

# The Service YANG Model for Transport Networks

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

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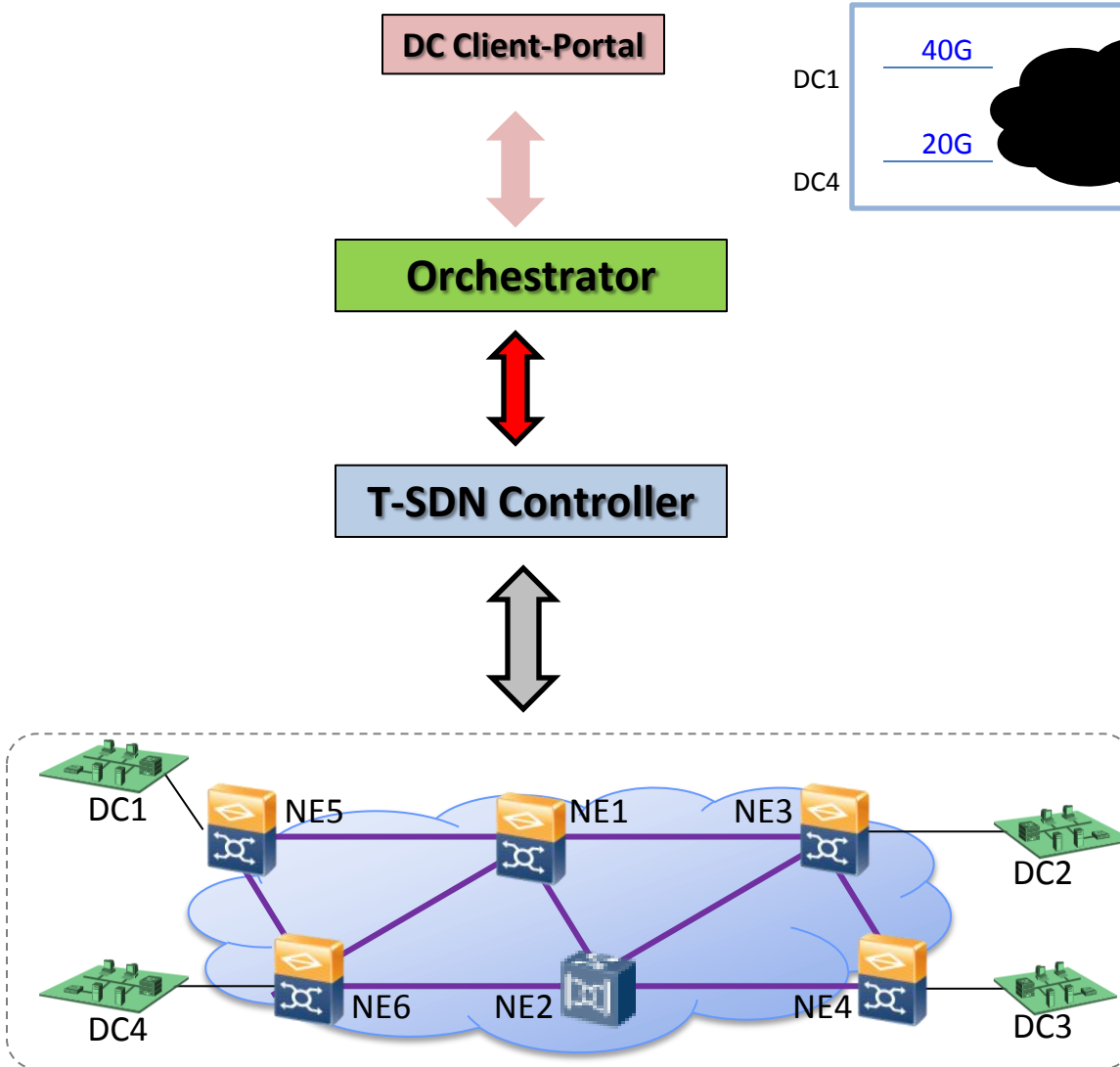
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# Problem Statement

- **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).

