

# A YANG Data Model for Ethernet TE Topology

CCAMP WG, IETF 108, Virtual Meeting

draft-zheng-ccamp-client-topo-yang-09

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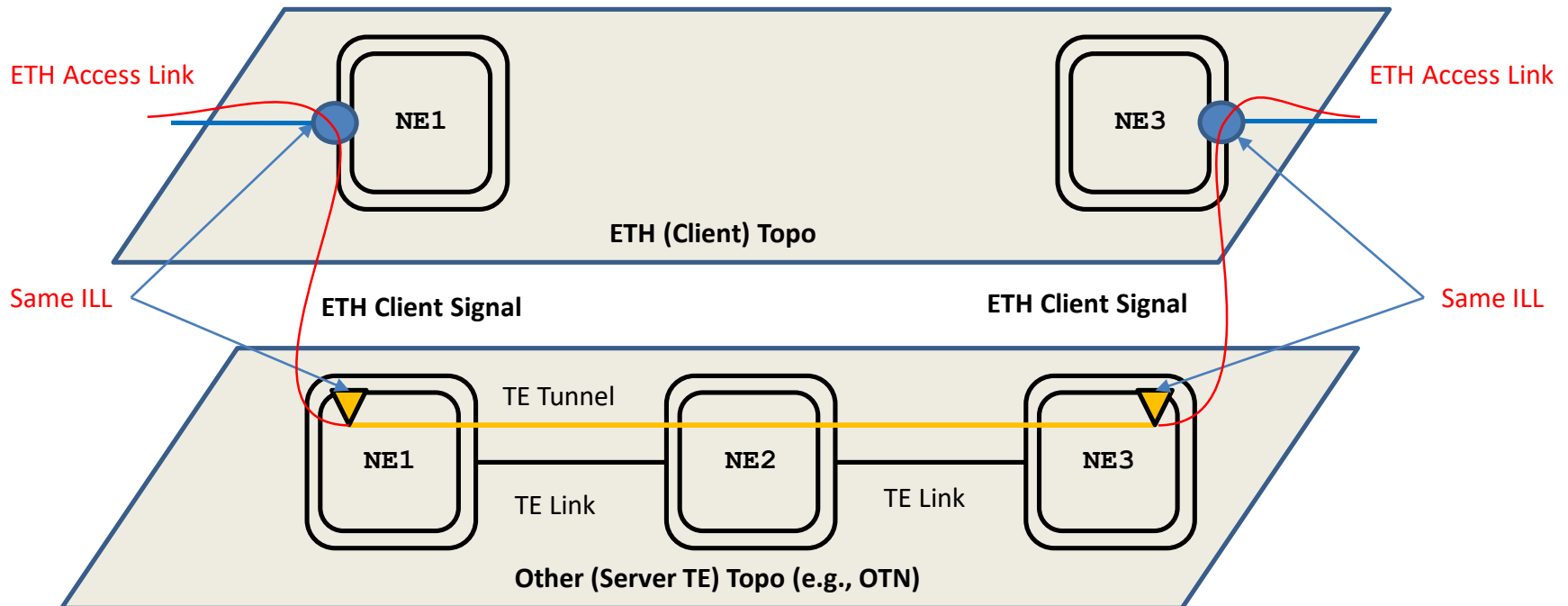
Xufeng Liu (Volta)

# History

- Initially presented at IETF 105
- Updates presented at IETF 106: ready for WG adoption
  - Good support for WG adoption in the room
- Similar draft submitted to OPSAWG (draft-ogondio-opsawg-uni-topology) after IETF 106
  - Initial discussion during CCAMP WG Interim meeting in May 2020
- No further technical changes after IETF 106
  - Just refreshed -08 to avoid expiration
- Draft normatively referenced by the Transport NBI Applicability draft (draft-ietf-ccamp-transport-nbi-app-statement-11)

