

RWS-230365

Views on NTN enhancements for Rel-19

SKY Perfect JSAT Corporation



■ NTN enhancement for Regenerative payloads by Full gNB on board

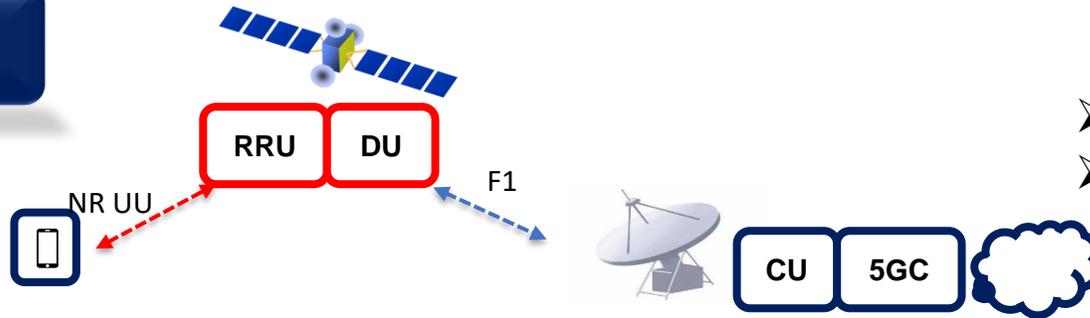
- ◆ RAN1 and RAN2 aspects, may not have impact to modify current standard, but RAN3 aspects, RU+DU may need F1 I/F modification on SRI (Satellite Radio Interface). Full gNB onboard has no impact or very small at RAN1, 2 and 3 based on current version.
- ◆ Full gNB on board can extend new service scenario as loop back call between UEs that connected same satellite. And DTN (Delay Tolerant Network) can be realized.
- ◆ It can be realized more flexibility for backhaul selection with ISL (Inter Satellite Link) to forward Data to next satellite after stored if total data volume is still small traffic. It means can be saved feeder link traffic and usage time.

✓ ***Less spec Impact, More Service and Flexibility by Full gNB on board.***



Regenerative Payloads of NTN study

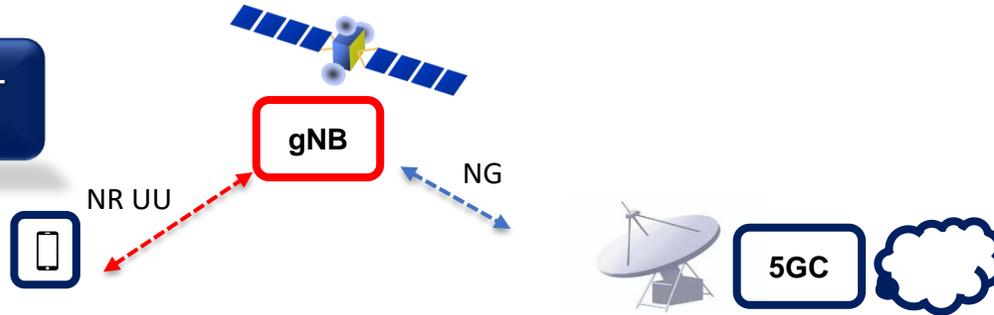
gNB(RU-DU) on boarding



- Centralized CU in the ground
- Light weight payload

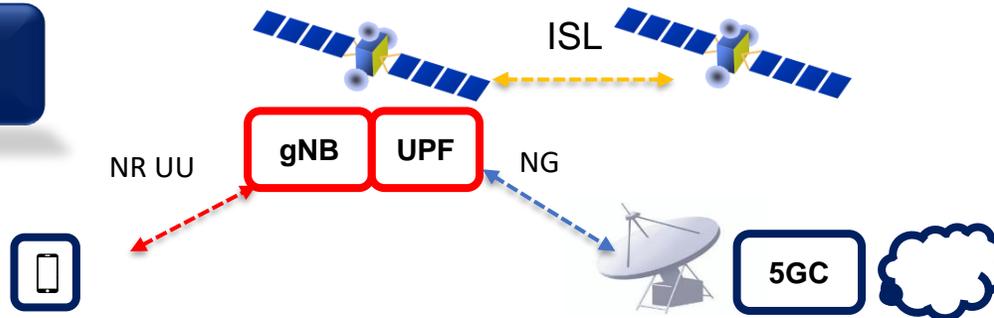
Priority

Full gNB(RU-DU-CU) on boarding



- It has extension possibility to add UPF easily
- Faster Coverage achievement

Full gNB+UPF on boarding



- Lower latency of u-plane
- Flexible NTN architecture with ISL





■ Architecture enhancement for Regenerative payloads

- ◆ Regenerative payloads enables satellite operators to provide new services and use cases like loop back communication between UEs via satellite, edge computing on board. Furthermore, gNB + UPF onboard with ISL (Inter Satellite Link) architecture will be the essential for future 3D Mesh networks (satellites in different orbit are interconnected in space each other).

■ Proposed regenerative payloads priority

- ◆ JSAT proposed three examples of regenerative payloads with priority on previous page. A part of 5GC function as UPF on board has a potential to extend non terrestrial network coverage with flexibility especially will use ISL combination.