



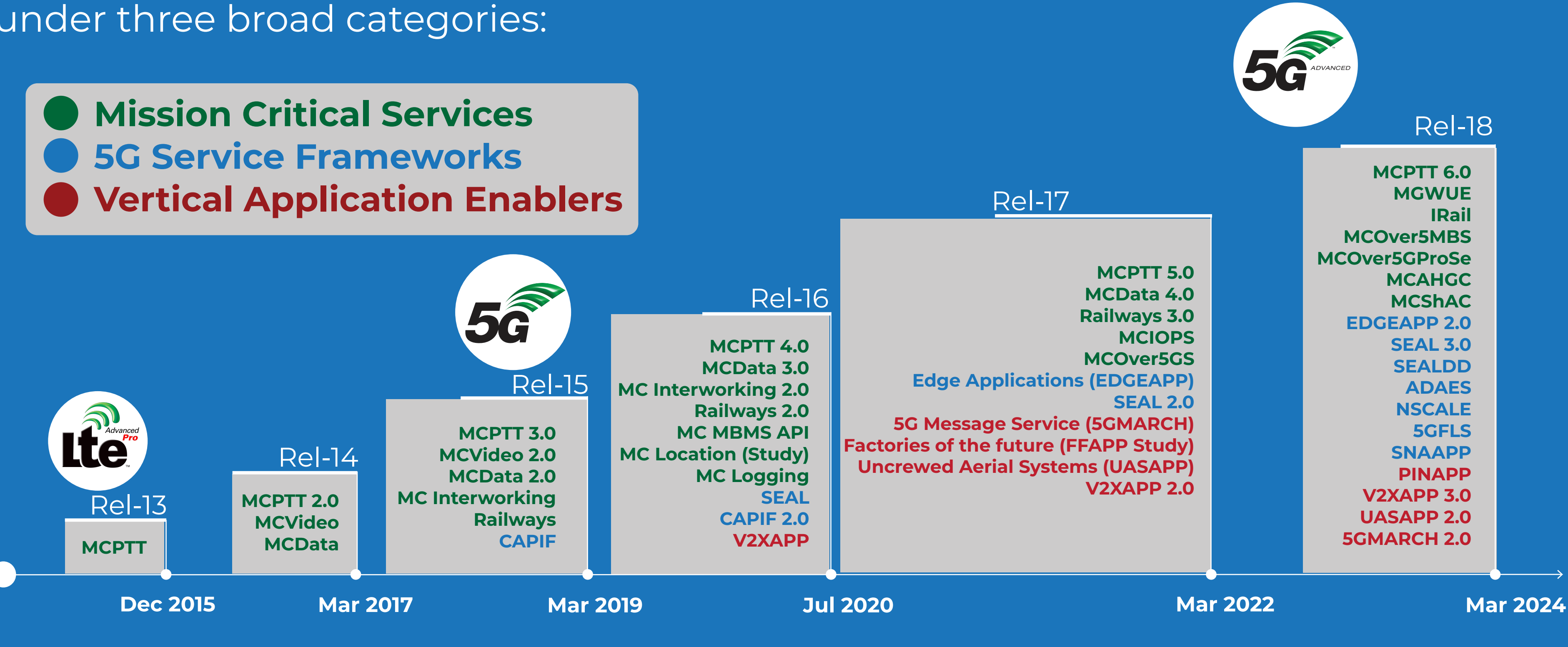
Critical Communications & Application Enablement

WG SA6

3GPP TSG SA WG6 (SA6) champions application layer architecture specifications for mission critical systems as well as application enabler layer specifications for supporting the integration of 3GPP systems with other vertical industry sectors.

The Working Group has developed and specified service frameworks, such as the Common API Framework (CAPIF), the Service Enabler Architecture Layer (SEAL) and Edge Application enablement (EDGEAPP).

