

# Mobility Aware Transport Network Slicing for 5G

draft-ietf-dmm-tn-aware-mobility-12

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# Overview of changes

1. Introduction	3
2. Mapping 3GPP Slice to Transport Network Slices	4
2.1. Scope of Transport Networks in 5G Network Slicing	4
2.2. Fronthaul and Mid-Haul Transport Network	7
2.3. Backhaul Transport Network	7
2.4. Slice Mapping using UDP Source Port Number	8
3. Transport Network Underlays	13
4. Attachment Circuit as a Service Extension for GTP	14
4.1. Attachment Circuit Extension	15
4.2. Attachment Circuit Extension YANG modules	16
5. Acknowledgements	19
6. IANA Considerations	19
7. Security Considerations	19
8. Contributing Authors	19
9. Informative References	20
Appendix A. Abbreviations	22
Authors' Addresses	24

1. Introduction	3
2. Terminology	5
3. Mapping 3GPP Slices to IP Network Slices	6
3.1. Overview of 5G End-to-End Network Slicing	6
3.2. Fronthaul and Mid-Haul Transport Network	10
3.3. Backhaul Transport Network	11
3.4. Slice Mapping using UDP Source Port	11
4. Transport Network Underlays	16
5. Attachment Circuit as a Service Extension for L3 Service	17
5.1. Attachment Circuit Extension	17
5.2. Attachment Circuit Extension YANG modules	18
6. Acknowledgements	22
7. IANA Considerations	22
8. Security Considerations	22
9. Contributing Authors	22
10. References	22
10.1. Normative References	23
10.2. Informative References	23
Authors' Addresses	25

## Revisions:

- EP\_Transport – revision to use ACaaS (and extensions for GTP).
- Corresponding ACaaS extensions for GTP in section 4. (new section)
- Editorial changes (simplify Introduction section, move Abbreviations to Annex).  
Reviewed by Mohamed Boucadair and various corrections, references to TEAS.

