

# 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)

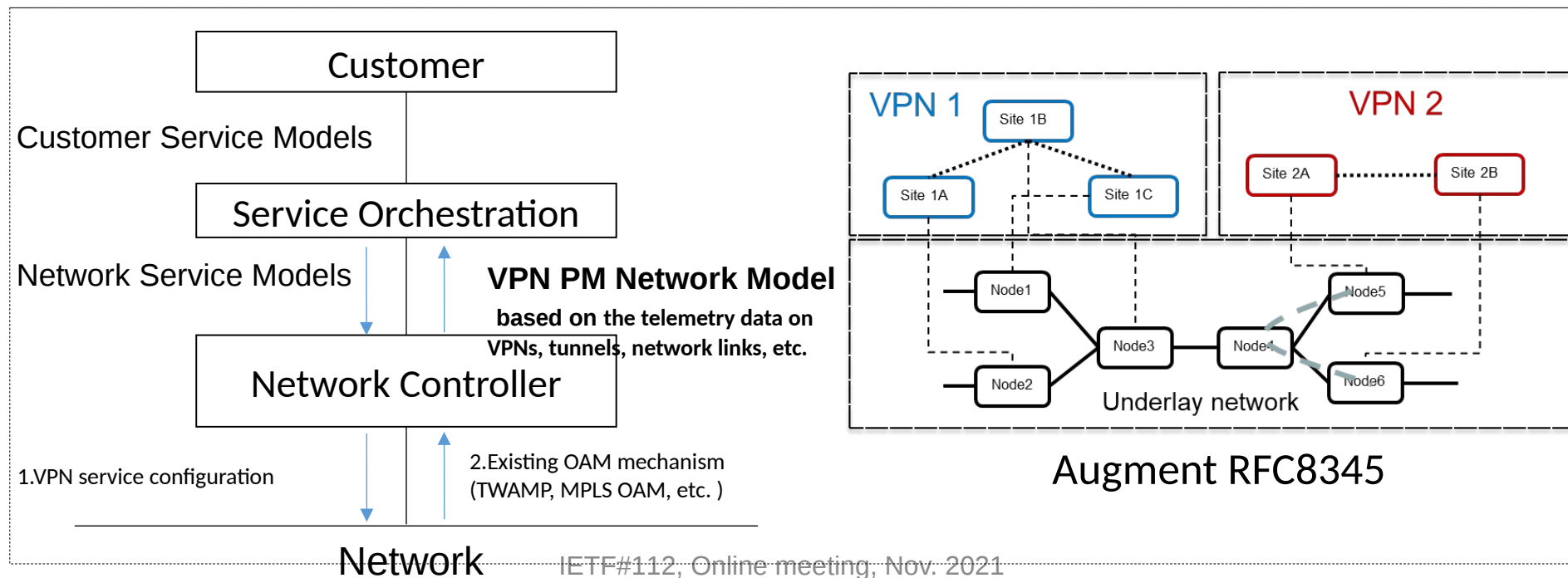
Wen Bin (Comcast)

Change Liu (China Unicom)

Honglei Xu (China Telecom)

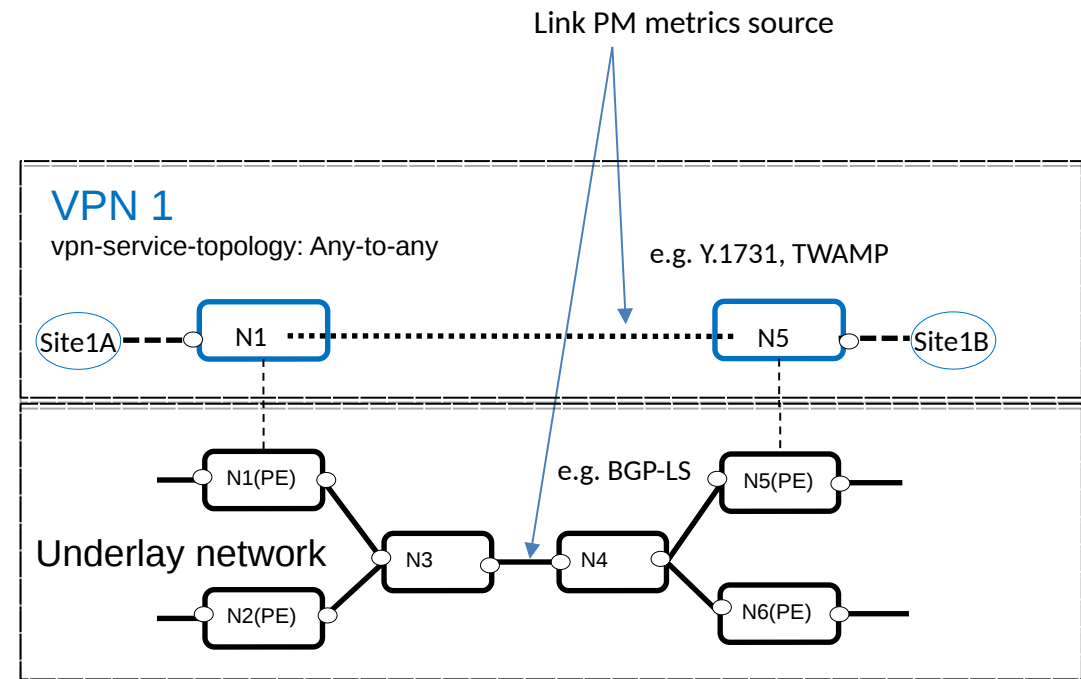
# Recap – Network and VPN service PM overview

