A YANG Data Model for Optical Transport Network Client Signals

draft-zheng-ccamp-otn-client-signal-yang-01

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.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at https://datatracker.ietf.org/drafts/current/.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on May 3, 2018.

Copyright Notice

Copyright (c) 2017 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to BCP 78 and the IETF Trust's Legal Provisions Relating to IETF Documents (https://trustee.ietf.org/license-info) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

[1. Introduction 2](#_Toc507177735)

[2. Terminology and Notations 3](#_Toc507177736)

[3. YANG Model for Topology of Client Layer 3](#_Toc507177737)

[3.1. YANG Tree for Ethernet Topology 3](#_Toc507177738)

[3.2. YANG Tree for Topology Model of other Client Layer 3](#_Toc507177739)

[4. YANG Code for Topology Client Signal 4](#_Toc507177740)

[4.1. The ETH Topology YANG Codes 4](#_Toc507177741)

[4.2. Other OTN Client Signal YANG Code 4](#_Toc507177742)

[5. Considerations and Open Issue 4](#_Toc507177743)

[6. IANA Considerations 4](#_Toc507177744)

[7. Manageability Considerations 4](#_Toc507177745)

[8. Security Considerations 4](#_Toc507177746)

[9. Acknowledgements 5](#_Toc507177747)

[10. Contributors 5](#_Toc507177748)

[11. References 5](#_Toc507177749)

[Authors' Addresses 5](#_Toc507177750)

# 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.

# Acknowledgements

We would like to thank Igor Bryskin and Daniel King for their comments and discussions.

# Contributors

Will be updated in XML by editor.

# References

Will be updated in XML by editor.

Authors' Addresses

Will be updated in XML by editor.