Motivation of ID-LOC in 5G and Proposed Method

IETF104-pidloc

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Why ID-LOC in Mobile?

Motivation

- Low latency routing
- IP session continuity for mobility (Option)

Expected Usage

- Drone control, connected vehicles, smart factory, etc…

These need low latency communication or seamless mobility support

Problem on Introduction of ID-LOC to 5G

- CP of 5GS follows one of the past mobile networks
- Mobile CP has long history and is large system

-> It would cause huge impact to introduce ID-LOC like mechanism into 5GS.

Proposed Method

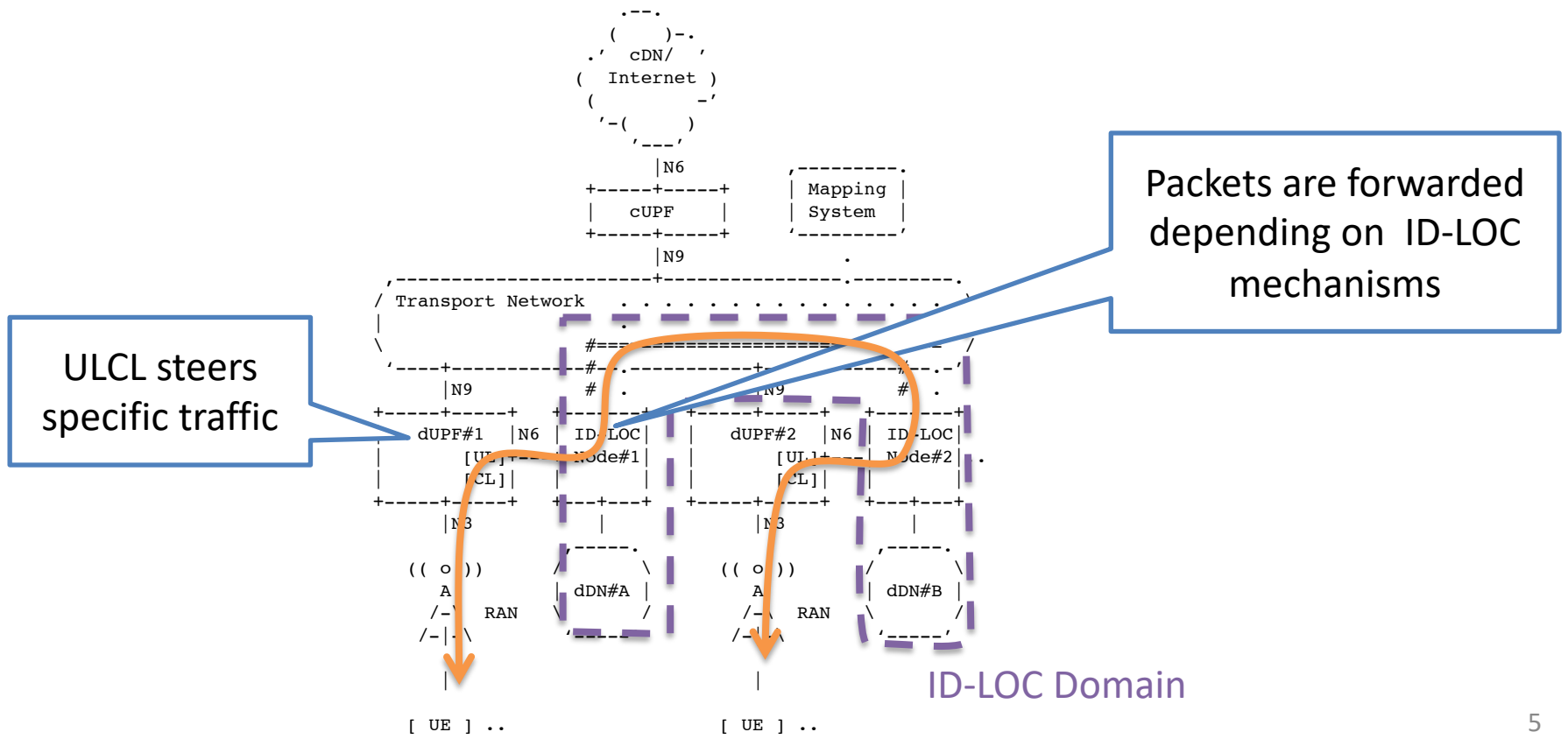
- A method which has “low impact” to 3GPP 5GS is introduced in draft-homma-dmm-5gs-id-loc-coexistence