# Slice Configuration, section 2.4, Figure 2 (unchanged)

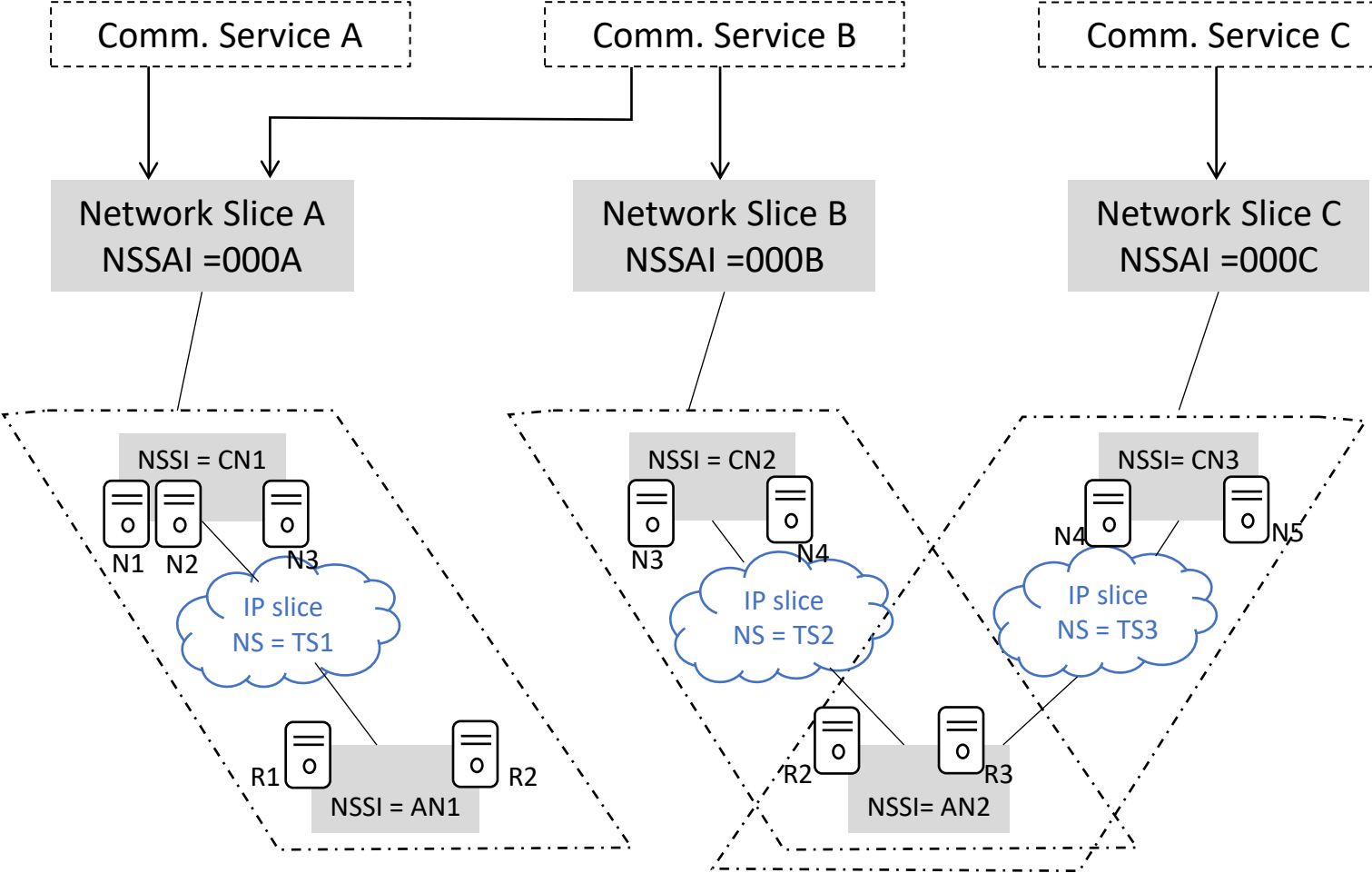
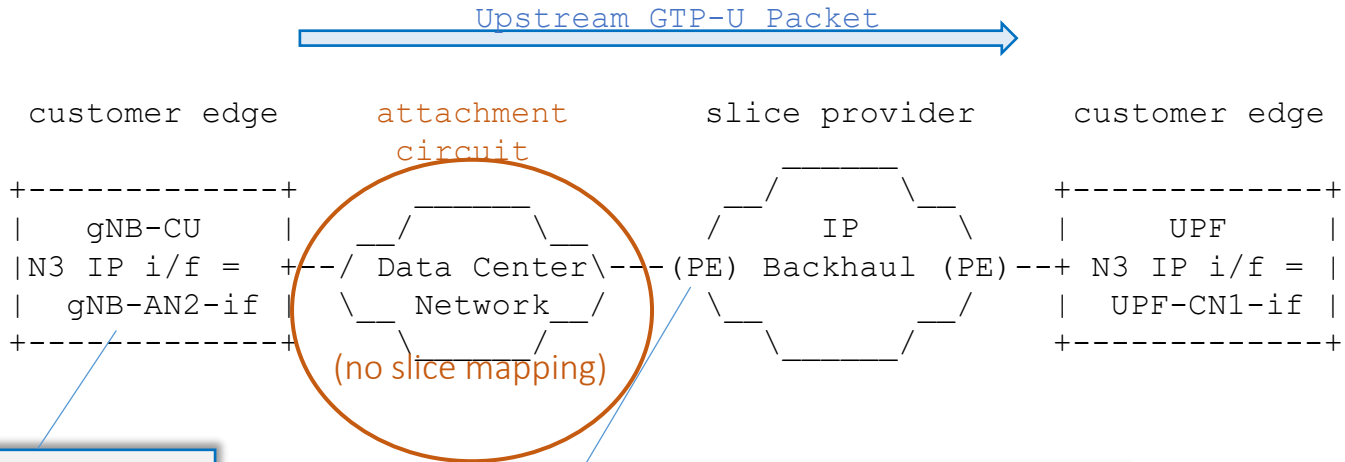


