# Mobility Aware Transport Network Slicing for 5G

draft-ietf-dmm-tn-aware-mobility-04

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# Updates in draft-ietf-dmm-tn-aware-mobility-03 and 04

- Revision to reference on IETF Network Slices draft in teas

  [I-D.ietf-teas-ietf-network-slices]
  Farrel, A., Drake, J., Rokui, R., Homma, S., Makhijani, K., Contreras, L. M., and J. Tantsura, "Framework for IETF Network Slices", draft-ietf-teas-ietf-network-slices-12 (work in progress), June 2022.

- Miscellaneous editorial changes

# Concepts - Framework for IETF Network Slices

draft

**< 1. Introduction >**

A number of use cases would benefit from a network service that supplements connectivity, such as that offered by a VPN service, with an assurance of meeting a set of specific network performance objectives. This connectivity and resource commitment is referred to as a network slice and is expressed in terms of connectivity constructs (see Section 3) and service objectives (see Section 4).

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IETF Network Slices are created and managed within the scope of one or more network technologies (e.g., IP, MPLS, optical)

**< 1.1 Background >**

An IETF Network Slice could span multiple technologies and multiple administrative domains.

**<2.1 Core Terminology>**

**Attachment Circuit (AC):** A channel connecting a CE and a PE over which packets that belong to an IETF Network Slice service are exchanged. An AC is, by definition, technology specific: that is, the AC defines how customer traffic is presented to the provider network. The customer and provider agree (through configuration) on which values in which combination of layer 2 and layer 3 header and payload fields within a packet identify to which {IETF Network Slice service, connectivity construct, and SLOs/SLEs} that packet is assigned. The customer and provider may agree on a per {IETF Network Slice service, connectivity construct, and SLOs/SLEs} basis to police or shape traffic on the AC in both the ingress (CE to PE) direction and egress (PE to CE) direction, This ensures that the traffic is within the capacity profile that is agreed in an IETF Network Slice service. Excess traffic is dropped by default, unless specific out-of-profile policies are agreed between the customer and the provider. As described in Section 4.2 the AC may be part of the IETF Network Slice service or may be external to it. Because SLOs and SLEs characterise the performance of the underlay network between a sending SDP and a set of receiving SDPs, the traffic policers and traffic shapers apply to a specific connectivity construct on an AC.

# Service Demarcation Points (SDP): CE (3GPP), AC, PE (IETF)

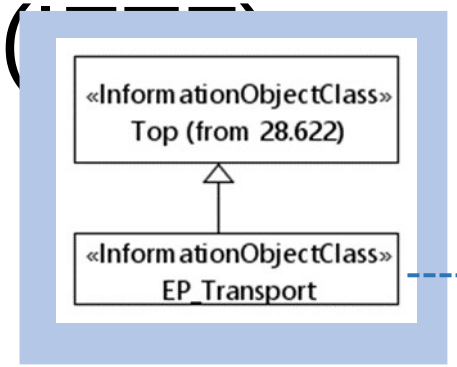
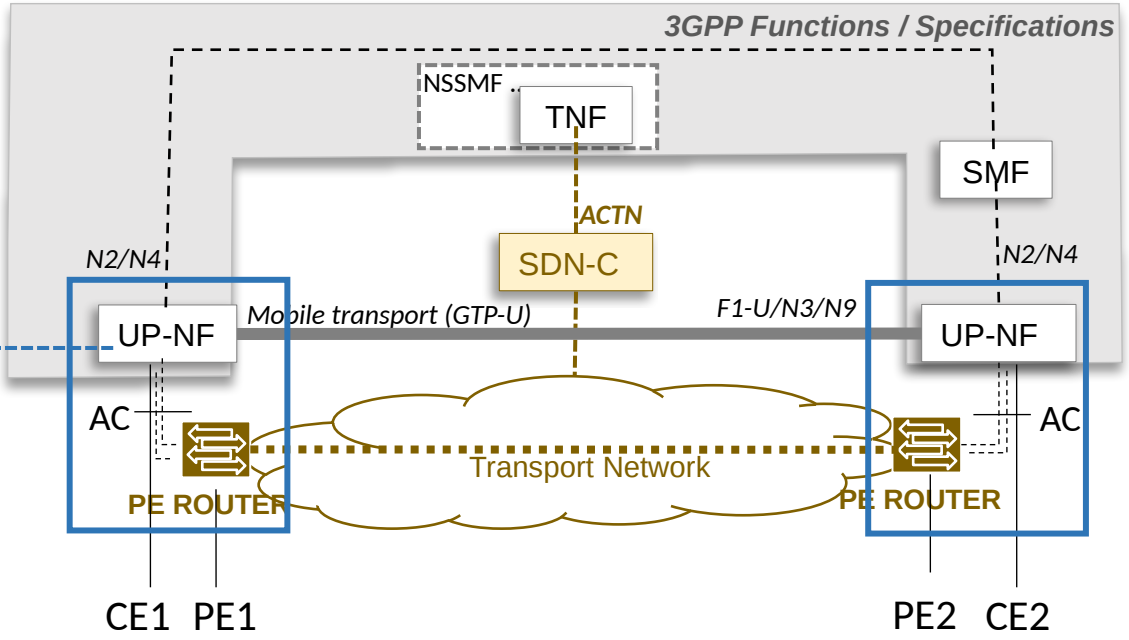



