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             A YANG Data Model for Client-layer Tunnel
               draft-zheng-ccamp-client-tunnel-yang-08

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.

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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/
WSON 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:
           Haomian Zheng (zhenghaomian@huawei.com);
           Italo Busi (italo.busi@huawei.com);
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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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