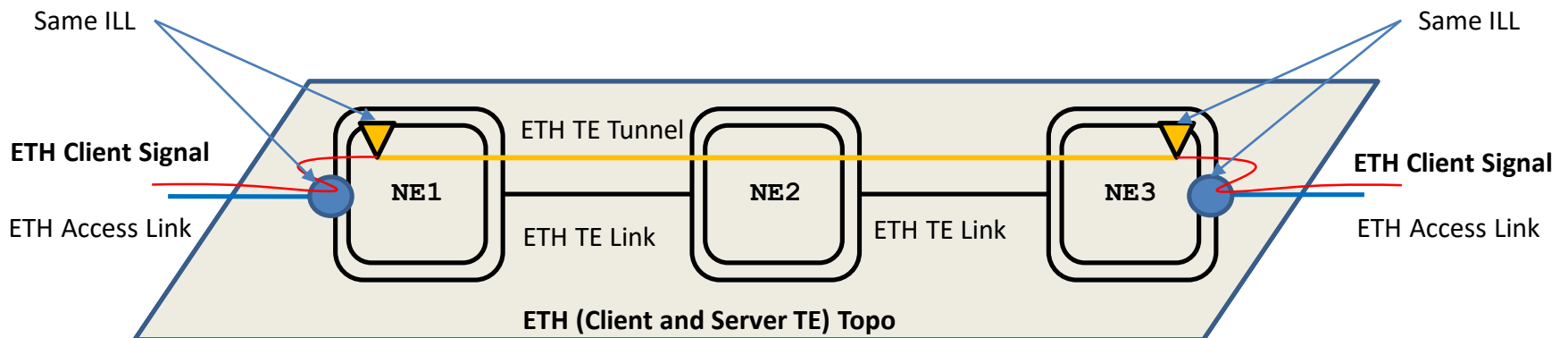
# Problem Statement (1)

- Represents ETH access links
  - Access Link discovery (plug-id)
  - Inter-layer relationship with server-layer TTP (ILL or TL)
  - VLAN classification & operations capabilities
  - Configure access link bandwidth profiles



# Problem Statement (2)

- ETH TE Topology Discovery
  - Support path computation & setup for ETH TE Tunnels/LSPs
  - Yet another technology-specific augmentation of TE Topology model
  - Can support ETH client signals



# Access link discovery (1)

- The YANG model proposed in this draft augments TE Topology
  - TE topology supports access links (UNIs or inter-domain NNIs) discovery, independently on whether the underlying network is TE or non-TE:

```
augment /nw:networks/nw:network/nw:node/nt:termination-point:  
  +--rw te-tp-id?    te-types:te-tp-id  
  +--rw te!  
    +--rw admin-status?  
      |      te-types:te-admin-status  
    +---rw inter-domain-plug-id?          binary  
    +---ro oper-status?  
          te-types:te-oper-status
```

- TE Topology also provides inter-layer relationship with server-layer TTP (ILL or TL), needed only when the underlying network is TE

# Access link discovery (2)

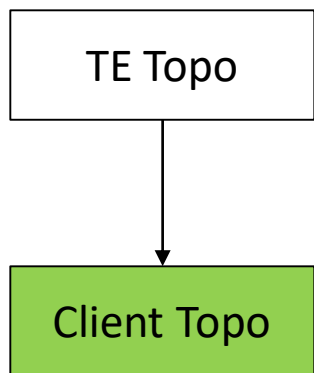
- The approach is consistent with otn-topology:
  - L1/OTN access links are reported by the OTN topology
  - L1/transparent client access links are reported by the OTN topology
  - L2/ETH client access links are reported by the ETH topology
  - A UNI which is capable to operate as both L1 and L2, will appear in both OTN and ETH topologies

# Relationship with draft-ogondio

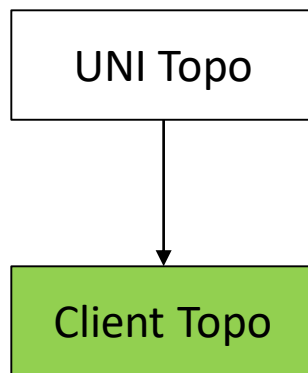
- The solution in draft-ogondio seems more competing with TE Topology than with this draft
  - Generic solution for discovering UNIs also when the underlying network is non-TE
- TE topology provides additional information, applicable only to underlying TE networks (outside the scope of this draft and of draft-ogondio)
  - Inter-layer relationship with server-layer TTP (ILL or TL)
- This document covers these aspects which are not in the scope of draft-ogondio nor of TE Topology
  - VLAN classification & operations capabilities
  - Configure access link bandwidth profiles
  - ETH technology-specific TE topology augmentations

