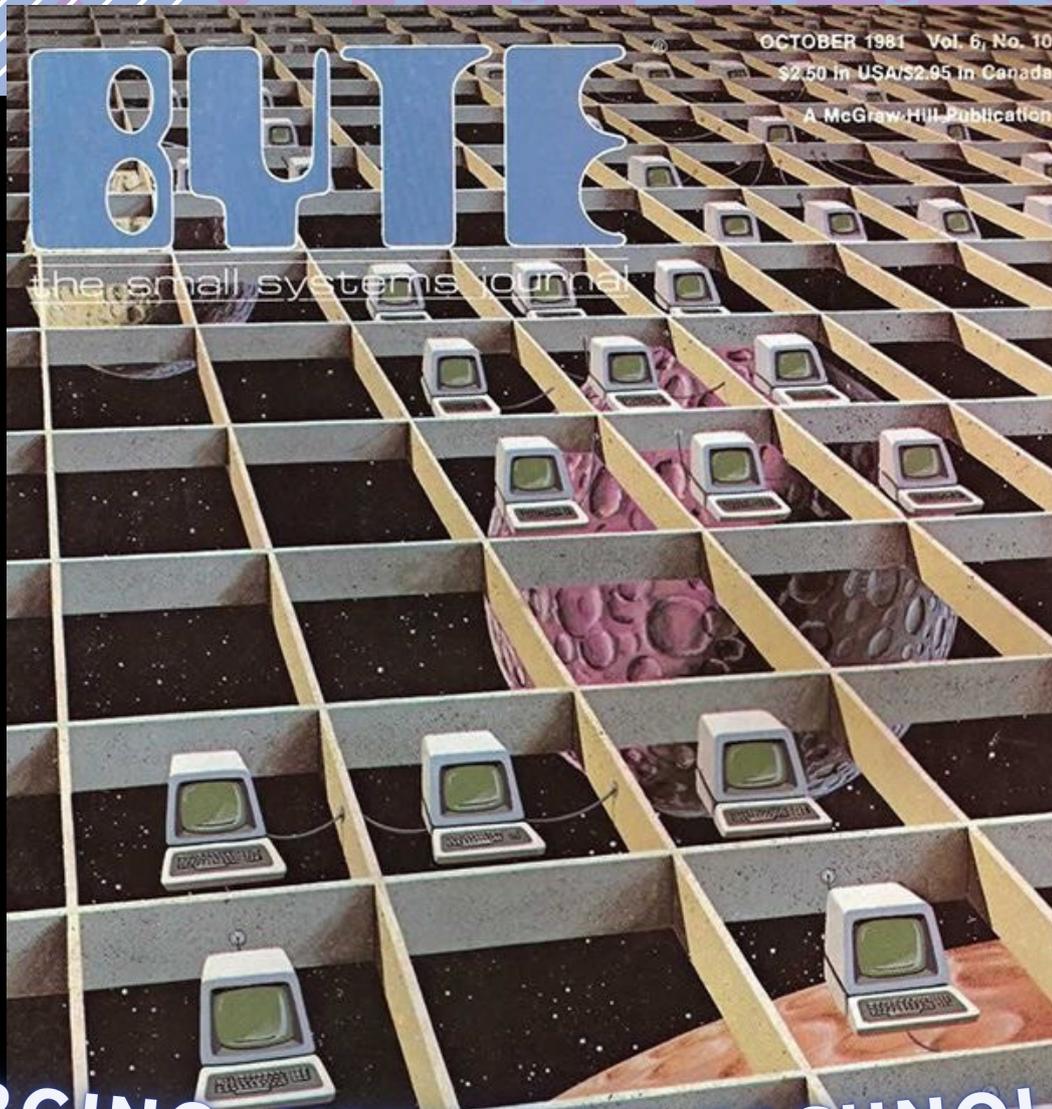


Technology Information System



EMERGING NETWORK TECHNOLOGY



GROUP MEMBERS

Nerea Lanai | Afiqah Izzati | Qaisara | Ahmad Mirza | Jeliza Justine

Topics:

- **Application of 5G in Smart Campus**
- **Industrial Talk 5: Emerging Technology on Network Infrastructure (Commscope Malaysia)**
- **Industrial Talk 6: 5G, WiFi6, and Emerging Network Technologies (HUAWEI)**

Emerging Technology on Network Infrastructure (Commscope Malaysia)

INDUSTRIAL TALK 5 :



Wi-Fi 6 DEVICES

PlayStation 5, Microsoft Surface Laptop Go, HP Spectre x 360, Iphone 12

The WIFI 6 chipset supports the 6GHz band with the goal of doubling the Wi-Fi speeds while cutting latency in half. It is not just about speed as it is also equip to relieve network congestion, reduce power consumption and also provide greater client capacity.



