YANG Models for the Northbound Interface of a Transport Network Controller: Requirements, Functions, and a List of YANG Models

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Problem Statement

• Transport networks
  • Synchronous Optical Networking (SONET) / Synchronous Digital Hierarchy (SDH);
  • Optical Transport Network (OTN): usually referred as ODU(electronic layer), OCh/Lambda layer;

• Operators’ requirements: Manage/control multi-vendor transport networks and fast service innovations:
  Option A: Open devices?
  OR
  Option B: Open via a layer of abstraction by controllers?
Use Case 1

1. The ability to obtain the information about the set of access links between DCs and transport networks.

2. The capability to send a request for a service, as well as retrieve a list of service requests and their statuses.

3. (optional) Acquisition of underlay topology (abstract or not) may indeed be able to give DC providers more control over resource usage.
Use Case 2

1. Function 1&2 mentioned in previous slides

2. Access to the topologies reported by each controller, including inter-domain links

3. The ability to set up, delete and modify tunnels, be it within one domain or across multiple domains.
The List of YANG Models: Overview

- **Topology model**
  - L3 topo model
  - L2 topo model
  - TE topo model
    - OTN topo model
    - WSON topo model
    - Flexi-grid topo model

- **Network model**

- **Inventory model**

- **Tunnel model**
  - TE Tunnel YANG model
    - ODU-Tunnel YANG
    - OCh-Tunnel YANG
    - Flexi-Tunnel YANG

- **Other models**
  - Connectivity Service Model
  - More service Models
  - Scheduling

- **Missing**

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Discussions and Next Step

• Comments?
• Any form of contributions to this work are welcome:
  – Collaborations;
  – Providing requirements;
  – Providing use cases;
  – Working on the missing YANG models.