3GPP TSG-SA2 Meeting #157

S2-2306699

22 May - 26 May 2023

Discussion on support of MA PDU Session with NR/5GC and NR/5GC

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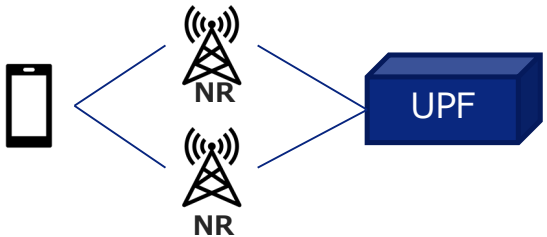
Overview

- Overview
  - Our proposal is to support MA PDU Session with "NR/5GC and NR/5GC" combination.
    - NRs are same PLMN.



  - Utilize MA PDU Session for high-data-rate communication, not only for redundancy.
  - Example use case: XR communication
  - There are already relevant requirements in Rel-19 SA1.
    - 3GPP TR 22.841：Study on Upper layer traffic steer, switch, and split over dual 3GPP access
      - *[PR 5.8.6-001] Based on operator's policy, the 5G system shall be able to support mechanisms to enable steering and switching of* ***UE's user data, pertaining to the same application, across two 3GPP networks (e.g., anchored in a combined NR/5GC and E-UTRA/EPC)*** *of the same PLMN operator, using single subscription and including traffic duplication over the two networks, e.g., for higher reliability.*
      - *[PR 5.7.6-001] The 5G system shall be able to support mechanisms to enable dynamically steering, split and switch of* ***UE's user data of one application across two 3GPP access networks (e.g., using NR and E-UTRA RATs)*** *of the same PLMN operator, in order to meet the QoS requirement of the data application. NOTE: Data routing can be based on traffic policies under network operator control, e.g., depending on QoS requirements, or other conditions or restrictions, such as location, time, connectivity conditions of the access network.*

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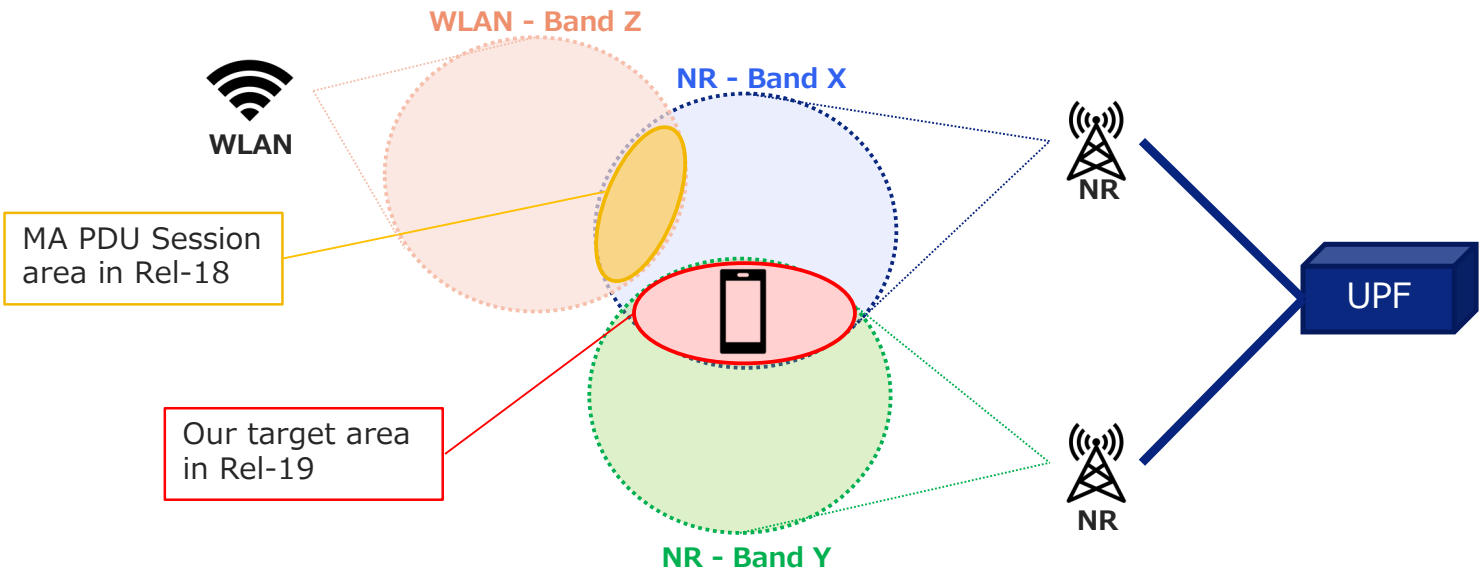
Rel-18 limitations

- In Rel-18, ATSSS is limited to one 3GPP access and one non-3GPP access combination.
  - Therefore, it cannot be used in the areas without non-3gpp access.



- In this case, “Dual Connectivity” can be used for higher capacity, but DC may not be sufficient.

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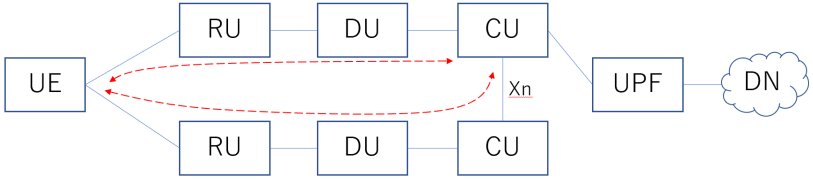
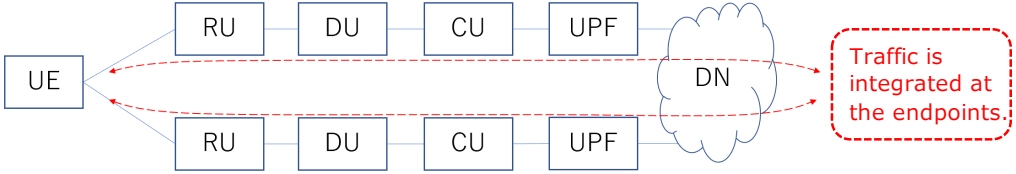
Rel-18 limitations

- **"Dual Connectivity" is a technology that uses two NR paths to increase capacity.**
- **There are two patterns of DC's U-Plane architecture, and both may not sufficient for higher capacity requirement.**
  - (1) Split and integrate transmission data at the PDCP layer of UE/CU



Gaps:
- Xn interface can be a bottleneck.
- Since the data must be integrated at the CU, the delay value of the larger-delay path is applied.

  - (2) DC for E2E redundant communication



Gaps:
- This pattern is only for redundant transmission and cannot be used for higher-data-rate communication.

- **The gaps can be filled by "MA PDU Session with NR and NR".**

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Proposal

- Objectives
  - Study service impact to support MA PDU Session with "NR/5GC and NR/5GC“ combination.
    - e.g., Registration, PDU Session Establishment/Modification, Handover, etc.

- This topic can be studied in DualSteer (or ATSSS_Ph4).

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