BACKGROUNDERS
Press Information Bureau
Government of India

Satellite Internet in India

The Future of Internet Above Us

23 September 2025

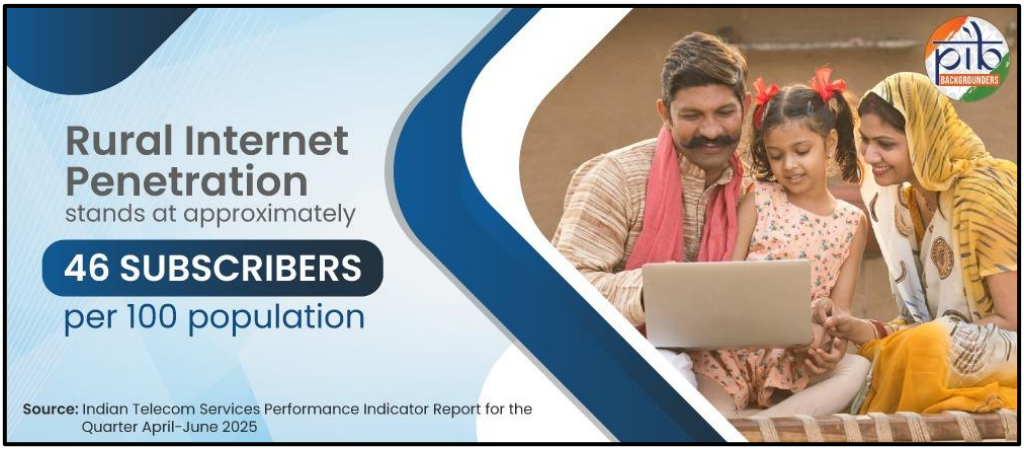
> India's progress in space is now directly contributing to making the lives of ordinary citizens easier.
> - Prime Minister Narendra Modi

Key Takeaways

- India has **1,002.85 million** internet subscribers as of **April–June 2025**.
- Rural internet penetration stands at **approximately 46 subscribers per 100 population,** highlighting the need for satellite internet to bridge the digital divide.
- **Space sector reforms** have enabled **private sector participation** in space activities.
- India is **moving towards LEO and MEO-based satellite internet services** to deliver faster and more reliable broadband services nationwide.
- Over **10 satellite operators, including the licensed Starlink**, have entered India, with private sector allowed up to **100% FDI**.

