



3GPP and Broadband Communication Applied to Critical Communications

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Outline



- 📶 What is 3GPP, how to work in this organization
- 📶 3GPP Broadband Communication Overview
- 📶 Critical Communications, Features and Prospects
- 📶 Conclusions

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How Critical Communications
standardization succeeds in 3GPP

Partnership (1/2)



Organizational Partners (SDOs)

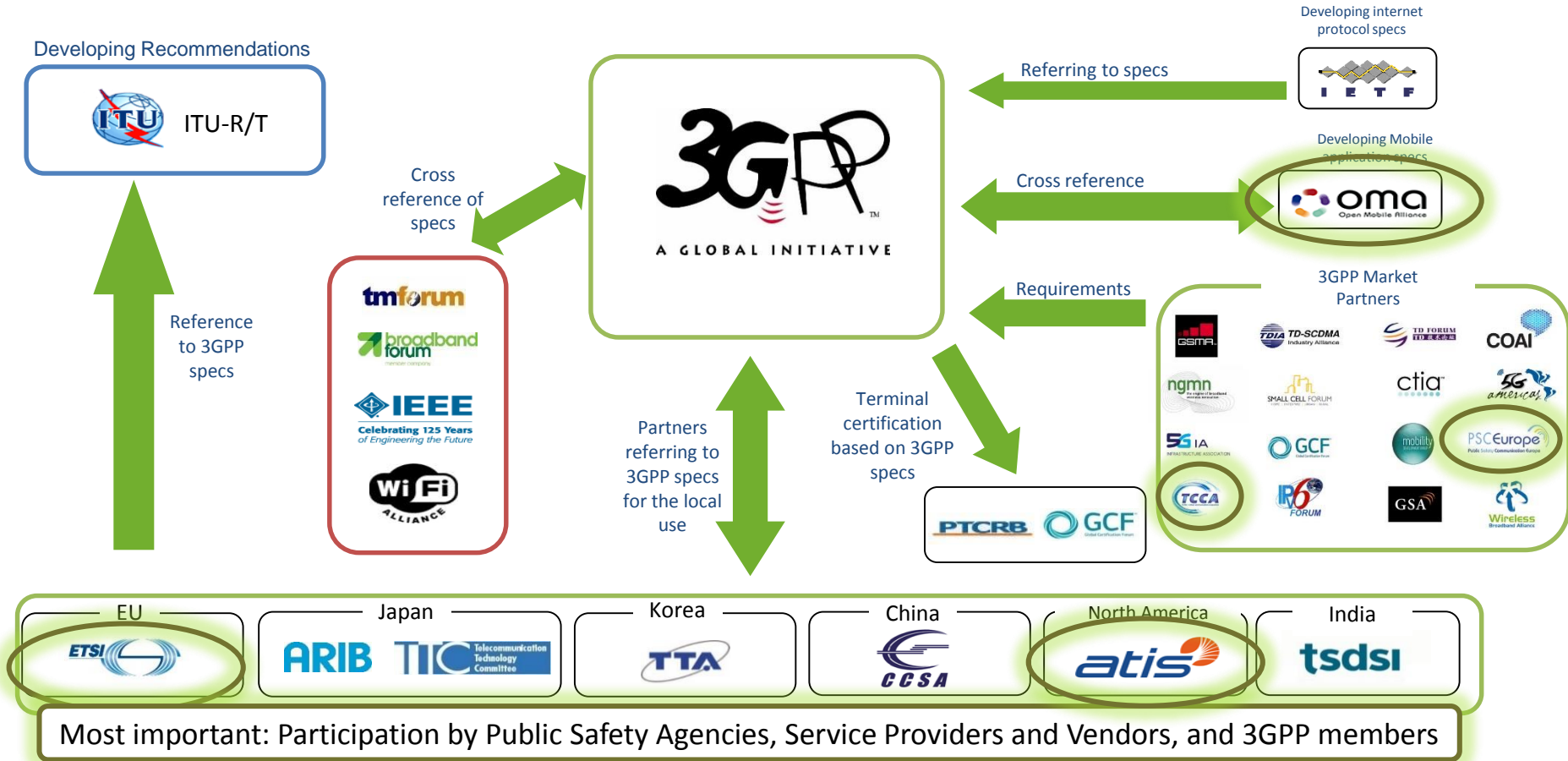
- ARIB (Japan)
- ATIS (USA)
- CCSA (China)
- ETSI (Europe)
- TTA (Korea)
- TTC (Japan)
- TSDSI (India)



