

Satellite-based Connectivity for Low Bit-rate Applications

April 5, 2021

In News: Recently, Telecom regulator Trai invited public views for framing licensing norms for satellite-based connectivity for low bit-rate applications.

What is Satellite-based Connectivity for Low Bit-rate?

- The low bit-rate applications are sensor-based applications used in ATMs, traffic management, vehicle tracking, internet of things (IoT) devices etc.
- Satellite connectivity for low bit rate applications can help in setting up smart cities where terrestrial networks are not present or have coverage gaps.
- Satellite connectivity for low bit rate applications can help in setting up smart cities where terrestrial networks are not present or have coverage gaps.

Applications Satellite-Based Connectivity for Low-Bit-Rate

- IoT based applications through satellite connectivity provides enterprises with newer opportunities to increase operational efficiency, reduce costs and simultaneously secure goods, personnel and assets. With the growing ubiquity of IoT, the satellite market is also evolving to enable IoT based applications through satellite connectivity. The Value chain of the entire space industry is going through a change in terms of technologies and services, so as to cater to the increasing demand for IoT services.
- To suit the IoT environment, new satellite-based solutions are being developed through collaborations across various sectors to implement innovative ideas and to cater to the increasing global requirements. New business models are emerging due to changes in the

technology of satellite manufacturing, emergence of new system integration techniques and the growing range of new technology enablers.

- The transformation has brought about changes in satellite classification in terms of size, cost, function and exploration of new orbits. Smaller satellites, often weighing as little as 10 kg, are replacing the larger conventional models that were in the range of 1,000 kg or more. Such solutions are eliminating the entry barriers for the space industry and driving the New Space era. Investment and funding in space research is shifting from public to private organizations, allowing private companies to enter the space industry in more numbers.
- Long established firms such as Iridium, Globalstar and ORBCOMM are now being joined by many new entrants, equipped with a small number of satellites in orbit for under a few million dollars.
- These specialized firms can integrate their own unique space data collected from the constellation of their small satellites with data from other sources and applications and in turn deliver customized data and analysis that drive better decisions.
- Their unique sector-agnostic geospatial intelligence tries to address the gaps in the market with end-to-end data provisioning and solutions. Open standards and smaller hardware are the key enablers for launching these satellites.

A few features of the satellite-based solutions which are ideal for IoT traffic are as follows:

- Satellite networks can have global coverage allowing the IoT to be connected to remote locations, where terrestrial connectivity is not reasonably accessible either due to cost or terrain constraints.
- The IoT ecosystem needs ubiquitous, resilient and

seamless connectivity for the devices to run efficiently. Satellites, in conjunction with terrestrial services, have a proven track record of resilient services..

- Satellite communications have broadband, narrowband and broadcast capabilities. Accordingly, the global network of satellite operations can support the needs of IoT devices with different bandwidth and capabilities.

The internet of things (IoT)

- Is a concept that describes the idea of everyday physical objects being connected to the internet.
- In the Internet of Things, the connected devices should be able to identify themselves to other devices.
- Concept of basically connecting any device with an ON and OFF switch to the Internet or to each other.
- This includes everything from cell phones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of.