

5G SIM: Maximising MNO Investment in 5G Networks

Published by Simaliance now Trusted Connectivity Alliance

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November 2018

MNO migration to 5G has begun...

67 Mobile Network Operators (MNOs) in 39 countries have announced 5G availability between 2018 and 2022

1.36 billion 5G consumer mobile connections by 2025 Source: GSMA Intelligence

50% penetration by 2025 in some markets Source: GSMA Intelligence

Countries committed to deploy 5G by 2022

5G >



D Projected 5G share of the mobile subscriber base





Tamper resistant hardware component is mandatory according to 3GPP R15; only the UICC is mandated

Follow up on R16 coming soon....

MNOs: What are the challenges?







Quality of Experience monitoring



Authentication to the IMS/ SIM can be refreshed through HTTPs Subscriber ID encrypted

Advantages of

SIM technology



Features to reduce power consumption





5G network access security



How does the 5G SIM address each MNO challenge?

Ensuring good quality of experience

The challenge for MNOs:

- Preventing end user service failure
- How to optimise end user roaming experience
 while minimising MNO roaming cost



How the 5G SIM helps:

- End user Quality of Experience can be monitored through SIM card without a phone application
- Roaming configuration managed via the SIM card:
 - Automated selection of relevant network
 - Selection of network technology depending on the business agreement between operators



Ensuring mobile subscriber privacy

The challenge for MNOs:

- Mobile subscriber identity on today's network can be easily misused to locate, trace individuals and collect data
- Protection of end user digital ID is an MNO concern for protection of MNO's reputation
- MNO must comply with regulation

How the 5G SIM helps:

- Encryption of end user digital identity is supported by 5G network
- 5G SIM offers a trusted & standardised technical answer controlled by MNO



Addressing IoT Low Power devices

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The challenge for MNOs:

- SIM cards must consume low level of energy, enabling batteries to last for years.
- Increase in use cases with requirement for low power IoT sensors, e.g.:
 - Agriculture (temperature / humidity sensors etc)
 - Waste management



How the 5G SIM helps:

- SIM in hibernation mode with device can be reactivated quickly and easily (suspend and resume)
- SIM interaction with device can be adjusted / optimised to save energy
- Can help optimise usage of network resources (through optimised communication with device)



Unleashing deployment of new services

The challenge for MNOs:

- Maximise monetisation of innovative IP services requiring secure access and delivery, e.g.:
 - Voice over IP
 - WiFi calling
 - Virtual reality
 - HD video
- Download large applications while meeting end user experience expectations





How the 5G SIM helps:

- SIM card updates optimised over 5G all IP network:
 - Large applications can be downloaded while end user experience expectations are met
 - Roaming agreement parameters
 - Reduced cost operations with better efficiency and higher security



Optimising resources, yet maintaining service quality simalliance

The challenge for MNOs:

- How to deploy 5G network while optimising investment and offering good Quality of Experience to end user
- As network utilisation grows, underestimated network capacity may become congested
- Congestion can affect end user service
- Flexible prioritisation relative to revenue generated by subscriber/service segment



How the 5G SIM helps:

- Prioritisation / monetisation of multi-media services configured within the SIM
- Prioritisation depending on: MNO policies; deployment scenarios; subscriber profiles; and services
- This configuration can be updated over the lifeycle of the SIM card and the MNO policies evolution



Ensuring secure access to network

The challenge for MNOs:

- Smooth end user experience while protecting end user and MNO assets
- Mutualise access network method, not limited to cellular networks (eg WiFi)
- To offer, at minimum, the security level available in 3G or 4G
- Protect reputation of MNO as a trusted entity
- Protect network assets against attacks

How the 5G SIM helps:

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- Enhanced end user experience: faster network reconnection upon device restart, includes non cellular networks e.g. WiFi
- Stores the network access temporary keys within the vault that is a 5G SIM card
- Mutual authentication
- Protects against cloning

wiFi simple, convenient access

Conclusion





Only UICC is mandated by 3GPP R15 for securing 5G network access

5G SIM answers all MNO challenges:

- Monitoring end user Quality of Experience
- Subscriber privacy
- Extended battery life
- Delivery of all IP services
- Network resource optimisation
- Security



For more information, read '3GPP R15 5G SIM card: A definition' on the SIMalliance website - www.simalliance.org/5g/educational-resources/