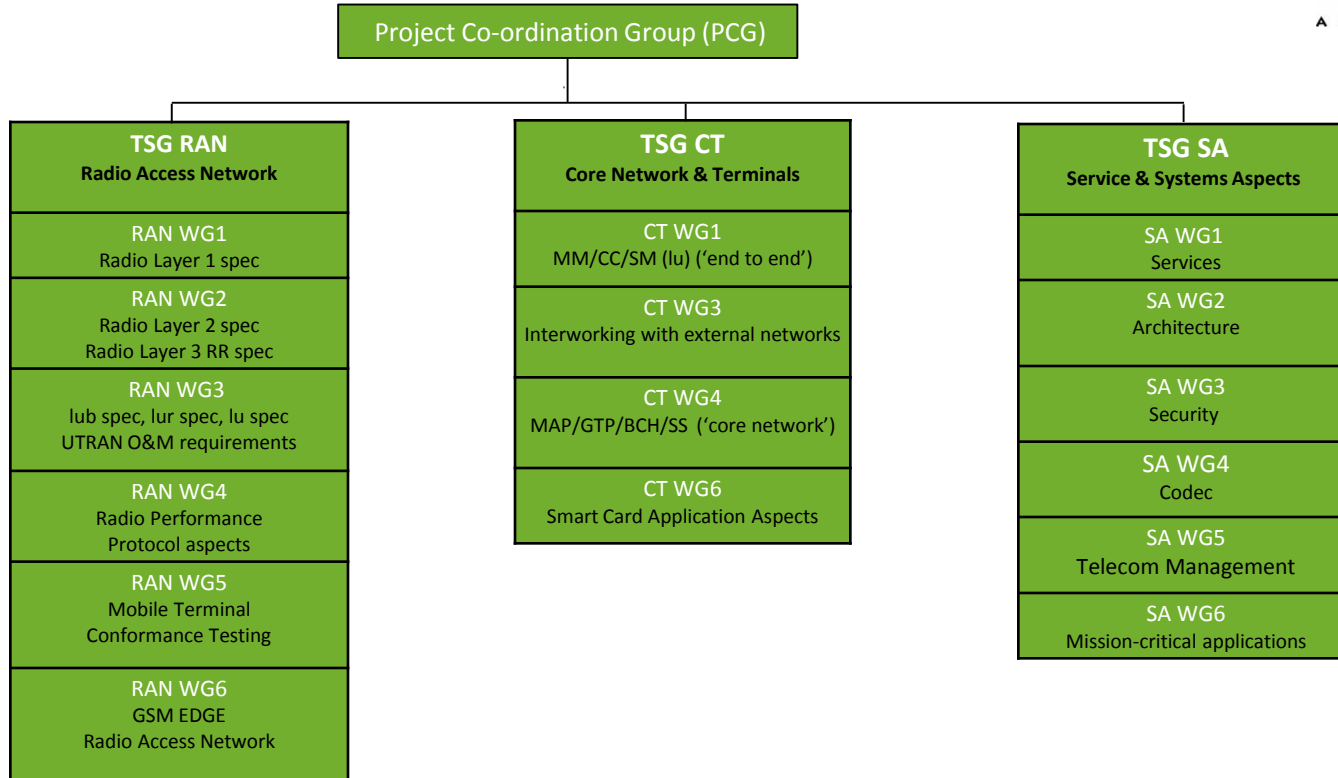
The 3GPP Eco-system



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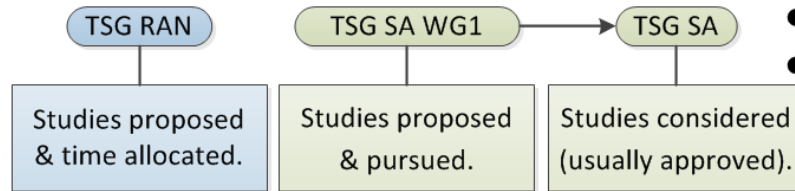


