ACTN/VN Yang Models

draft-ietf-teas-actn-vn-yang-07
draft-ietf-teas-actn-pm-telemetry-autonomics-01
draft-ietf-teas-te-service-mapping-yang-02

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# ACTN / VN YANG MODELS

## 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

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Major editorial cleanup included yang formatting, references, style guide changes etc
VN YANG

- 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

- Single node in TE Topology

- abstract topology

- Native TE Topology
The customer access information may be known at the time of VN creation.
- A shared logical AP identifier is used between the customer and the operator to identify the access link between CE and PE.
- This is described in Section 6 of [RFC8453].

The customer access may not be known at the initial VN creation.
- The VN operation allow a creation of VN with only PE identifier as well.
- The customer access information could be added later.
- The 'ap' container has a leaf for 'pe' node that allows AP to be created with PE information.
- The vn-member (and vn) could use APs that only have PE information initially.

Resolves the issue discussed at 105 - Can VN member be set from PE to PE without attaching customer facing access?
module: ietf-vn
  +--rw ap
    |   +--rw access-point-list* [access-point-id]
    |     +--rw access-point-id        uint32
    |     +--rw access-point-name?     string
    |     +--rw pe?
    |     |   -> /nw:networks/network/node/tet:te-node-id
    |     +--rw max-bandwidth?         te-types:te-bandwidth
    |     +--rw avl-bandwidth?         te-types:te-bandwidth
    |     +--rw vn-ap* [vn-ap-id]
    |     |   +--rw vn-ap-id     uint32
    |     |   +--rw vn?          -> /vn/vn-list/vn-id
    |     |   +--rw abstract-node?
    |     |   |     -> /nw:networks/network/node/tet:te-node-id
    |     |     +--rw ltp?        leafref
YANG MODELS FOR ACTN & TE PM 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
UPDATE

module: ietf-te-kpi-telemetry
augment /te:te/tunnels/te:tunnel:
  +rw te-scaling-intent
    +rw scale-in-intent
      +rw threshold-time? uint32
      +rw cooldown-time? uint32
      +rw scale-in-operation-type? scaling-criteria-operation
    +rw scaling-condition* [performance-type]
      +rw performance-type identityref
      +rw threshold-value? string
      -rw te-telemetry-tunnel-ref?
        -> /te:te/tunnels/tunnel/name
  +rw scale-out-intent
    +rw threshold-time? uint32
    +rw cooldown-time? uint32
    +rw scale-out-operation-type? scaling-criteria-operation
    +rw scaling-condition* [performance-type]
      +rw performance-type identityref
      +rw threshold-value? string
      -rw te-telemetry-tunnel-ref?
        -> /te:te/tunnels/tunnel/name
- Allowed one to mix “AND” & “OR” for each metric individually!
- No need for reference to tunnel as you are augmenting the same tunnel

```yaml
module: ietf-te-kpi-telemetry
augment /te:te:te:tunnels/te:tunnel
    +rw te-scaling-intent
        +rw scale-in-intent
            +rw threshold-time? uint32
            +rw cooldown-time? uint32
            +rw scale-in-operation-type? scaling-criteria-operation
            +rw scaling-condition* [performance-type]
                +rw performance-type identityref
                +rw threshold-value? string
                - te-telemetry-tunnel-ref? string
                    - /te:te:tunnels/tunnel/name
        +rw scale-out-intent
            +rw threshold-time? uint32
            +rw cooldown-time? uint32
            +rw scale-out-operation-type? scaling-criteria-operation
            +rw scaling-condition* [performance-type]
                +rw performance-type identityref
                +rw threshold-value? string
                - te-telemetry-tunnel-ref? string
                    - /te:te:tunnels/tunnel/name
```

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```
---rw threshold-time? uint32
---rw cooldown-time? uint32
---rw scaling-condition* [performance-type]
    ---rw performance-type identityref
    ---rw threshold-value? string
    ---rw scale-in-operation-type? scaling-criteria-operation
---rw scale-out-intent
    ---rw threshold-time? uint32
    ---rw cooldown-time? uint32
    ---rw scaling-condition* [performance-type]
        ---rw performance-type identityref
        ---rw threshold-value? string
        ---rw scale-out-operation-type? scaling-criteria-operation
```

---

```
---rw threshold-time? uint32
---rw cooldown-time? uint32
---rw scaling-condition* [performance-type]
    ---rw performance-type identityref
    ---rw threshold-value? string
    ---rw scale-in-operation-type? scaling-criteria-operation
```
Use of percentile or mean [Reference: Stamp Yang]

- Could not find how to use this with TE parameters
- We rely on ‘performance-metrics-attributes’ as defined in ietf-te-types with definitions in existing RFCs
SERVICE MAPPING YANG

draft-ietf-teas-te-service-mapping-yang-02
**TE-SERVICE MAPPING MODEL**

- The role of TE-service Mapping model is to create a mapping relationship between:
  - Services – L3SM, L2SM, L1CSM, etc.
  - TE topo, TE tunnel and the VN

- TE-service mapping model also provides service policy/intent (e.g., selection policy, isolation, availability, etc.) for services

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

- Update in -02: ACTN-VN to VN
OPEN ISSUES

Can this model be also used by network model - L3NM?
  • Make sense to augment L3NM in the same way as L3SM.
  • Let's discuss!

Pending issue – Reference for Availability!
  • Need help!
THANKYOU!