

Update on progress made at CT#87-e meeting

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Agenda



- Brief Introduction of the 3GPP
- About TSG CT
- Rel-16: From where we were
- Rel-16: To where we are
- Q/A session

Brief 3GPP Introduction

*From 3G to 5G, providing a **complete system** description for **mobile** telecommunications, including hooks for **non-radio access** to the core network, and for **interworking with non-3GPP networks**.*

3G Project Partnership (Est. 1998)



Project Partnership including

- 7 regional standards bodies
- Market Representation Partners (MRP)

Cooperation with external SDOs/Fora

- E.g. ITU, IETF

About 700 companies

- from 45 countries
- about 2500 delegates

Work based on

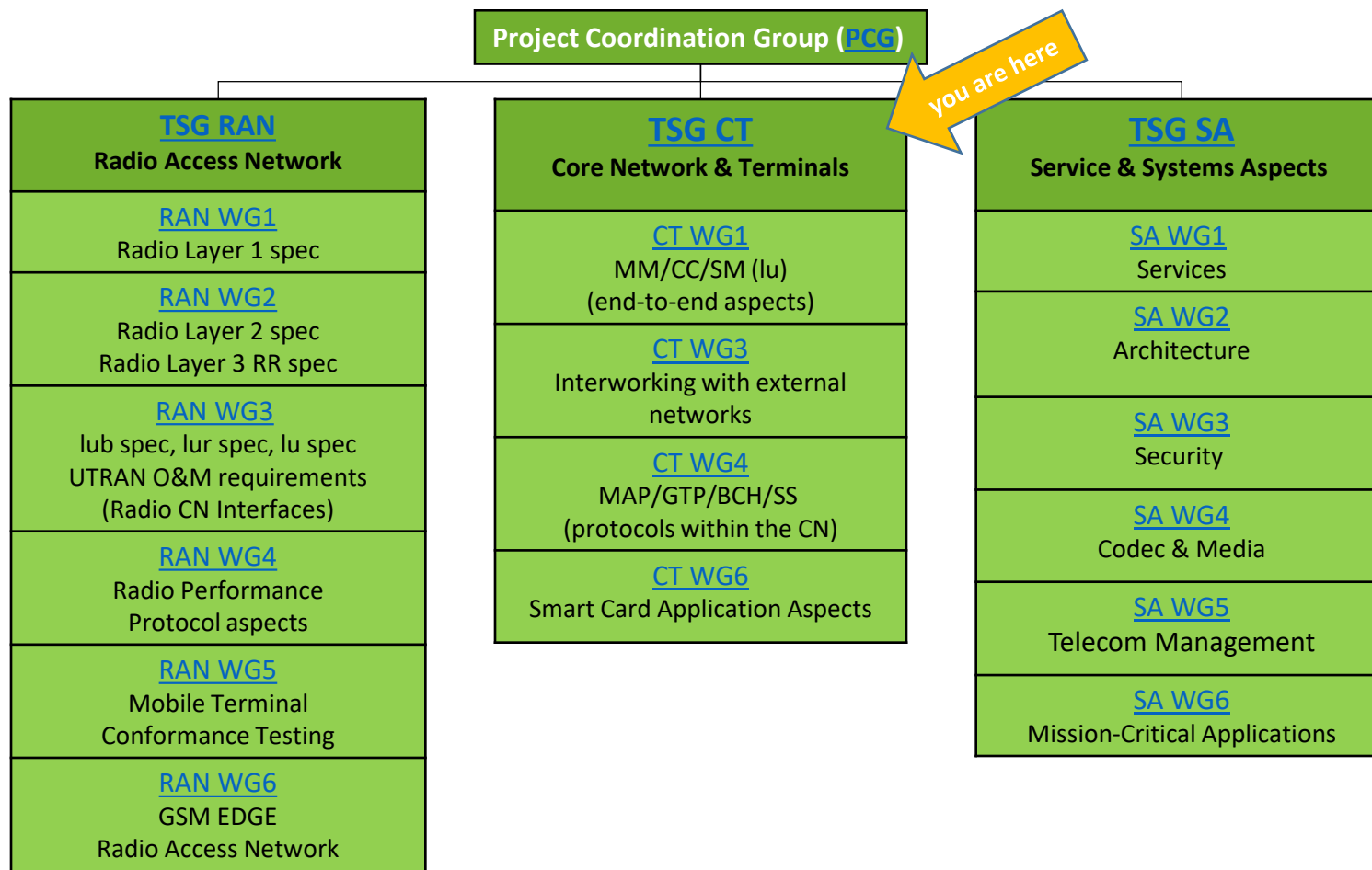
- Regular face-to-face meetings
- Pro-activity & Contributions
- Consensus

A new release every 15 months

- Complete set of features, managed as Work Items



3GPP Organisation



- 3GPP – The 3rd Generation Partnership Project (“the project”)
- PCG – Coordination of 3GPP by the [Organizational Partners \(OPs\)](#)
- [Technical Specification Groups \(TSGs\)](#) covering different aspects of 3GPP system & process
- TSGs are organized into **Working Groups (WGs)**
- TSGs meet 4 times a year in the so-called “Plenary meetings” (co-located)
- WGs meet once or more per plenary cycle (mostly not co-located)
- Each TSG and each WG elects its own leadership (2 year terms / 2 terms)
- Technical work is mostly done in WGs
- Overall planning and coordination in TSGs

About TSG CT

From circuit-switched network to IP-based system

From mobile terminal to any device...