Mr Goh Bih Der the system engineer from COMMSCOPE was the speaker for the industrial talk 5 with the main title of

INFRASTRUCTURE DESCRIPTION

Emerging Technology on Network infrastructure. He began by talking about the impact of the pandemic to the IT world and how it's changing the existing network infrastructure. Some examples of these changes are remote working environment for employees, acceleration of digital transformation, remote management of IT infrastructure and many more. The information of the moving components of the networking infrastructure was made clear by linking our daily Wi-Fi devices through wireless protocol to connect to the access point. Also not forgetting IoT devices which might have their own IoT protocol. The access point than will have a cable to connect to the switches which has the power to connect all of the equipment needed by user. The switches is then connected to the core switch via cable(uplink). This is where internet connection is achieved. This leads to a spirited discussion about what exactly is a Smart Campus was had which helps in explaining the In's and Out's of a Smart Campus which cultivate an environment of Smart Living, Smart Learning and Smart Safety to achieve a greater student experience. This will ultimately place the real life physical infrastructure on its network infrastructure which will be using IoT connections to link objects, buildings, vehicles and even people. Some example of changes made are Wi-Fi provider being much more accessible, smart lining system installed on the streets, installing a sensory system and many more. Mr Goh also explained in detail about what COMMSCOPE is working on and presented a networking portfolio. Overall the talk was extremely informative and gave us a rare insights on the technological advancement made in the industry.

COMMSCOPE DEVICES

COMMSCOPE manufactured many devices that will help in the cause of implementing and maintaining the network infrastructure such as, **switches, indoor and outdoor wireless access point**

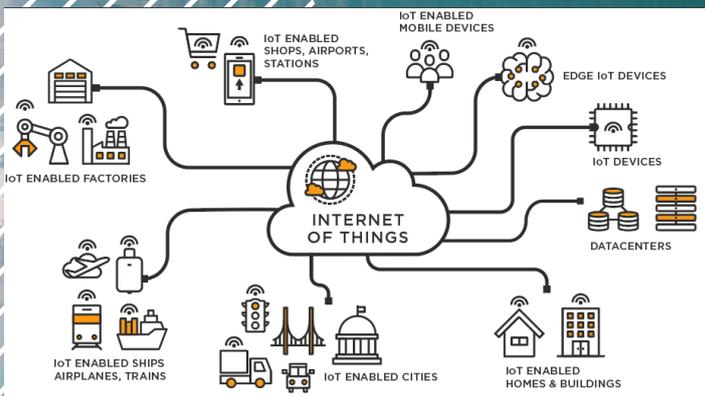
COMMSCOPE is also a world first certified WIFI 6 vendor (RUCKUS R750)



Reflection

EMERGING TECHNOLOGY ON NETWORK INFRASTRUCTURE

Conclusively, there are many important new technologies that emerge especially towards network infrastructure. Covid-19 pandemic has impacted the IT field immensely. Majority of industries nationwide has gone digital causing rapid acceleration towards digital transformation. Newly emerging technologies such as WiFi 6 has contributed greatly towards the evolution of network infrastructure. With better network capacity and efficiency, it has solved many problems that we are facing with our current WiFi technology. Furthermore, the evolution of network also allows us to utilize IoT (Internet of Things) technology more efficiently. With the existence of IoT Access Network, it is much easier for us to achieve "Smart Campus". By achieving this status, it is more guaranteed that students can have a smart living and a smart learning environment. This proves that these new emerging technologies not only make our lives better but also contribute immensely towards the nation's education system.



