

Views on NTN enhancement

China Unicom

Motivation for Non-terrestrial networks (NTN)

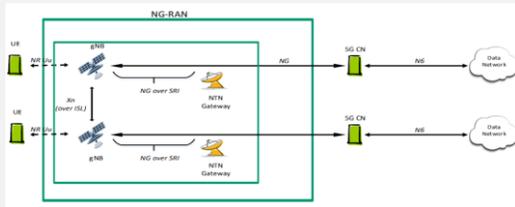
□ Motivation:

NTN standards were designed and built on the terrestrial specifications, which enables communication between users and satellites, and provides communication services in areas without cellular network. The transparent structure is focused in R17. To achieve wide area seamless coverage, further enhancements are needed.

□ Scenarios

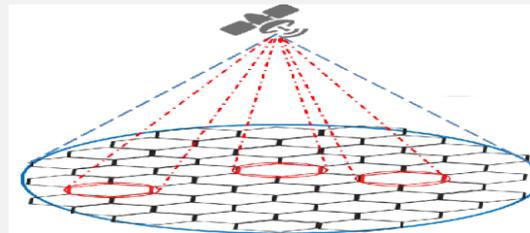
- Supplementary coverage for the cellular network: aviation, ocean and other scenarios.
- Backup for the cellular network: emergency communication.
- Smart phones connected to satellite directly.

Non-terrestrial networks



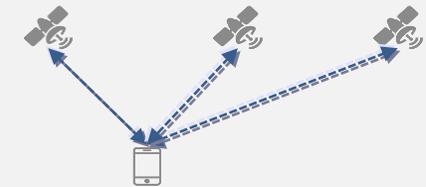
Regenerative structure

Architecture and functionality, interface, performance.



Beam hopping

Beam hopping in transparent and regenerative mode.



Positioning without GNSS

Multi-point positioning by single satellite,
Multi-satellite positioning,
Performance evaluation.

Objectives for Non-terrestrial networks (NTN)

□ Objectives:

- Regenerative structure: study on communication functions on board
 - Study CU/DU splitting mechanism for NTN, new option or following split options in TS38.801.
 - Considering impact of feeder link performance (e.g., latency, peak data rate) for different CU/DU splitting options.

- Study the beam hopping mechanism for NTN satellite:
 - Performance evaluation of beam hopping mechanism for both transparent and regenerative modes.
 - Study and define the interface between satellite and base station, beam coverage on demand in transparent modes.

- Positioning without GNSS:
 - Study on using other positioning methods for NTN UE (e.g., satellite positioning, cellular positioning) to obtain location information).

Thanks