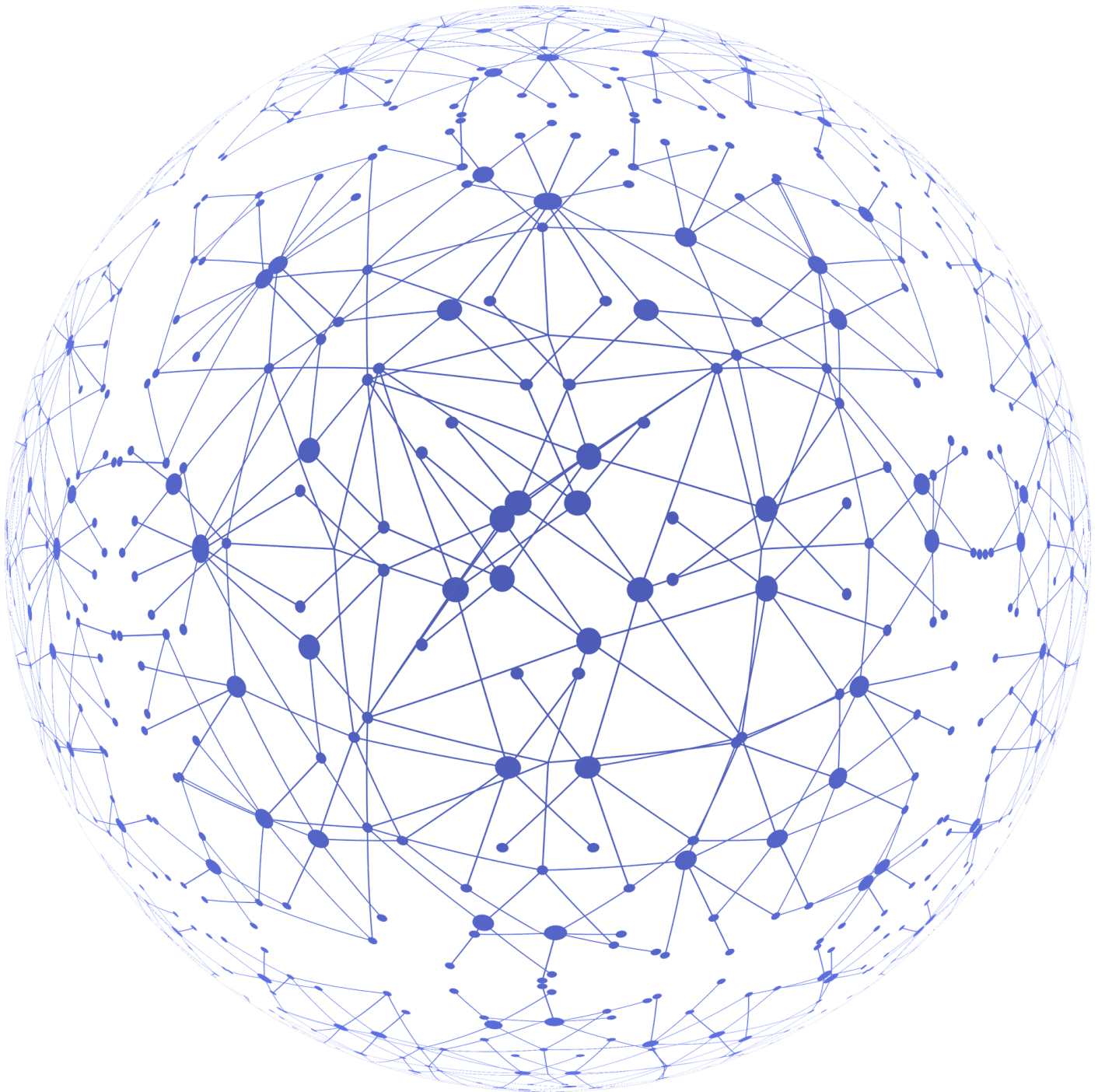


THE

FEATURE

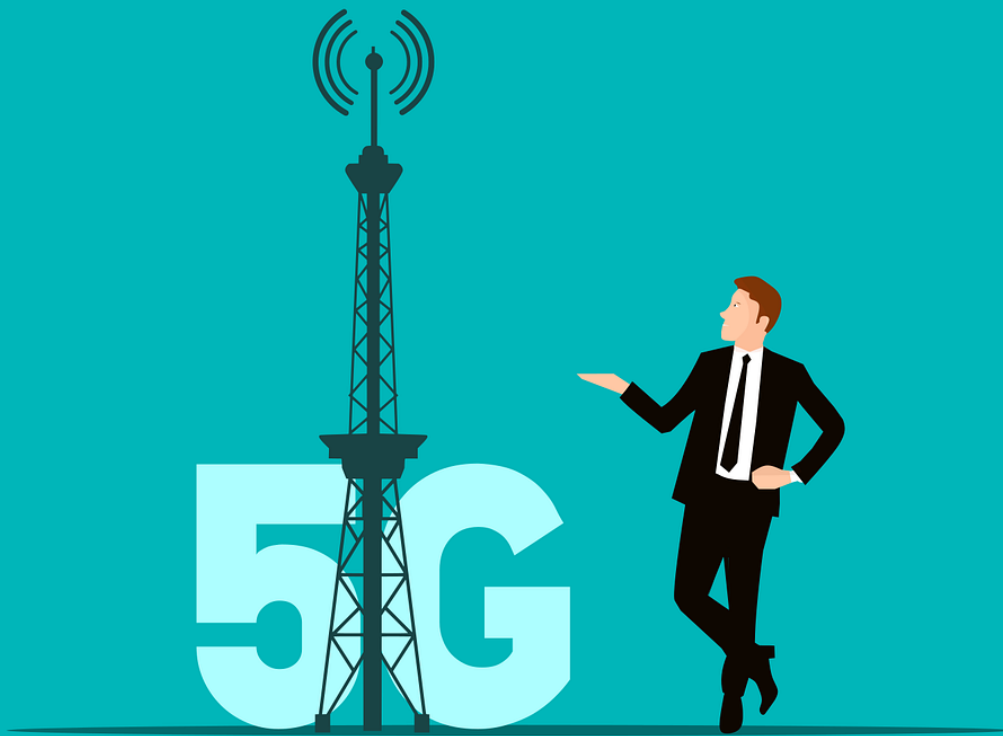
of the network.



5G and it's applications.
Network infrastructure.
5G, Wifi6 and Emerging Network Technologies (HUAWEI).

Created by:

- Mohammed Baabad.
- Mohammed Nouredin.
- Ahmed Marwan.
- Amr Hatem .

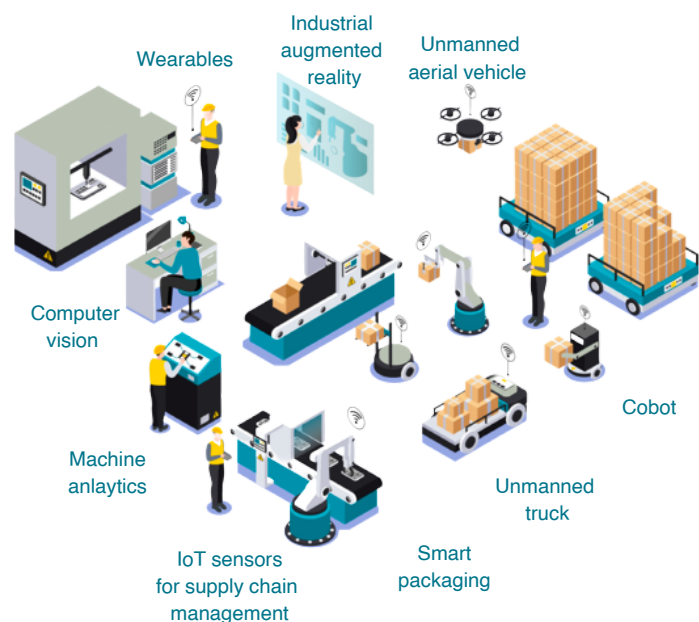


What is it?

It is a next-generation technology standard for cellular networks that is expected to be launched by mobile operators around the world in 2019. Currently most mobile phones are connected to 4G networks. The 5G technology is seen as the spiritual successor to 4G. By 2025, there will be more than 1.7 billion 5G subscribers, according to the GSM Association. Cellular networks, such as 5G, are based on the division of service areas into small geographic areas called cells. A local antenna in each cell provides a better connection to the Internet and telephone networks for 5G wireless devices. The main advantage of the new networks is that they will offer a greater bandwidth, enabling higher download speeds up to 10 Gbps. The Internet will be more powerful and reliable with 5G, and even in crowded areas, servers will be more unified, allowing Internet services to be more consistent. The increased bandwidth is expected to make the networks more attractive for use as internet service providers (ISPs) for laptops and desktop computers, as well as developing new applications for the Internet of Things (IoT).