From a telco-centric network to a flexible service enabler platform...

TSG Core Network and Terminals (TSG CT)



Network Enabler factory

- Transforming service functional requirements into network enablers

Responsible of detailed protocol specifications for:

- Control and user signaling planes
- User and terminal mobility management
- Call/session control
- Policy, charging QoS enforcement
- Interworking with external networks
- Network capabilities exposure
- 3GPP smart card applications, and the interface with the Mobile Terminal



Rel-16: From where we were...

Release 15: New Paradigm with 5G

Clear Control/user planes separation

- Inherited from 4G

In the User plane:

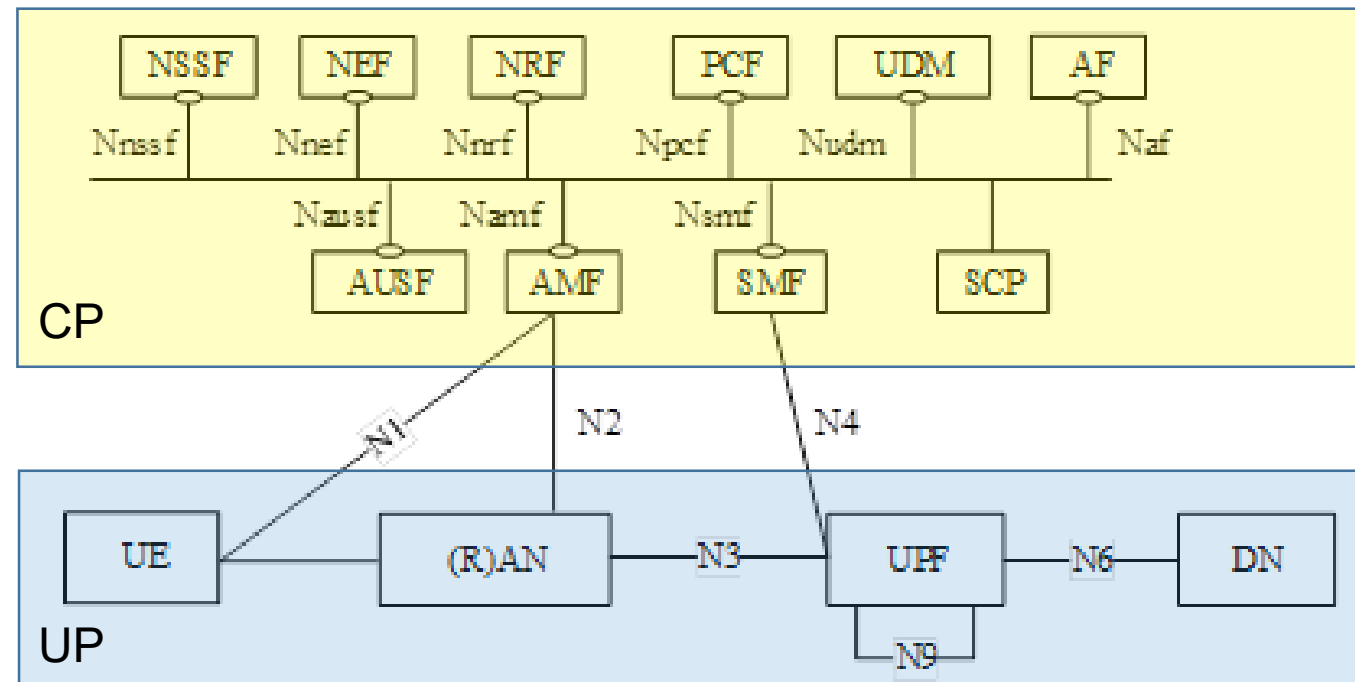
- Reuse of GTP, as in 3G and 4G

UE to CN signaling interface

- Enhancement of the existing 4G interface

In the Control plane

- New Service-based Architecture
- "Service" instead of "Node" management
- Service discovered and consumed by any NF
- Possibility of flexible virtualized deployment
- Native support of 3rd parties network Exposure



5G System architecture

Release 15: A major achievement



Aim: Provide a flexible platform

- Virtualization, Cloud-friendly
- Programmable, stateless, scalable
- Ease the introduction of any new feature/service

