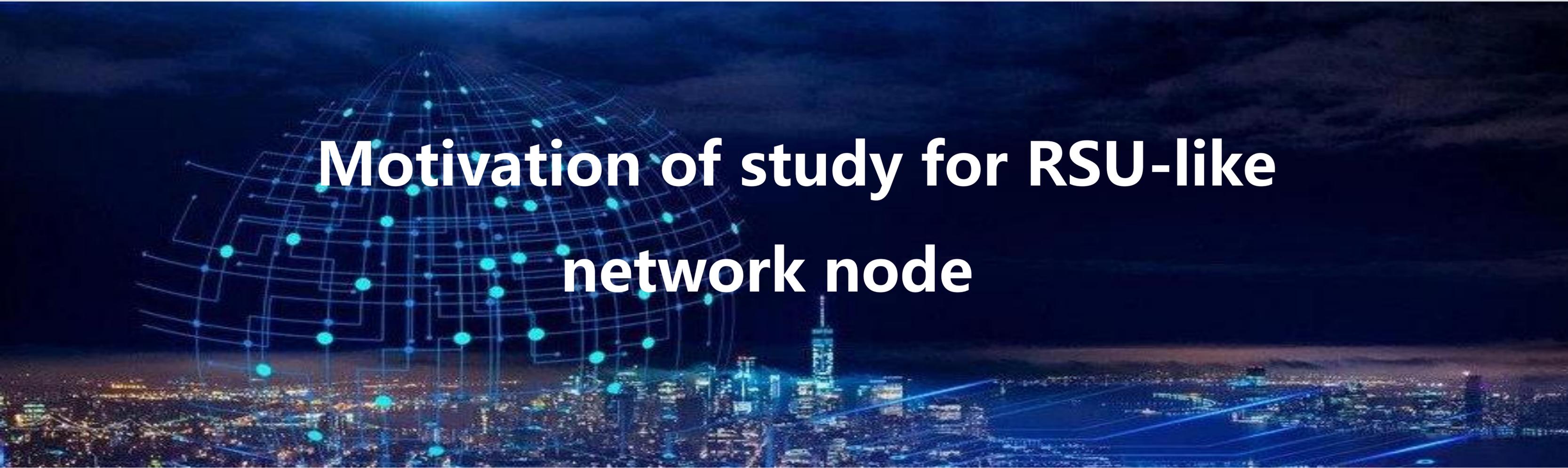


3GPP TSG RAN Rel-18 workshop
Electronic Meeting, June 28 - July 2, 2021

RWS-210347



Motivation of study for RSU-like network node

Agenda Item: 4.2
Source: CMCC



Motivation-coverage extension

- **Guaranteed Coverage extension**

- R17 Sidelink relay is intrinsically a UE, which is not under planned deployment and scheduled and managed by the operator.
- The coverage extension with R17 sidelink relay is not always guaranteed and to a large extent relies on whether there is a sidelink relay UE nearby.
- Considering the mobility and payload changes of relay UE, remote UE should switch to better relay or uu link to avoid data transmission be influenced.



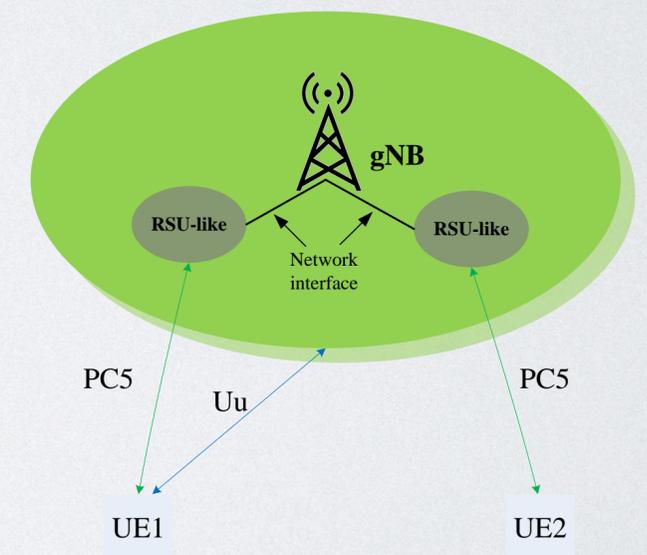
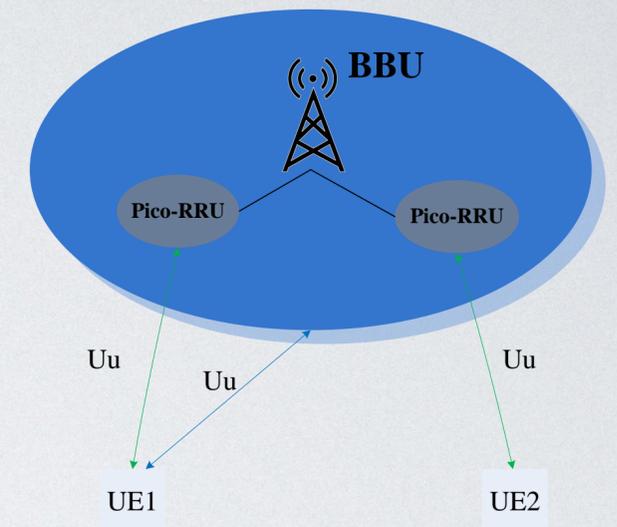
Motivation-lower cost and flexible control

- Lower cost and effective spectrum usage for indoor scenario

- pico-RRU-BBUs and home base stations are deployed for indoor scenario to ensure network coverage, which is not cost effective.

- RSU-like network node enables PC5 connection instead of Uu to lower the cost and support flexible deployment with a lite gNB.

- RSU-like network node achieves network controlled traffic balance/local breakout between PC5 link and uu connection.





Background-V2X

- In Release 16, a first version of NR sidelink has been developed
 - NR SL mainly focuses on supporting V2X related road safety services.
 - Supports for broadcast, groupcast and unicast communications in both out-of-coverage and in-network coverage scenarios.



Background-sidelink relay

- Rel-17 Study Item of “Study on NR Sidelink Relay” has been carried out by 3GPP.
 - Mechanisms for Layer-2 relay and Layer-3 relay have been studied and identified by RAN2, striving for minimum specification impact.
 - Both L2 based relay architecture and L3 based relay architecture have been found feasible, and it was recommended to support NR sidelink relay in order for network coverage extension and power efficiency improvement, considering wider range of applications and services.



Summary

- Study the RSU-like network node supporting access via PC5 and backhauling via network interface between RSU-like node and gNB.
- The basic functions and procedures in Rel-17 sidelink relay and Rel-16 V2X work item could be regarded as starting point.



Objectives

- Access node discovery and (re)selection [RAN2];
- Control Plane procedure design, including RRC connection management, system information delivery, paging mechanism and access control for Remote UE [RAN2];
- Service continuity [RAN2, RAN3];
 - Mobility between RSU-like nodes and between RSU-like node and gNB;
 - dual-connectivity between RSU-like node and gNB;
- Functionality and procedures of network interface design between RSU-like node and gNB [RAN3];
- Network controlled traffic balance/local breakout between PC5 link and uu connection[RAN3, RAN2];