

# A YANG Data Model for VN Operations

draft-ietf-teas-actn-vn-yang-21

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# Status

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- The draft (-19) underwent WGLC in Sep/Oct 2023
- Thanks to everyone who provided comments and suggestions for improvements
- Main changes in -20
  - Comments from Adrian! *Thanks!*
    - Added context about ACTN in the Introduction
    - Clarified the role of the TE-Topology model's connectivity matrix
    - Updated figures and JSON example
- Main changes in -21
  - Comments from Bo, Tom Petch, Italo, & Med! *Thanks!*
    - Fixed misalignment between the example text and the JSON

# Some Concerns: VN Type

- The VN modeling is the same for VN Type 1 and 2
- Difference lies in the referenced TE Topology connectivity matrix
  - With underlay path set in connectivity matrix for VN Type 2
- Thus it is implicit
  - Should the VN model explicitly set VN Type in the VN model?

# Some Concerns: URI

- Network and Network topology model (RFC 8345) uses URI Type for nodes, networks, links, and termination points instead of string
- The VN model does not use URI but includes a JSON example for the existing model to describe the interaction between them

```
typedef uri {  
    type string;  
    description  
    "The uri type represents a Uniform Resource Identifier  
    (URI) as defined by STD 66.
```

Objects using the uri type MUST be in US-ASCII encoding, and MUST be normalized as described by RFC 3986 Sections 6.2.1, 6.2.2.1, and 6.2.2.2. All unnecessary percent-encoding is removed, and all case-insensitive characters are set to lowercase except for hexadecimal digits, which are normalized to uppercase as described in Section 6.2.2.1.

The purpose of this normalization is to help provide unique URIs. Note that this normalization is not sufficient to provide uniqueness. Two URIs that are textually distinct after this normalization may still be equivalent.

Objects using the uri type may restrict the schemes that they permit. For example, 'data:' and 'urn:' schemes might not be appropriate.

A zero-length URI is not a valid URI. This can be used to express 'URI absent' where required.

In the value set and its semantics, this type is equivalent to the Uri SMLv2 textual convention defined in RFC 5017.";  
reference

"RFC 3986: Uniform Resource Identifier (URI): Generic Syntax  
RFC 3305: Report from the Joint W3C/IETF URI Planning Interest Group: Uniform Resource Identifiers (URIs), URLs, and Uniform Resource Names (URNs): Clarifications and Recommendations

RFC 5017: MIB Textual Conventions for Uniform Resource Identifiers (URIs)";

```
}
```

# Some Concerns: use of URI

- The JSON example used in RFC 8345
  - "network-id": "otn-hc"
  - "node-id": "D1",
  - "tp-id": "1-0-1"
  - "link-id": "D1,1-2-1,D2,2-1-1",
- A verified errata asked to change the network-id in the example to "foo:otn-hc" only!

## RFC 3986 URI Syntax Components

The generic URI syntax consists of a hierarchical sequence of components referred to as the scheme, authority, path, query, and fragment.

```
URI = scheme ":" hier-part [ "?" query ] [ "#" fragment ]
```

```
hier-part = "/" authority path-abempty  
           / path-absolute  
           / path-rootless  
           / path-empty
```

The scheme and path components are required, though the path may be empty (no characters).

In the wild, such as ODL we have seen the same pattern i.e. normal string instead of URI!

# Some Concerns: use of URI

- The JSON example in this I-D currently uses
  - "network-id": "example:abstract1",
  - "topology-id": "example:abstract1"
  - "node-id": "example:192.0.2.1",
  - "tp-id": "example:1-0-1",
  - "tp-ref": "example:1-0-1"

draft-ietf-netmod-rfc8407bis says:

URI examples **SHOULD** be prefixed with "example:".

```
typedef te-topology-id {
  type union {
    type string {
      length "0";
      // empty string
    }
    type string {
      pattern '([a-zA-Z0-9\_\-\.]+)*'
        + '\/?([a-zA-Z0-9\_\-\.]+)\/([a-zA-Z0-9\_\-\.]+)*';
    }
  }
  description
    "An identifier for a topology.
    It is optional to have one or more prefixes at the beginning,
    separated by colons. The prefixes can be 'network-types' as
    defined in the 'ietf-network' module in RFC 8345, to help the
    user better understand the topology before further inquiry
    is made.";
  reference
    "RFC 8345: A YANG Data Model for Network Topologies";
}
```

## JSON Example in this I-D

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- JSON example for the VN model is straightforward
- JSON example for the TE-topology (and network) model is complex
  - But needed to describe how the VN model relies on the TE Topology connectivity matrix
- Should we move the JSON example to the appendix?
  
- JSON Verification
  - Used yanglint
  - Suggestion to also use yangson
    - Need help with that!

# Next Step

- Upload -22 with
  - Change the te-topology-id in example?
  - Minor editorial changes suggested by Tom Petch
  - JSON example



Thank  
you