



INFRASTRUCTURE ASSOCIATION





3GPP SA Rel-18 Workshop Debrief

eWS Sept. 2021

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Pre-Std WG Telco Oct 20th, 2021

3GPP eWS Agenda

-  Sept. 9, 2021 – 12:30 UTC to 15:30 UTC
 - AI#1 Start of workshop, introduction, agenda approval
 - AI#2 Presentations of Rel-18 status and plans from TSG SA WG chairs
 - AI#3 Presentations from companies on Rel-18 views
-  Sep. 10, 2021 – 12:30 UTC to 15:30 UTC
 - AI#3 Presentations from companies on Rel-18 views
 - AI#4 Closing of Workshop
-  Main purposes
 - Bring all of SA up-to date on the status of and plans for Rel-18
 - Give companies the opportunity to indicate, discuss and possibly synchronize their Rel-18 plans
 - Offload the main SA plenary meeting
 - Prepare for joint session with RAN and CT on Rel-18 planning during plenary week
-  Workshop has no decision power, all documents are for information only

Rel-18 status and plans from TSG SA WG chairs

Rel-18 status and plans from SA WG chairs

WG1 (SP-210654)

- Rel-18 to freeze Q4 2021

New Features (TS 22.261)

- AI/ML Model Transfer in 5GS
- 5G Timing Resiliency System
- Personal IoT and Residential Networks
- Ranging Services
- Networks Providing Access to Localized Services
- Vehicle-Mounted Relays
- Tactile and Multi-Modality Communication Services

- Subscriber-Aware Northbound API access
- Support for Service Function Chaining
- Data Integrity in 5GS
- Signal Level Enhanced Network Selection

Enhancements (TS 22.261)

- Evolution of IMS Multimedia Telephony Service
- Enhanced Access to and Support of Network Slice

Verticals + NTN focused (TS 22.261, TS 22.104, others)

- Smart Energy and Infrastructure
- FRMCS Evolution

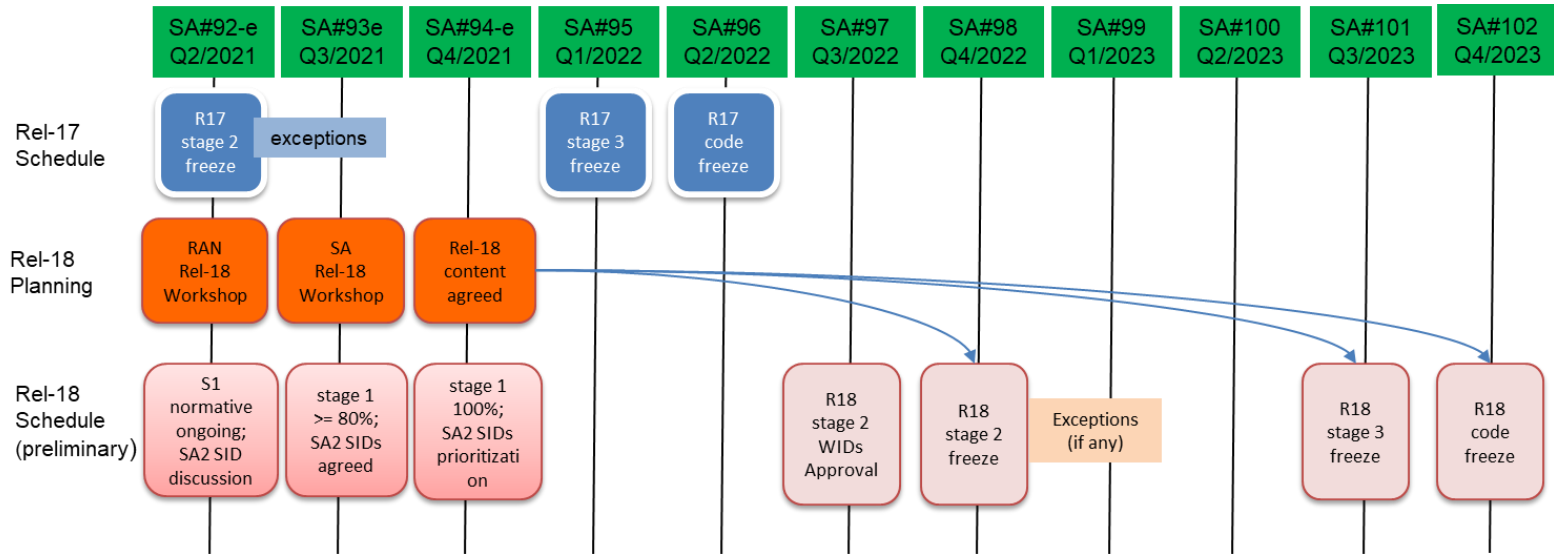
- Low Power High Accuracy Positioning for Industrial IoT scenarios
- Service Exposure Interfaces for Industry