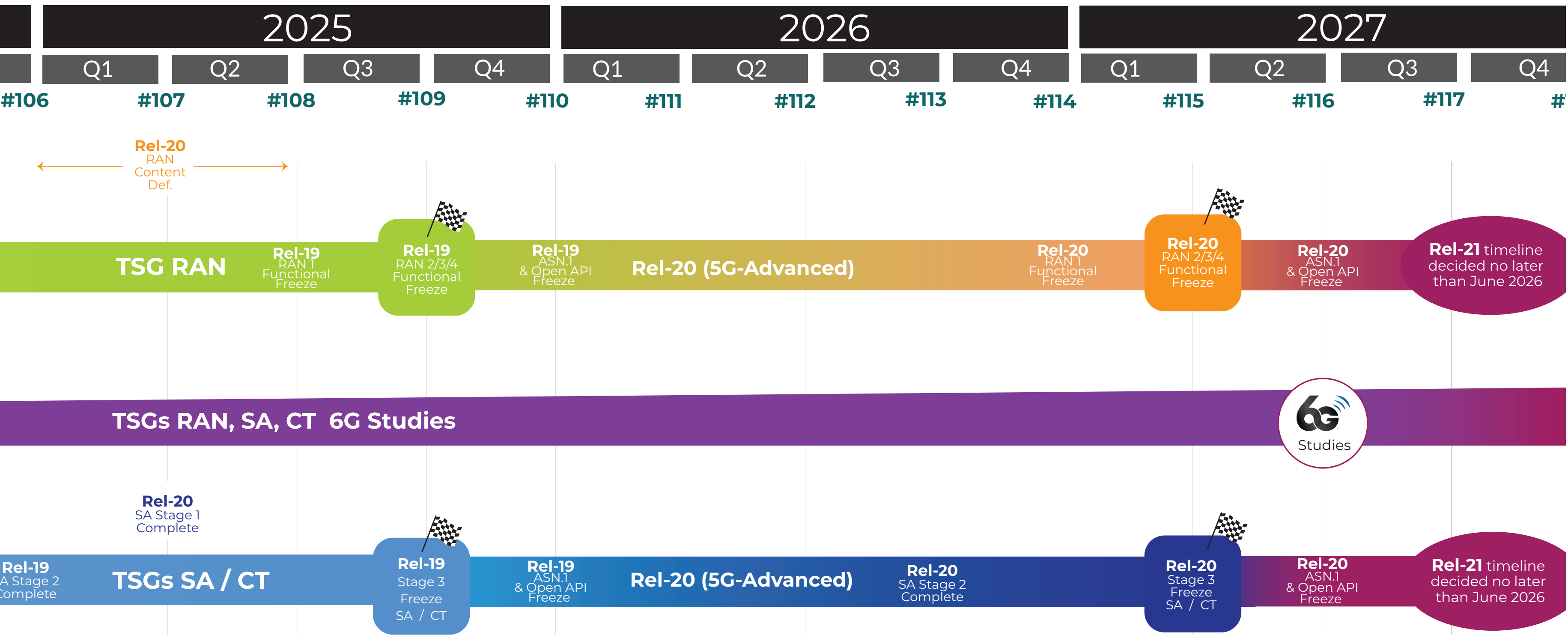
In this context, SA6 defined functionality serves as an application middleware, with capabilities that can be used to develop “Platform as a Service (PaaS)”, to enable interactions between the application providers and the 3GPP network layer, across both user equipment (UE) and the core network. The diagram below shows the evolution of SA6 specifications from Release 13 to Release 18, under three broad categories:



Beyond Release 18...



Release Timeline



Release 18 (all groups)

Taken from the Release Description: TR 21.918

Release 18 specifies further improvements of the 5G-Avanced system. These improvements consist both in enhancements of Concepts/Features introduced in the previous Releases and in the introduction of new topics.

