

Mobility Aware Transport Network Slicing for 5G

draft-ietf-dmm-tn-aware-mobility-08

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Updates in draft-ietf-dmm-tn-aware-mobility-08

Complete review of draft by Linda Dunbar

Comments and related updates:

- Is the 5G End-to-End network slicing for the control plane and data plane?

[Update] Added clarification in draft.

- Do you see applicability of TE in the Fronthaul network (i.e., due to time sensitive nature)?

[no updates needed] refer to clarification in draft:

“The provisioned slice capabilities in the fronthaul transport network MUST take care of the latency and jitter budgets of the specific slice for the fronthaul interface”

- Is the UPF to service destination path outside the scope of 3GPP?

[Update] Added reference in draft.

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3.1. Overview of 5G End-to-End Network Slicing

3GPP architecture in [TS.23.501-3GPP], [TS.23.502-3GPP] specify slicing in 5GS and an overview is provided here. 5GS comprises of control plane network functions and user plane network functions. Communication services offered to 3GPP clients (UE) are associated to one or more slices represented by NSSAI (Network Slice Selection Assistance Information) both on the control plane and the user plane. The NSSAI is realized through the 5G management plane using network slice subnet (NSS), for example, a network slice subnet that contains network function instances of the core network control plane functions (e.g., SMF, NRF), user plane network functions (e.g., UPF), radio network slice common functions (e.g., gNB-DU, gNB-CU-CP) and radio network (e.g., gNB-CU-UP). Within the 3GPP domain, the control plane slicing is end-to-end while the user plane slicing ends at the UPF. User plane slicing outside of the UPF towards IP services is outside the scope of 3GPP and is addressed in [I-D.mcd-rtgwg-extension-tn-aware-mobility]. 3GPP documents mention transport network in the context of network slice subnets, but do not

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4. Transport Network Underlays

Apart from the various flavors of IETF VPN technologies to share the transport network resources and capacity, TE capabilities in the underlay network is an essential component to realize the 5G TN requirements. This section focuses on various transport underlay technologies (not exhaustive) and their applicability to realize Midhaul/Backhaul transport networks between 3GPP network functions. Focus is on the user/data plane i.e., F1-U/N3/N9 interfaces as laid out in the framework Figure 1.

[I-D.mcd-rtgwg-extension-tn-aware-mobility]

Majumdar, K., Chunduri, U., and L. Dunbar, "Extension of Transport Aware Mobility in Data Network", Work in Progress, Internet-Draft, draft-mcd-rtgwg-extension-tn-aware-mobility-08, 12 September 2023, <<https://datatracker.ietf.org/doc/html/draft-mcd-rtgwg-extension-tn-aware-mobility-08>>.

Next Steps

Request for WG reviews and last call.

Backup

Slice Configuration (section 3.4, Fig 2)