# Possible Way Forward

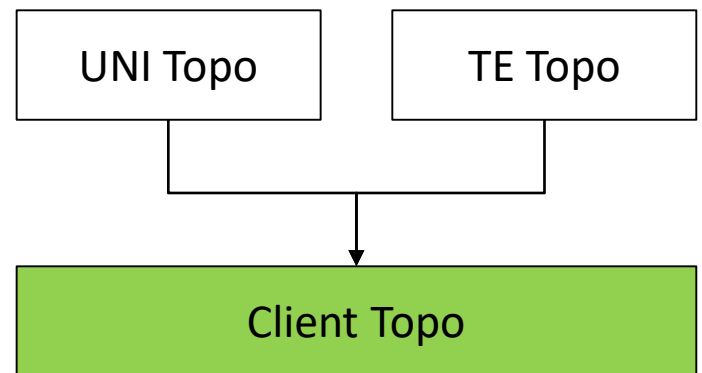
- CCAMP WG could adopt this document:
  - It is covering aspects which are outside the scope of TE Topology and draft-ogondio
- TEAS WG and OPSAWG should agree on a common model for UNI topology discovery
  - CCAMP WG draft can align to the output of this discussion
  - The rest of the YANG model would not change



Option 1



Option 2



Option 3



# A YANG Model for User-Network Interface (UNI) Topologies

CCAMP WG, IETF 108, Virtual Meeting

draft-ogondio-opsawg-uni-topology-01

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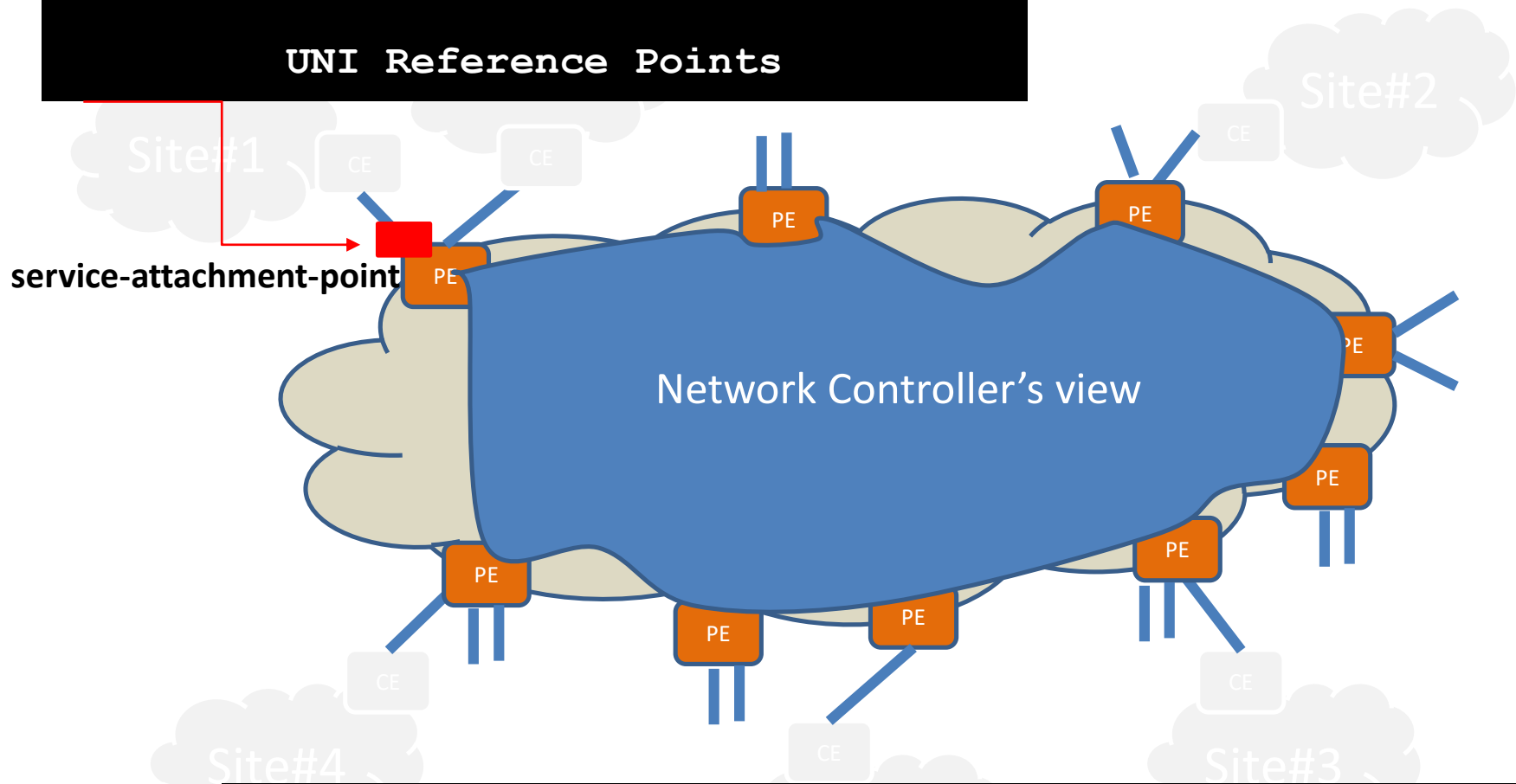
Qin Wu (Huawei)

