Where is 5G in the Malaysian context?

17 SOCIAL BUZZ

(Photo by Josep LAGO / AFP)

Supporting 5G Features Through Internet Exchange

When it comes to the transformation of business models and the development of innovative new digital products, agility and adaptability play a crucial part in the process. Currently, the Asian region is shifting digitalization priorities to becoming more resilient against future disruptions and to leveraging any volatile, unpredictable, complex, and ambiguous market conditions.

According to the **IDC-Workday Digital Agility Index Asia Pacific 2022,** organizations have accelerated their investments in digital technologies. In fact, by the end of 2022, it is predicted that at least half of the region's economy will be based on or influenced by digital aspects. Therefore, while connectivity used to be an enabler for most enterprises, new products are constantly being developed in which connectivity is an intrinsic part of the product itself, which causes portfolios to evolve towards modern digital business.

With modern enterprises increasingly needing to aggregate and transport data, more companies are demanding the flexibility to redesign the connectivity of their locations and operations. To fully future-proof their digital connectivity features, enterprises will increasingly need the capability to adjust bandwidths, optimize latency, improve security, and reinforce the resilience of their operations in accordance with business demands and application requirements. Furthermore, there is a greater need to create secure and customizable connections to new business partners as and when required. All in all, modern digital business requires strength, resilience, and flexibility in their connectivity setup to win the game.

5G at the Core of Enterprises' Digital Agility

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With the advent of accelerated digitalization to meet the needs of local and global enterprises, society as a whole is becoming increasingly dependent on technical innovations. Considering that Malaysia is still in its economic recovery stage following the COVID-19 pandemic, the adoption of 5G will play a crucial role in the coming years, as it will be able to support entirely new service offerings, use cases, and business models, and create new revenue streams.

For the telecommunications segment, the rollout of 5G networks will be a game-changer in terms of the amount of data that can be transmitted over a mobile network, as well as the number of devices that can be connected. Therefore, 5G

offers enormous potential for a range of industrial and economic sectors, with application scenarios in agriculture and construction, the transport sector, energy production, and in the healthcare sector.

A prominent example is the **technological improvements** that are utilized by a number of manufacturing facilities in Malaysia in the wake of Industry 4.0. Factories now are equipped with intelligent machines that may even be operated by external partners. Consequently, the adoption of intelligent production processes leads to much greater demand for the reliability of connectivity not only within a 5G-enabled factory and the company locations but also to external networks.

The more an organization can build automation into its business model, the better chances they have in enabling new opportunities, streamlining operations, and boosting digital agility – making it a key factor towards achieving business success.

5G – More than just Mobile Broadband

There are many promising use cases for 5G, such as smart cities, autonomous driving, tactile Internet, and remote surgery. However, many of them are envisioned to be realized within the next five to ten years, and beyond. While 5G has been implemented to satisfy future use cases and certain projects in Malaysia are already demonstrating the potential that the technology holds, so far, none have been deployed at scale.

Unlike previous **mobile network generations**, 5G is not a single technology. It is a set of different standards with various features on multiple layers developed for specific use cases, some of which require additional technologies and infrastructures that form parts of the 5G technology stack.

- **Mobile Edge Cloud (MEC)**: Many industrial 5G applications require very low latency (well below 10 milliseconds), meaning data processing and storage must be physically closer to the machine. These end devices do not have enough resources to process the large amounts of data collected by The MEC, an infrastructure near the base station, provides computing and storage capacities at the "edge" of the network.

- **Software-Defined Networking**: Software-Defined Networks (SDN) allow networks to be more agile and flexible, decoupling the control level from the underlying data level (often physical circuits) in routers and switches. The entire network of SDN switches can thus be managed via a central controller (physical or virtual) and data packets prioritized or blocked as necessary.
- **Network Function Virtualisation (NFV)**: With NFV, expensive and inflexible hardware solutions are replaced with software that runs on standard hardware, such as commercially available servers, using This combination provides more flexible service migration, as well as faster deployments, upgrades, and downgrades. The use of standard hardware also reduces operating costs.
- **Service Function Chaining (SFC)**: This enables the flexible and efficient use of network functions for different applications, facilitating practical use cases that normally require a complete network service consisting of several service functions in a certain order (e.g. first a firewall, and then a deep packet inspection). Here, the NFV must be able to keep packets in a predefined order, allowing users to automate the setup of virtual network functions.
- **Network Slicing**: Network Slicing describes an architectural structure with multiple parallel and independent logical networks on the same physical hardware Each of these network segments provides a certain Quality-of-Service, based on parameters like latency or bandwidth. The individual segments or slices are mapped to end-to-end communication.

Therefore, SDN and virtualization are critical to implementing Network Slicing in 5G environments.

At the moment, the adoption of **5G on smartphones** simply uses the radio access network (RAN), not edge networking, service virtualization, or function chaining, etc. – which are features that will come with software integration.

One major innovation with 5G is the concept of fixed-line networking being integrated into wireless standardization, enabling end-to-end connectivity. As companies begin to use the standard at scale and productize it, we will see further evolution of the technology stack to meet growing commercial demands.

AS 5G DEPLOYMENT EXPANDS GLOBALLY, MALAYSIAN TELCOS RULE 4G

Aaron Raj | 28 September, 2022

Winning the Interconnection Game

As it is, 5G will become ubiquitous on freeways, opening the way for wide-scale autonomous driving; it will be in homes and offices, and built into an ever-increasing range of our connected products, leading to greater agility for companies and individuals alike. However, to make this envisioned future a reality, it will require fine-grained interconnection of networks – not just mobile networks, but also fixed-line networks and satellite networks – and connectivity to data centers and clouds.

Malaysia has the potential to become a sub-regional interconnectivity hub for Southeast Asia, as there has been increasing demand for more widely distributed carrier and data center-neutral interconnection infrastructure in the region. Being the world's leading Internet Exchange (IX) operator and home to the largest carrier and data center neutral interconnection ecosystem globally, DE-CIX's scalable interconnection platforms support and enable 5G use cases, while its enterprise solutions help companies gain the necessary control over their connections to clouds and other networks. As such, only through the successful interplay of technologies and the widespread deployment of 5G will the new mobile standard bring added value to companies and enhance digital agility.