key part of Sustainable Development Goal 9: universal and affordable internet access. By redesigning the essential components of a cell tower so they can be carried by balloon 20 kilometres above Earth, Loon extends the coverage area of mobile network ground-based systems, making it more viable to cover areas that are unserved or underserved by existing solutions or that are temporarily unconnected after natural disasters.

WE PARTNER WITH EXISTING MOBILE SERVICE OPERATORS TO EXTEND THEIR NETWORKS

Loon extends the coverage of mobile operators' networks to unserved and underserved areas using stratospheric balloons that provide LTE connectivity directly to users' handsets. Through our mobile network expansion business, we partner with mobile network operators, extending their service to areas where remoteness, topography, or cost limits terrestrial network deployment. We also recognize the need to provide basic internet connectivity to the public after natural disasters and offer disaster preparedness services to mobile network operators to help them quickly reconnect affected populations.

AND LEVERAGE MACHINE LEARNING AND MESH NETWORKING TO MAKE IT HAPPEN

By moving up or down on the wind currents, balloons can change speed and direction and navigate where they need to go. The high altitude of the balloons allows for a wide coverage area, effective for bringing service to areas of lower population density.

Our custom-built autolaunchers are designed to launch Loon balloons safely and reliably at scale. Once airborne, Loon's balloons navigate wind currents in the stratosphere and can be arranged in small teams to provide periods of prolonged connectivity to those below.

Ground stations for balloon communications connect to existing infrastructure and can be placed hundreds of kilometers apart. A wireless internet signal is transmitted up to the nearest balloon from the ground. That signal is relayed across the Loon balloon network, creating a mesh network in the stratosphere. The internet signal is then beamed directly to LTE-enabled devices on the ground, connecting users to the mobile network.

Once a balloon is ready for descent, final descent commands can be sent from Loon Mission Control at any time using satellite communications and coordinated with the local air traffic control to ensure a safe landing in areas of low population density. Recovery teams are then sent to the location to collect the Loon balloon for analysis and recycling.

TO BRING INTERNET ACCESS TO MILLIONS, LOON NEEDS SUPPORT FROM REGULATORS

Several building blocks of Loon's operations require support from local telecommunications and aviation regulators.

Overflight permissions

Loon balloons require permissions to operate in national airspace. The balloons safely overfly FIRs well above typical commercial flight levels with no interference to local traffic. While Loon balloons are equipped with the most up-to-date transponder and GPS systems, Loon also provides air navigation service providers with 24/7 coverage of its balloons via a dedicated website, including balloon flight details (coordinates, altitude, flight path, etc).

Spectrum authorizations

Authorization for both E-band backhaul spectrum and LTE access spectrum enables Loon to transmit high-capacity links and deliver fast broadband service directly to users' handsets in unserved and underserved areas.

Equipment homologation

To supply backhaul connectivity to the balloon-based network, Loon ground equipment often must be certified.

Streamlined import process

Ease of import is critical to ground station operations in each country. Loon ground stations are compact systems measuring 1.3 meters in diameter with a height of 1.6 meters. Typically, two ground stations are deployed at each site location with options for both roof and tower mounting.

Cross-border coordination

At times, balloons travel across borders. When countries coordinate to minimize cross-border interference, operations are made much easier.

Let's work together to connect the unconnected

If you are interested in joining Loon to advance universal and affordable broadband access for all, connect with us at **loonpolicy@loon.com**

For more information visit: loon.com