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

RWS-210355

# Motivation of study for UE Aggregation

Agenda Item: 4.3
Source: CMCC

# MOTIVATION

- The motivation of this SI is to investigate how to address the issue of the shortage of UL UE transmission power in 5G via UE aggregation mechanism:
  - In compare to LTE, various type services required the wide UL bandwidth requirement is increasing and becomes pervasive in 5G network
    - e.g. AR/VR devices, live video from UAV, etc.
  - In this case, the bottleneck of supporting the applications with wide UL bandwidth on 5G terminals is the limited UL UE transmission power, e.g. 23dBm or 26dBm.
  - Although some enhancement to eliminate the bottleneck has been adopted, e.g. SUL, super Uplink, it seems not sufficient to satisfy the demand.
  - Therefore, the mechanism of UE aggregation which can be one way to ensure a high UL bandwidth target value is desired to be investigated
  - This is in particular useful in the case of the terminal with less size limitation
    - e.g. terminal equipped in the UAV, vehicle and assessment line for motion controller in the factory

AR/VR

Video for Remote Monitoring

Drone with live video

# MOTIVATIONS

- **Issue**
  - How to avoid the data disorder and data duplication during the data splitting between the aggregated UEs

- **Intention of the SI is to study the potential UE aggregation mechanism**
  - Which kind of L2 architecture can be utilized to aggregate more than one terminal to improve the UL throughput
  - How to support the data lossless or minimized data loss during the session/packet switching amongst the aggregated terminals

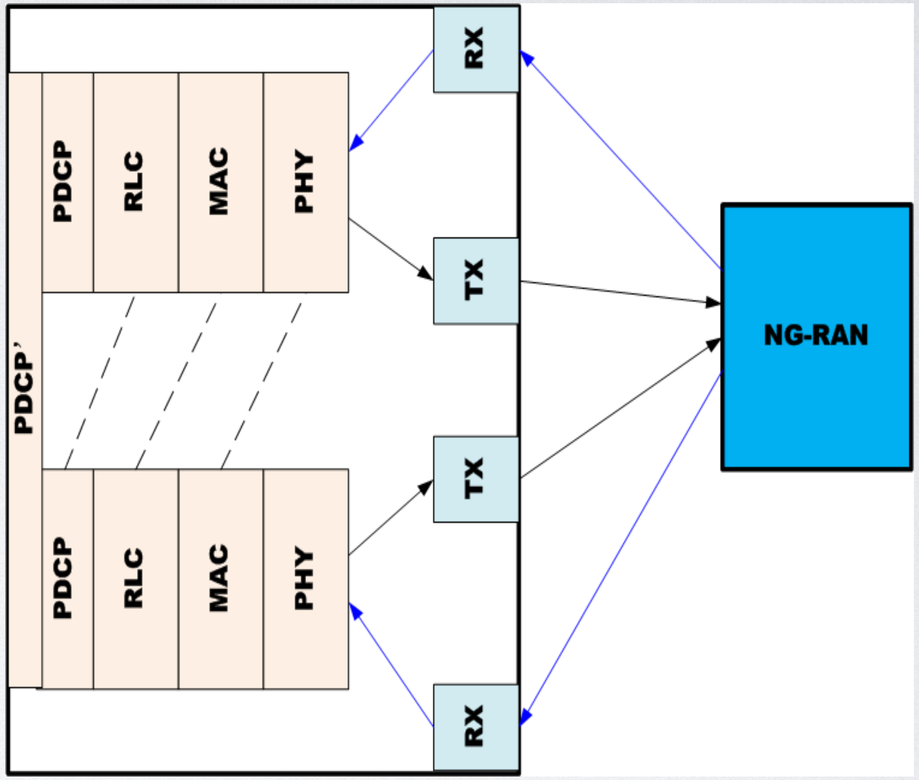


**Figure : L2 architecture of UE aggregation for UL TX power boosting**

# SI OBJECTIVES

- Identify and study potential UE aggregation mechanism, including [RAN2, RAN3]
  - RRC management procedure to enable UE aggregation [RAN2]
  - L2 architecture, functionalities and interfaces to allow aggregated UEs to receive control signalling/data in coordination mode, e.g. without data disorder or data duplication during the data splitting between the aggregated UEs [RAN2]
  - Mobility of aggregated UEs with Service continuity [RAN3]

# Thank you!