Figure and description in section 2.4 on 3GPP network slice structure and relation to IP network slice (IETF slice)

# Old: UDP src port number slice mapping with 3GPP impacts



```

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
  
```

# New: EP\_Transport in 3GPP → ACaaS in IETF

## 3GPP TS 28.541

### 6.3.18 EP Transport

The attribute "externalEndPointRefList" contains information required to identify associated model instances which reside outside of 3GPP MIB

#### 6.3.18.2 Attributes

... externalEndPointRefList

#### 6.4.1 Attribute Properties

<u>externalEndPointRefList</u>	This parameter is used to identify a list of connection point info(s).	Type: ConnectionPointInfo multiplicity: * isOrdered: False isUnique: False defaultValue: None isNullable: False
--------------------------------	--	---

<u>connectionPointId</u>	This parameter specifies the identifier of a TN object.	type: String multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False
<u>connectionPointIdType</u>	This parameter specifies the type of the connection point identifier. Allowed values: VLAN, MPLS, SEGMENT, IPV4, IPV6, ATTACHMENT_CIRCUIT	type: ENUM multiplicity: 1 isOrdered: N/A isUnique: N/A defaultValue: None isNullable: False

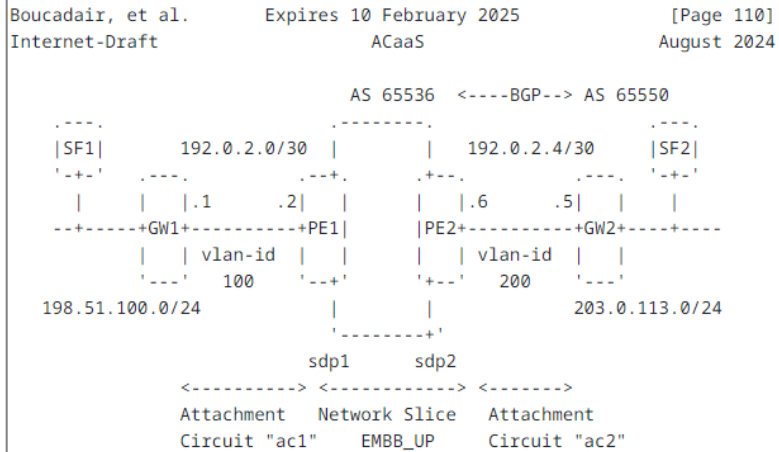
## IETF ACaaS

<https://datatracker.ietf.org/doc/draft-ietf-opsawg-teas-attachment-circuit/>

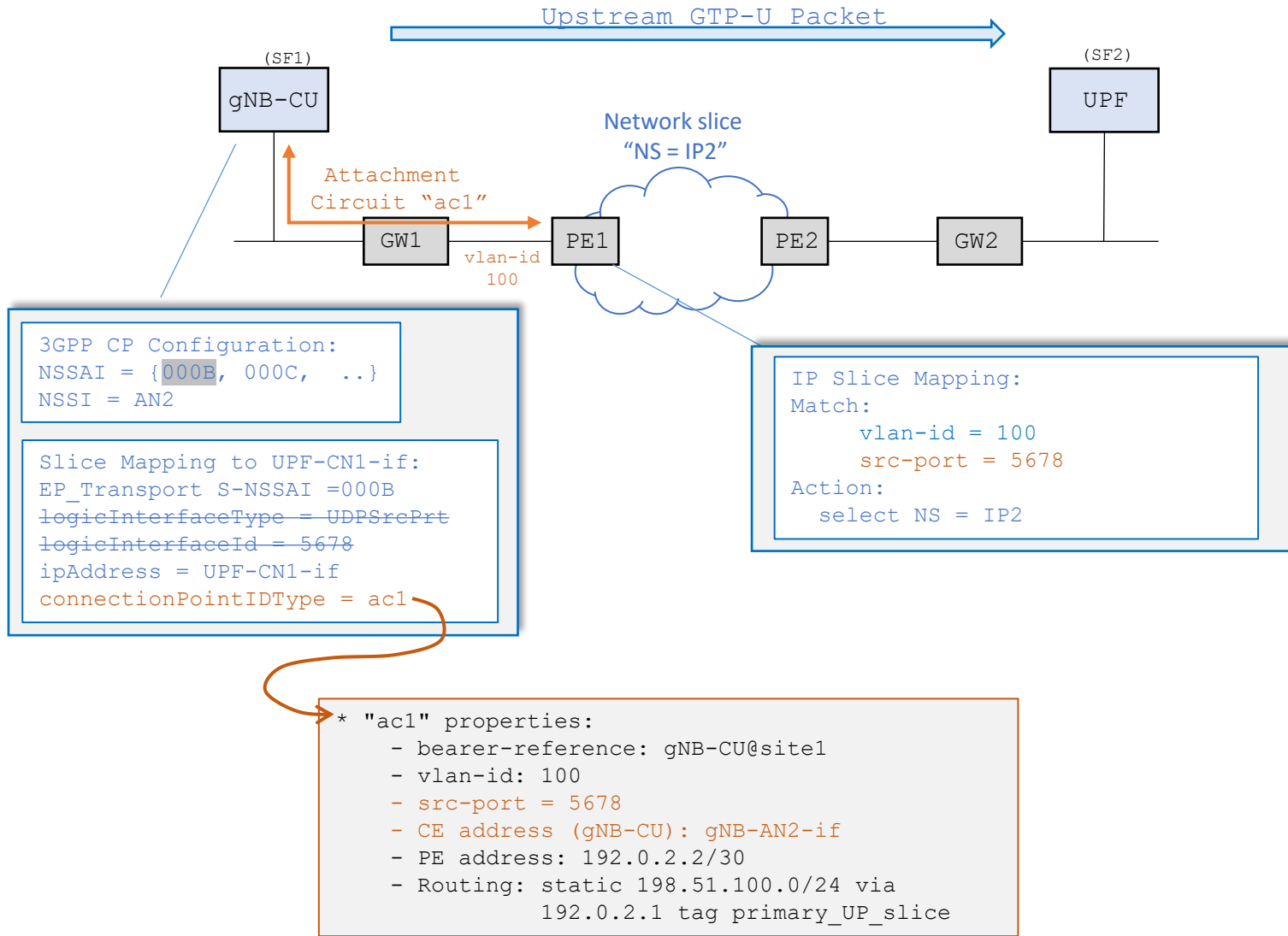
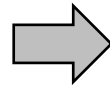
# Example: Slice Mapping UDP Src Port number with ACaaS

## IETF ACaaS

<https://datatracker.ietf.org/doc/draft-ietf-opsawg-teas-attachment-circuit/>



- \* "ac1" properties:
- bearer-reference: bearerX@site1
  - vlan-id: 100
  - CE address (GW1): 192.0.2.1/30
  - PE address: 192.0.2.2/30
  - Routing: static 198.51.100.0/24 via 192.0.2.1 tag primary\_UP\_slice