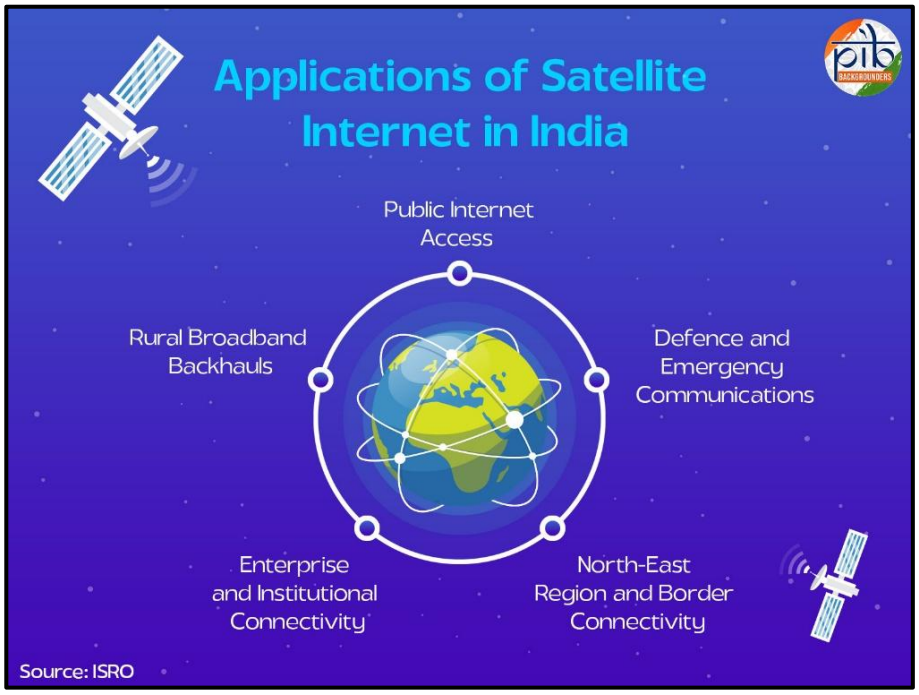
Introduction

India is one of the fastest-growing digital nations in the world, with internet connectivity playing a crucial role in its progress. This momentum is reflected in the staggering **1,002.85 million internet subscribers reported during April–June 2025**, highlighting the scale and impact of India's digital revolution. However, internet penetration remains limited in certain regions of the country, underscoring the need for satellite internet to complement existing networks.



Satellite internet refers to the internet service provided through satellites placed in Geostationary Orbits (GSO) or Non-Geostationary Orbits (NGSO).

For realising the Digital India vision of a digitally inclusive nation, satellite internet is an emerging technology with the potential to provide **connectivity from space to any location**. This makes it particularly valuable for remote villages, hilly terrains, border areas, and islands where terrestrial internet services are either difficult to reach or economically unviable.



India's Regulatory Landscape for Satellite Internet

The government has introduced a progressive regulatory framework to govern Satellite Communications (Satcom), aiming to balance innovation with security and spectrum management. Recent policy measures are shaping an environment for private participation, streamlined approvals, and efficient spectrum use, paving the way for large-scale adoption of satellite internet.

In 2020, the Government introduced **Space Sector Reforms** to open the doors for private sector participation in space activities. Building on this momentum, the **Indian Space Policy, 2023** established a level playing field for Non-Government Entities (NGEs) in the space sector by enabling their participation across the entire value chain of space activities in an end-to-end manner.

Department of Telecommunications (DoT)

DoT **regulates provision of satellite-based communication by granting authorisations** under the **Unified Licence Regime** framework, enabling a range of satellite-based services such as Commercial VSAT CUG services, GMPCS (Global Mobile Personal Communication by Satellite), etc. These services are designed to complement terrestrial networks, extending connectivity to remote and unserved regions across the country. The **Telecommunications Act, 2023** empowers the government to assign spectrum, enforce security conditions and, regulate satellite-based services as part of the broader telecom ecosystem.

Telecom Regulatory Authority of India (TRAI)

In May 2025, TRAI released its recommendations on the terms and conditions for the assignment of spectrum for satellite-based commercial communication services. To balance the regulatory framework with flexibility and efficiency in spectrum utilization. One of the key recommendations of TRAI is to assign the satellite spectrum for a period of **five years**, with the option to extend for **up to two additional years** based on market conditions.

Indian National Space Promotion & Authorisation Centre (IN-SPACe)

IN-SPACe plays a pivotal role in enabling satellite internet in India. It is responsible for promoting, authorizing and supervising various space activities of the non-governmental entities (NGEs). This nodal agency acts as an **interface between ISRO and NGEs**, facilitating the growth of space-based activities including the use of India's satellite resources for broadband connectivity. It also assesses