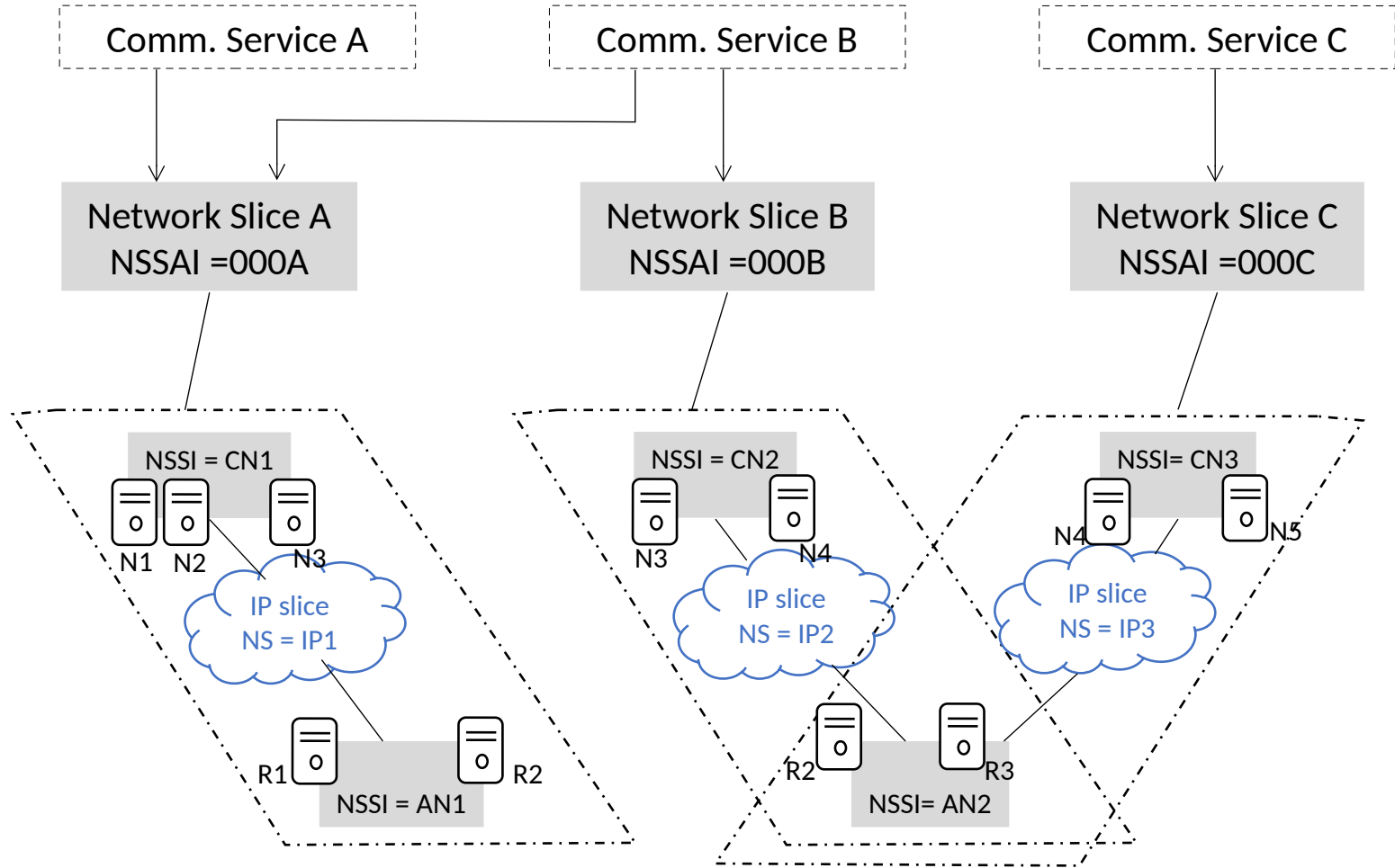
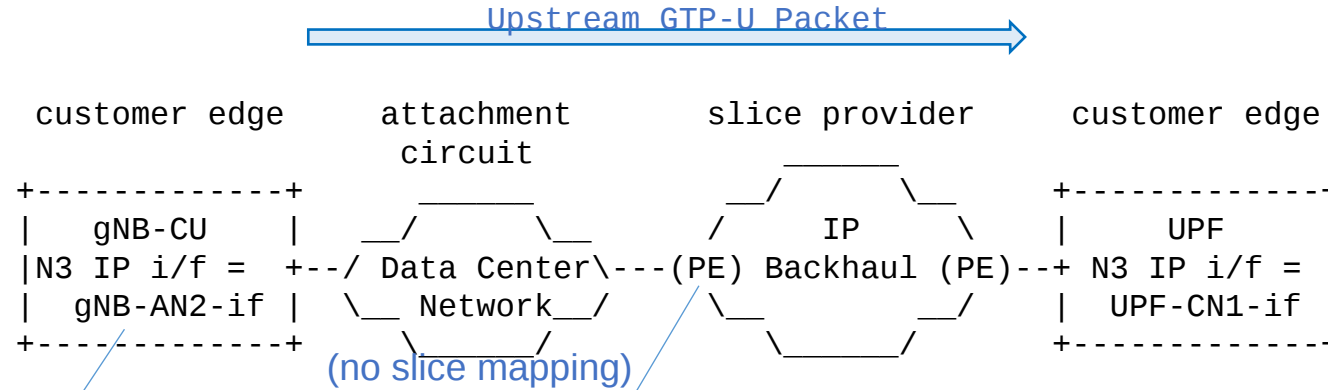


Figure and description in section 3.4 on 3GPP network slice structure and relation to IP network slice (IETF slice)

Slice Mapping using UDP Source Port (section 3.4, Fig 3)



```
3GPP CP Configuration:
NSSAI = {000B, 000C, ..}
NSSI = AN2
```

```
Slice Mapping to UPF-CN1-if:
EP_Transport S-NSSAI =000B
logicInterfaceType = UDPSrcPrt
logicInterfaceId = 5678
ipAddress = UPF-CN1-if
```

```
IP Slice Mapping:
Match:
  src-IP-addr = gNB-AN2-if
  src-port = 5678
Action:
  select NS = IP2
```

3GPP slice (NSSAI → NSSI) mapped to IP network slice instance using source UDP port when separated by an attachment circuit.