- Sharing Administrative Configuration between Interconnected MCX
- Ad Hoc Group Communication in Mission Critical Services
- MPS when Access to EPC/5GC is WLAN

- 5GS with Satellite Backhaul
- 5GS with Satellite Access to Support Control and/or Video Surveillance

Rel-18 status and plans from SA WG chairs

WG2 (SP-210653)



Rel-18 status and plans from SA WG chairs

WG2 – SID Requiring Further work

TD#	SID Title	Source
S2-2106795	New Study on the support for 5WWC, Phase 2.	Nokia, Nokia Shanghai Bell
S2-2106796	New WID on MPS when access to EPC/5GC is WLAN .	Peraton Labs, CISA ECD, Verizon UK Ltd, AT&T, T-Mobile USA
S2-2106797	New SID on 5G System Support for AI/ML-based Services.	OPPO, Samsung
S2-2106798	New SID: Study on 5G Timing Resiliency and TSC enhancements.	Nokia, Nokia Shanghai Bell, Verizon, AT&T, Siemens, Sennheiser, Huawei, HiSilicon, Matrixx, ZTE, China Unicom, Vivo, NTT Docomo, ETRI, Xiaomi.
S2-2106799	New SID: Study on enhancement of 5G AM Policy.	China Telecom
S2-2106800	New SID: Study on Access Traffic Steering, Switching and Splitting support in the 5G system architecture; Phase 3.	Lenovo, Motorola Mobility
S2-2106801	New SID: New SID on Network Slicing Phase 3.	ZTE, LG Electronics, Nokia, Nokia Shanghai Bell, Samsung, Alibaba, AT&T, CATT ,China Telecom, China Unicom, Convida Wireless LLC, Intel, InterDigital, Lenovo, Matrixx, Motorola Mobility NEC, NTT Docomo, OPPO, Sanechips, T-Mobile USA, Spreadtrum, Tencent,
S2-2106802	New SID: Study on enhanced support of Non-Public Networks phase 2.	Ericsson, Futurewei, Convida Wireless, Charter, China Unicom, ETRI; Cisco, China Mobile, Lenovo, Motorola Mobility, Qualcomm, ZTE, Philips, Intel
S2-2106803	New SID on Study of Further Architecture Enhancement for UAV and UAM.	Qualcomm Incorporated

Rel-18 status and plans from SA WG chairs

WG2 – SID Requiring Further work

TD#	SID Title	Source
S2-2106804	New SID: Study on enhancement of 5G UE Policy	Intel, Qualcomm Incorporated, OPPO, ZTE, NTT Docomo, vivo, Telecom Italia, China Unicom, Huawei, HiSilicon, Vodafone, CATT, MediaTek, KPN, China Telecom, CMCC, KDDI, Xiaomi, Apple, Verizon UK Ltd, Samsung, Lenovo, Motorola Mobility, LG Electronics, Rakute
S2-2106805	New SID: Architectural enhancements for 5G multicast-broadcast services Phase 2.	Huawei
S2-2106806	New SID on Study on Proximity based Services in 5GS - Phase 2.	CATT
S2-2106807	New Study on enhancement of support for Indirect Communications between Vertical Network and Public Network.	China Telecom
S2-2106808	Study on Enablers for Network Automation for 5G - phase 3.	China Mobile, vivo
S2-2106809	New SID on Enhancement to the 5GC LoCation Services Phase 3.	CATT, Huawei
S2-2106812	New SID on Enhancement of support for Edge Computing in 5G Core network - phase 2.	Huawei, HiSilicon, Alibaba, China Unicom, Convida Wireless, Intel, Toyota, vivo
S2-2106810	New SID: Study on architecture enhancement for tactile and media services .	China Mobile, Huawei, Hisilicon, Xiaomi
S2-2106811	New SID: Study on UPF enhancement for control and SBA .	China Mobile, AT&T, Vodafone, CATT, Tencent, Deutsche Telekom, SK Telecom, Sandvine

