With the emergence of several relevant use cases of the internet of things (IoT), the segment is gradually moving out of its infancy. To leverage the true potential of IoT and make it a mainstream technology, it would have to be deployed in conjunction with newer and more powerful technologies such as 5G. High data transfer rates, deep coverage, and low latency and power consumption are some of the key features of 5G technology. In a recent survey conducted by Ericsson across eight industries, 89 per cent of the respondents expected 5G to be a game changer for their organisations. Further, next-generation networks and standards based on 5G technology will be better equipped to combine communications and computing to deliver intelligence.

According to Ericsson, approximately 29 billion devices will be connected devices by 2022, of which around 18 billion will be IoT enabled. These will include connected cars, machines, meters, sensors, point-of-sale terminals, consumer electronics and wearables. A 5G network will be more scalable, flexible and smarter than its predecessors. It will better address the requirements of a hyperconnected IoT world of tomorrow.

**5G to power IoT**

The 5G ecosystem is being developed based on three broad use cases – enhanced mobile broadband (eMBB), massive machine-type communications (mMTC) and ultra-reliable low-latency communications (URLLC). eMBB is primarily concerned with improvements in data speeds, latency, capacity and mobile broadband coverage. mMTC enables communication between low-cost battery-driven devices, facilitating IoT in smart metering, logistics, etc. URLLC will allow machines to communicate with increased reliability and low latency, making it ideal for vehicular communication and automation, industrial control, factory automation, remote surgery and public safety applications.

5G networks will provide a complex mix of computing abilities and communication capacity, thus reducing the computing hardware in devices as computing will be facilitated by the network itself. Such advancements will allow product developers to leverage 5G when designing IoT solutions. This will also help them cater to a diverse set of applications.

**Smart use cases**

Seamless and reliable communication is at the core of a smart city, which comprises advanced and automated systems and a multitude of interconnected devices working together to ensure a smarter and safer way of living. An example of IoT in smart cities is city parking, wherein real-time data is collected to provide information on empty spots at any given point of time. Similarly, IoT use cases can be explored by hospitals, state utilities, police stations, and transport and logistics companies. Experts believe that 5G support through eMBB, mMTC and URLLC can fulfil the network requirements of a smart city. These enhancements will allow machines to communicate more efficiently and reliably. 5G networks will provide high data transfer rates and reliability for better data collection.

Currently, IoT use cases in healthcare are restricted to remote patient monitoring, connected ambulances and electronic health records. According to Ericsson, with 5G implementation, applications such as telesurgery and augmented reality-led medical treatment should see the light of day. Even ambitious use cases such as precision medicine and remote robotic surgery are expected to become a reality.

Vehicular automation has not succeeded in finding favour with the general public, primarily due to safety concerns. To address this issue, remote operation can be undertaken, with live video streaming. This will enable the operator to control the vehicle from a remote operation chamber. Multiple vehicles can be allotted to a single operator during normal traffic hours. A comprehensive set of IoT devices coupled with 5G networks can support applications such as cooperative collision avoidance and vulnerable road user discovery in the future.

**Going forward**

The promising combination of 5G and IoT has a long way to go before it becomes a reality. Both the technologies are currently at a nascent stage, particularly 5G, which is still under development. Further, data security and privacy issues associated with IoT will have to be addressed to help the technology gain ground. That said, 5G will certainly impact the way service providers implement IoT strategies in India and across the world, and will emerge as a key driver for IoT in the future.