Working Groups



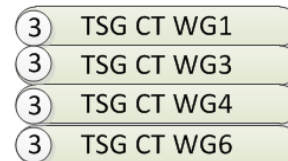
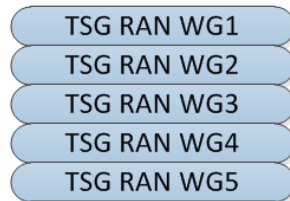
Getting Work Done in 3GPP

Initiating Investigation



- Activity is **contribution driven**.
- Progress depends on activity by multiple contributing 3GPP members.

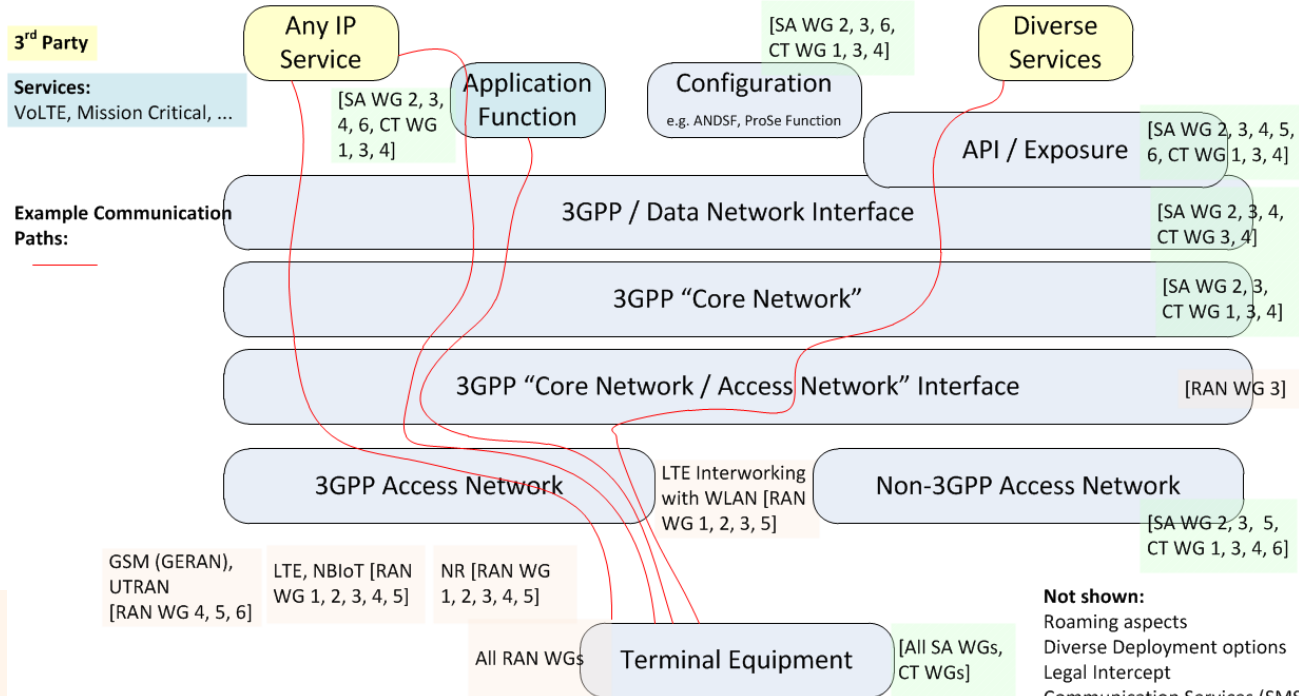
Study and Specification



- Ordering overlaps, is not sequential.

- Ordering overlaps, may extend over several releases.
- Progress depends on activity by stakeholders: not every member must attend all WGs.

