The Business Times Singapore

May 14, 2019 Tuesday

The 5G bandwagon offers promise - and also challenges; It is key for all interested parties to engage with the Infocomm Media Development Authority to shape the regulatory framework

BYLINE: Rajesh Sreenivasan,Tanya Tang , The 5G bandwagon offers promise - and also challenges

SECTION: TECHNOLOGY; Top Stories; OPINION

LENGTH: 1112 words

ON APRIL 3, South Korea became the first country in the world to commercially launch nationwide 5G mobile services. The country's three mobile operators went live with data speeds that allow users to download entire movies in less than one second. Two days later, Samsung released the Galaxy S10 5G, the world's first 5G-powered smartphone.

These developments mark a pivotal point in the evolution of 5G from trial phase to commercial reality. In the last year, massive progress has been made - standards have been finalised and operators worldwide are in the process of testing, trialling and rollout in early-stage markets.

Amid these developments and to facilitate the commercial deployment of 5G in Singapore by 2020, the Infocomm Media Development Authority (IMDA) issued a public consultation on its proposed 5G policy and regulatory framework last week.

5G refers to the next generation of mobile Internet connectivity. An anticipated 20-fold increase in the speed of data transfer aside, what makes 5G revolutionary is its massive reduction in latency. Latency is the time gap between the sending of information and the receiving of a response, which will be reduced from the 4G average of 30 to 70 milliseconds to just one millisecond with 5G. This latency reduction promises to unlock a host of new applications and services that are not possible today. For example, the 5G network could avail autonomous vehicles with seemingly instantaneous response time, reducing accidents caused by a delayed response due to latency.

Other applications include greater factory automation, remote healthcare services, augmented-reality applications, enhanced multi-player gaming experiences and a larger Internet of Things (IoT) ecosystem. The ultra-low latency of 5G will also enable edge computing, which allows for distributed computing whereby data is processed closer to the location where it is created and needed.

Due to the technology's unique features, the deployment of 5G raises interesting legal and regulatory issues:

Spectrum allocation

Spectrum allocation for mobile services has traditionally been done via auctions as a means to encourage efficient spectrum usage while generating revenue for the state. Commentators have cautioned that high bid prices for 5G spectrum may translate into higher prices for consumers and/or underinvestment in the networks to make up for costly spectrum.

The IMDA noted that an auction mechanism will not realise its desired policy outcomes, and has proposed to assign 5G spectrum through a Call-For-Proposal regulatory process instead. Proposals that meet the IMDA's base price will be evaluated on their merits based on criteria including network rollout and performance, network design and resiliency and financial capability.

The IMDA also said it will support the deployment of at least two nationwide 5G networks at the outset and will restrict the spectrum allocation to existing mobile operators to prevent further market fragmentation.

Facilitating network deployment

Successful 5G implementation will depend on network densification, which involves expanding network capacity through adding more cell sites including radio-access networks, macro sites, in-building wireless and small cell deployments. Operators would need to construct small cells for greater network coverage, capacity and quality of service, without the need for additional spectrum.

Regulators can introduce policies to facilitate small cell deployment, such as streamlining applications and timelines to access public rights-of-way or impose a cap on fees.

The IMDA has set up a working group with mobile operators to identify the space and facilities requirements for 5G infrastructure, and will be engaging relevant government agencies to facilitate 5G deployment.

Infrastructure sharing

Given the investment required for network densification, infrastructure sharing - from the sharing of either electronic or non-electronic infrastructure at cell sites to spectrum sharing to the hosting of mobile virtual network operators - could intensify. It can either be a matter of government policy or a contractual agreement between network providers.

The IMDA has said it will encourage infrastructure sharing among operators, but noted that the benefits will need to be weighed against the potential impact on network resilience and competitiveness of the telecommunication markets.

Accordingly, mandated infrastructure sharing does not seem to be on the regulator's cards for now.

Service diversification and bundling by operators

Due to the high cost of implementing 5G, network providers are likely to diversify their provision of services from one of pure connectivity to that of utility. For example, they may move beyond offering mobile connectivity and data towards offering content as well as value-added services (such as cyber security) that customers could purchase in a bundle.

In doing so, operators will need to consider the additional authorisations and regulatory obligations that they require to provide the additional services, such as obtaining new licences. They also need to be sensitive to potential competition regulatory concerns surrounding service bundling, cross-subsidisation and margin squeeze as they start playing across more layers of the value chain.

Privacy and security challenges

Last but not least, 5G will be based on new technologies such as software defined networks, virtualisation and cloud infrastructure. Besides physical security of network equipment, 5G services providers will need to address software and cloud security risks, in addition to communication network security risks. With enhanced connectivity, increased bandwidth and a wider range of devices that will be connected to 5G networks, a significantly higher amount of data, including personal data, will be transmitted.

Consequently, the number and variety of potential threats (including the risks of personal data breaches) would increase significantly. The IMDA has stated that it seeks to collaborate with industry experts, vendors and operators to study the cyber security and network resilience aspects of 5G.

In conclusion, the 5G era offers huge promise, but presents challenges as well. The IMDA public consultation has identified many of these issues for feedback. It is important that all interested parties (including network providers and technology companies) engage the regulator at this stage to shape the regulatory framework and industry development efforts.

The writers are from Rajah & Tann Singapore. Rajesh Sreenivasan is partner and head of Technology, Media & Telecommunications; Tanya Tang is partner (Chief Economic and Policy Advisor).

LOAD-DATE: May 13, 2019

LANGUAGE: ENGLISH

GRAPHIC: With enhanced connectivity, increased bandwidth and more devices connected to 5G networks, a significantly higher amount of data, including personal data, will be transmitted, and this means bigger risk of personal data breaches, for instance.

PUBLICATION-TYPE: Newspaper