Rel-18 status and plans from SA WG chairs

WG2 – SID Requiring Further work

TD#	SID Title	Source
S2-2106813	New SID on Personal IoT and Residential Networks architecture.	Vivo Mobile Communications Ltd, CATT, China Telecom, Convida Wireless, InterDigital, KPN, OPPO, Spreadtrum Communications, T-Mobile USA
S2-2106814	New SID on Study of Architecture Enhancement for Vehicle Mounted Relays.	Qualcomm Incorporated
S2-2106815	New SID: Study on System Enabler for Service Function Chaining.	Intel, Telecom Italia, Spreadtrum, Sandvine, Convida Wireless, KPN, InterDigital, Microsoft, Matrixx, KDDI, AT&T, Deutsche Telekom, Cisco, Charter Communications
S2-2106816	New SID: Study on system architecture for next generation real time communication services.	China Mobile, China Unicom, Huawei, Hisilicon, ZTE, CATT, Vivo

 Other SID were flagged as “with Major Concerns” or “Duplicated”

Rel-18 status and plans from SA WG chairs

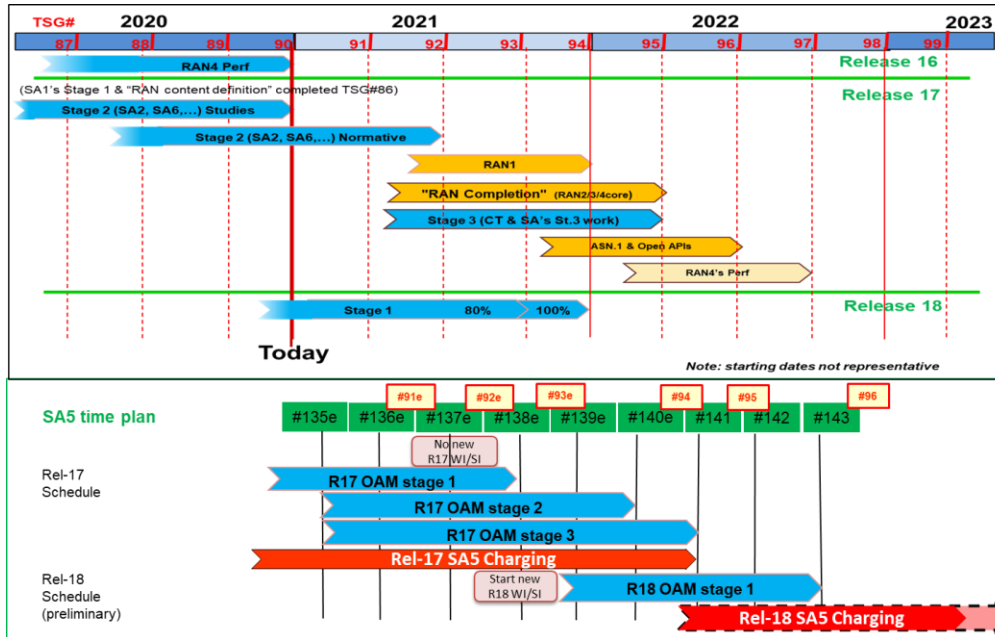


WG4 (SP-210643)

- Rel-18 plan to be 60% agreed Nov 21 SA4#116, 100% agreed on Feb 22 SA4#117
- **New Immersive media types and formats definition**
 - 5G video codec & IVAS codec (including ATIAS, Multimedia telephony/MTSI/System support)
 - New media e.g. AR/MR, sensory input, Haptics
 - QoE metrics for these new media types
 - AI-based media enhancements
- **XR (AR/VR/MR and Cloud Gaming) Services**
 - Unified framework on 5G Core/RAN/UE
 - Enable collaboration between MNOs and 3rd party service providers
 - Unified framework proposed: 5G-RTC architecture
 - Conversational service: MTSI extension (DC-MTSI)
- **Media Distribution enhancements**
 - Universal Access / Free to Air
 - Hybrid/Unicast/Broadcast/Multicast media delivery improvements as appropriate
 - Enhancing quality of traditional media
 - Media handling of Personal IoT networks
- **Support Architecture evolutions**
 - Uplink enhancements : A/V Production, Media Contribution
 - Edge Compute: split rendering, network-based media processing
- **Approaches for Rel-18**
 - Focus on 5GMS adoption and stability
 - Consistent Rel-18 plan to address 5G-Advanced service requirements
 - Make sure we focus on commercially relevant features
 - Provide implementation support: Tooling/Software/Interop
 - Leverage deployed multimedia technologies
 - Proposal under discussion to define a Service Media Enabler framework