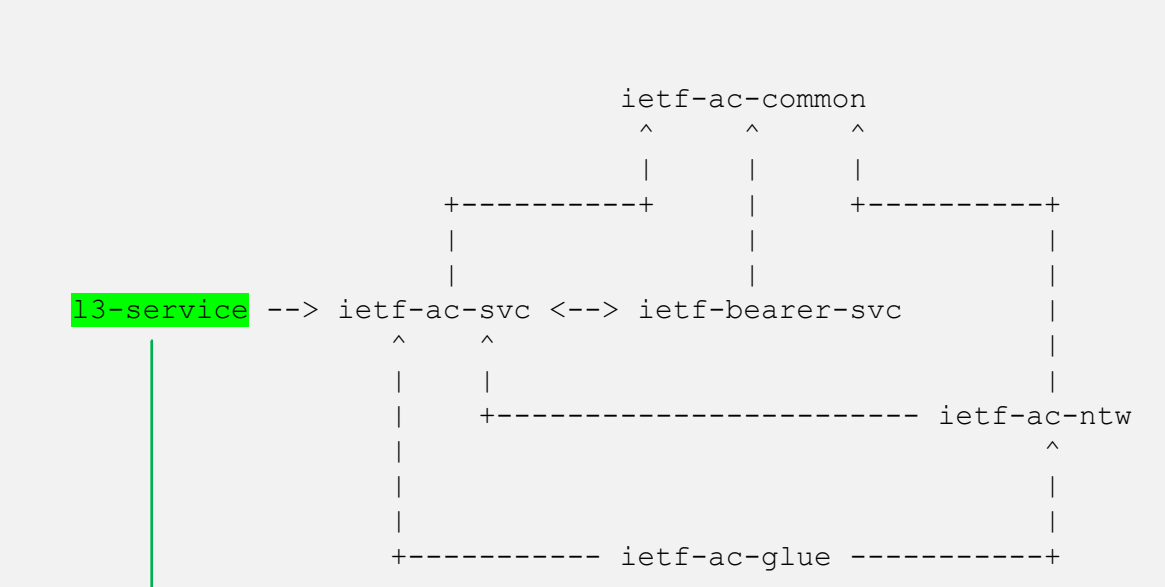


# ACaaS Extension for GTP

```

+--rw specific-provisioning-profiles
|   ...
+--rw service-provisioning-profiles
|   ...
+--rw attachment-circuits
+--rw ac-group-profile* [name]
|   ...
+--rw placement-constraints
|   ...
+--rw ac* [name]
|   ...
+--rw l2-connection {ac-common:layer2-ac}?
|   ...
+--rw ip-connection {ac-common:layer3-ac}?
|   +--rw ipv4 {vpn-common:ipv4}?
|   |   ...
|   +--rw ipv6 {vpn-common:ipv6}?
|   |   ...
|   +--rw (l3-service)? ←
|       +--:(l3-tunnel-service)
|           +--rw l3-tunnel-service
|               +--rw type? identityref
|   ...
+--rw routing-protocols
|   ...
+--rw oam
|   ...
+--rw security
|   ...
+--rw service
|   ...

```



# ACaaS Extension for GTP

```
...
+--rw ac* [name]
...
+--rw ip-connection {ac-common:layer3-ac}?
| +--rw ipv4 {vpn-common:ipv4}?
| | ...
| +--rw ipv6 {vpn-common:ipv6}?
| | ...
| +--rw (l3-service)?
|   +--:(l3-tunnel-service)
|     +--rw l3-tunnel-service
|       +--rw type? identityref
|         +--rw (udp-source-port)?
|         +--:(source-port-range-or-operator)
|         | +-- source-port-range-or-operator
|         |   +--:(port-range-or-operator)?
|         |   +--:(range)
|         |   | +-- lower-port inet:port-number
|         |   | +-- upper-port inet:port-number
|         |   +--:(operator)
|         |   +-- operator? operator
|         |   +-- port inet:port-number
|         |   ...
|         +--encap-gtp
|           +--rw type? identityref
|             +--rw (udp-source-port)?
|             +--:(source-port-range-or-operator)
|             +-- source-port-range-or-operator
|             +--:(port-range-or-operator)?
|             +--:(range)
|             | +-- lower-port inet:port-number
|             | +-- upper-port inet:port-number
|             +--:(operator)
|             +-- operator? operator
|             +-- port inet:port-number
|             ...
+--rw routing-protocols
| ..
```



# Summary

- Revised to use ACaaS for mapping between 3GPP – IETF network slice
- Added extensions to ACaaS for GTP/encapsulation.
- Shared version 11 with teas, opsawg for comments
- Updated to version 12 (this one) to implement review comments from Mohamed Boucadair.

Request for WG reviews and last call.