

Starlink satellites improve mobile communication

Starlink's expansion into mobile communication represents a major shift in how connectivity can be delivered worldwide. Starlink uses satellites equipped with advanced cellular technology to provide coverage directly from space. This approach allows ordinary LTE-capable smartphones (connected to 4G networks) to connect without any hardware modifications, making satellite-based mobile service far more accessible than traditional satellite phones.

At the core of the system are **Starlink's Direct-to-Cell satellites**, which function much like orbiting cell towers. Currently, there are over **650 satellites in the low orbit of Earth**. Each satellite carries an onboard LTE modem (similar to those used in ground-based towers), enabling it to communicate with standard mobile devices. To operate legally and efficiently, Starlink partners with mobile carriers and uses their licensed LTE spectrum.

Connecting a small phone antenna to a fast-moving satellite hundreds of kilometers above Earth is technically challenging. Starlink addresses this through phased-array antennas, custom signal-processing hardware, and algorithms designed to manage Doppler shift and timing issues. These innovations make it possible to maintain stable links for text, voice, and data services.

Because the satellites orbit the planet, they can provide **coverage in areas where traditional networks are impractical or non-existent**: remote regions, oceans, disaster zones, and other underserved locations. Starlink's rollout plan for the future includes text messaging first, followed by data and voice services. This satellite connection can even save lives. In New Zealand, a woman who came upon a car crash that happened in a cellular dead zone was able to text her partner the location of the accident through a Starlink Direct to Cell connection, and first responders were on the scene within minutes of the text being sent. Following hurricanes, severe flooding and wildfires in the United States, more than 1.5 million people were able to send and receive millions of SMS messages and hundreds of Wireless Emergency Alerts that otherwise would not have been received were successfully delivered.

To sum up, Starlink is building a global LTE network in space, offering a promising solution to the long-standing problem of mobile dead zones.

Adapted from the source: <https://starlink.com>

Note: LTE = Long-Term Evolution, mobile technology with fast data speeds GR



Discuss: What are the positives and negatives of Starlink satellites?

GRAMMAR

First Conditional – expressing possible event in the future

Fill in the blank spaces with the correct forms of the first conditional.

1. If Starlink **continues** (continue) to launch more satellites, global coverage **will improve** (improve).
2. If ordinary smartphones _____ (connect) directly to satellites, people in remote areas _____ (have) better access to communication.
3. If mobile carriers _____ (share) their licensed LTE spectrum, Starlink _____ (be able) to operate legally in more countries.
4. If the phased array antennas _____ (work) correctly, the signal _____ (remain) stable even when the satellite moves quickly.
5. If Starlink _____ (expand) its Direct to Cell service, emergency responders _____ (reach) people in danger more quickly.
6. If a region _____ (experience) a natural disaster, Starlink's network _____ (help) maintain communication.
7. If the algorithms _____ (manage) Doppler shift effectively, users _____ (notice) fewer connection problems.
8. If more satellites _____ (enter) low Earth orbit, coverage _____ (reach) previously underserved locations.
9. If someone _____ (get) stranded in a dead zone, they _____ (be able) to send a text using Starlink's system.
10. If Starlink _____ (offer) voice services in the future, people _____ (make) calls even without ground-based towers.
11. If the technology _____ (become) more efficient, satellite-based communication _____ (become) more common worldwide.
12. If users _____ (lose) access to traditional networks, they _____ (rely) on satellite coverage instead.