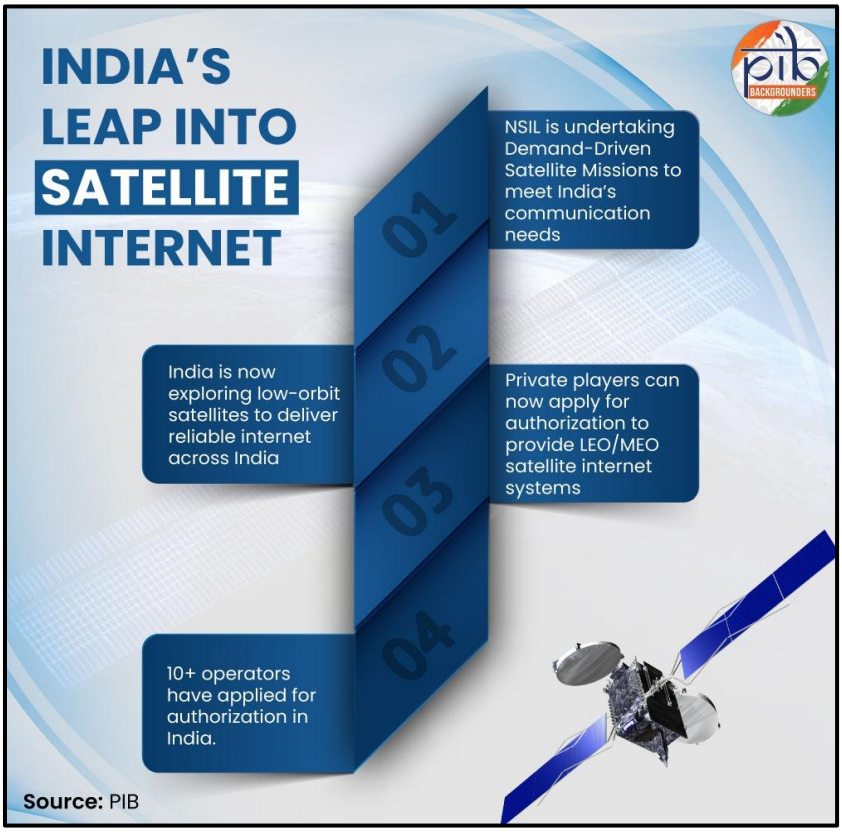
the needs of private players, including educational and research institutions, as well as explores ways to accommodate these requirements in consultation with ISRO.

New Space India Ltd. (NSIL)

NSIL is a Central Public Sector Enterprise (CPSE) under the Department of Space. It is incorporated as the **commercial arm of ISRO**. NSIL is currently operating **15 in-orbit communication satellites** and providing space-based communication services to various Indian users.

India's Transitioning Satcom Landscape

India's satellite communication (Satcom) ecosystem is undergoing a transformative shift. Traditionally dependent on the **Geostationary Satellite (GSAT) of** Indian Space Research Organisation's (ISRO) and other satellite operators' **series**, the sector is now witnessing more active private participation and the adoption of next-generation Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) satellite systems. With the rollout of space sector reforms India is set to harness satellite internet as a key driver of **Digital India.**