Example of Domain

29 NOV 2021

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EMERGING TECHNOLOGY ON NETWORK INFRASTRUCTURE

CommScope is one of the dominant companies in Malaysia that focuses on empowering new technologies towards network infrastructure. CommScope is responsible in providing world's advanced networks by designing, manufacturing and supporting the network infrastructure and also its software intelligence to enable digital society. For example, CommScope has introduced RUCKUS Network that simplifies IT in our lifestyle. Some of the solutions offered by RUCKUS include WiFi 6, IoT technology and Converged Access. It also offers hardware infrastructures such as ethernet switches and access points. With these new technologies, people all over the world can enjoy an efficient network infrastructure.



5G AND WI-FI 6 DESCRIPTION

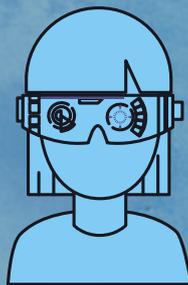
2ND DEC 2021

In industry talk 6, Mr Nicholas Yong from Huawei Enterprise Business Group discussed about 5G and Wi-Fi 6. Huawei is an emerging network technology which is a leading provider of ICT infrastructure and smart devices. 5G is the fifth generation of wireless technology system. It provides speeds faster than any previous generation, comparable to those delivered through fiber-optic cables. 5G will be transformative for industries with the reason 5G devices are lower latency, enabling faster and better transmission of larger data streams, more reliable, more flexible than wi-fi and can support a wider range of devices. Users may experience enhanced mobile broadband, massive machine type communications, ultra-reliable and low-latency communications when 5G are applicable. 5G also foster new opportunities and benefits. W-Fi 6 is the next generation of wi-fi with some improvements such as speed limit. It has been verified for more than 3 years. 802.11ax is actually named Wi-Fi 6. This refers to a revolutionary new technology. Wi-Fi 6 has large bandwidth, low latency, IoT-oriented energy saving and it is anti-interference. Users prefer Wi-Fi 6 because it supports the evolution of home value-added services such as multi-screen IPTV and e-sports acceleration, improves coverage for full-house and supports better multi-user experience.



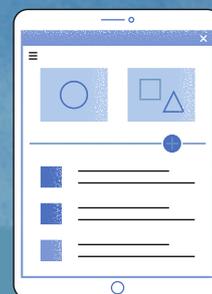
5G DEVICE

One of the popular device which use 5G is Virtual Reality (VR). VR needs 5G to provide high throughput for retina experience VR. The 5G used in VR also caused low latency to avoid motion sickness like dizziness and fainting. With this features, users will enjoy using the VR.



Wi-Fi 6 DEVICE

We can access Wi-Fi 6 using our phones and laptops. But not all models will support Wi-Fi 6. Some models such as Samsung start incorporating support for Wi-Fi 6 and other models are soon to follow the suit.



Reflection

5G AND WI-FI 6

Through the talk, we have gained so many insights especially about 5G and Wi-Fi 6. 5G is actually the evolution from 4G technology. 5G has higher bandwidth and lower latency which causes the speed to become much faster. These features will enable us to use a wider range of applications that can be supported by 5G such as Virtual Reality, Automation in vehicles and many more. Furthermore, 5G also fosters new opportunities and benefits in many sectors including industries, education, tourism and much more. The rapid development on today's internet connectivity has resulted in the evolution of Wi-Fi. The latest generation of Wi-Fi is Wi-Fi 6. Wi-Fi 6 core technologies consist of large bandwidth, high concurrency, low latency and low power consumption. This technology is actually already available on the market. Lastly, we hope that in the future, Wi-Fi or any internet connectivity will cover every part of our country especially in the rural area, because nowadays internet connectivity has become one of the necessities as everything is conducted through online.

5G



Example of domain



5G AND WI-FI 6

Huawei is one of the companies in Malaysia that provides Wi-Fi-6 technology. Huawei AirEngine Wi-Fi-6 Technologies At-A-Glance is one of the domains that have been highlighted by Mr. Nicholas Yong during the talk. This technology has the **highest performance** which is 16x16 MU-MIMO. Moreover, it also gives users the **most stable experience** with Smart Antenna, Dynamic Turbo, Loseless Roaming, and also SmartRadio. Furthermore, Huawei AirEngine is the **most comprehensive IoT apps** because there are two built-in slots for IoT modules, IoT expansion through USB port, and lastly, it is also IoT chip ready. Last but not least, this technology is the **most secure** as it has independent radio for scanning, hardware encryption, and also dual-signature boot.



Loseless Roaming



Smart Antenna



Dynamic Turbo

