

3GPP TSG RAN Rel-19 workshop

Taipei, June 15 - 16, 2023

Agenda item: 4. High-level overview proposals for Rel-19

RWS-230132

Rel-19 overview

NEC

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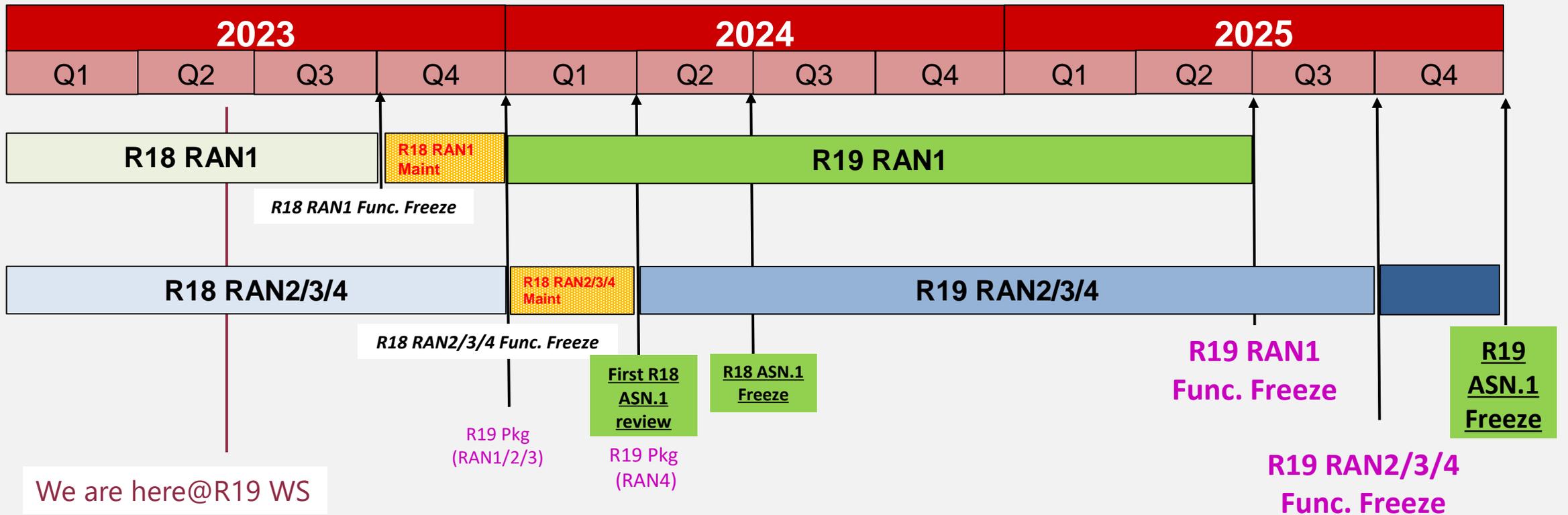
1. Rel-19 Timeline
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Rel-19 Timeline endorsed in RAN#99

◆ Endorsed Rel-19 planning (RP-230050@RAN#99)

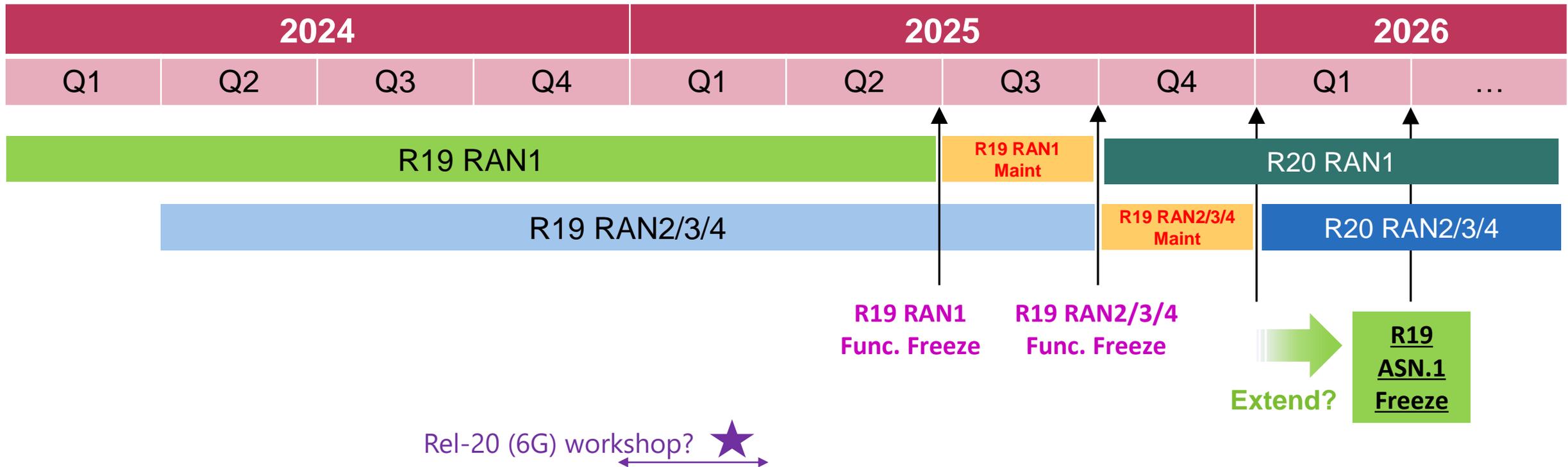
📶 Rel-19 is proposed to be 18-month with the following note:

- Critical to manage Rel-19 such that there is no delay in any manner
- Crucial in dimensioning Rel-19 package including possibly additional TU reservations (vs. Rel-18) in WGs



Rel-19 Timeline adjustment for ASN.1 freeze

- ◆ Rel-19 ASN.1 freeze to be extended by 1Q
 - The essential aspect of having 18M is to keep the start of Rel-20 which might include study for 6G.
 - Considering the request from many operators, it's important to make really stable ASN.1 at freeze.
 - => good to have a **check-point at RAN1 func. freeze, if Rel-19 ASN.1 freeze in Q4'25 is realistic?**
 - **If not, extend by 1Q** (like Rel-18) **finalizing in Q1'26** without changing Rel-20 start



Rel-19 features

Target of Rel-19

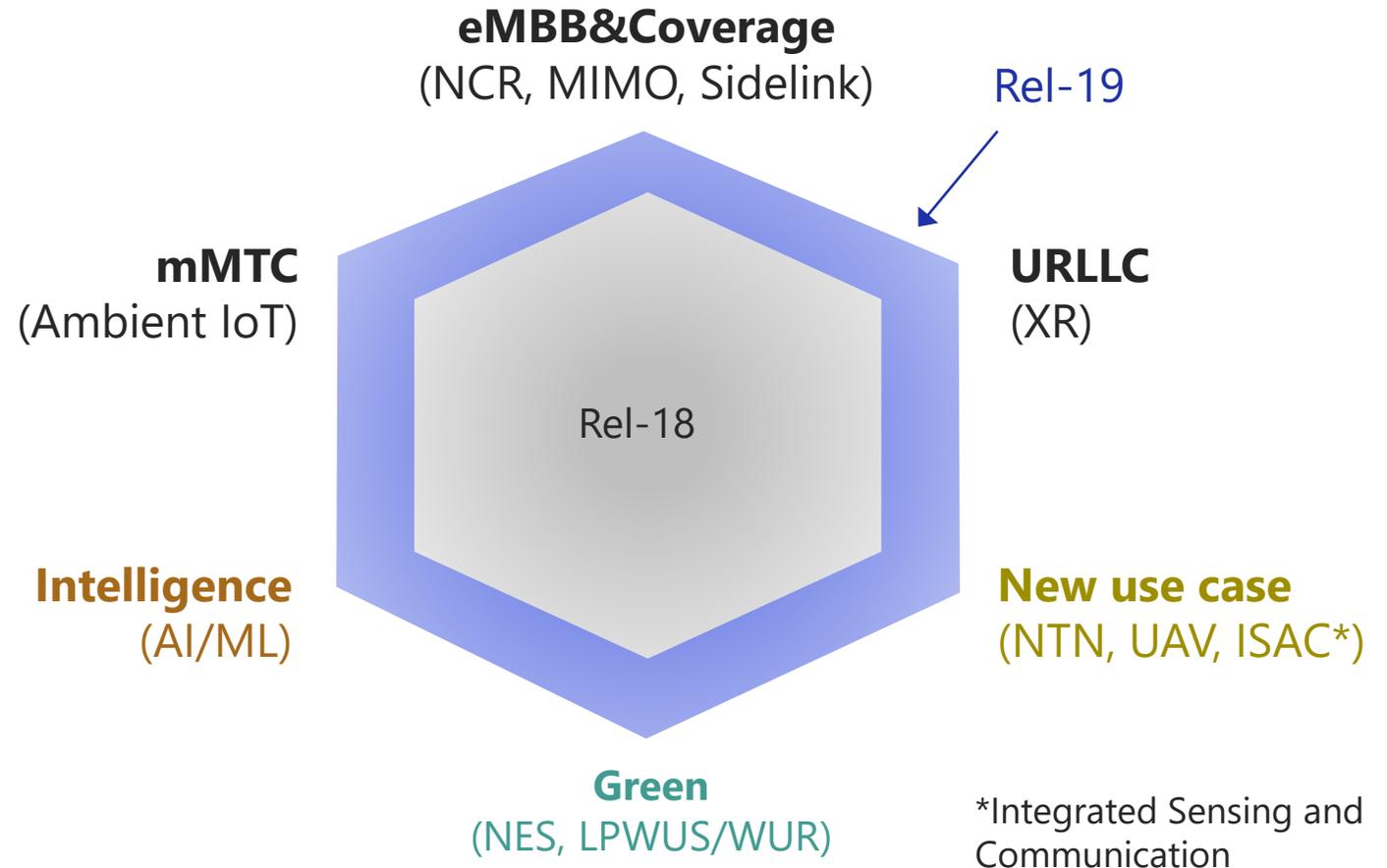
Further enhancement/evolution to 6 key directions