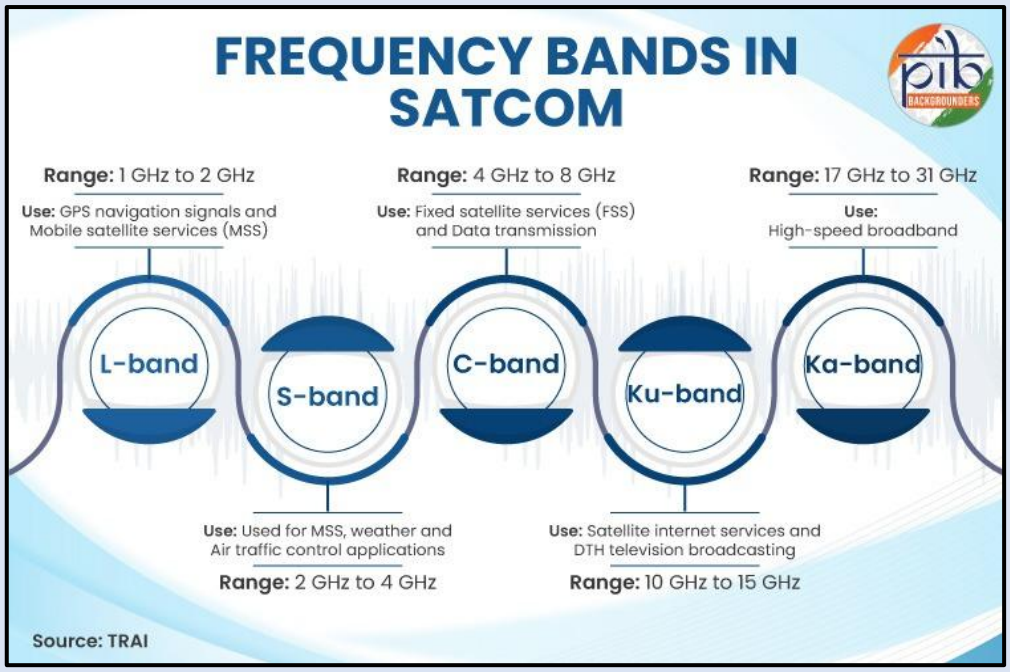


Role of NSIL in Satellite Communications

- NSIL plays a pivotal role in meeting India's satellite communication requirements through demand-driven missions and operational services. To address the national requirements in Satellite Communications, NSIL undertook two **Demand-Driven Satellite Missions**—
  - **GSAT-N1 [GSAT-24] for Direct-To-Home (DTH) services,** which has commenced its operational services.
  - **GSAT-N2 [GSAT-20] for broadband connectivity** which is currently undergoing in-orbit testing and commissioning operations.
  - NSIL has also proposed **its 3rd Demand-Driven Satellite Mission, GSAT-N3** slated for **Q1 2026** for the government's S-Band communication needs.
- **Satellite Band Services**: Satellite communication services and other space services are managed by NSIL through its ISAT/ GSAT satellites for extending multiple applications in **S, C, Extended C, Ka and Ku bands.**

Understanding the Satellite Communication Spectrum

In satellite communications, frequency bands serve as the essential channels through which voice, data, and broadband signals are transmitted between Earth and space. The popular frequency bands used for providing satellite communication services are:



Shift to LEO/MEO-based Satellite Internet Services

Driven by the need for **lower latency, higher bandwidth, and more reliable coverage** across remote and unserved regions, India is reimagining its satellite internet landscape from **GEO (Geostationary Earth Orbit)** satellites to **LEO (Low Earth Orbit)** and **MEO (Medium Earth Orbit)** systems. **This transition will deliver faster and more reliable internet connectivity nationwide.**

LEO satellites orbit close to Earth, typically between **400 to 2,000 km altitude**. Their proximity allows for low-latency communication, making them ideal for internet services.

MEO satellites operate at altitudes ranging from **8,000 to 20,000 km.** They cover larger regions than LEO satellites and have a slightly higher latency than LEO satellites.

Policy Reforms

With the rollout of **space sector reforms**, the government now permits **up to 100% Foreign Direct Investment (FDI)** in different segments of the space sector through automatic and government approval routes, thereby liberalising entry norms for **private participation,** marking the transition of India's satcom landscape.

Industry Developments

Marking a major step in strengthening the nation's digital connectivity landscape, **Starlink Satellite Communications Pvt. Ltd. (SSCPL) in June 2025** received a license to launch satellite internet services in India. Prior to it, Jio Satellite Communication Limited and OneWeb India Communications Private Limited have been granted license for providing such services.

As of April 2025, **more than 10 satellite operators** have shown interest and applied for authorization to provide satellite capacity in India.

The entry of private-sector players in the space sector marks a significant step towards **Viksit Bharat 2047**, setting the stage for a seamless rollout of high-speed satellite broadband across the

nation. The transitioning Satcom landscape underscores the government's focus on fostering innovation and next-generation technologies.

Government Initiatives: Expanding Inclusive Digital Connectivity

The government has launched several initiatives to extend mobile and internet connectivity to the nation's remotest areas, empowering individuals and communities alike. In today's digital era, such connectivity serves as a catalyst for socio-economic development, unlocking access to education, healthcare, and economic opportunities.