(https://datatracker.ietf.org/doc/draft-homma-dmm-5gs-id-loc-coexistence/)

- The proposal deploys ID-LOC domain connecting distributed UPFs/DNs and steers specific traffic in ID-LOC domain.

Overview of Proposed Method

- This uses Uplink Classifier(ULCL) and steers specific traffic to ID-LOC domain as external 5GS.

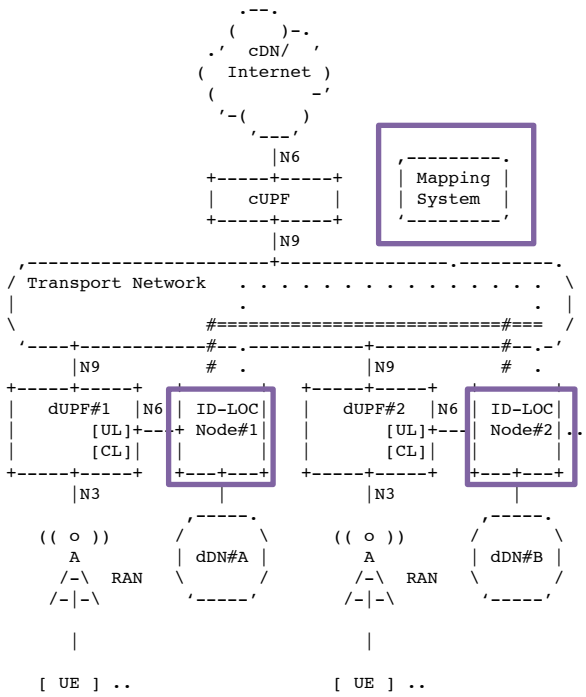


Question around Privacy Problems

- ID-LOC will be processed within operator network.

-> What kind of privacy risks can be considered?

ex) How do 3rd person know id, loc and their maps?



