

A space-themed background featuring a view of Earth from space, with city lights visible on the continent of North America. A bright sun is rising over the horizon, creating a lens flare effect. The moon is visible in the upper portion of the frame against a starry black sky.

# **SUNRISE:** SECURING THE FUTURE WITH LTE

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A decade ago, there was no such thing as a smartphone. A generation ago, no one owned a PC. Today, however, people can stream 4K videos on handheld devices. In a world of perpetual change, there’s another huge one coming as companies in the security industry prepare to make the leap to LTE (Long-term Evolution).

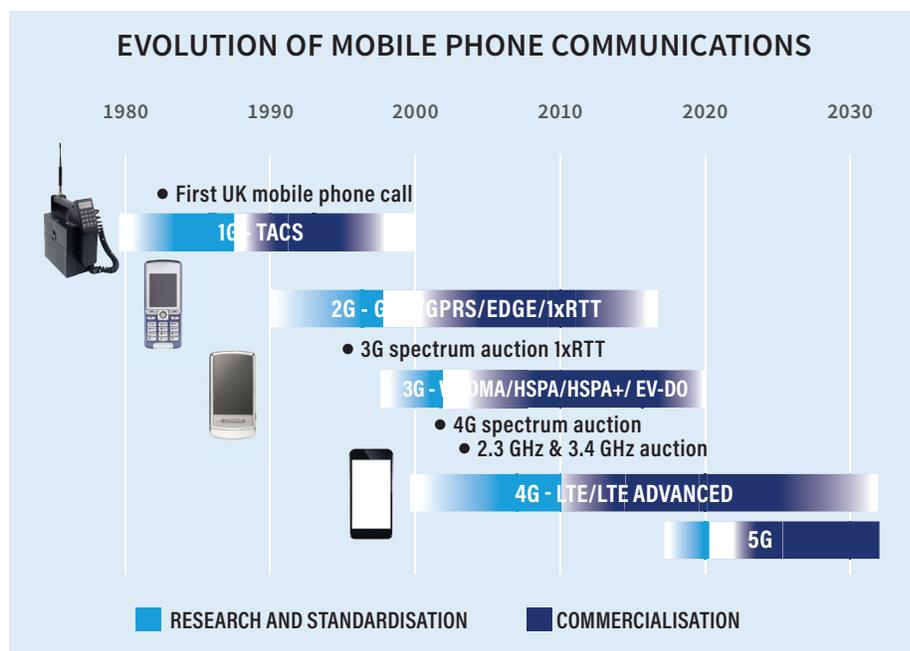
### ACRONYMS ABOUND

Investor and inventor Elon Musk once said, the key test for any acronym is to ask whether it helps or hurts communication. Although we know that the “G” in 1G, 2G, 3G, 4G and 5G stands for “generation,” many don’t have a clue as to how data networks have evolved.

Back in the eighties, people walked around with “brick phones” in hand or against the side of their heads. These analog monstrosities, which had poor battery life and voice quality, were agonizingly slow “First Generation” affairs.

In 1991, 2G (“Second Generation”) mobile phone systems emerged, with GSM (Global System for Mobile Communication) in Europe and D-AMPS and an early version of CDMA (Code Division Multiple Access) in the US.

You could mark 2G as the dawn of the digital (transmission) era, and the beginning of advanced and fast phone-to-network signaling. Mobile phone usage exploded in the 2G era.



With 2G phone technology came call and text encryption as well as data services such as Multimedia Messaging Service (MMS), Short Message Service (SMS), and picture messages.

With the boom in mobile phone usage through the 1990s came a dramatic increase in demand for data services, such

as Internet access. Enter 3G in 1998.

Technologically, the main difference between 2G and 3G is the use of packet switching as opposed to circuit switching for data transmission. With the evolution to 3G, users could use their 3G handset for video telephony as well as for streaming radio and television content.