Mohamed Boucadair (Orange)

# One Service, Many Views

Where to attach/deliver the service?

**UNI Reference Points**



Mapping Service Requests to Network Resources:

**UNI-Augmented Network Topology**

# Points for Discussion & Relation vs. TE topo I-D

- draft-ogondio (UNI Topo) defines **service-attachment-point** concept
  - Augments `"/nw:networks/nw:network/nw:node"` defined in RFC8345
  - 'service-attachment-point' is *not a 'ntp' nor a link*
- UNI Topo can be seen as **an inventory data** associated with service attachments (e.g., PE nodes)
  - It maintains an inventory of nodes contained in a network based on RFC8345. For design choice, See quoted text in RFC8345: "Although it would be possible to combine both parts into a single data model, the separation facilitates integration of network topology and network inventory data models, because **it allows network inventory information to be augmented separately, and without concern for topology, into the network data model.**"
- draft-ogondio can be used with **TE and non-TE topologies**
  - There is no overlapping with TE topo model

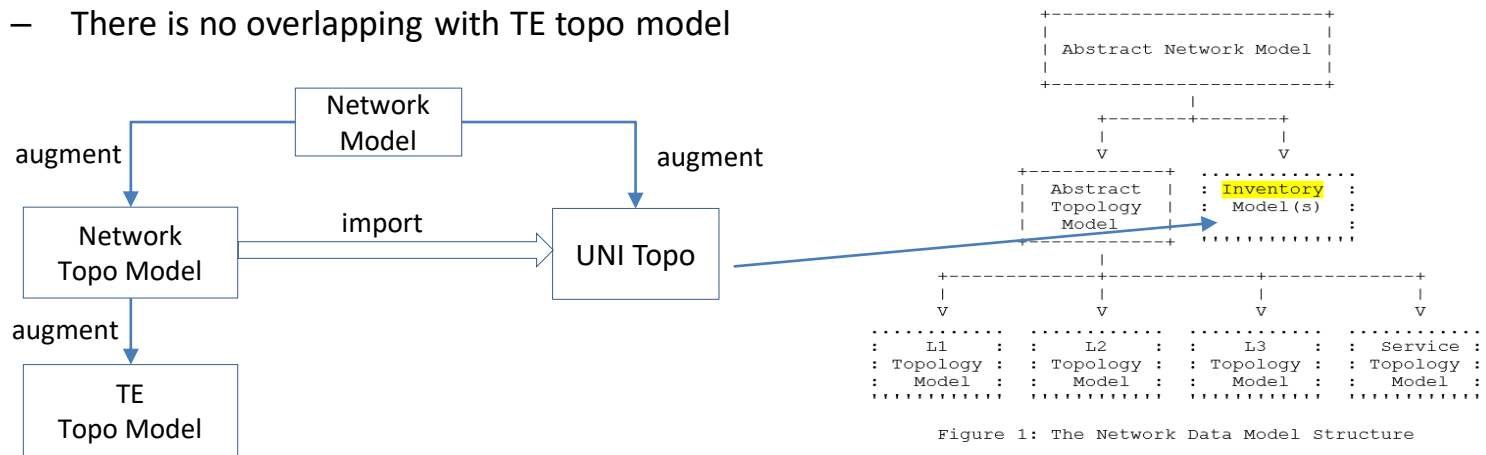


Figure 1: The Network Data Model Structure

Source: <https://tools.ietf.org/html/rfc8345>

The relation between TE topo and UNI topo