
SOUTHEAST ASIA

# Indonesia's Starlink expansion must balance connectivity and security

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## IN BRIEF

Indonesia licensed Starlink in May 2024, joining the Philippines and Malaysia as the only countries in Southeast Asia to do so. The initial investment by Starlink aims to enhance internet connectivity, especially in remote areas using low-Earth orbit satellites (LEO). Yet, the expansion has raised critical security concerns, especially as the new network widens the attack surface for cyber threats, leaving Indonesia is at risk of compromising its internet sovereignty.



In May 2024, Indonesia became the third Southeast Asian country to license Starlink operations, following the Philippines and Malaysia. In early June 2024, Indonesian Investment Minister Bahlil Lahadalia announced that Elon Musk's Starlink had invested approximately IDR 30 billion (US$1.8 million) in Indonesia. No details have been provided on how the investment will be utilised, aside from it being an initial investment fund provided by the company when it began operations in the country.

Musk stated that while further investment and expansion is planned, he is focused on establishing Starlink, rather than Tesla, in Indonesia. Given the Indonesian government's multiple efforts to convince Musk to invest big in automotive and battery manufacturing on the basis of the country's nickel resources, the modest Starlink investment has been ridiculed by some.

Still, Starlink's entry is revolutionary, as no other internet provider in Indonesia offers low-Earth orbit (LEO) satellite systems. This development has raised major concerns for Indonesian internet providers and satellite operators, who rely on traditional methods.

Starlink's use of LEO satellites offers advantages over these traditional methods. Unlike the geostationary Earth orbit (GEO) satellites used by most Indonesian operators, which orbit 36,000 km above the Earth, LEO satellites orbit at an altitude of 2000 km or lower. This allows them to provide faster internet speeds and lower latency, making them more versatile than GEO satellites.

Currently, Starlink is the cheapest satellite-based internet service in Indonesia. Its LEO capabilities allow people in underdeveloped areas to enjoy unlimited internet access without waiting for telecommunication infrastructure programs from central or local governments.

Starlink is also facilitating better connectivity among primary healthcare facilities in remote areas, as evidenced by a recent partnership with the Indonesian Health Ministry. Improved connectivity is expected to support telemedicine, teleconsultation and online patient monitoring services, as well as providing access to specialist care for people living in remote and outermost areas. This partnership will also enable faster digital data entry for immunisations, non-communicable disease screenings and child health monitoring.

While it has positive impacts, the Starlink expansion raises critical cybersecurity concerns. The interconnected satellite infrastructure is vulnerable to cyberattacks, including issues around unauthorised access, data breaches and network disruptions, which could have serious consequences for users. The growing user base and integration with terrestrial networks also widen the attack surface for cyber threats.

China has scrutinised Musk's Starlink satellite internet service in Taiwan and surrounding areas, voicing concerns about its intelligence and reconnaissance capabilities. Their concerns emphasise Starlink's role in Ukraine's defence against Russia and its potential to support US military operations. Similar security concerns could arise in Indonesia, given the geopolitics involved in balancing alignment with the distinct interests of great powers.

Indonesia also possesses its own indigenous technologies to enhance connectivity, particularly in underserved areas, by optimising GEO High Throughput Satellites (GEO-HTS). In February 2024, Indonesia successfully launchedanother GEO-HTS, the Merah Putih 2 satellite, owned and operated by PT Telkom Satelit Indonesia (Telkomsat).

This approximately IDR 3.5 trillion (US$216.6 million) space object marks the 11th satellite launched by Telkom Group and is set to boost Indonesian digital infrastructure development by amplifying national broadband and connectivity from 10 gbps to 42.4 gbps. The satellite is also well equipped with C-band and Ku-band active frequency transponders that will not only cover the whole of Indonesia but are also expected to be the most reliable broadband satellite in Indonesia even during rainfall.

Most satellite operators in the world, including those in Indonesia, have not adopted LEO technology due to the complexities and high costs involved in deploying a large number of satellites in orbit and maintaining consistent coverage. The scale of investment made by Starlink is also far beyond the financial capability of Indonesia's operators.

Starlink has reportedly launched more than 6500 satellites into LEO, more than half of their original plan — which Musk predicted would require a US$20-30 billion investment compared to the US$217 million spent on the Indonesian satellite Merah Putih 2.

Even in advanced countries, satellite operators struggle to compete with Starlink. They often resort to mergers yet still fall short in terms of investment and operational integration. Starlink's business model benefits from its parent company, SpaceX, which pioneered low-cost satellite launches, allowing vertical business integration from manufacturing rockets to putting satellites into orbit, whereas other operators must depend on third-party facilities.

Starlink's expansion in Indonesia presents both benefits and challenges. While it accelerates connectivity distribution, it will also necessitate regulatory measures to control its operations due to potential security risks. This situation should prompt the Indonesian government to consider the extent of its reliance on third-party satellite operators. Given the potential for Jakarta to enhance its existing domestically owned satellite capabilities through increased investment and research, the Indonesian government must decide how willing it is to compromise its internet sovereignty an external entity.

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