A YANG Data Model for Network Hardware Inventory

CCAMP WG, IETF116

draft-ietf-ccamp-network-inventory-yang-01

Authors:
Chaode Yu (yuchaode@huawei.com)
Italo Busi (Italo.Busi@huawei.com)
Aihua Guo (aihuaguo.ietf@gmail.com)
Sergio Belotti(sergio.belotti@nokia.com)
Jean-Francois Bouquier(jeff.bouquier@vodafone.com)
Fabio Peruzzini(fabio.peruzzini@telecomitalia.it)
Oscar Gonzalez de Dios(oscar.gonzalezdedios@telefonica.com)
Victor Lopez(victor.lopez@nokia.com)
Chenfang Zhang(zhangcf80@chinaunicom.com)
UC1. Central View of Asset Management

- BSS
- Customer-oriented APP
- Resource Management OSS
- Other OSS
- Network Hardware Inventory
- Network Controller

Connections:
- Resource Mapping
- Resource Validation
- Resource Retrieval
- Service Provisioning
- Alarm/PM
Updates Since IETF 115

- **Adopted as WG document in January 2023**
- **Draft updates**
  - Addressed most of the comments from WG adoption poll with three remaining issues:
    - clarify why not augmenting RFC8345 (issue #14)
    - equipment room versus site
    - inventory for software components (issue #64)
  - Name of the model updated to match its scope: ietf-network-hardware-inventory
    - Text updated to align with the scope (network hardware inventory)
  - Fixed reference to TMF document
  - Fixed the number of authors to comply with RFC7322
  - Added a YANG model for navigation from topology to inventory
  - Few other changes to YANG
    - Removed rack-number in rack and firmware-rev in NE
    - Added relative-position of chassis in rack
    - Removed equipment room, rack and NE info in the component's parent reference structure
Why not augmenting Network YANG (RFC8345)

- Hardware Inventory and Network Topology are different concepts
  - Hardware inventory is used for asset management
  - Network topology represents logical resources used for service provisioning
- Defining a new root avoids the need for the client to do some filtering to recognize the network-id of the hardware inventory network instance
- No real advantages on re-using Network YANG model
  - Navigation from Network Topology and Network Hardware Inventory models requires anyhow some augmentations to the Network Topology YANG model (see next slide)
Navigation from Topology to Inventory

Network Topology YANG

augments

Inventory/Topology Ref YANG

(ietf-hw-inventory-ref-topo)

references

Network Hardware Inventory YANG

<table>
<thead>
<tr>
<th>Topology</th>
<th>Hardware Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node</td>
<td>Network Element</td>
</tr>
<tr>
<td>Link Termination Point (LTP)</td>
<td>Port component</td>
</tr>
<tr>
<td>Link</td>
<td>Fiber/Cable (to be added)</td>
</tr>
</tbody>
</table>

Do we need to reference other type of inventory object? To be checked by examples
Improving definitions of the location information

- Equipment room location: two options
  - The postal/street/... address - to be clarified (see e.g., RFC 8299)
  - The GIS location (re-using the grouping in RFC9179) - to be added
- Rack location
  - The physical location of the rack within the equipment room (row and column)
- Chassis relative position
  - The physical position of the chassis within the rack
- NE location
  - The equipment room(s) where the components of the NE are located
- Component location
  - See next slide
Component Location

- The relative/logical position of a component within the NE -> to be clarified
- Defined as a free-format string (in alignment with Openconfig)
  - Typical format for Optical NEs:
    `/ne=<ne_name>[/r=<r_index>][/sh=<sh_index>[/s_sh=<s_sh_index> ...]][/sl=<sl_index>[/s_sl=<s_sl_index> ...]][/p=<p_index> ...]`
- Is there a normative reference defining this typical format?
- Which format is used for IP or MW NEs?
Chassis component location and relative position

rack A

ne-foo

second shelf

rack B

ne-foo

main-shelf

Chassis relative position: 3
component location: ne=ne-foo/sh=2

Chassis relative position: 2
component location: ne=ne-foo/sh=1
Next Steps

- Continue coordination work with other inventory models (OPS area)
- Provide some equipment configuration examples
  - Get more input from IP and microwave vendors/operators
- Identify some more component-specific attributes and introduce more component types
- Progressing to fix the remaining issues

Welcome to join our weekly discussion
- Meeting slot: Wednesday 3-4pm CEST (9-10am EDT)
Thank You