Some of the key Rel-18 Topics are:

Mission Critical and emergencies

- Gateway UE function for Mission Critical communication
- Mission Critical security enhancements Phase 3
- Mission Critical ad-hoc Group communications
- Mission Critical services over 5GProSe

Satellite & Non-Terrestrial Networks

- 5G system with satellite backhaul
- Discontinuous coverage: "Satellite access Phase 2"
- NR NTN enhancements
- Introduction of the satellite L-/S-band for NR
- Guidelines for Extra-territorial 5G Systems
- 5GS satellite access to Support Control / Video Surveillance
- Management aspects of Satellite
- IoT (Internet of Things) NTN enhancements

Verticals, Industries, Factories, Northbound APIs

- Low Power High Accuracy Positioning for Industrial IoT scenarios
- Application enablement aspects for subscriber-aware northbound API access
- Smart Energy and Infrastructure
- Generic group management, exposure and communication enh.
- Service Enabler Architecture Layer for Verticals Phase 3
- SEAL data delivery enabler for vertical applications
- Enh. of 3GPP Northbound and Application Layer interfaces and APIs
- Charging Aspects of B2B
- NRF API enh. to avoid signalling and storing of redundant data
- GBA_U Based APIs
- Application layer support for Factories of the Future (FF)
- Service exposure interfaces for industry

eXtended, Augmented and Virtual Reality (XR, AR, VR)

- XR (eXtended Reality) enhancements for NR
- Media Capabilities for Augmented Reality
- Real-time Transport Protocol Configurations
- Immersive Audio for Split Rendering Scenarios (ISAR)
- Immersive Real-time Communication for WebRTC
- IMS-based AR Conversational Services
- Split Rendering Media Service Enabler
- Extended Reality and Media service (XRIM)

Sidelink, Proximity, Location and Positioning

- 5GC LoCation Services - Phase 3
- Expanded and improved NR positioning
- NR sidelink evolution
- NR sidelink relay enhancements
- Proximity-based Services in 5GS Phase 2
- Ranging-based Service and sidelink positioning
- Mobile Terminated-Small Data Transmission (MT-SDT) for NR
- 5G-enabled fused location service capability exposure

Transport (Railways, V2X, aerial)

- MBS support for V2X services
- Air-to-ground network for NR
- Interconnection and Migration Aspects for Railways
- Enh. NR support for high speed train scenario in FR2
- Application layer support for V2X services; Phase 3

Network Slicing

- Network Slicing Phase 3
- Enhancement of NSAC for maximum number of UEs with at least one PDU session/PDN connection
- Enhancement of Network Slicing UICC Application for network slice-specific authentication and authorization
- Charging Aspects of Network Slicing
- Network Slice Capability Exposure for Application Layer Enablement

Energy Efficiency

- Network energy savings for NR
- Smart Energy and Infrastructure

Artificial Intelligence /Machine Learning

- AI/ML model transfer in 5GS
- AI/ML for NG-RAN
- AI/ML management
- NEF Charging enhancement to support AI/ML in 5GS
- Application Data Analytics Enablement Service

Uncrewed Aerial Vehicles

- Architecture for UAV and UAM Phase 2
- Architecture for UAS Applications, Phase 2
- NR support for UAV
- Enhanced LTE Support for UAV

Internet of Things

- Personal IoT and Residential networks
- Enhanced support of RedCap NR devices
- NR RedCap UE with long eDRX for RRC_INACTIVE State
- Application layer support for Personal IoT Network
- 5G Timing Resiliency System
- Mobile Terminated-Small Data Transmission (MT-SDT) for NR
- New Rel-18 NR FDD bands for RedCap
- Signal level Enhanced Network Selection
- IoT NTN enhancements

Multicast and Broadcast Services (MBS)

- 5G MBS Phase 2
- Enhancements of NR MBS
- UE pre-configuration for 5MBS
- Other MBS aspects

Other Areas:

- Edge Computing Phase 2
- Non-Public Networks Phase 2
- Access & Mobility and UE Policy
- Service-based items
- User Plane traffic and services
- Security and Privacy
- NR and LTE items
- Network automation
- Administration, Operation, Maintenance
- Charging

