Proposed Update of the "Security Guidelines for Next Generation Networks"

Telecommunications Regulatory Affairs Advisory Committee

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通訊事務管理局辦公室
OFFICE OF THE
COMMUNICATIONS AUTHORITY

Regulatory Requirements

- General Condition 5.1 of the Unified Carrier Licence (UCL) or Services-based Operator (SBO) Licence
  - The licensee is required to provide a good, efficient and continuous service in a manner to the satisfaction of the Communications Authority (CA)

- Special Conditions (SCs) 1.2(a) and (c) of the UCL and SCs 13.1(a) and (c) of the SBO Licence
  - The CA may issue guidelines for the purpose of providing practical guidance to the licensees in respect of the provision of a satisfactory service; and to ensure the protection and promotion of the interests of consumers of telecommunications goods and services

- Section 32D of the Telecommunications Ordinance also empowers the CA to prescribe standards and specifications to facilitate correct, efficient and reliable operation of telecommunications

Existing Guidelines for Network Security

- "Guidelines on the Security Aspects for the Design, Implementation, Management and Operation of Public Wi-Fi Service" issued in 2007
  - ➤ observed by public Wi-Fi service providers

- "Security Guidelines for Next Generation Networks" (NGN Guidelines) issued in 2010
  - ➤ observed by NGN operators
  - ➤ applicable to packet-based fixed networks and the fourth generation mobile (4G) networks
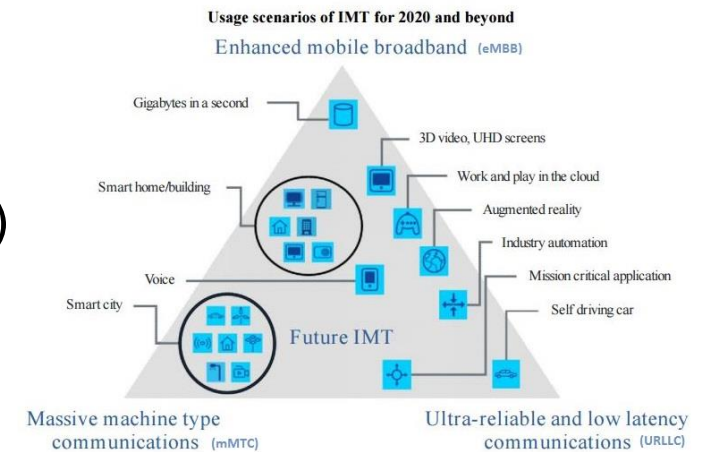
Definition of NGN

- According to ITU-T,

  A Next Generation Networks (NGN) is a packet-based network able to provide Telecommunication Services to users and able to make use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent of the underlying transport-related technologies. It enables unfettered access for users to networks and to competing service providers and services of their choice. It supports generalised mobility which will allow consistent and ubiquitous provision of services to users

The Need for Update

- Advent of 5G era

    ➢ a wide range of new communications services and smart city applications, including enhanced mobile broadband (eMBB), massive machine-type communications (mMTC), and ultra-reliable and low latency communications (URLLC)

    ➢ a more sophisticated communications platform for supporting massive deployment of Internet of Things (IoT) devices

- New emerging technologies

    ➢ network slicing

    ➢ network functions virtualisation (NFV)

    ➢ software-defined networking (SDN)

    ➢ edge computing

Usage scenarios of IMT for 2020 and beyond
Enhanced mobile broadband (eMBB)

Gigabytes in a second
3D video, UHD screens
Smart home/building
Work and play in the cloud
Augmented reality
Industry automation
Voice
Mission critical application
Smart city
Self driving car
Future IMT

Massive machine type communications (mMTC)
Ultra-reliable and low latency communications (URLLC)

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Emerging Technologies (1)

- Network Slicing
  - ➢ enables operators to create and provide multiple logical networks over their physical infrastructure
  - ➢ facilitate development of new services for greater flexibility, higher efficiency and lower costs

- NFV
  - ➢ enables operators to manage and expand their network capabilities using software based applications installed in distributed physical infrastructure
  - ➢ is easier to carry out network functions such as load-balancing, network scaling, and migration of network resource across distributed hardware resources

Emerging Technologies (2)

- SDN
  - ➤ enables operators to configure and manage networks and services through software rather than specific hardware
  - ➤ optimises network resources and enables networks to respond quickly to changes

- Edge Computing
  - ➤ is a distributed computing system in which a significant part of the computation will be performed on distributed devices at the edge of the network rather than in a centralised cloud environment
  - ➤ support applications that may require ultra-low latency (of about 1 millisecond) such as autonomous driving

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The Proposal

- In view of new security threats which may be brought by these new technologies, we consider it necessary and timely to review and, where appropriate, update the NGN Guidelines

- This is to ensure -

  - ➢ our future 5G networks or newer generations of Internet Protocol (IP) networks will continue to be protected against potential security threats

  - ➢ provision of continuous, secure and reliable services to consumers

Views Sought

- Members are welcome to share their views and comments on the proposal

- OFCA will draw reference from latest international and regional standards, specifications and best practices in preparing draft revisions to the NGN Guidelines

- The revised NGN Guidelines will be circulated to relevant operators for comments before adoption by the CA

Thank You