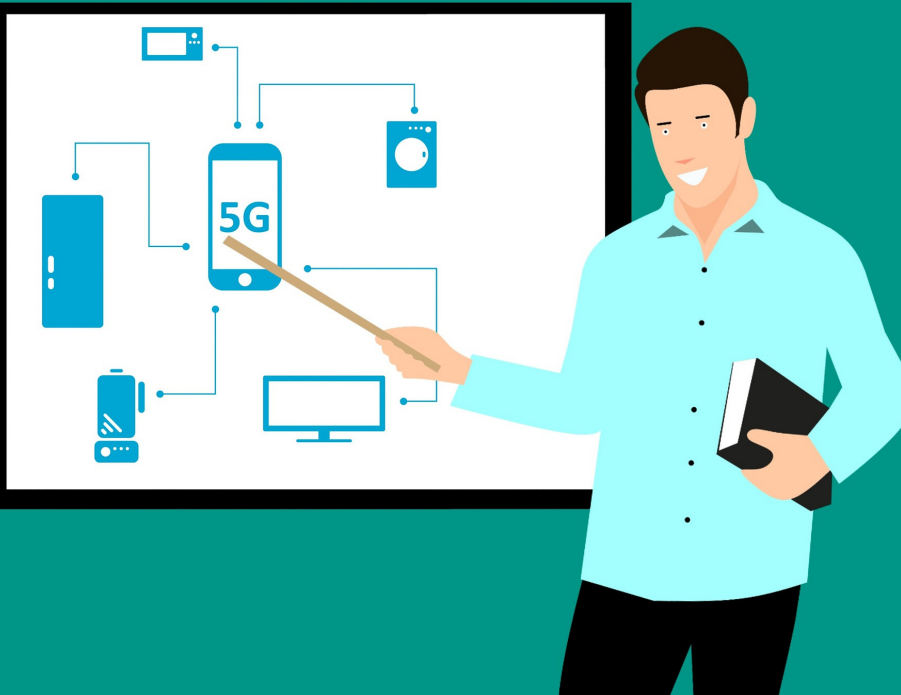
Applications of 5G in smart campus

The modernization of the training machine is primarily based totally at the informatization of training. Developed nations are taking the lead in making use of facts and communique generation to training, paving the manner for informatization of training. The National Initiative on Educational Skills targets to sell and follow academic technologies . Teachers should successfully use facts generation (IT) to facilitate scholar gaining knowledge of, whilst college students collect IT literacy and abilities whilst additionally selling revolutionary gaining knowledge of and enhancing the effectiveness of IT programs for training whilst coaching teachers. Despite the shortcomings of tutorial facts generation, China made up for it.



5G

Educational Application



The influence of computers and the Internet has dramatically changed traditional educational patterns. Diversified online learning resources and different types of online schools are emerging today. As an IT infrastructure, 5G has great potential to drive further innovation in educational applications. With 5G technology, learners can use IoT and VR technologies to experience similar experiences in real classrooms anytime, anywhere. Quality learning disciplines are ubiquitous, always available to prestigious educational professionals, and active learning interactions. To effectively track the trend of 5G technologies combined with educational applications, a study of 5G technologies for education was conducted with a focus on application scenario innovation and potential restructuring of core educational processes.

Smart campus management

The term "smart campus management" refers to the intelligent control of all types of equipment on campus. With the help of cognitive intelligence technologies and the Internet of Things, devices such as cameras and sensors are used to gather information about the environment and people on campus.

Remote listening and evaluation

When listening and assessing in traditional education, the presence of class professionals can affect the normal status of education and listening, thus invalidating the assessment.

VR/AR teaching

The high bandwidth and low latency of 5G technology enables education through VR/AR. VR/AR educational content can be moved to the cloud, and AR applications can be visualized, displayed, and managed in the cloud using the computing power of the cloud.

Network**INFRASTRUCTURE**

The operating systems that enable network connectivity and interactions between individuals, devices, apps, the internet, as well as other devices are referred to as network infrastructure.

Many businesses are in the process – or have already made the transition – to a wireless network architecture. Companies with a growing number of customers have found it easier to increase network access with wireless devices than to create new wired connections before the global health crisis.

Another change in network architecture sparked by the global health crisis: the advent of the hybrid workplace. The mixed workforce includes both office workers and remote workers. Workers may work on-site or off-site, some or all of the time. Wireless network infrastructure is essential to enabling hybrid office environments, as it allows employees to reliably and securely access the network from any device at any time.

The fast expansion in the use and development of communication and collaborative apps require a more widespread use of wireless network infrastructure. All employees in any workplace, hybrid or classic, benefit from wireless access to the internet, important apps, and resources.



● What is wireless network ?

