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A YANG Data Model for Client-layer Tunnel
draft-zheng-ccamp-client-tunnel-yang-01

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.lee-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.

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 [I-D.ietf-netmod-yang-tree-diagrams]. 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/te:config:
    +--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
  augment /te:te/te:tunnels/te:tunnel/te:state:
    +--ro src-eth-tunnel-endpoint
    |  +--ro vlanid?     etht-types:vlanid
    |  +--ro tag-type?   etht-types:eth-tag-type
    +--ro dst-eth-tunnel-endpoint
    |  +--ro vlanid?     etht-types:vlanid
    |  +--ro tag-type?   etht-types:eth-tag-type
    +--ro bandwidth-profile
       +--ro bandwidth-profile-name?   string
       +--ro bandwidth-profile-type?   etht-types:bandwidth-profile-type
       +--ro CIR?                      uint64
       +--ro CBS?                      uint64
       +--ro EIR?                      uint64
       +--ro EBS?                      uint64
       +--ro color-aware?              boolean
       +--ro 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@2017-09-04.yang"

```
 module ietf-eth-te-tunnel {
     //TODO: FIXME
     yang-version 1.1;

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

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

     organization
         "IETF CCAMP Working Group";

     contact
         "WG Web: <http://tools.ietf.org/wg/ccamp/>
         WG List: <mailto:ccamp@ietf.org>

         ID-draft editor:
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         ";

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

     revision "2017-09-04" {
         description
             "Revision 0.1";
         reference "TBD";
     }

     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/te:config" {
        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;
        }
    }

    augment "/te:te/te:tunnels/te:tunnel/te:state" {
        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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