Rel-18 status and plans from SA WG chairs

WG5 (SP-210626)



Rel-18 status and plans from SA WG chairs

WG5 (SP-210626)

Rel18 Charging:

- Will not start before Jan. 2022
- A set of ongoing CH Rel-17 Studies resulting in Rel-18 normative work:
- Enhancement of Nchf charging services
- 5G roaming charging architecture for wholesale and retail scenarios
- Rel-18 SA2 & SA6 studies considering charging aspects to be investigated
- Rel-18 SA2 & SA6 normative work which need to be covered by charging aspects

Rel-18 status and plans from SA WG chairs

WG5 (SP-210626)

Rel18 OAM Topics:

- 1. Enhancement of **autonomous network** levels, with the following
- 2. Enhanced **intent driven management** services for mobile network
- 3. Study on **AI/ML management**
- 4. Self-Configuration of RAN Nes
- 5. Enhancement of **service-based management** architecture
- 6. **Digital Twin** for Network Management
- 7. **Federated Learning** for Mobile Network Management
- 8. Further enhancements into Management Data Analytics (MDA)
- 9. Enhancement of the management aspects related to NWDAF
- 10. Study on enhancement **management of non-public networks**
- 11. Study on Deterministic Service Assurance Management
- 12. Key Quality Indicators (KQIs)for 5G **service experience**
- 13. **Energy Efficiency** of 5G
- 14. Management aspects of traffic scheduling in **terrestrial and satellite** converged network
- 15. Enhance edge computing management
- 16. Incident Management (Fault Management Evolution)
- 17. Network Slice Provisioning Enhancement

Rel-18 status and plans from SA WG chairs

- 🌿 WG6 (SP-210625) Rel-18 addresses enhancements and new focus areas across 3 themes
 - **Critical Communications** (MC over 5GS, Gateway UE, Railways Interworking)
 - **Service Frameworks** (SEAL+, CAPIF+, Edge Computing+, NW Slicing, Data delivery, Location, Analytics, SFC)
 - **Vertical Enablers** (V2X+, UAS+, IoT, Factories, Energy, Data Integrity)

- 🌿 WG6 New Focus Areas:
 - Study on Application Capability Exposure for IoT Platforms (VE)
 - Study on 5G-enabled fused location service capability exposure (SF)
 - Study on Application Data Analytics Enablement Service (SF)
 - Study on application layer enablers for Smart Grid (VE)
 - Study on Service Function Chaining Support in Edge data networks (SF)
 - Study on Application Enablement for Data Integrity Verification Service in IoT (VE)

Rel-18 Presentations From Companies

Company Presentations on Rel-18 View



46 Presentations

- 9 from MNOs, 4 from group of MNOs
- 6 from Vendors
- 4 device manufacturer
- 4 from IC manufacturer
- 5 from verticals, 3 From group of verticals



Verticals:

- Maritime Requirements
- On media delivery
- Vehicular communications
- healthcare
- automotive industry-Passive IoT
- XR/VR Gaming
- Industrial applications
- Public Safety

Company Presentations on Rel-18 View

- 📶 Operators Joint View (SP-210638)
 - AT&T, Charter Comm., CMCC, DT, Orange, SK Telecom, TI, Telefonica, Telia, Telstra, T-Mobile, Verizon, Vodafone
- 📶 Rel-18 = 5G-Advanced, middle point 5G - 6G, deserves a relative **long (18months)** release
- 📶 Prioritize real 5G network issues **based on deployment feedback** from the fields
- 📶 Key enhancements or **new market opportunities**:
 - eXR, AI/ML-based Services, new services using low latency regarding to QoS
- 📶 Complete key aspects of **existing features**:
 - 5WWC, 5MBS, Proximity Services, Edge Computing.

