

Hackfest #4: Introduction of Device Inventory

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Introduction to RFC 8348: A YANG Data Model for Hardware Management

Emulated Virtual Environment – Next Generation

- Gives you tools to use around virtual devices.
- Interconnects virtual devices with other virtual or physical devices.
- It can be used for studying all kinds of technologies.
- Recreate corporate networks and test changes before putting them into production

```
+--ro components
  +-ro component* [uuid]
    +-ro uuid                  yang:uuid
    +-ro name?                string
    +-ro description?         string
    +-ro class?               identityref
    +-ro parent-rel-pos?     int32
    +-ro children* [child-ref]
      | +-ro child-ref      -> ../../uuid
    +-ro parent
      +-ro parent-ref?     -> ../../uuid
```

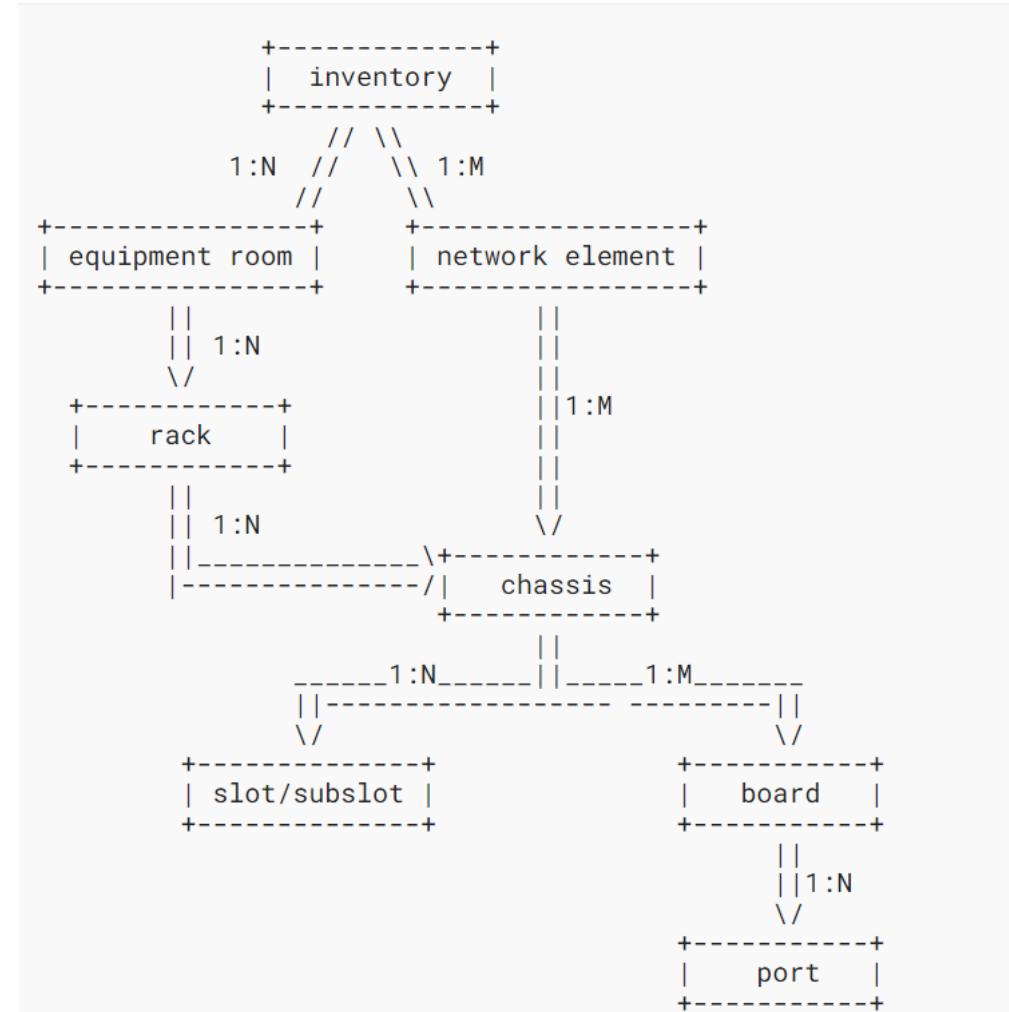
Overview of the Hardware Management

Overview of the Hardware Management

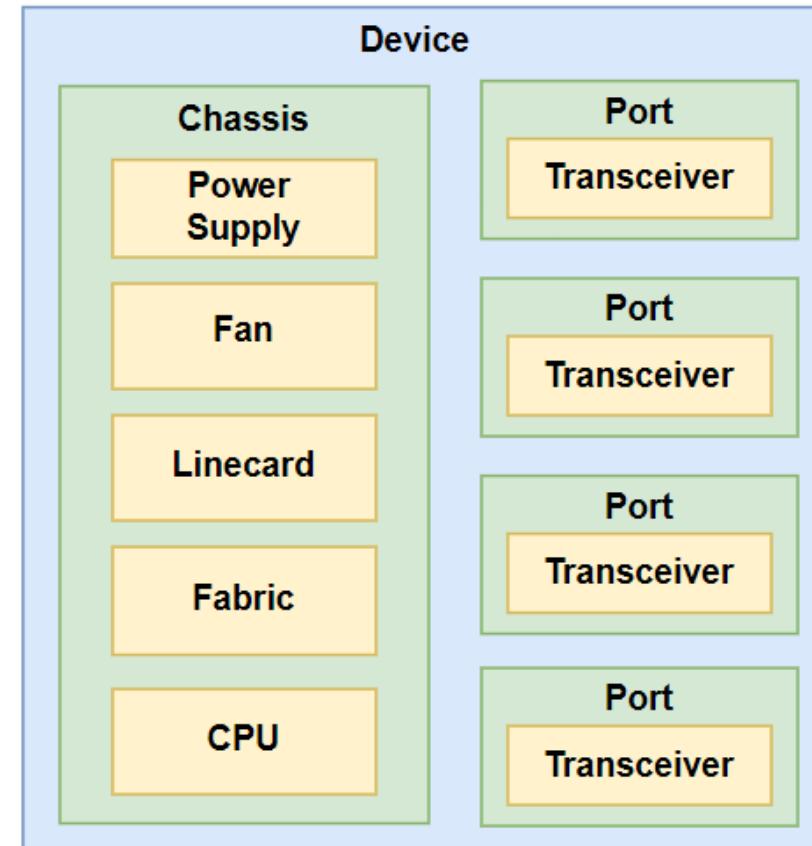
Functionalities

- The hardware inventory is presented as a completely independent entity from the topology.
- A topo-node-ref reference pointing to its peer objects in the topology module for each Node and Termination-point.
- A manufacturer-name included to complement the information and add an attribute for filters from upper layers.
- A timestamp parameter added to have information on the date and time of onboarding of the equipment in the inventory.