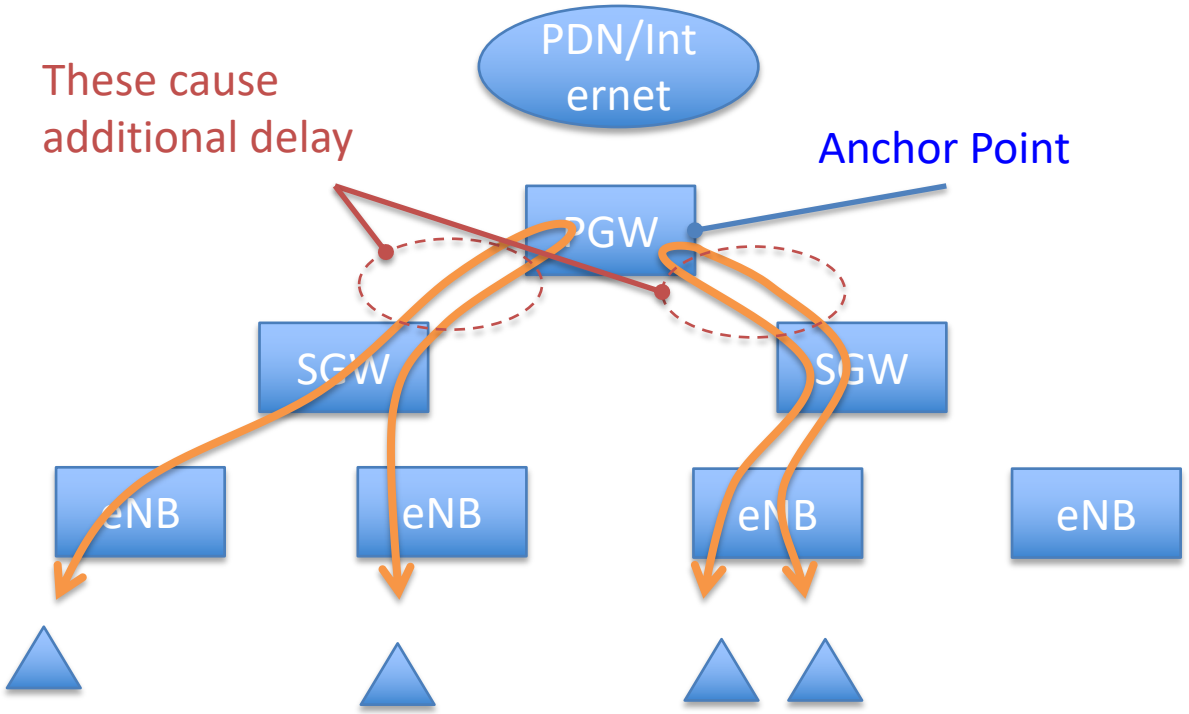
ID-LOC Domain

Thanks

Current Mobile Network

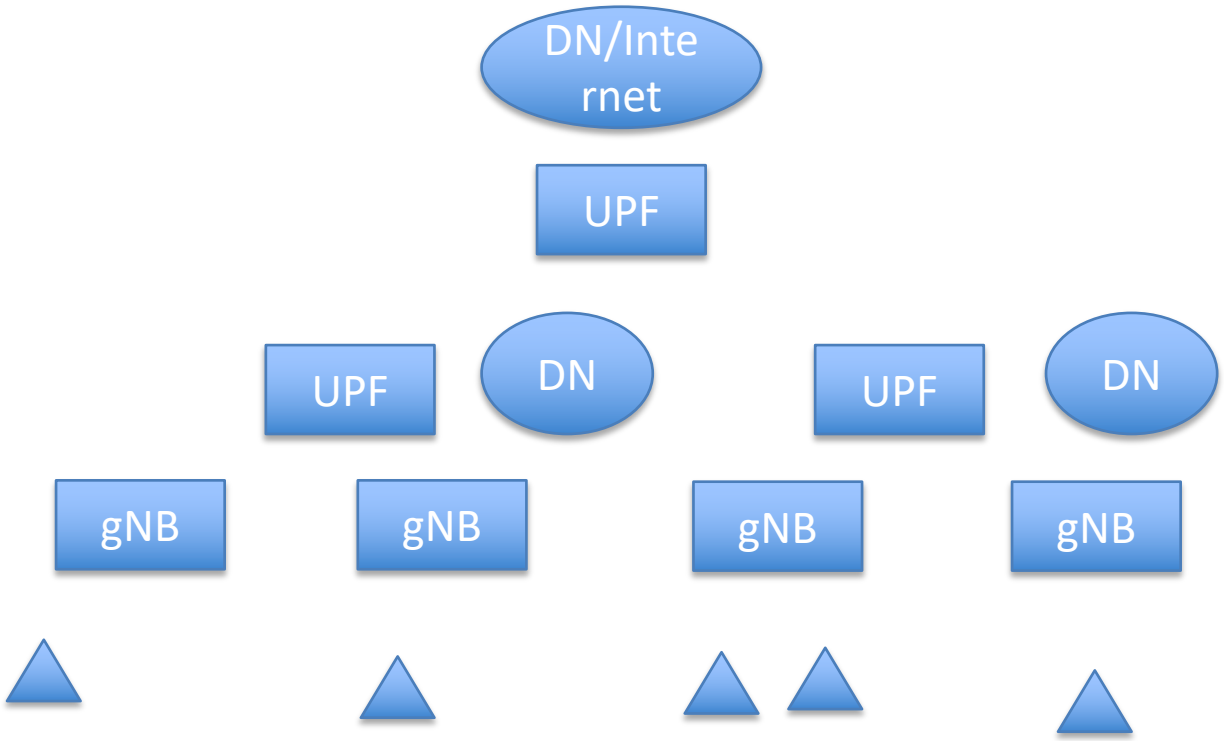
- In 4G, UP traffic is forwarded to central anchor