Company Presentations on Rel-18 View



Verticals - Maritime Requirements (SP-210601)

- SyncTechno Inc., IALA, KASS, Korean Register
- **Priorities:**
 - Enhancements to Proximity Services
 - Vehicle Mounted Relay (VMR)
 - Enhancements to 5G over satellite
 - Multi-connectivities
 - Enhancements of 5G multicast-broadcast services
 - Enhancements of NPN (Non-Public Network)
 - Enhancements of 5G LAN-type services

Maritime Autonomous Surface Ships (MASS)



Image source: www.KASSproject.org

**Coverage /
Positioning**
(INCLUDING THE SUPPORT
OF MULTI-CONNECTIVITIES)



**Broadcasting,
IoT etc.**



**Globally
harmonized
interoperability**



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Company Presentations on Rel-18 View



Verticals – Media (SP-210602, SP-210617)

- BBC, 5G MAG (+ ESA, Qualcomm, Saankhya, ONE Media 3.0, EBU, BBC)
- Technical Enhancements:
 - enhance media delivery over PLMN
 - universal access to unicast/multicast/broadcast services.
 - Receive-only Mode/Free-to-Air for 5MBS.
 - UL enhancements (higher bit rates/ QoS).
- Focus:
 - Media Distribution
 - Media Production and contribution
- Study Proposals:
 - 5G MBS enhancements: Receive-only Mode
 - 5G Media Streaming (UL enhancements vs. AV Production requirements)

Company Presentations on Rel-18 View



Verticals – Vehicular (SP-210647, SP-210619)

- 5GAA, BMW Brilliance Automotive
- **Priorities**
 - Positioning enhancements
 - LTE/NR-V2X sidelink co-channel coexistence
 - Sidelink carrier aggregation (CA)
 - Enhancements to sidelink power saving
 - Predictive QoS
 - UE-to-UE relay
 - NR-V2X sidelink adjacent-channel coexistence with non-3GPP technologies
 - Enhancements for vehicular distributed antenna system (DAS) UE transmission
- **New Use Case (actually more IoT)**
 - Passive IoT enabled Perception



Verticals – Industrial Communication (SP-210635)

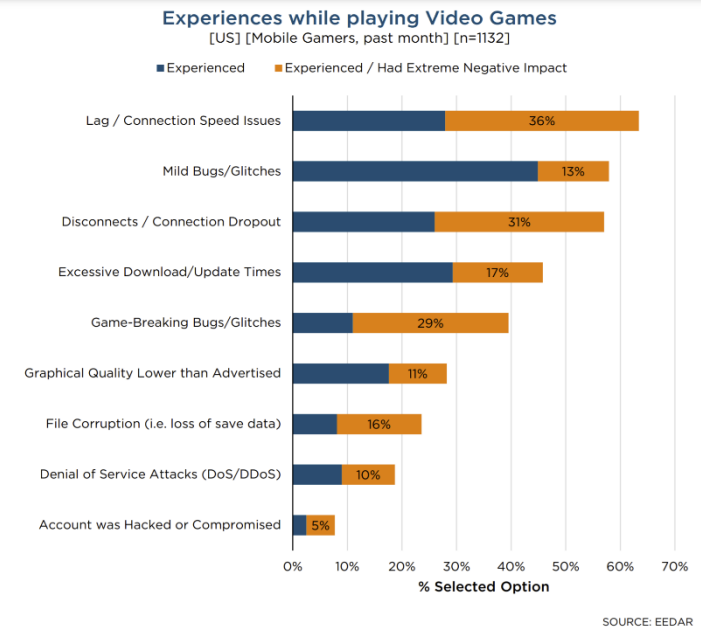
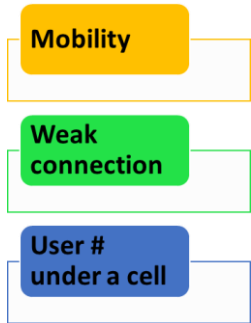
- Siemens
- TSC
 - Distributed TSN
 - Support of DetNet
- Enhancement of Vertical-LAN services (group communication)
- Enhancement of service exposure via NEF
- NPN:
 - onboarding
 - NF deployment in PNI-NPNs
- Proximity-based services