Figure - TS 28.541

logicInterfaceId
- VLAN
- MPLS
- Segment
- UDP-Port




(A) CE (3GPP UP-NF) and PE (IETF slice provider) are within the same node.

draft-ietf-teas-ietf-network-slices-12, 4.2

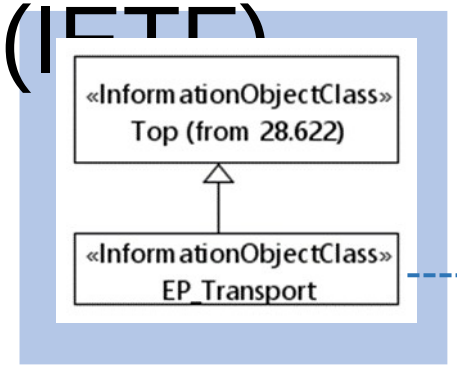
1. If the CE is operated by the IETF Network Slice service provider, then the edge of the IETF Network Slice may be within the CE. In this case the slicing process may utilize resources from within the CE such as buffers and queues on the outgoing interfaces.

(B) CE (3GPP UP-NF) and PE (IETF slice provider) are connected via VLAN.

Ref: draft-ietf-teas-ietf-network-slices-12, 4.2

2. The IETF Network Slice may be extended as far as the CE, to include the AC, but not to include any part of the CE. In this case, the CE may be operated by the customer or the provider. Slicing the resources on the AC may require the use of traffic tagging (such as through Ethernet VLAN tags) or may require traffic policing at the AC link ends.

# Service Demarcation Points (SDP): CE (3GPP), AC, PE (IETF)

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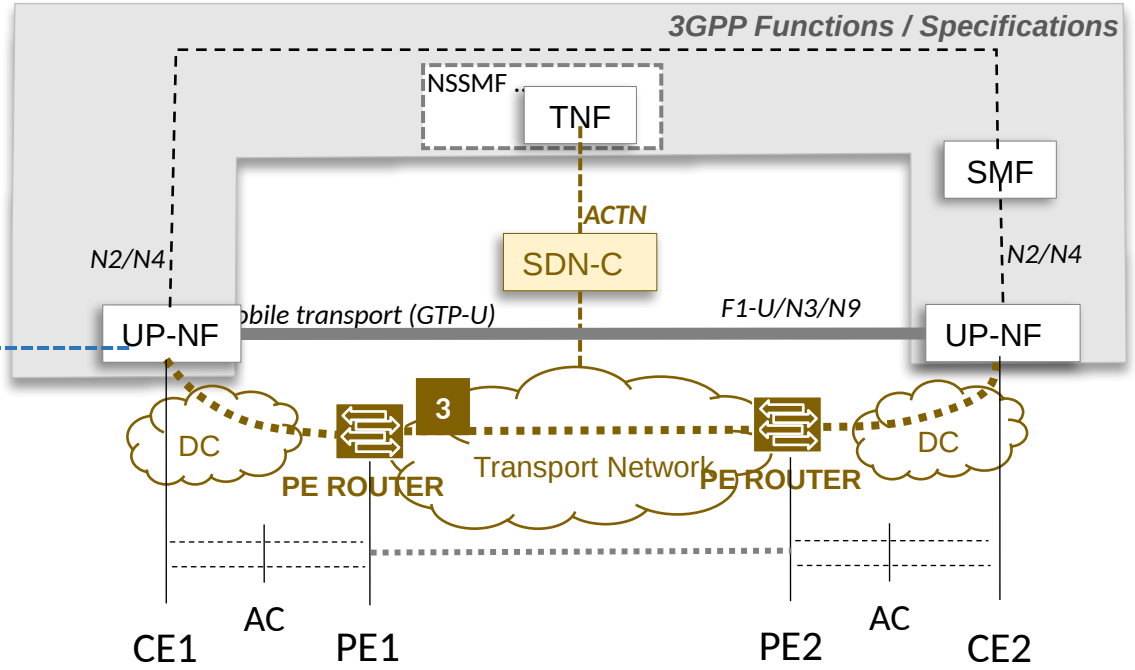


(C) CE (3GPP UP-NF) and PE (IETF slice provider) are separated by L3 network, service demarcation point is within the PE.

draft-ietf-teas-ietf-network-slices-12, 4.2

4. Finally, the SDP may be within the PE. In this mode, the PE classifies the traffic coming from the AC according to information (such as the source and destination IP addresses, payload protocol and port numbers, etc.) in order to place it onto an IETF Network Slice.

# Next Steps

- Share with other working groups
- Detailed reviews within dmm working group

Comments?