-> It sometimes causes transmission delay



5G System Overview

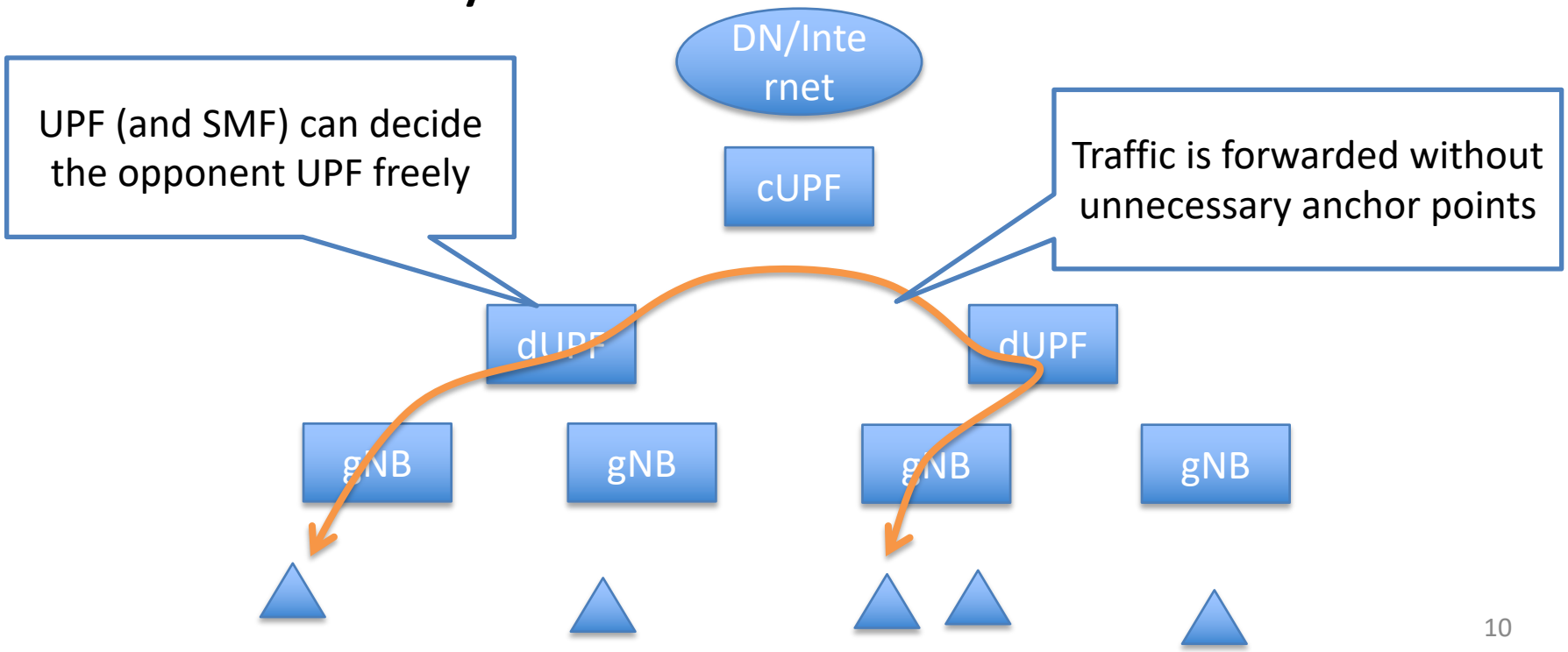
- 5GS allows put(?) UPF functionalities flexibly
- UPF has ULCL for steering specific Uplink traffic



