

Views on Rel-18

3GPP TSG RAN Rel-18 Workshop

June 28-July 2, 2021

Agenda Item: 4

RWS-210206

Source: Sony

Summary

- The Rel-18 RAN package should balance enhancements to existing features/topics while at the same time it should allow TUs for new features/topics.
 - It is reasonable to expect that RAN will need to free some TUs to make space for the introduction of new items in Rel-18.
- Rel-18 duration can aim to be 18 months long (June 2023 for RAN1 freeze, Sept 2023 for RAN stage-3 freeze), although return to F2F meetings from 2022 onwards will have to be clarified before making a commitment to any release duration.
- The following slides summarise Sony's input to the RAN Rel-18 Workshop.

List of Sony Input to the Rel-18 RAN Workshop

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<i>eMBB-driven Functional Evolution</i>		
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Agenda 4.1

RWS-210303: MIMO Enhancements in Rel-18

- MIMO Enhancements
 - Beam Management
 - Support UE-initiated/triggered beam management.
 - *For the use cases of MPE (maximum permissible exposure) avoidance and L1/L2-centric inter-cell mobility, UE can be the first one to identify such event(s) which requires NW-initiated UE reporting. To conduct time-sensitive reporting in the most recent occasion, UE should be able to initiate reporting.*
 - Multi TRP/Panel
 - Extend unified beam indication mechanism to multi-TRP/panel operation.
 - *Unified TCI states for either joint or separate DL/UL beam indication was defined in Rel-17 for single-TRP operation. To avoid NW configuring UEs with two parallel beam indication mechanisms, it should be extended to Multi-TRP/panel operation in Rel-18.*

RWS-210305: Advanced Modulation for 5G-Advanced

- Study advanced modulation techniques and their usefulness with attention to the following aspects:
 - High throughput.
 - Decoding in lower SINR than current modulation schemes.
 - New forms of CSI to support decoding of these modulations.

Agenda 4.2

RWS-210302: IoT features in Rel-18

The following proposals are made in this document:

- IoT-NTN:
 - Proposal 1: IoT-NTN is enhanced in Release-18 to support full functionality, striving to meet the 5G mMTC requirements. Enhancements should be considered in the areas of latency, coverage, battery life, connection density, mobility and the support of high value mMTC applications.
- NB-IoT / eMTC:
 - Proposal 2: Terrestrial NB-IoT and eMTC do not require enhancement in Rel-18.
- Redcap:
 - Proposal 3: Redcap is enhanced in Rel-18 to better support coexistence with URLLC devices and to support low power devices.
- Energy harvesting:
 - Proposal 4: Rel-18 includes enhancements to support devices that obtain their power from energy harvesting.

RWS-210304: Rel-18 Broadband URLLC

- Consider designs for broadband URLLC under a controlled environment where the UE has high SNIR coverage.
- Consider UL heavy URLLC scenarios and methods to support them.

Agenda 4.3

RWS-210301: Views on NR Positioning for Rel-18

- Further enhanced NR Positioning (NR FePOS) [Proposed to be Prioritised in Rel-18]:
 - Further enhancements on accuracy and latency reduction.
 - Enhancement to reduce UE power consumption, including supporting low power high accuracy.
 - Enhancement to support network efficiency.
 - Integrity aspects for RAT dependent positioning methods.
 - Study the requirements and solutions (including positioning techniques) to support Ranging based service requirements.
- Positioning aspects that are required in other topics:
 - V2X Positioning [Proposed to be Prioritised in Rel-18].
 - Specify technical solutions (particularly RAT dependent) to support relative and absolute positioning for V2X positioning according to the use-cases/requirements in TR 38.845.
 - Positioning for RedCap UE
 - Study the positioning requirements for RedCap device in FR1 and FR2.
 - To support RedCap device with high accuracy positioning, low latency, and low power consumption.
 - NTN Positioning
 - Study support of positioning without GNSS for legacy NR NTN deployment scenarios in (e.g., LEO, MEO, GEO), including:
 - Identify scenarios and deployments for multi-Satellite NTN positioning evaluation.
 - Study on RAT dependent positioning methods for NTN.
 - Continue with the normative work based on the study outcome.

Agenda 4.3

RWS-210364: Rel-18 RAN2 Enhancements for XR

- Flexible L2 Header (Study).
 - Design of L2 header with flexible format and adjustment of its format per packet if necessary.
 - Context aware L2 header selection.
- TCPACK enhancements (Normative work).
- Priority of critical message (Normative work).

RWS-210379: Rel-18 Upper Layer Features: AS security enh, NPN enh, inter UE coordination

- AS Security Enhancements:
 - RAN and SA should coordinate and start the normative work in RAN on protection of lower layer signalling.
- NPN Enhancements
 - Mechanism for UE to discover/trigger on-demand third party services.
 - Mechanism for UE to explore charging and other aspects.
- Inter UE coordination over Uu and SL.
 - L2 architecture, functionalities and interfaces for data splitting and aggregation in sidelink considering coordination with Uu link.

Agenda 4.3

RWS-210365: Rel-18 Upper Layer Enhancements for Relay, IAB, NTN, MBS

- UE Relays
 - Introduce UE-to-UE relay for both L2 and L3 relays.
 - Enhancements to UE-to-NW relay for L2 relays:
 - Service continuity on Inter-gNB cases.
 - Group mobility for relay switch.
- IAB
 - Load balance enhancement for IAB:
 - Dual-protocol-stacks for mobility, load balancing and packet duplication.
 - CHO enhancement in order to support load balance.
 - Mobile IAB node and adaptive activation/deactivation.
 - IAB node on unlicensed band for new use case.
- NTN
 - Support UE without GNSS capability.
 - Regenerative payload based GEO/LEO scenarios.
 - Relay-based architecture for NTN.
 - Satellite based positioning.
- MBS
 - Multicast support for RRC Inactive UEs (if not included in Rel-17).
 - Support multiple MCCH, e.g., to support different service types.
 - MBS specific BWP (Option 2A) depending on UE capability for RRC-CONNECTED UEs.
 - RLC-AM for PTM.

Agenda 4.3

RWS-210316: Sidelink Enhancements for Rel-18

- It is proposed that the following features should be supported in Rel-18 for sidelink enhancements:
 - Intra-band / inter-band carrier aggregation.
 - Operation in new carrier frequencies such as unlicensed band and FR2.
 - Enhancements to enable transmission for improved reliability and reduced latency.
 - Enhancements on UE power saving.

RWS-210317: Rel-18 Upper Mobility Enhancements

- Proposal : Study mobility enhancement aspects related to:
 - UL RS based mobility.
 - Use cases and deployment scenarios where UE can play a bigger role in mobility management.

RWS-21306: Introduction of RIS in 5G-Advanced

- Depending on the time available for new topics in Rel-18, it is proposed to study Reconfigurable Intelligent Surfaces and start with an SI that will address the channel model for RIS.

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