# A Use Case



**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

```
module: ietf-transport-service
  +--rw transport_service
    +--rw service* [service-id]
      +--rw service-id -> ../config/service-id
      +--rw config
        | +--rw service-id?          uint32
        | +--rw service-name?       string
        | +--rw service-endpoints* [node-id tp-id]
        | | +--rw type?             enumeration
        | | +--rw node-id           union
        | | +--rw tp-id             uint32
        | | +--rw endpoint-name?    string
        | +--rw service-type        identityref
        | +--rw supporting-tunnel
        | | +--rw tunnel-name?     string
        | +--rw bandwidth?         decimal64
        | +--rw protection-type?   identityref
        | +--rw schedule
        | | +--rw schedules
        | | | +--rw schedule* [schedule-id]
        | | | | +--rw schedule-id   uint32
        | | | | +--rw start?       yang:date-and-time
        | | | | +--rw schedule-duration? string
        | | | | +--rw repeat-interval? string
        | +--rw constraints
        | | +--rw delay-limit?      uint32
        | | +--rw delayvariation-limit? uint32
        | | +--rw packetloss-limit? decimal64
        | | +--rw objective?       identityref
      +--ro state
        +--ro service-id?          uint32
```

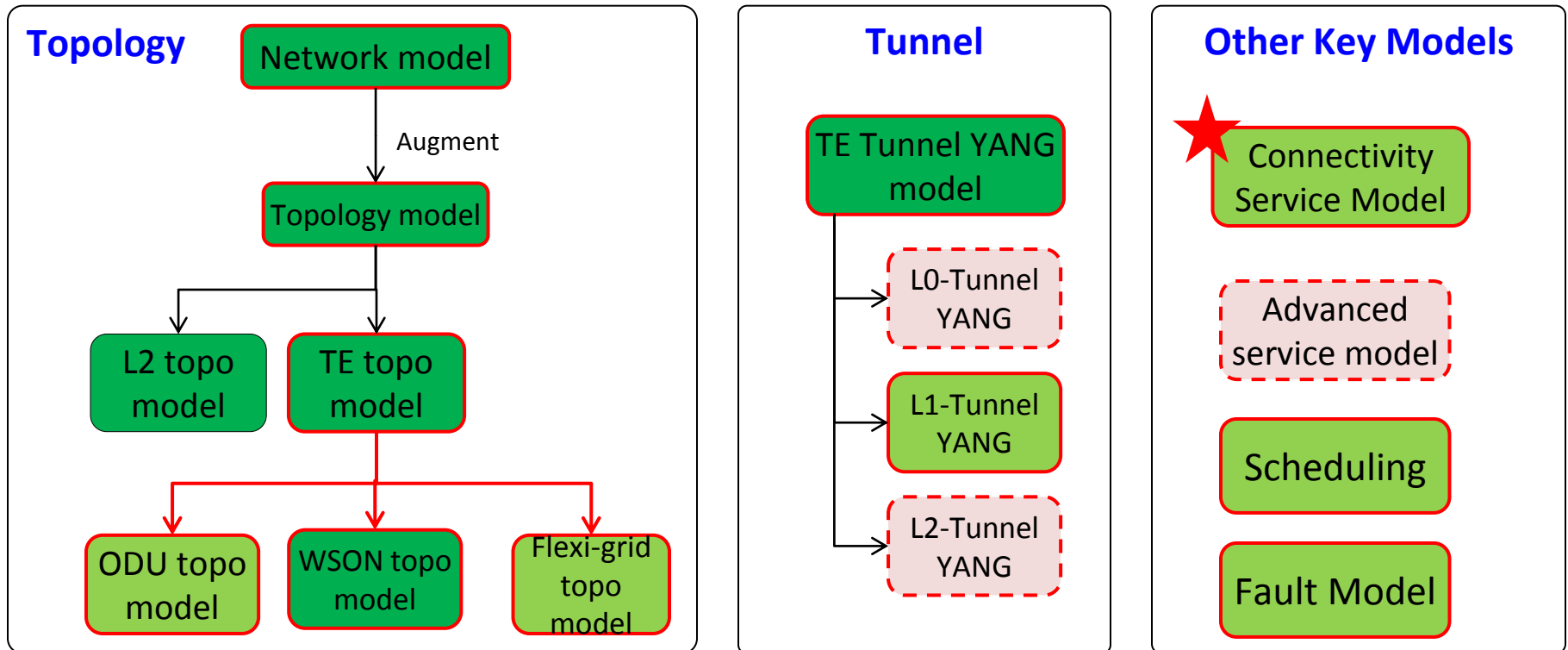
Note: State is not shown in complete info