3GPP Broadband Communication Overview



- **enTV feature** increases broadcast range for LTE eMBMS
- **FS_5GSAT studies** Satellite Access in 5G

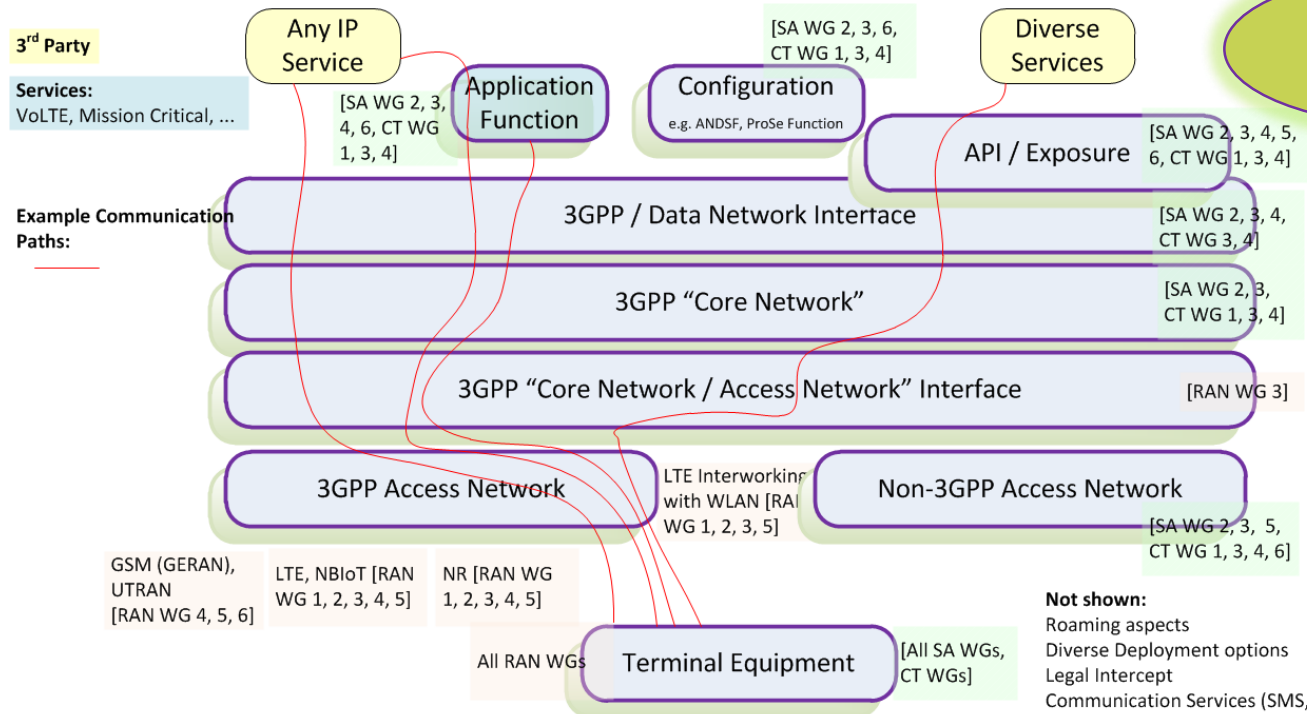
Not shown:

- Roaming aspects
- Diverse Deployment options
- Legal Intercept
- Communication Services (SMS, Unicast Data, Broadcast Data, Device to Device Communication and Discovery, etc.)

