ACTN/VN YANG Models

draft-ietf-teas-actn-vn-yang-11
draft-ietf-teas-actn-pm-telemetry-autonomics-05
draft-ietf-teas-te-service-mapping-yang-07

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YANG model overview

- VN
  - ietf-vn

- KPI Telemetry
  - ietf-te-kpi-telemetry
  - ietf-vn-kpi-telemetry

- Service Mapping
  - ietf-te-service-mapping-types
  - ietf-l3sm-te-service-mapping
  - ietf-l2sm-te-service-mapping
  - ietf-l1csm-te-service-mapping
  - ietf-l3nm-te-service-mapping
  - ietf-l2nm-te-service-mapping

TEAS WG @ IETF 110
VN Yang

- Single node in TE Topology
- abstract topology
- Native TE Topology
- Yang model for Virtual Network (VN) operations:
  - From the point of view of Customer
- An abstraction over the TE-Topo and TE-Tunnel:
  - These models are from the point of view of Network
- VN is a higher level of abstraction:
  - VN model depends tightly on the topology model!
  - Use Connectivity Matrices
Recent Changes

Yang Doctor Review by Andy Bierman

• Added text to describe the handling of vn-compute rpc
• Described error handling
• Removed redefinition of various status etc

Comments from Tom Petch

Suggested changes from Kenichi Ogaki incorporated for VN-Compute RPC

• Added figures to describe the interaction!
Open Issue

Naming Issue
- Was: /ap/access-point-list/access-point-id
- Current: /ap/ap/ap-id
- Proposal: /aps/ap/ap-id or /access-point/ap/ap-id?
- Similar change at other places!

Reusing te-types:te-common-status
- Proposal:
  - Add text description in the VN Yang model to state that some values (maintenance) may not be applicable for VN-compute and should be considered as unknown status.
Discuss: VN, Topology, and SR Policy

• Requirement: Setting up a VN with a VN-member realized by SR paths (SR Policy)
• Currently, VN uses the TE-Topology model based on the abstract node concept and connectivity matrix which can identify underlay TE tunnel
• Query: Can the TE Topology underlay mapped to SR paths (or SR Policy)? Does SR topology play any role?
• What is the best approach here?
KPI Telemetry Yang

draft-ietf-teas-actn-pm-telemetry-autonomics-05
ietf-te-kpi-telemetry
ietf-vn-kpi-telemetry
YANG models for VN/TE Telemetry & Network Autonomics

YANG data models that support: Performance Monitoring (PM) Telemetry and scaling intent mechanism for TE-Tunnels and VNs to allow customers to subscribe to certain KPI PM.

- ietf-te-kpi-telemetry
- ietf-vn-te-kpi-telemetry

Customer to subscribe and monitor KPI of interest on a particular TE tunnel or a VN.

Customer could also program autonomic scaling intent
Recent Changes

Scaling

- Added operation: the scaling operation to be performed when the scaling condition is met (bandwidth capacity up or down)
  - As an identity
  - Added scale: value by which scaling operation is performed
  - Generic value to be interpreted as per the operation

Open Issue

- Name of the model, suggestions welcome!
TE Service mapping YANG

draft-ietf-teas-te-service-mapping-yang-07

ietf-te-service-mapping-types
ietf-l3sm-te-service-mapping
ietf-l2sm-te-service-mapping
ietf-l1csm-te-service-mapping
ietf-l3nm-te-service-mapping
ietf-l2nm-te-service-mapping
The role of TE-service Mapping model is to create a mapping relationship between:

- Services
  - L3SM, L2SM, L1CSM, etc.
- Or, Network
  - L3NM, L2NM, with
  - TE topo, TE tunnel, or VN

This mapping facilitates a seamless service operation with underlay-TE network visibility and control.

Allow monitoring and diagnostics on how the service request are mapped to underlying TE resources.

Support for various map-types.
Recent Changes

Requirement from Kenichi
• Allow mapping the LxSM site and site-network-access per QoS profile to VNAP
  • Discussed at 109
  • *Further need some text description for this!*

Comments from Tom
• Thank You!

Modeling Changes
• Site and site-network-access mapped to VNAP
  • Te-mapping-templates moved outside of choice

TE Policy
• A new container to group various policy requirements such as color, protection, availability while mapping!
Some Examples

Example 1: An L3VPN service with an optimization criteria for the underlying TE as delay can be set in the mapping template and then augmented to the L2SM service.

```json
{
  "te-mapping-template": [
    {
      "id": "delay",
      "map-type": "select",
      "optimizations": {
        "algorithm": {
          "optimization-metric": [
            {
              "metric-type": "path-metric-delay-average"
            }
          ]
        }
      }
    }
  ]
}
```

Example 2: An L2VPN service with a bandwidth constraint and a hop-limit criteria for the underlying TE can be set in the mapping template and then augmented to the L2SM service.

```json
{
  "te-mapping-template": [
    {
      "id": "bw-hop",
      "map-type": "new",
      "path-constraints": {
        "te-bandwidth": {
          "generic": 10000
        },
        "path-metric-bounds": {
          "path-metric-bound": [
            {
              "metric-type": "path-metric-hop",
              "upper-bound": 10
            }
          ]
        }
      }
    }
  ]
}
```

The L2SM service can map it to a new TE resources in form of a VN or TE-tunnels.
Some Examples

Example 4: A VPN service may want different optimization criteria for some of its sites.

The template does not allow for such a case but it can be achieved by creating the TE resources separately and then mapping them to the service.
Further Discussion

• While the support to bind a tunnel to the VPN is supported. We do not have a mechanism to map traffic to a path. The input can come from the user.
  • E.g. the enterprise customer can tell, the traffic from source X on port Y should go with delay less than Z.
• Support for Calendaring and scheduling TE resources.
• Further discussion is required on how and where to model these.
Thank You!
Backup