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**A YANG Data Model for Client-layer Tunnel
draft-zheng-ccamp-client-tunnel-yang-07**

Abstract

A transport network is a server-layer network to provide connectivity services to its client. In this draft the tunnel of client is described, with the definition of client tunnel YANG model.

Status of This Memo

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[1.](#) Introduction

A transport network is a server-layer network designed to provide connectivity services for a client-layer network to carry the client traffic transparently across the server-layer network resources. The tunnel model in Traffic-Engineered network has been defined in both generic way and technology-specific way. The generic model, which is the base TE tunnel YANG model, can be found at [[I-D.ietf-teas-yang-te](#)]. Technology-specific models, such as OTN/WSN tunnel model, have also been defined in [[I-D.ietf-ccamp-otn-tunnel-model](#)] and [[I-D.ietf-ccamp-wson-tunnel-model](#)] respectively. Corresponding tunnel on client-layer is also required, to have a complete topology view from the perspective of network controllers.

This document defines a data model of all client-layer tunnel, using YANG language defined in [[RFC7950](#)]. The model is augmenting the generic TE tunnel model, and can be used by applications exposing to a network controller via a REST interface. Furthermore, it can be

used by an application to describe the client tunnel that constructed above the server-layer network. It is also worth noting that the client layer network will only need the tunnel model when there is a demand for switching techniques, such as Carrier Ethernet and MPLS-TP. The transparent signals do not need this model.

2. Terminology and Notations

A simplified graphical representation of the data model is used in this document. The meaning of the symbols in the YANG data tree presented later in this document is defined in [[RFC8340](#)]. They are provided below for reference.

- o Brackets "[" and "]" enclose list keys.
- o Abbreviations before data node names: "rw" means configuration (read-write) and "ro" state data (read-only).
- o Symbols after data node names: "?" means an optional node, "!" means a presence container, and "*" denotes a list and leaf-list.
- o Parentheses enclose choice and case nodes, and case nodes are also marked with a colon (":").
- o Ellipsis ("...") stands for contents of subtrees that are not shown.

3. YANG Model for Client-layer Tunnel

[3.1.](#) YANG Tree for Ethernet Tunnel


```
module: ietf-eth-te-tunnel
  augment /te:te/te:tunnels/te:tunnel:
    +--rw src-eth-tunnel-endpoint
    |   +--rw vlanid?      etht-types:vlanid
    |   +--rw tag-type?    etht-types:eth-tag-type
    +--rw dst-eth-tunnel-endpoint
    |   +--rw vlanid?      etht-types:vlanid
    |   +--rw tag-type?    etht-types:eth-tag-type
    +--rw bandwidth-profile
        +--rw bandwidth-profile-name?  string
        +--rw bandwidth-profile-type?  etht-types:bandwidth-profile-type
        +--rw CIR?                      uint64
        +--rw CBS?                      uint64
        +--rw EIR?                      uint64
        +--rw EBS?                      uint64
        +--rw color-aware?              boolean
        +--rw coupling-flag?            boolean
```

[3.2.](#) YANG Tree for Tunnel of other Client Signal Model

This section will be completed later.

[4.](#) YANG Code for Client-layer Tunnel

[4.1.](#) The ETH Tunnel YANG Code

<CODE BEGINS> file "ietf-eth-te-tunnel@2018-03-01.yang"

```
module ietf-eth-te-tunnel {

  namespace "urn:ietf:params:xml:ns:yang:ietf-eth-te-tunnel";

  prefix "eth-tunnel";

  import ietf-te {
    prefix "te";
  }

  import ietf-eth-tran-types {
    prefix "etht-types";
  }

  organization
```



```
    "Internet Engineering Task Force (IETF) CCAMP WG";
contact
  "
    WG List: <mailto:ccamp@ietf.org>

    ID-draft editor:
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  ";

description
  "This module defines a model for ETH transport tunnel";

revision 2018-03-01 {
  description
    "Initial revision";
  reference
    "draft-zheng-ccamp-client-tunnel-yang";
}

grouping eth-tunnel-endpoint {
  description "Parameters for ETH tunnel.";

  leaf vlanid {
    type etht-types:vlanid;
    description
      "VLAN tag id.";
  }

  leaf tag-type {
    type etht-types:eth-tag-type;
    description "VLAN tag type.";
  }
}

augment "/te:te/te:tunnels/te:tunnel" {
  description
    "Augment with additional parameters required for ETH
    service.";

  container src-eth-tunnel-endpoint {
    description
      "Source ETH tunnel endpoint.";
```



```
        uses eth-tunnel-endpoint;
    }

    container dst-eth-tunnel-endpoint {
        description
            "Destination ETH tunnel endpoint.";

        uses eth-tunnel-endpoint;
    }

    container bandwidth-profile {
        description
            "ETH tunnel bandwidth profile specification.";

        uses etht-types:etht-bandwidth-profiles;
    }
}
}
```

<CODE ENDS>

[4.2.](#) Other Client-layer Tunnel YANG Code

TBD.

[5.](#) Considerations and Open Issue

Editor Notes: This section is used to note temporary discussion/ conclusion that to be fixed in the future version, and will be removed before publication. This is a part of L2 work, need to discuss how to go with other L2 network models. The expectation is to include all potential L2 TE part in this work.

[6.](#) IANA Considerations

TBD.

[7.](#) Manageability Considerations

TBD.

[8.](#) Security Considerations

The data following the model defined in this document is exchanged via, for example, the interface between an orchestrator and a

transport network controller. The security concerns mentioned in [I-D.ietf-teas-yang-te] also applies to this document.

The YANG module defined in this document can be accessed via the RESTCONF protocol defined in [RFC8040], or maybe via the NETCONF protocol [RFC6241].

9. Acknowledgements

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