



5G Technology

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Global telecom industry body GSMA expects India to have 920 million unique mobile subscribers by 2025 which will include 88 million 5G connections. This will leave India trailing regional peers such as China, which is set to see almost 30% of its total connection base on 5G by 2025.

- The term 5G is used to describe the next-generation of mobile networks beyond **Long Term Evolution (LTE)** mobile networks.
- **Applications:** It is a mix of telecom technology delivering much higher data speeds on **more extensive connectivity, using much lower power, with extended battery life, and emitting less radiation.**
 - It is also designed to be the network for the **Internet of Things (IoT)**.
 - Not only will people be connected to each other but so will utility machines, industrial equipment, automobiles, city infrastructure, public safety and more.
- **The technology used:** In order to support a huge number of devices, many of which require longer battery life, the 5G network will be building off of the **LTE Advanced Pro platform**.
- It will use the two narrowband technologies platforms:
Enhanced **machine-type communication (e-MTC)** and **narrowband IoT (NB-IoT)**, to scale down the device and network complexity to reach these support goals.

Advantage

- 5G network speeds should have a **peak data rate** of 20 Gb/s for the downlink and 10 Gb/s for the uplink.
- **Latency** in a 5G network could get as low as 4 milliseconds in a mobile scenario and can be as low as 1 millisecond in ultra-reliable low latency communication scenarios.

LTE

It is an abbreviation for Long Term Evolution. LTE is a 4G wireless communications standard developed by the 3rd Generation Partnership Project (3GPP) that are

designed to provide up to 10x the speeds of 3G networks for mobile devices such as smartphones, tablets, netbooks, notebooks and wireless hotspots.

VoLTE

It stands for voice over Long Term Evolution. Utilising IMS technology, it is a digital packet voice service that is delivered over IP via an LTE access network. Voice calls over LTE are recognised as the industry-agreed progression of voice services across mobile networks, deploying LTE radio access technology.

Latency

It is a networking term to describe the total time it takes a data packet to travel from one node to another. In other contexts, when a data packet is transmitted and returned back to its source, the total time for the round trip is known as latency. Latency refers to time interval or delays when a system component is waiting for another system component to do something. This duration of time is called latency.

Internet of Things (IoT)

It is an ecosystem of connected physical objects that are accessible through the internet. The 'thing' in IoT could be a person with a heart monitor or an automobile with built-in-sensors, i.e. objects that have been assigned an IP address and have the ability to collect and transfer data over a network without manual assistance or intervention. The embedded technology in the objects helps them to interact with internal states or the external environment, which in turn affects the decisions taken.