SF Aware TE Topology YANG Model

draft-ietf-teas-sf-aware-topo-model-02

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Status

- This draft merged the use-case draft `draft-ietf-teas-use-cases-sf-aware-topo-model` into the appendix.

- This draft does not model SF/VNF resource abstraction, leaving it ETSI NFV; it just maintains reference to SF/VNF types for future use.
Reference to a network service or a network function

Reference to a connection point on a network service or a network function
Next Steps

- The model is ready for YANG doctor’s review.
- The draft is ready for WG LC.
Backup Slides
Connectivity matrices introduced by the model

- **SF2SF CM** - describes which SFs could be locally inter-connected, and, if yes, in which direction, via which **CPs** and at what costs

- **SF2LTP CM** - describes how, in which direction and at what costs a given TE node's SFs could be connected to the TE node's **LTPs** and hence to SFs residing on neighboring TE nodes that are connected to LTPs at the remote ends of corresponding TE links

- **SF2TTP CM** - describes how, in which direction and at what costs a given TE node's SFs could be connected to the TE node's **TTPs** and hence to SFs residing on other TE nodes on the topology that could be inter-connected with the TE node via TE tunnels terminated by the corresponding TTPs.
SFs as TE topology elements

Node-1

TE-Tunnel-1

Link-12

Tunnel Termination Point (TTP)
Server Link Termination Point (S-LTP)
Client Link Termination Point (C-LTP)
Service Function (SF)
Modeling considerations

SFs are modeled as opaque objects identified via globally unique SF_IDs.

SF_IDs could be used to look up SFs in ETSI defined TOSCA/YANG data stores to understand SF details.

Multiple SFs with the same SF_ID could reside on different TE nodes.

Each SF has one or more Connection Points (CPs) identified by SF-unique CP_IDs.

SFs use CPs to inter-connect with each other, as well as with the hosting TE node’s LTPs and TTPs.
Interconnecting SFs via ETSI VLs

Node-1

TTP-1

LTP-6

LTP-5

LTP-4

CP01

SF1

CP11

CP12

CP13

SF2

CP21

CP31

CP32

SF3

CP33

VL_1

Link-12

TE-Tunnel-1

Tunnel Termination Point (TTP)
Server Link Termination Point (S-LTP)
Client Link Termination Point (C-LTP)
Service Function (SF)
ETSI Virtual Link (VL)
Example of SF2LTP CM: Compute Resource aware Topology

- Integrated Cross-Stratum resource model: network + DC compute/storage
- Compute Node is attached to network TE node. It contains VMs which can be modeled as a Service Function (SF). VM resources (instances, usage, CPU/Memory) can be modeled and integrated with network topology model to facilitate VM migration, dynamic load balancing, etc.
- Added is DC Compute model as an example in this version.