A YANG Data Model for Client-layer Topology

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Abstract

A transport network is a server-layer network to provide connectivity services to its client. In this draft the topology of client is described.

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# 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 topology model in Traffic-Engineered network has been defined in both generic way and technology-specific way. The generic model, which is the base TE YANG model, can be found at [ietf-teas-yang-te-topo]. Technology-specific models, such as OTN/WSON topology model, have also been defined in [ietf-ccamp-otn-topo-yang] and [ietf-ccamp-wson-yang] respectively. Corresponding topology 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 OTN network client signals, using YANG language defined in [RFC7950]. The model can be used by applications exposing to a transport controller via a REST interface. Furthermore, it can be used by an application for topology description in client-layer network.

# 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.

# YANG Model for Topology of Client Layer

## YANG Tree for Ethernet Topology

See the tree file on Github: ietf-eth-te-topology@2017-09-12.tree.

## YANG Tree for Topology Model of other Client Layer

This section will be completed later.

# YANG Code for Topology Client Signal

## The ETH Topology YANG Codes

See the YANG file on Github: ietf-eth-tran-service@2017-09-12.yang.

## Other OTN Client Signal YANG Code

TBD.

# 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.

# IANA Considerations

TBD.

# Manageability Considerations

TBD.

# 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 [ietf-teas-yang-te-topo] for using ietf-te-topology.yang model 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].

There are a number of data nodes defined in the YANG module which are writable/creatable/deletable (i.e., config true, which is the default). These data nodes may be considered sensitive or vulnerable in some network environments. Write operations (e.g., POST) to these data nodes without proper protection can have a negative effect on network operations.

Editors note: to list specific subtrees and data nodes and their sensitivity/vulnerability.

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# Contributors

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