- 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>



# “pm-source” should use identity type

- <https://github.com/IETF-OPSAWG-WG/lxnm/issues/332>
- 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

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

```
identity pm-source-bgp1s {  
  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]
```

```
+--rw id
```

```
+--ro inbound-octets?
```

```
...
```

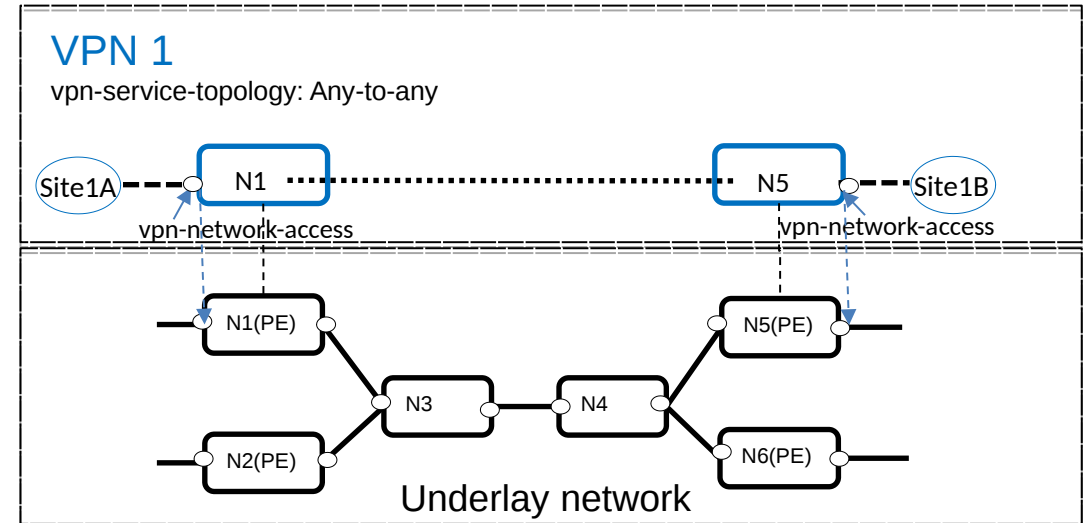
```
+--ro outbound-octets?
```

```
← vpn-common:vpn-id
```

```
yang:counter64
```

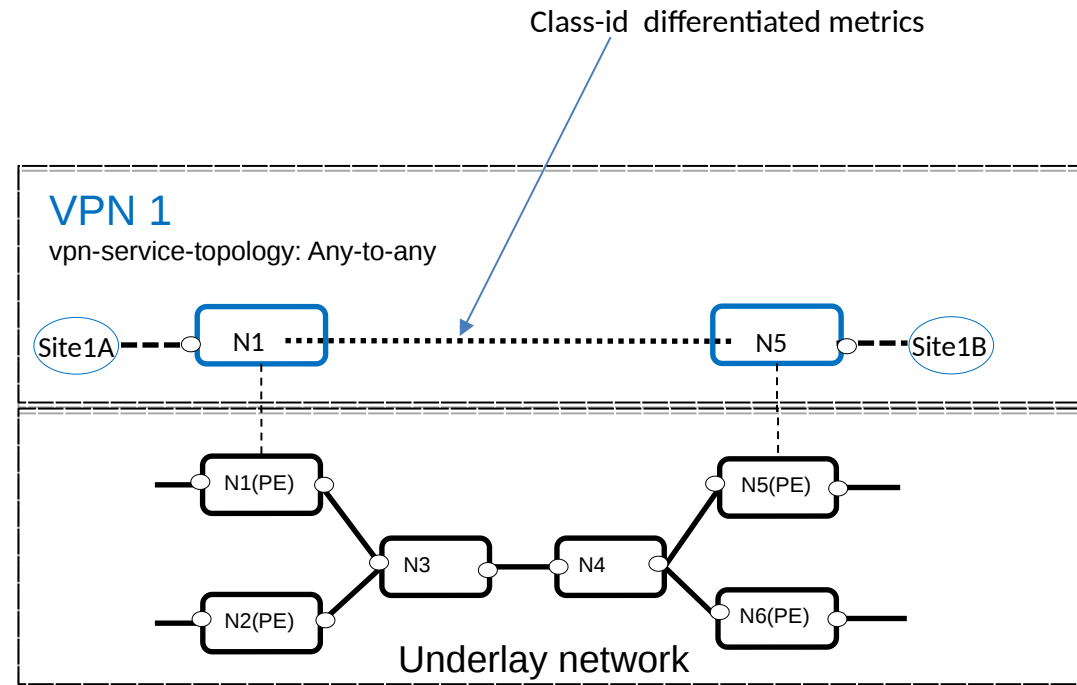
```
yang:counter64
```

← 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?      yan
```

→ Could change container “pm-statistics” to a list with “class-id” as the key

# Next Steps

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