Digital Bharat Nidhi (DBN), formerly Universal Service Obligation Fund (USOF))

Under Digital Bharat Nidhi, the government is implementing various schemes for the expansion of broadband facilities through **installation of 4G mobile towers** in the rural and remote areas of the country under the **4G saturation project**. Further, DBN has been instrumental in **funding projects** that extend mobile and broadband connectivity to underserved areas.

- **For Island Regions:**
  The government has implemented **Comprehensive Telecom Development Plan (CTDP) for islands** to provide connectivity to Andaman and Nicobar Islands and Lakshadweep. **Satellite Bandwidth Augmentation** executed by BSNL (Bharat Sanchar Nigam Limited) increased capacity **from 2 Gbps to 4 Gbps in the Andaman & Nicobar Islands** and **from 318 Mbps to 1.71 Gbps in Lakshadweep**. This satellite boost supplements fibre cables to ensure resilient telecom service coverage across the islands.

- **For North-Eastern Regions:**
  The government has implemented **CTDP** for providing mobile connectivity to villages and areas along National Highways with the objective of extending mobile network access to underserved population. As of June 2025, **2,485 mobile towers** have been commissioned, providing mobile connectivity to **3,389 locations**.

National Broadband Mission 2.0 (NBM 2.0)

NBM 2.0 was launched on January 17, 2025, after the successful completion of NBM 1.0 with the goal of extending broadband services to the remaining **1.7 lakh villages** across the country. The NBM 2.0 aims to propel India into a new era of digital transformation and global competitiveness aligning with the vision of Viksit Bharat. Key components under NBM 2.0 are:

- **BharatNet Project:**
  Funded under DBN, BharatNet is an ambitious project aimed at providing **affordable high-speed internet** access to every Gram Panchayat in the country, bridging the gap between urban and rural communities. The satellite component of this project is being implemented by **BBNL** (Bharat Broadband Network Limited) and **BSNL** under Phase II. So far, **over 2.14 lakh Gram Panchayats** are connected through the BharatNet project, with BSNL covering **1,408** and BBNL covering **3,753** of them.