**“ Users want access to business and consumer applications as well as resource-heavy entertainment through their mobile devices.**

**Demand for new and progressively more powerful technology has become very intense. At a time of unparalleled innovation and efficiency, it seems the more users get, the more they expect. Among those expectations: speed, bandwidth, and global access. Users want access to business and consumer applications as well as resource-heavy entertainment through their mobile devices. They want to be able to communicate in new and innovative ways, without regard to location or speed. Organizations are now under pressure to offer an experience superior to 3G.**

While 4G is a great marketing term employed by carriers to cover progressively faster data networks, the name is imprecise as far as the actual capabilities of these networks is concerned. Carriers have been presenting the following as 4G solutions:

- **HSDPA/HSUPA**, utilizing the High Speed Downlink Packet Access protocol for download traffic.

- **HSPA+**, or High-Speed Packet AccessPlus, is an enhanced version of HSPA developed to support the enormous growth of mobile broadband services.

### **LTE – THE REAL “NEXT GEN”**

A wireless broadband technology developed by the Third Generation Partnership Project (3GPP), LTE is a bridge between the pre-Internet of Things (IoT) 3G world of high-speed internet and media streaming and the fully IoT world of AI and virtual reality.

LTE features an all-IP flat network architecture, end-to-end quality of service, high download and upload rates, and expanded cell capacity, is generally seen as the “next gen” network beyond 3G — intended to eventually replace 3G networks altogether.

LTE offers organizations some clear benefits over 3G, including but not limited to:

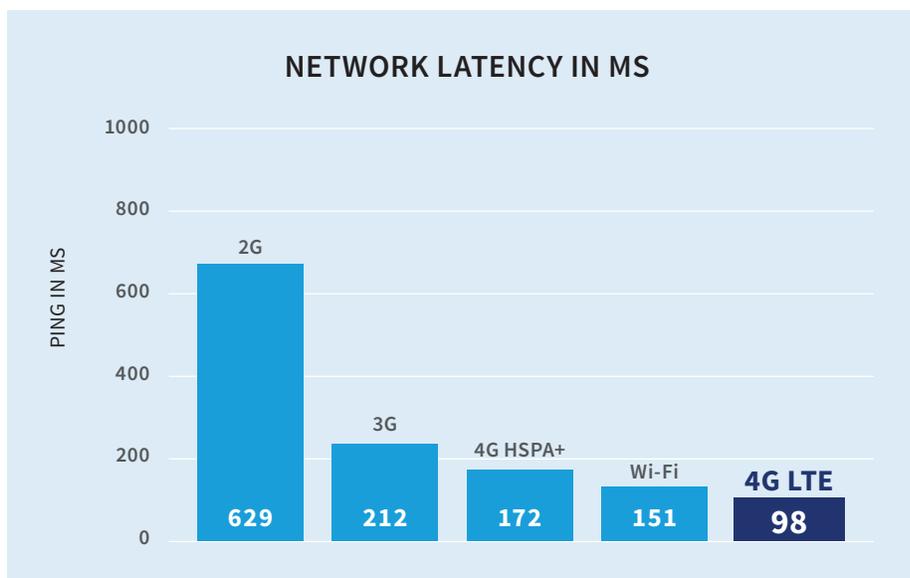
- **Speed:** According to Open Signal’s State of LTE report from November

2016, the global average LTE/4G network speed is 17.4 Mbps — many times faster than 3G. Singapore clocked in with the fastest speed at 45.86 Mbps, followed closely by South Korea at 45.77. Canadian networks had an average speed of 26.55 Mbps, while the US clocked in at slightly lower than the global average at 13.95 Mbps.

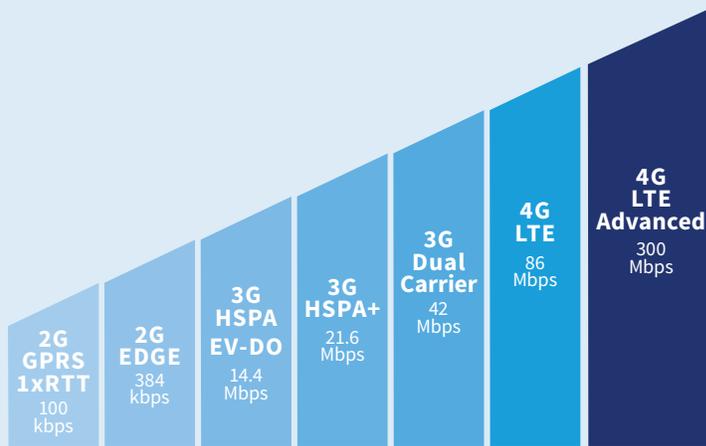
- **Latency:** the time it takes a source to send a data packet to a receiver. The lower the latency (in milliseconds), the better (faster) the network performance. Below is a cable-free latency comparison.