◆ Rel-18:

- enhances many existing features and also introduces new use cases (XR, UAV).
- supports eco-system by energy saving at NW side (NES) and smart network repeater (NCR).

◆ Rel-19:

- still includes potential enhancement or evolution of existing features as 5G advanced.
- important release for preliminary study for future solutions.



What's in Rel-19?

Further evolution of 5G Adv., and preliminary study for future

Enhancement of existing features (WI)

New feature (WI+extended SI)

New feature (SI)

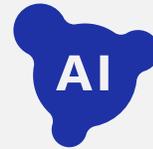
NTN enh



NES enh



AI/ML for:
Air interface, NG-RAN enh



Ambient IoT
(RAN WG SI)



XR enh



NCR enh



LPWUS/WUR



Integrated Sensing and
Communication (ISAC)



UAV enh



Other L1/2 enhancements:
MIMO, Duplex, Sidelink, etc

Enhancement of existing features (WIs) – 1/2

◆ NES

- Extension of SSB/SIB-less operations, and time domain solutions (e.g. adapting transmission/ reception of common/UE specific channels/signals during NES mode, Cell DTX/DRX impact to UE in IDLE/INACTIVE).

◆ NCR

- Enhancements for e.g. intra-band contiguous multiple carriers, and dynamic control of NCR-Fwd forwarding bandwidth, robust side control information, power control side control information.

◆ NTN

- NR NTN: RRC_Inactive mode support, Connected mobility enhancement, power saving in Idle/Inactive, and GNSS-incapable UE support
- IoT NTN: PUR/EDT support, power saving and enhancement on discontinuous coverage

◆ XR

- Further enhancements for the reliability, power saving, and capacity of XR traffic.

◆ UAV

- Further mobility enhancement (e.g. CHO), emergency management, etc

Enhancement of existing features (WIs) – 2/2

◆ MIMO

- Further enhancements for e.g. multi-TRP/multi-beam deployment targeting up to 4 TRPs/panels, latency/overhead reduction, 8Tx UL operation, simultaneous multi-panel UL transmission.

◆ Duplex

- Enhancements for e.g. physical channels/signals for UL and DL across SBF symbols and non-SBF symbols, UE collision handling for UL and DL operation in the same SBF symbol.

◆ Sidelink

- Further enhancements for e.g. SL FR2 & SL-CA, SL-Positioning, SL-Relay and other topics (SL sensing, SL-U enhancement).

◆ SON/MDT

- Support additional use cases, e.g. IRAT HO voice fallback, Rel-16 leftover features (NR V2X, IAB, etc), Rel-17 leftover features (MBS, NR sidelink Relay, SDT, NTN), Rel-18 new features (LTM, SL relay enh).

New feature (WI + extended SI)

◆ **AI/ML for air interface**

- Following Rel-18 SI, start WI for the representative three use cases. In addition, other use cases (e.g. mobility) should be studied further in another SI.

◆ **AI/ML for NG-RAN**

- Support some additional use cases (e.g. NW slicing) and investigation on introduction of separated network node.

◆ **LPWUS/WUR**

- Following Rel-18 SI, start WI for fundamental parts of the feature.

New feature (SI)

◆ **Ambient IoT**

- RAN level SI will be completed before Rel-19 start, which should be followed by RAN WG level SI to confirm actual scope of further work.

◆ **ISAC**

- Following SA1 work, start work in RAN side, as sensing function can greatly enhance the network application scenarios (e.g., V2X, UAVs, smart city, etc). Preliminary study may be started from RAN level study, followed by RAN WG SI.

Summary

Summary of Rel-19 overview proposals

◆ Rel-19 timeline

- Have a check-point at RAN1 functional freeze timing, if Rel-19 ASN.1 freeze in Q4'25 is realistic?
If not, **extend by 1Q** (like Rel-18) **finalizing in Q1'26** without changing (delaying) Rel-20 start

◆ Rel-19 features

- Further enhancement or evolution of existing 5G Advanced features as well as new features for intelligent eco-system (AI/ML for air interface, LPWUS/WUR).
- In addition, preliminary study for future solutions (e.g. Ambient IoT, ISAC)
- Details are shown in our inputs to AI 5.

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