3GPP Broadband Communication Overview

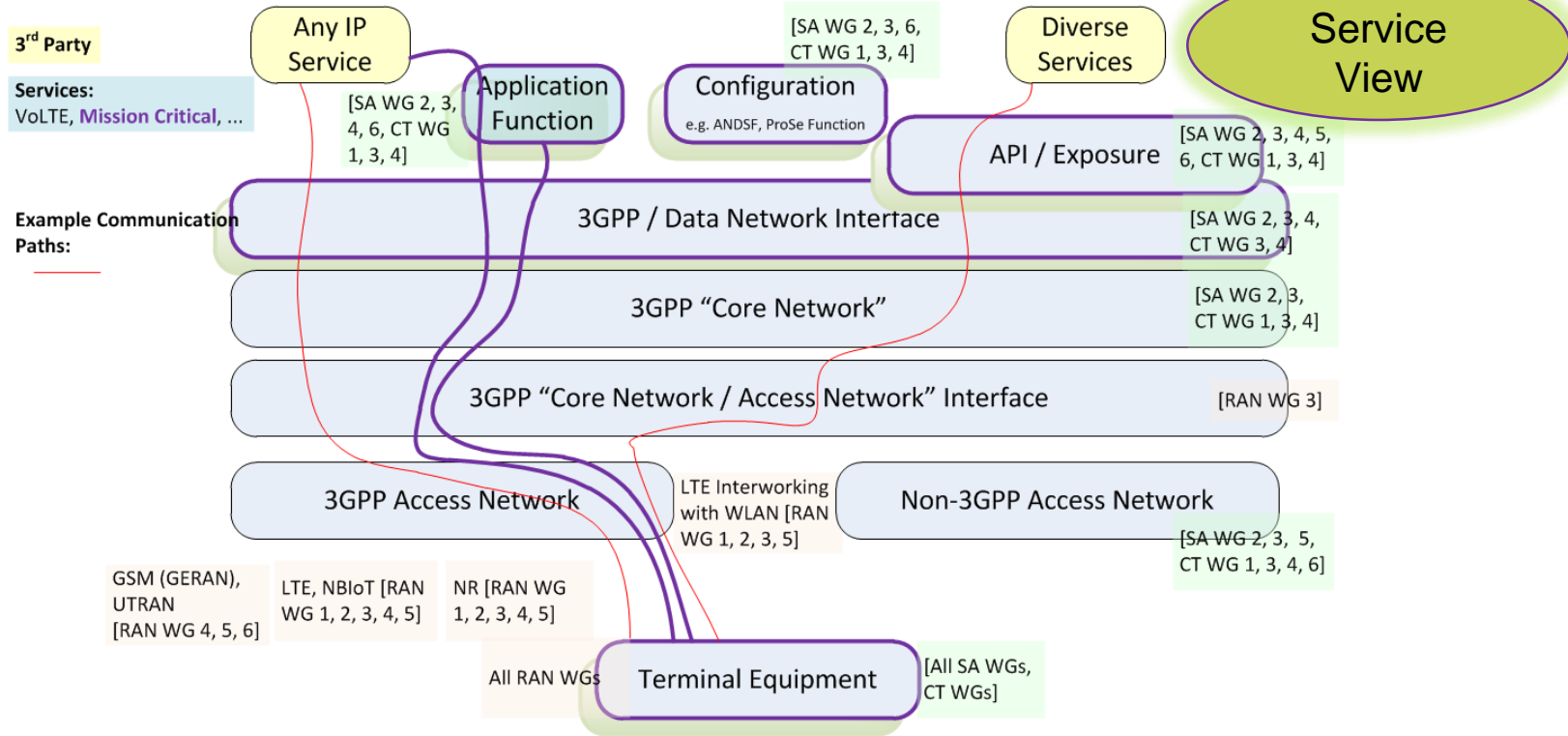


Architecture View