A wireless network is one that allows multiple devices to wirelessly interact with each other without the use of wires or connectors. It is a really useful and important tool, and it is essential to many modern fields of commerce, media and entertainment.

Most of us have a personal wireless network at home, which depends on the infrastructure in place. This implies that we can have multiple devices connected to the Internet at the same time. We may, for example, work upstairs on a computer and respond to emails while still getting messages on our phones. It also allows us to communicate with other devices connected to the same wireless network. For example, you can stream snapshots to your upstairs computer, or stream video to your TV from your phone.

● Multi gigabit infrastructure.

Today's network operators are managing increasing volumes of data to provide rapid access to Internet resources through wired and wireless devices located throughout the facility. Technologies to interact with data, phone, and video with customers, as well as applications that support and increase operational performance, are essential to an organization's success. Allied Telesis provides fully integrated wired and wireless networks with connectivity and performance to meet your growing needs, as well as high-bandwidth applications usage and immersive experiences. Our MultiGigabit solutions increase capacity and ensure that your infrastructure is fully utilized.

● Fast-speed wireless:

Wireless access to the network has risen at an exponential rate, with many users using numerous mobile devices to access the Internet. WiFi 6 has improved the capacity and throughput of wireless APs, so the 1Gbps uplink speeds of many APs were not sufficient.

● How does it work?

Nodes are redistribution points or communication endpoints in any telecommunications network. In the case of a physical network, nodes can be active electronic devices that are connected to it – as long as they can create, receive, or transfer data through a communications channel.

Patch panels, for example, are not considered nodes since they are passive distribution stations (patch panels are used to connect and route circuits). Computers, cellphones, gaming consoles, printers, and, of course, the router itself are nodes in wireless network infrastructure. Data communication equipment covers routers, hubs, and switches, whereas data terminal equipment contains the devices we encounter in everyday life basis.

● Maximize Building Cabling

As the frequency of corporate data increases, the corporate network may need to be upgraded to a better performing solution. Our MultiGigabit devices can connect at 2.5 or 5 Gbps without the need to update existing Cat5e and Cat6/6A cables, allowing high-speed wireless networks to operate at full capacity and increase their potential.

The network infrastructure of a successful organization is the foundation on which it is built. On the other hand, protecting and growing a healthy network infrastructure can be a daunting endeavor. It is also one of those risks that will go unnoticed. Cleaning up your network and making sure it's strong and secure is an important task. Get the right tools and solutions and you'll be able to build a strong foundation that will keep your network running smoothly for years to come.

Wi-Fi 6



5G



5G

The fifth generation of wireless technology or what we call 5G is the new standard network after 4G which was also a huge improvement from 3G and so on. The 5G network showed a speed of 700Mbps to 3025Mbps in the early testing which is a very high speed if you compare it to previous generations of the network technology, the reason behind this high speed is the huge bandwidth of the 5G network that allows big data streams, not only is the 5G way faster than 4G, it is also more reliable to transfer data in extreme conditions and weather for example when it is a rainy day or there is a thunderstorm in a lot of cases the 4G network gets interrupted/slower and laggy because the water from the rain is an electrical conductor that slows down the electrical signal of the network, but the 5G network will be less affected by it.

Wi-Fi 6: 802.11ax or what is known as Wi-Fi 6 has been available since 2019, Wi-Fi 6 is an improved technology from previous standard of wireless technology, This technology has been developed to response to the number of devices of the world which is increasing significantly, nowadays everyone has a laptop, phone, Ipad, TV, and more devices that connect to the internet, The Wi-Fi 6 is also called “High efficiency Wireless”.

As the IOT technology is skyrocketing and developing very quickly, Wi-Fi 6 will be at its extreme use. Even though the technology has been out for almost 3 years now, it will show its full benefit when all the things around us start using the internet.

Huawei AirEngine Wi-Fi 6

This device is very helpful for multi user scenarios for example in a company or in dorms. This device uses a lot of technologies that help spread the Wi-Fi signal such as MU-MIMO, BSS Coloring and OFDMA. These technologies spread the Wi-Fi in a smart way so that the places with more devices get a bigger bandwidth and Anti-interference/low latency. Also Multiple APs share spectrum resources which improve the spectral efficiency.

The world will become faster!

The Wi-Fi 6 will make everything seemingly faster and better connected. Data will transfer faster as well because of the bigger bandwidth which has improved by 2.8 times from the previous Wi-Fi 5.

Not only faster but also the mobile devices or any device that is connected to the internet and uses batteries will last longer because the power consumption of STAs is reduced by 30%!