### **POWERING AN IoT FUTURE**

The Internet of Things interconnects “things” and allows for the free, autonomous exchange of data between them. With these “things” (machines, parts of machines, smart meters, sensors, wearables) comes remarkable potential for improvement in company efficiency — which feeds into a potentially game-changing improvement of



## WIRELESS TECHNOLOGY GENERATIONS



the user experience. In plain terms, a company powered by LTE can do more and do better — both for itself and for its customers.

The IoT is on pace to grow to over 75 billion by 2025 from its current 20.4 billion connected devices (2017). This explosive growth, and the correspondingly high adoption rate of LTE, has given rise to new opportunities for both mobile operators and device manufacturers.

**“ An LTE-enabled IoT is a world of opportunity to makers of non-traditional devices such as those that come under the “smart home” umbrella.**

An LTE-enabled IoT is a world of opportunity to makers of nontraditional devices such as those that come under the “smart home” umbrella. LTE is being adopted worldwide at an impressive rate, and the number of LTE subscriptions is predicted to almost double over the next five years. All indications are that LTE is the future of the rapidly emerging IoT. LTE is already powering everything from corporate IT networks to vehicles, utility meters, security cameras, and health monitoring devices.

Many carriers have plans to phase out 2G and 3G in the 2019-2022 range, and are already working to ready their networks for this shift by preventing new activations on legacy networks. While some carriers, like T-Mobile and Rogers, are committed to 2G for at least a couple more years, others like AT&T, Bell, and Telus have already shut down their 2G networks. As part of this shift, many manufacturers are developing products to uniquely support frequencies for LTE operation.

## LTE COMMUNICATORS

The 3G sunset may be in its early stages, but with such intense competition, the best business plan is one that involves being ahead of the curve as opposed to remaining with the pack. You can get out in front by installing one of these DSC LTE Communicators:

- **Universal LTE Communicators**, which work with any control panel (DSC or other) that supports Contact ID or SIA, and:
  - Enable future-proof installations of multiple types of alarm solutions
  - Simplify inventory
- **PowerSeries Neo LTE Communicators**, which work exclusively with PowerSeries Neo panels, and:
  - Optimize PowerSeries Neo capabilities
  - Enable home automation functionality offered by Alarm.com
  - Provide upload/download support
  - Enable future-proof installations for customers
  - Built-in Ethernet support provides redundant communications
  - Can be integrated with third-party systems over IP or serial port

## About Tyco

Tyco and its portfolio of brands form one of the largest security portfolios in the world. Engineers specializing in video security, access control, location-based security, and intrusion security give Tyco a competitive advantage when it comes to system integration. The company's focus is on turning data from sensors and systems into sharp insights and services that can solve those challenges and improve its customers' operations and performance. With more than a billion sensors and devices already in place across the globe, Tyco is in a unique position to deliver that future and make the Internet of Things work for its customers.

Visit [www.tycosecurityproducts.com](http://www.tycosecurityproducts.com) to find out more.

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Johnson Controls' Building Technologies & Solutions is making the world safer, smarter and more sustainable – one building at a time. Our technology portfolio integrates every aspect of a building — whether security systems, energy management, fire suppression or HVACR — to ensure that we exceed customer expectations at all times. We operate in more than 150 countries through our unmatched network of branches and distribution channels, helping building owners, operators, engineers and contractors enhance the full lifecycle of any facility. Our arsenal of brands includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell®. For more information, visit [johnsoncontrols.com](http://johnsoncontrols.com) or follow [@JCI\\_Buildings](https://twitter.com/JCI_Buildings) on Twitter.

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