# The List of YANG Models for Transport Controller NBI : Overview

In WG draft

In I-D

Missing



# 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))**

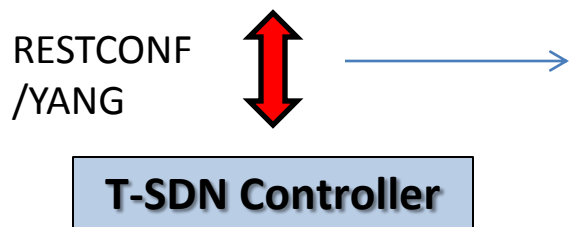
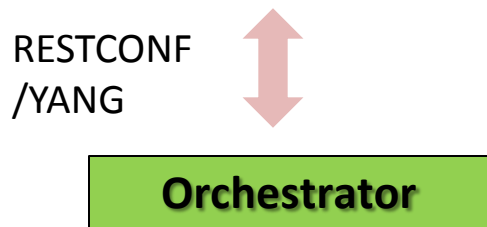
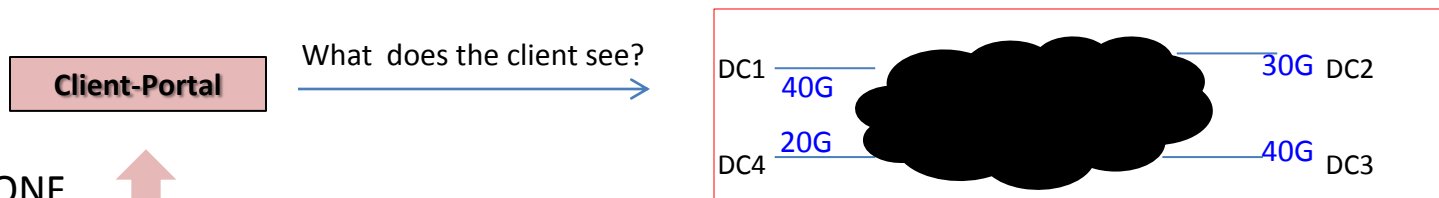
Client can use iETF-transport-service.yang to ask for a service, providing only the information it cares/knows;

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;

# An Example



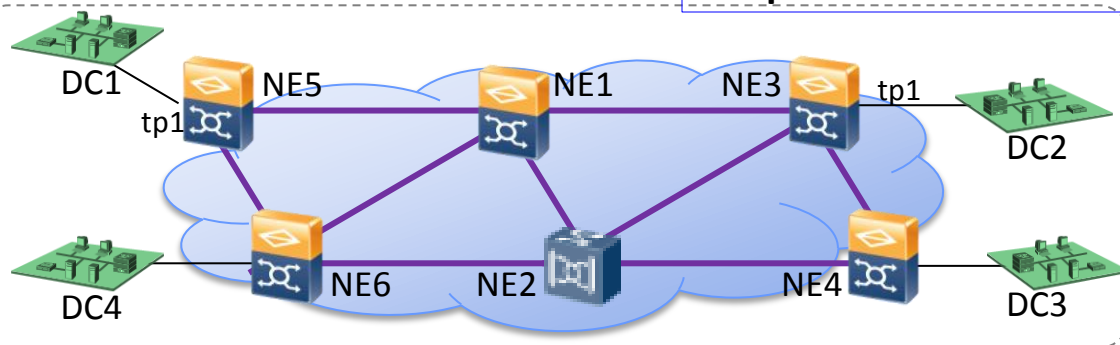
**Assumption:** no visibility into the transport networks.

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

**Step1:** 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?