3GPP TSG RAN Rel-19 workshop
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Views on XR enhancement in Rel-19

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Motivation for XR enhancement

Motivation:

- As an emerging business, the popularity and ecosystem scale of XR business have shown an explosive growth trend in the past two years. R18 XR has completed SI work and is carrying out WI standardization work.
- In R19, XR enhancement WI should be further standardized. New requirements from SA , such as multi-modal and meta-universe, should be considered. And outcome and leftover issues of R18 XR should also be involved.

XR interaction mode- 6DoF

Gaming

VR education

Typical scenarios of XR

R18 XR WI

- **R18 XR WI focus on the standardization of XR power saving enhancement, capacity enhancement and business identification enhancement.**
  - Power saving enhancement : DRX supporting XR frames.
  - Capacity enhancement: Multiple CG PUSCH transmission opportunities, dynamic indication of unused CG PUSCH transmission opportunities, BSR enhancement, delay reporting of uplink cache data, and discarding operation of PDU sets.
  - XR awareness and identification: QoS flow, PDU set information and interactive signaling, UE XR service assistance information, RAN to CN congestion information signaling.
- **SA1 and SA2 have studied multi-modal and meta-universe research work, which should be the basis for XR enhancement for R19.**

Multi-modal XR

Considerations for R19 XR enhancement

- **Main challenges:**
  - Interactive technology will develop towards multi-modality and refinement, emphasizing more immersive experience of multi-sensory such as vision and touch, and further improving the requirements for multi-service collaboration and delay optimization；
  - If the multi-mode service resolution is further improved, data rate of the single-user may reach more than 1Gbps.
- **Potential scope:**
  - Define RAN multi-modal traffic model and KPI.
  - RAN-aware multi-modal XR parameters and corresponding scheduling enhancements at RAN.
  - Capacity enhancement and low latency enhancement especially considering multi-user XR scenarios.

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Thanks