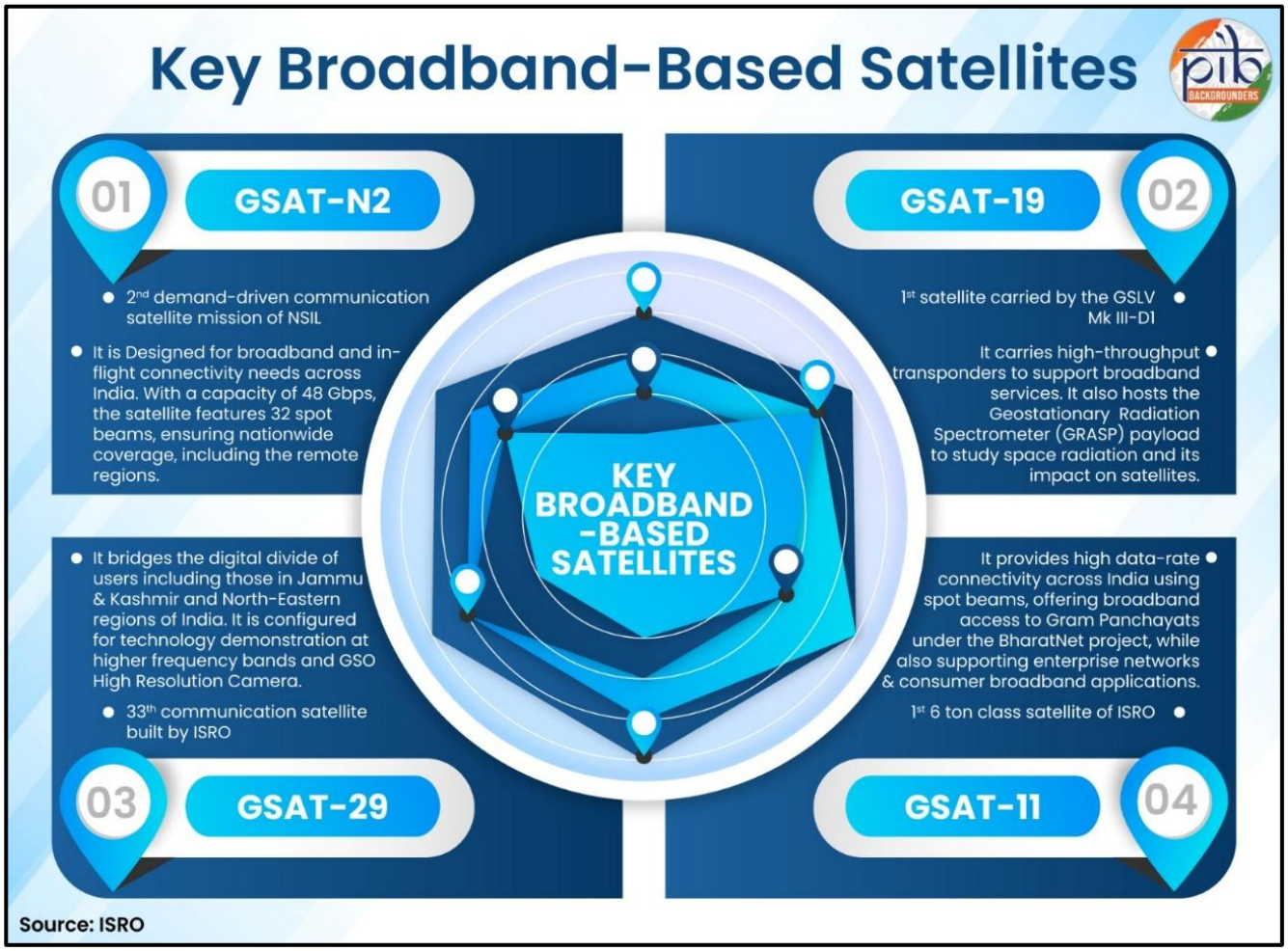
- **Prime Minister Wi-Fi Access Network Interface (PM-WANI):**
  PM-WANI is designed to create a network of public Wi-Fi hotspots across India. It aims to make affordable and reliable internet access available to citizens, fostering digital participation and economic opportunities. More than 3.73 lakh **PM-WANI Wi-Fi hotspots** have been installed in the country, as of September 2025.

The Ministry of Earth Sciences (MoES) has developed a Geographic Information System **(GIS)-based Decision Support System (DSS).** It uses internet connectivity to deliver timely and impact-based early warnings for extreme weather events. The system relies on historical data, real-time observations, radar, and satellite imagery. It helps disaster-prone states monitor risks and take measures to protect lives, livelihoods, and infrastructure.

Together, these efforts underscore India's commitment to employing satellite communication to strengthen digital infrastructure and improve public services.

India's Key Broadband-Based Satellites

India's broadband reach is steadily expanding through high-throughput satellites (HTS) developed by ISRO, which use advanced spot-beam technology to provide faster speeds and higher capacity. **India has a fleet of 19 operational communication satellites**, among which GSAT-19, GSAT-29, GSAT-11, and GSAT-N2 are specifically geared towards boosting India's broadband services. These satellites are designed to enhance internet connectivity in underserved areas, support in-flight communication, defence networks and disaster management. Together, they form the backbone of satellite-based broadband infrastructure in India, complementing ground-based networks like BharatNet.



Conclusion

In line with the vision of **Viksit Bharat 2047,** satellite internet is emerging as a key enabler of digital connectivity, extending reliable access to remote and underserved regions, while strengthening critical applications in defence and disaster response. Through the power of space technology, India is reinforcing its strategic autonomy and leadership in space-based communications, ensuring that the benefits of connectivity reach every citizen. From operationalising HTS to enabling private participation in satellite communications, the country is steadily bridging its digital divide.

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