Main Decision: Define RESTful APIs

- Use of HTTP/2 as transport protocol
- API Design based on the REpresentational State Transfer (REST) principles
- JavaScript Object Notation (JSON) as a data format
- OpenAPI as the interface definition language
- Standardized versioning mechanism
- Basic overload control mechanism

Release 15: Not limited to SBA

- Evolution of the 4G Core to support 5G access networks (NSA)
- Interaction between the 5G CN and IMS
- Support of Mobile Communication System for Railways
- Standardized northbound API for M2M service
- Enhancement of existing services
 - Mission critical services
 - Cellular IoT
 - V2X
 - Etc.
- Maintenance of existing protocol specifications

Rel-16: To where we are

Release 16: Building on core capabilities



- Introduction of new services (Steering of roaming, LCS, etc.)
- Storage mechanism for stateless/dataless NF of any type
- User data interworking mechanisms between 4G and 5G
- Load and Overload Control mechanisms for 5GC
- new services for a better IMS integration
- Transfer of Policies for Background Data Transfer
- Interworking between NR and UTRAN Voice Call Continuity

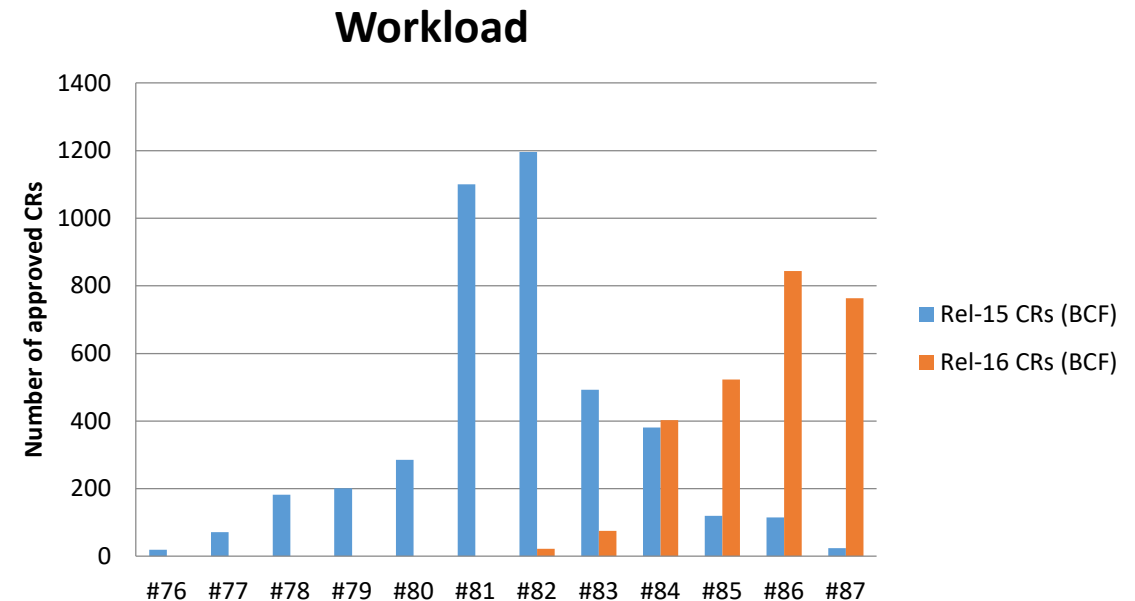
Release 16: More support to Verticals



- 5G Enablers for Network Automation
- Support of time sensitive communication
- Common capabilities for a Service Enabler Architecture Layer
- Cellular IoT functionality for 5G System
- Support of advanced V2X services over 5G
- Further protocol enhancements for
 - Mission Critical Services
 - Public Warning System
 - Future Railway Mobile Communication System

Release 16: Status

- Release 15 "frozen" since 06/19
- Since, CT actively works on Release 16
- Impacts of COVID-19
 - All Face-2-face meetings cancelled and replaced by e-meetings in Q1 2020
 - Less efficient even the production was better than expected
- Q2 dedicated to the completion of the remaining work (~10%)
- Rel-16 to be frozen in 06/20



Links



- 📶 About 3GPP <https://www.3gpp.org/about-3gpp/about-3gpp>
- 📶 3GPP News <http://www.3gpp.org/news-events>
- 📶 Release 15 Overview <http://www.3gpp.org/DynaReport/21915.htm>
- 📶 Release 16 Overview (draft) <http://www.3gpp.org/DynaReport/21916.htm>

Abbreviations



- 3GPP – 3rd Generation Partnership Project
- IM – Individual Member (of an OP)
- MRP – Market Representation Partner (of 3GPP)
- OP – Organizational Partner (of 3GPP)
- PCG – 3GPP Project Coordination Group
- SI – Study Item
- TR – Technical Report (informative, e.g. for SI)
- TS – Technical Specification (normative)
- TSG – Technical Specification Group (of 3GPP)
- WG – Working Group (under a TSG)
- WI – Work Item
- WP – Work Plan / Work Programme

Questions ???

Thank you!