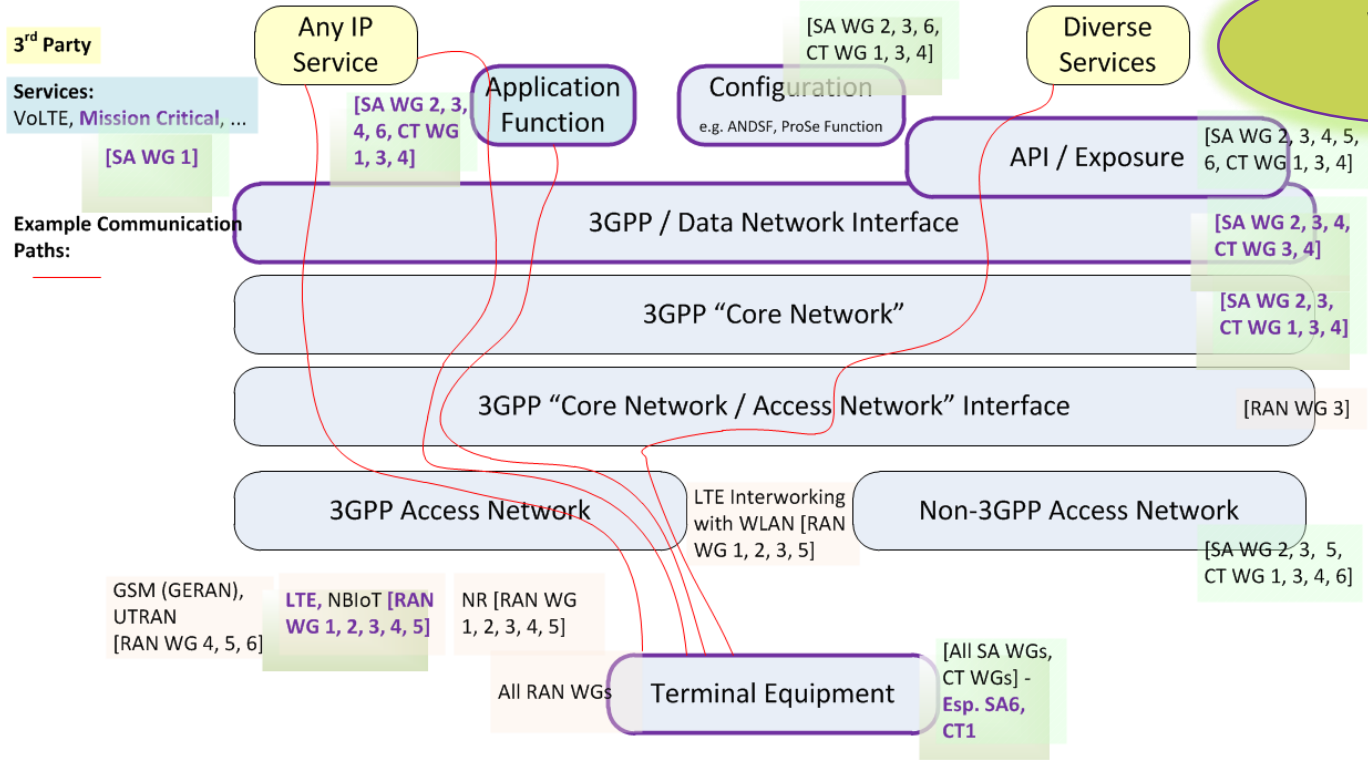
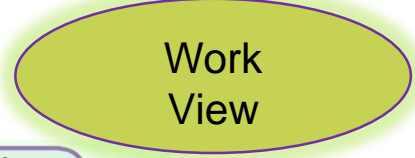