Company Presentations on Rel-18 View



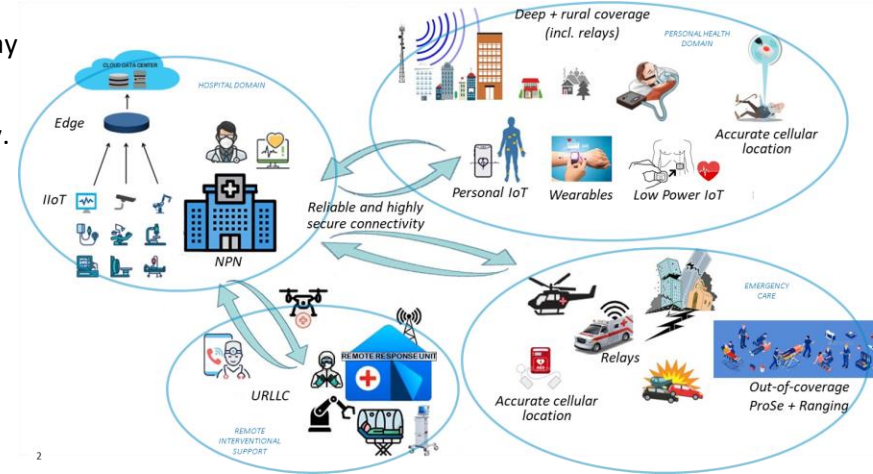
Verticals – Gaming (SP-210630)

- Tencent
- HDRLL: high data rate and low latency
 - Game contest,
 - Tele-operated driving
 - real-time Digital Twin network



Verticals – Healthcare (SP-210642)

- Philips
- ProSe relay for reliable/ubiquitous medical (I)IoT devices
- small battery devices, Multi-hop, Multi-leg, EE-to-UE relay
- Vehicle Mounted Relays
- Sidelink positioning/ranging - improved location accuracy.
- NPN, non-3GPP access, Proximity Services, Location Services, Edge Computing, onboarding/provisioning.
- Personal IoT Networks and Residential networks
- Localized networks (e.g. temporary emergency network)
- Support for Passive IoT
- 5G integrated sensing/radar capabilities for remote physical activity detection and monitoring.

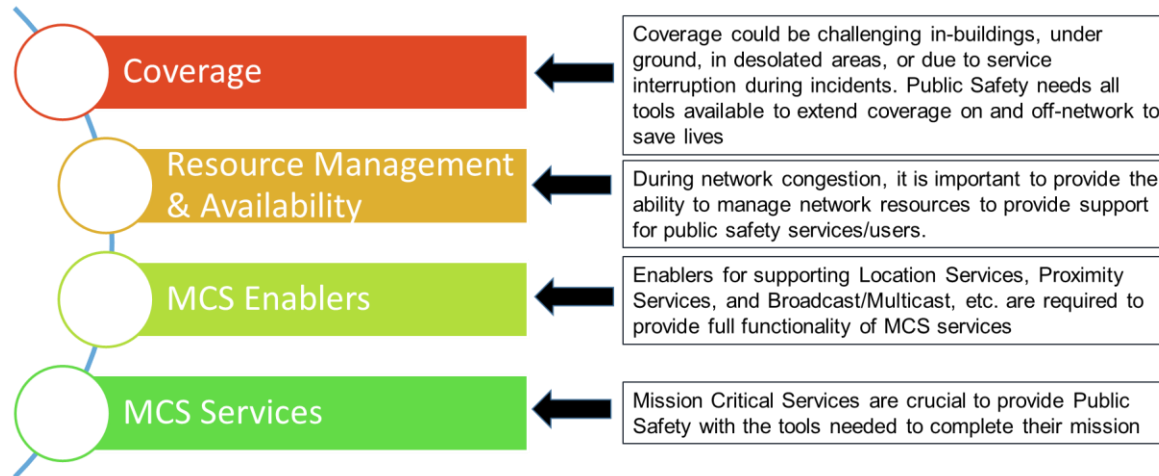


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Company Presentations on Rel-18 View

Verticals – Public Safety (SP-210615)

- FirstNet, AT&T, UK Home Office, Netherlands Police, Erillisverkot, SyncTechno Inc, BDBOS, Nkom, BMWi, MINISTERE DE L'INTERIEUR





INFRASTRUCTURE ASSOCIATION

Thank You

for more info, please browse

https://www.3gpp.org/ftp/tsg_sa/TSG_SA/Workshops/2021-09-09_Rel-18_Workshop