5G System Feature 1

- 5GS allows put UPF functionalities flexibly

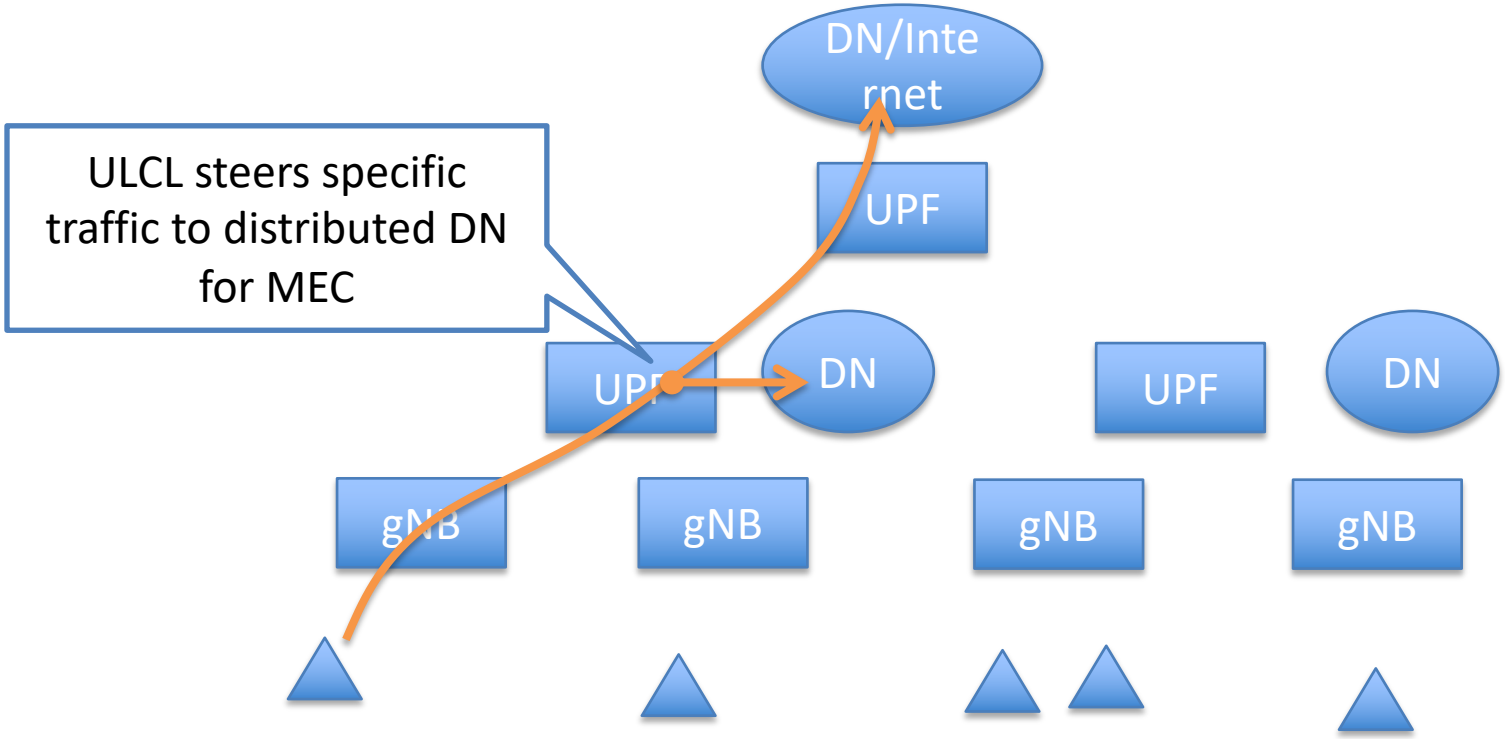
-> It is potentially capable to connect distributed UPFs directly



5G System Feature 2

- UPF has ULCL for steering specific Uplink traffic

-> 5GS supports MEC scenarios by steering specific traffic to distributed DN with ULCL



[Ref] Uplink Classifier (ULCL)

- ULCL is a function of UPF.
- ULCL detects uplink traffic based on trigger information such as src/dst IP address and steers it.