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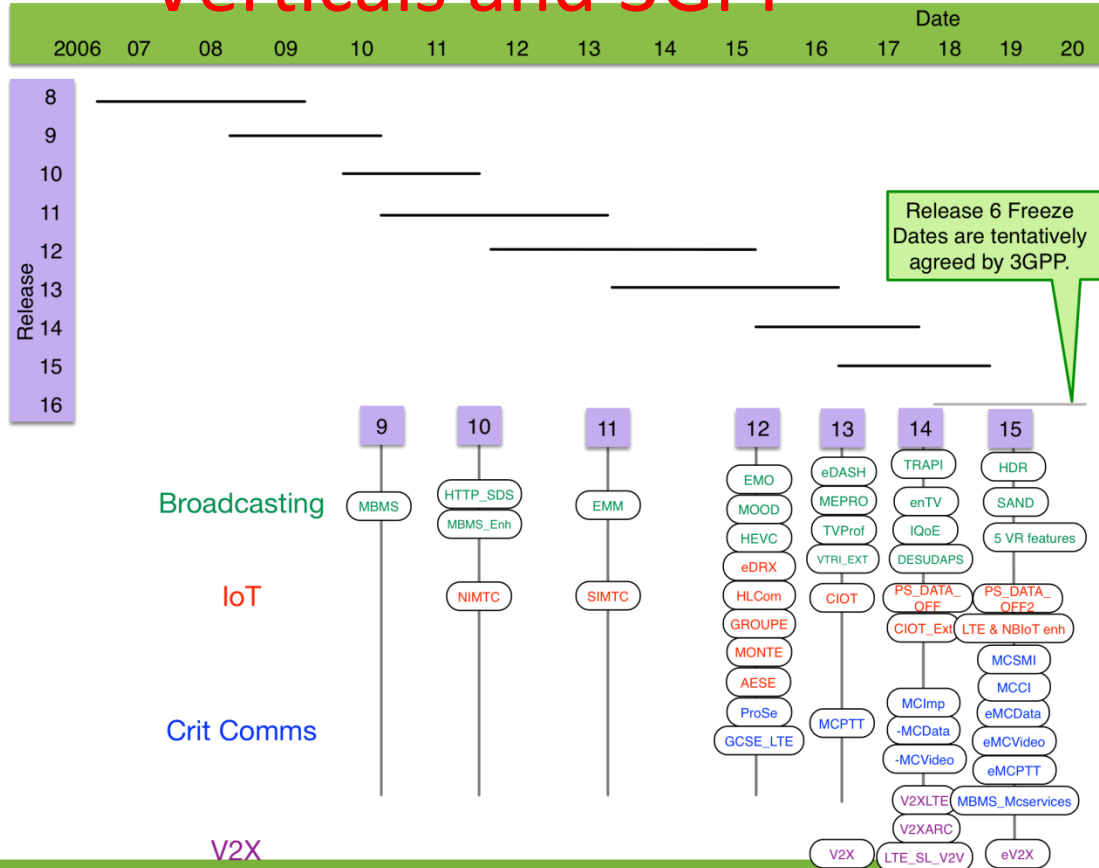
3GPP Broadband Communication Overview



3GPP Broadband Communication Overview



Verticals and 3GPP



Release 6 Freeze Dates are tentatively agreed by 3GPP.

Critical Communications – Features

Rel-12

- Proximity Services
- Group Communication Service Enablers over LTE

Proximity Services

Device to Device Communication, UE to Network Relay

Group Communication

Unicast and Multicast/ Broadcast communication to efficiently transmit to a group; managed by an application.

End-to-End Service

Enabler

Rel-13

- Mission Critical Push to Talk
- Proximity Services Enhancements

MC Push To Talk

User authentication and service authorization; security; configuration; de/affiliation; group calls on- and off-network; private calls on- and off-network; simultaneous sessions; dynamic group management; floor control on- and off-network; pre-established sessions; resource management; bearer control; location configuration, reporting and triggering; use of UE-to-Network relays.

Rel-14

- Enhanced Mission Critical Push to Talk
- Mission Critical Data
- Mission Critical Video
- Mission Critical Common Services

MC Common Services

For all MC services: User authentication and service authorization; security; configuration; de/affiliation; dynamic group management; identity management.

Mission Critical Data

Common + Short Data Service; File Distribution; Transmission Control; Disposition Notification...

Mission Critical Video

Common + Private & Group Video Call; Transmission Control

Rel-15

- Enhanced Mission Critical {Push to Talk, Video, Data}
- MC Communication Interworking between LTE and non-LTE Systems
- MC system migration and interconnection
- MBMS usage for MC communication services

MC Communication Interworking

LMR/PMR interworking with MC Services

MC System Migration and Interconnection

Inter-agency / inter-server scenarios

Critical Communications Prospects



- 📶 Core and specific MC services continue to be enhanced, release by release.
 - Ongoing evolution and enhancement of all aspects (media plane, security, services [push to talk, video, data], signalling, interworking, migration/interconnection...)

- 📶 Currently under study, potential features in Rel-16:
 - Future Mobile Railway Communication System
 - MBMS APIs for MC Services

Conclusions



- 📶 The 3GPP organization welcomes new participants.
- 📶 Much of 3GPP critical communication standards is (potentially) **applicable to other verticals**, e.g. rail communication, marine communication.
- 📶 Please consider getting involved and participating in the work.

For more Information:



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www.3gpp.org

Search for WIDs at <http://www.3gpp.org/specifications/work-plan> and http://www.3gpp.org/ftp/Information/WORK_PLAN/ (See excel sheet)