3GPP TSG RAN Rel-18 workshop
Electronic Meeting, June 28 - July 2, 2021

RWS-210058

Agenda Item: 4.2

Source: Spreadtrum Communications

Title: R18 XR considerations

Document for: Discussion and decision

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XR is the killer application in 5G

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Basically successful in business nowadays,

XR

XR = AR + VR + MR
Huge datarate
Strict QoS

Tactile

New type of information for 5G communication system,
e.g., tactile, haptic

XR and other AI, Sidelink

AI built in XR system
XR traffic in Sidelink

Wish to energize better 5G-Advanced

Specific of XR traffic

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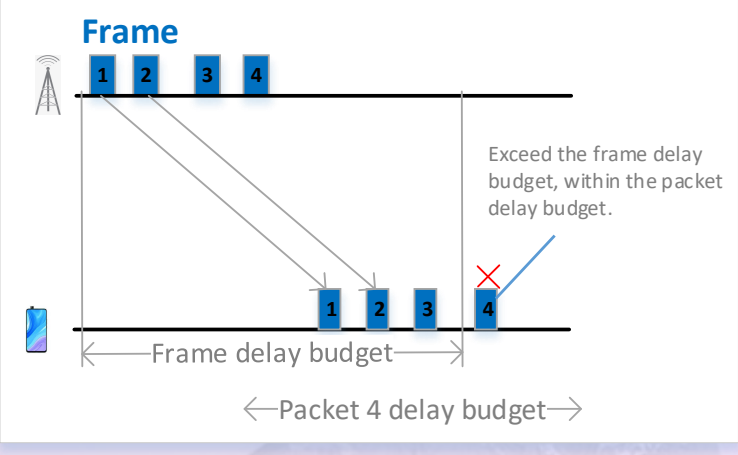
- Video: Periodic
  - 60 fps, 45 fps
- Pose/control: periodic
  - 4ms (no jitter)
  - Fixed packet size: 100 bytes
- PDB for each flow:
  - Video Baseline: 60ms
  - Video Optional: 10/15ms
  - Pose/control: 10ms
- Data rate:
  - 10 Mbps, 20Mbps

- Multiple downlink flows
  - I-frame + P-frame
  - Video + Audio/data
  - FOV + omnidirectional stream
- Multiple uplink flows
  - Pose/control + video + audio
  - Pose/control + I-stream for video + P-stream for video

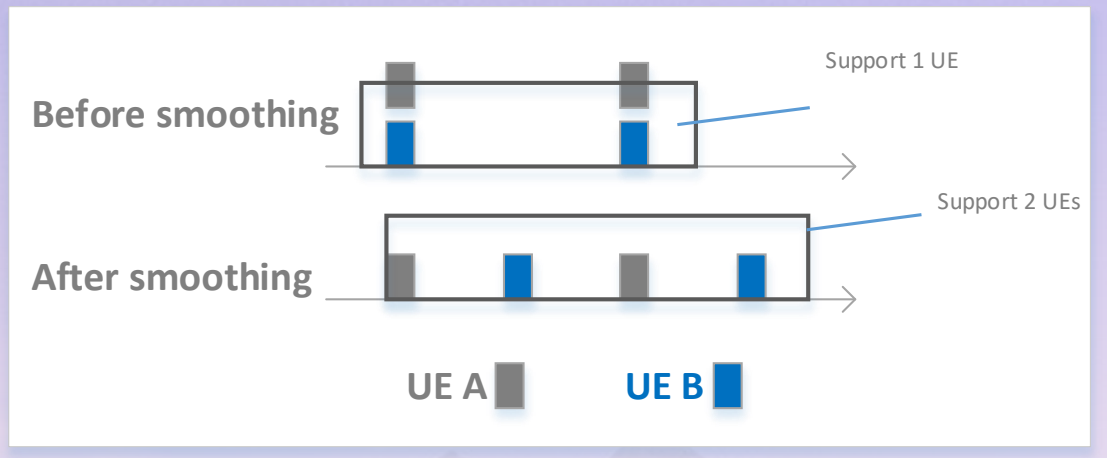
Challenges for XR in 5G

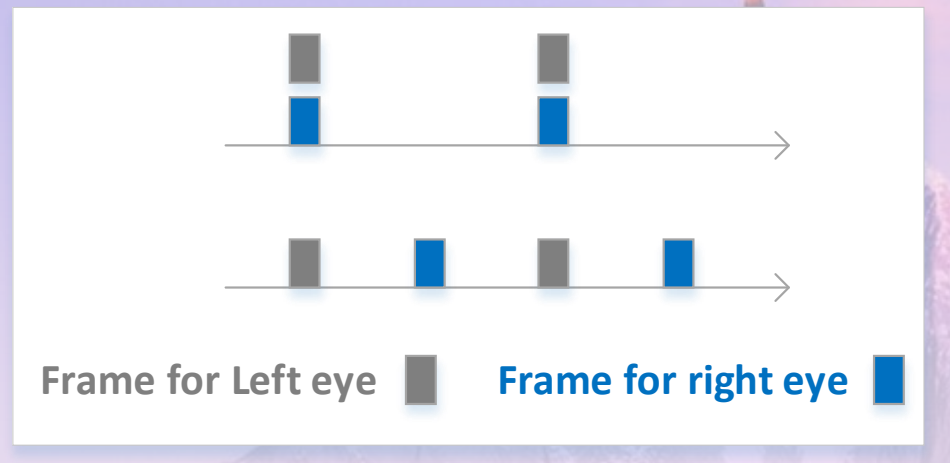
- Huge data rate
  - Assistant the gNB to schedule the huge amount of packets, to the enhance the user experience
  - Acquires the additional QoS from application layer, to improve the scheduling.
  - Synchronize the packets in multiple streams



Challenges for XR in 5G

- Traffic data burst
  - Smoothing the traffic data to improve the number of UEs in 5G system.
  - Distribute the traffic data of one UE in Uu interface.





Proposal

- Study and evaluate XR enhancement
  - Application based data transmission [RAN2/3]
    - Generation of application related assistance information.
    - Deliver the application related assistance information to gNB.
    - Apply the application related assistance information in scheduling.
    - Additional procedure in User plane and Control plane.
    - AI to assistant scheduling in gNB
  - Enhancements on the smoothing XR traffic [RAN2/3]
    - Adjust the XR burst of multiple users in order to smooth the traffic for Uu interface.
- Measure and report the QoS of application based data transmission, including the measurement of: [RAN1/2]
  - Multiple packets based delay, e.g. MPDB
  - Multiple packets based jitter
  - Multiple packets based error rate, e.g. MPER

Thank you

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