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Motivation

• A network slice may require an additional level of control to customize its connections, as described in Section 2 of draft-ietf-teas-ietf-network-slices.
  • “Additionally, the IETF Network Slice service customer might ask for some level of control of, e.g., to customize the service paths in a network slice.”

• A network slice can benefit from using a customized topology to allow better resource reservation and resource sharing among connections
  • We call it a “network slice topology”
Network Slice Topology

• A network slice topology is a customized topology used to express a customer’s intent for reserving topology resources and expressing connectivity constraints
  • A network slice topology is defined by the customer (“customized”), not one exposed by the provider (“abstract” or “native” topology)
  • Existing topology models, e.g. network topology or TE topology is not designed for expressing the slice intent, e.g. no customer SLO/SLEs defined

• Service paths for connections in a network slice can be specified on top of a network slice topology

• The topology model defined in early revisions of draft-liu-teas-transport-network-slice-yang is a good candidate for defining the network slice topology
Updates in Rev-06

• Imported common SLO/SLE attributes from ns-nbi & applied them to the topology constructs
• Removed the augments from the TE topology model for model connectivity constructs as they are already covered by the ns-nbi YANG model
• Text & diagram updates
Updated Model Relationships

Figure 1: Model Relationships
Model Tree

Network augments

Node augments
Model Tree (Cont.)

Link augments

TP augments
Open Issue

• Since the NS Topology model is a NS technology agnostic topology model, why not reference directly this model in NS-NBI for customized topology
  • Add constraint into NS-NBI that the reference topology must be of type “network-slice”
Open Issue – Relationship between SDP and LTP

- Current NS NBI model defines an SDP to reference an LTP object

```
+-rw sdps
  +-rw sdp* [id]
    +-rw id                        string
    +-rw description?              string
    +-rw location
      |
      +-rw node-id?                 string
    +-rw sdp-ip-address*           inet:ip-address
    +-rw tp-ref?                   -> /nw:networks/network[nw:network-id =current()/../../../custom-
                                   topology-ref/network-ref]/node/nt:termination-point/tp-id
```

- Should the reference be the other way around, i.e. an LTP object to reference an SDP?

```plaintext
augment /nw:networks/nw:network/nw:node/nt:termination-point:
  +-rw customer-facing-sdp-id?     Leafref
```

- Can multiple LTPs in different topologies point to the same SDP?

- Should an SDP exist before or at the time the LTP is created?
Next Steps

• Request for WG adoption
• Resolve open issues

* GitHub Repo
  https://github.com/aguoi/ietf-network-slice-topology
Thank You!