

YANG models for ACTN & TE Performance Monitoring Telemetry and Network Autonomics

[draft-lee-teas-actn-pm-telemetry-autonomics-11](#)

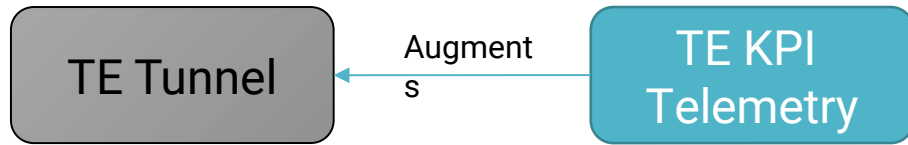
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Overview

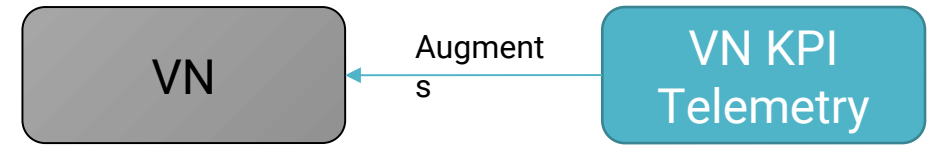
YANG data models that support:

- Performance Monitoring (PM) Telemetry for TE-Tunnels and VNs to allow customers to subscribe to certain KPI PM data and be notified with the support of YANG PUSH.
 - *ietf-te-kpi-telemetry*
 - *ietf-actn-te-kpi-telemetry*
- Network Autonomics for Scaling Intent for TE-tunnels and VNs.
 - *i.e. setting the exact condition when the tunnel or VN should be scaled in/out*
 - *and the performance parameter on which scaling should be done!*

Yang Model Relationships



- TE KPI Telemetry model provides the TE tunnel level performance monitoring.
- Augment the TE tunnel State with performance attributes
 - Use the notification subscription (**YANG PUSH**)
- Scaling Intent configurations for auto scaling in/out based on the combination of the performance monitored attributes



- VN KPI Telemetry model provides the VN level aggregated performance monitoring.
- Augment the VN state as well as individual VN-member state with performance attributes.
 - Use notification subscription (**YANG PUSH**)
- Scaling Intent configurations at the VN level to reach to the monitored performance KPI

Status

- Presented in IETF 102 and received good support from the floor.
- Presented in IETF 103 and received good support from the floor.
- packet-loss and delay-variation deleted from the model to stay as generic model.
- Added a new section to explain how scaling mechanism works (section 4).

Illustration of Scaling Mechanism

```
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
| |   +-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
```

Let say the client wants to set the scaling out operation based on two performance-types (e.g., two-way-delay and utilized-bandwidth for a te-tunnel),

it can be done as follows:

1. Set **Threshold-time**: 3600 (sec) (duration for which the criteria must hold true)
2. Set **Cooldown-time**: 60 (sec) (the duration after a scaling action has been triggered, for which there will be no further operation)
3. Set **AND** for the **scale-out-operation-type**

List 1: Scaling Condition for Two-way-delay

- performance type: Two-way-delay
- threshold-value: 300 mile-seconds

List 2: Scaling Condition for Utilized bandwidth

- performance type: Utilized bandwidth
- threshold-value: 300 megabytes

The above two criteria have to meet at the same time to trigger scale-out operation.

Next Steps

- The authors believe this draft has a good base for WG adoption ^{^^}

Thanks!