A YANG Model for Network and VPN Service Performance Monitoring

draft-ietf-opsawg-yang-vpn-service-pm-01

Bo Wu (Presenting), Qin Wu (Huawei)
Mohamed Boucadair (Orange)
Oscar Gonzalez de Dios (Telefonica)
Wen Bin (Comcast)
Change Liu (China Unicom)
Honglei Xu (China Telecom)

IETF#112, Online meeting, Nov. 2021
Recap – Network and VPN service PM overview

- This draft is complementary to LxNM models as it adds the association between service topology and VPN PM statistics and network topology

- Approach: Augments RFC8345 with the network and VPN PM statistics

- [https://github.com/IETF-OPSAWG-WG/lxnm/issues/332](https://github.com/IETF-OPSAWG-WG/lxnm/issues/332)
“pm-source” should use identity type

- [https://github.com/IETF-OPSAWG-WG/lxnm/issues/33](https://github.com/IETF-OPSAWG-WG/lxnm/issues/33)

- Change the type from “string” to “Identity”

- Propose to define some common PM mechanisms, for example:
  - BGP-LS for network links monitoring
  - TWAMP for L3VPN service monitoring
  - Y.1731 for L2VPN service monitoring
Identity for performance monitoring metric source

```plaintext
identity pm-source-type {
  description
  "Base identity from which specific performance monitoring mechanism types are derived.";
}

identity pm-source-bgppls {
  base pm-source-type;
  description
  "Indicates BGP-LS as the performance monitoring metric source";
  reference "RFC8571";
}

identity pm-source-twamp {
  base pm-source-type;
  description
  "Indicates Two-Way Active Measurement Protocol(TWAMP) as the performance monitoring metric source.";
  reference "RFC5357";
}

identity pm-source-y-1731 {
  base pm-source-type;
  description
  "Indicates Ethernet OAM Y.1731 as the performance monitoring metric source.";
  reference "ITU-T Y.1731";
}
```
Propose to add “vpn-network-access” specific counters

• Add “vpn-network-access” list under “tp”
• Each “vpn-network-access” can have specific counters

```
augment /nw:networks/nw:network/nw:node/nt:termination-point:
  +--ro pm-statistics
    +--ro inbound-octets?     yang:counter64
    +--ro inbound-unicast?    yang:counter64
    +--ro inbound-nunicast?   yang:counter64
    +--ro inbound-discards?   yang:counter32
    +--ro inbound-errors?     yang:counter64
    +--ro inbound-unknown-protocol? yang:counter64
    +--ro outbound-octets?    yang:counter64
    +--ro outbound-unicast?   yang:counter64
    +--ro outbound-nunicast?  yang:counter64
    +--ro outbound-discards?  yang:counter64
    +--ro outbound-errors?    yang:counter64

  +--  ro vpn-network-access-statistics
    +--rw vpn-network-access* [id]  vpn-common:vpn-id
      +--rw id                      yang:counter64
      +--ro inbound-octets?         yang:counter64
      ...
      +--ro outbound-octets?        yang:counter64
```

This is new
class-id Specific metrics

- Would it be possible to consider also displaying counter for class-id and policy-id?
Possible YANG Structures

augment /nw:networks/nw:network/nt:link:
  +--rw pm-attributes
    +--rw low-percentile? percentile
    +--rw middle-percentile? percentile
    +--rw high-percentile? percentile
    +--ro pm-source? string
    +--ro reference-time? yang:date-and-time
    +--ro measurement-interval? uint32
    +--ro pm-statistics
      | +--ro loss-statistics
      | | +--ro packet-loss-count? yang:counter64
      | | +--ro packet-reorder-count? yang:counter64
      | | +--ro packets-out-of-seq-count? yang:counter64
      | | +--ro packets-dup-count? yang:counter64
      | | +--ro loss-ratio? percentage
      | +--ro delay-statistics
      | | +--ro direction? identityref
      | | +--ro unit-value? identityref
      | | +--ro min-delay-value? yang:gauge64
      | | +--ro max-delay-value? yang:gauge64
      | | +--ro low-delay-percentile? yang:gauge64
      | | +--ro middle-delay-percentile? yang:gauge64
      | | +--ro high-delay-percentile? yang:gauge64
      | +--ro jitter-statistics
      | | +--ro unit-value? identityref
      | | +--ro min-jitter-value? yang
Next Steps

- Update the draft to address the pending issues
- Please review and share your comments
- Questions?