The Service YANG Model for Transport Networks

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draft-zhang-teas-transport-service-model-00.txt

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Problem Statement

• **Targeted Network Space:** connection-oriented Transport networks; example:
  - Optical Transport Network (OTN);
  - Wavelength Division Multiplexing Network (WDM);
  - Multi-Protocol Label Switching-Transport Profile (MPLS-TP);

• **Objective**
  - To provide a model for an automated programming interface of a transport network controller, so as to enable a service related operation (CRUD).
Issue to be addressed: what “service” model can the DC network controller use in order to asking for connectivity between two DCs?

e.g.: ”I need to request a P2P 1G between DC1 and DC2 for carrying 1GE traffic.”
The Service Model: A quick look

Note: State is not shown in complete info
The List of YANG Models for Transport Controller NBI: Overview

**Topology**
- Network model
  - Topology model
    - L2 topo model
    - TE topo model
      - ODU topo model
      - WSON topo model
      - Flexi-grid topo model

**Tunnel**
- TE Tunnel YANG model
  - L0-Tunnel YANG
  - L1-Tunnel YANG
  - L2-Tunnel YANG

**Other Key Models**
- Connectivity Service Model
- Advanced service model
- Scheduling
- Fault Model
Open Discussion: Why not use IETF-TE.YANG model?

• **Reason 1:** Different concepts
  
  ietf-transport-service.yang
  modeling a request between the client/operator demarcation point (e.g., UNI);
  
  ietf-te.yang modeling a tunnel between two tunnel-termination points (TTP);

• **Reason 2:** Different scenarios (Controller behavior(s))
  
  Client can use ietf-transport-service.yang to ask for a service, providing only the information it cares/knows;
  
  Operator can use ietf-te.yang to set up a tunnel without many actual service delivering requests; (resource planning)

• **Other differences:**
  
  – Service can be of types including P2P, P2MP, MP2MP etc, but tunnel has only has a subset of these types;
Assumption: no visibility into the transport networks.

Service request: ”I need to request a P2P 1G between DC1 and DC2 for carrying 1GE traffic” ;

Step 1: Orchestrator to T-SDN Controller: (NE5/TP1, NE3/TP1, Signal-type**=GE, service-type=P2P);

Step 2: T-SDN Controller: (2.1) to set up a 10G tunnel between two node/TTP pairs; (2.2) to allocate the 1st time slot this service and make the configuration on the first and last nodes for the service request (NE5 and NE3); *

Step 3: T-SDN Controller replies ok to Orchestrator;

*alternatively, orchestrator can pre-set up the ODU tunnel and then Step 2.1 can be skipped.

** not included in the current service model.
Discussions and Next Step

• Other open issues:
  – service-id type;

• Any form of contributions to this work are welcome
  – Feedback on whether such work is useful or any overlapping with other existing work;
  – Working on the yang model improvement;

• Comments?