- Connect to a specific network device (IP/MPPLS router) and retrieve the hardware information via Openconfig.
- The hardware inventory has a container hardware-attributes within the Device object.
- The hardware inventory has two containers interface-config and bfd-config within the Physical-port object.

Overview of the Hardware Management



Overview of the Hardware Management



Key Components

Key Components

Key Components

- Chassis
- Fan
- Power Supply
- Line Card
- FRU
- Fabric
- Port
- Transceiver

Key Components

Key parameters

- **name**
- **class**
- physical-index
- **description**
- **parent**
- parent-rel-pos
- contains-child
- **hardware-rev**
- **firmware-rev**
- **software-rev**
- **serial-num**
- **mfg-name**
- **model-name**
- alias
- **asset-id**
- **is-fru**
- **mfg-date**
- uri
- **uuid**

Implementation in TFS

Implementation in TFS


 TeraFlow SDN
by ETSI
 Open Source for Smart Networks and Services

 TeraFlow Home Device Link Service Slice Policy Rules Grafana Debug Load Generator BGPLS About Selected Context(admin)/Topology(admin)

Devices

+ Add New Device

3 devices found in context *admin*

UUID	Name	Type	Endpoints	Drivers	Status	Config Rules	
50f6fe52-9cbd-5e7b-b4ad-082a264c4452	R155	packet-router	27	• OPENCONFIG	ENABLED	213	  
6851cc24-daed-5073-a55e-035cccae8047	Cisco1	packet-router	15	• OPENCONFIG	ENABLED	385	  
fd28848d-18e7-5cb5-bb02-4085d088eede	R149	packet-router	27	• OPENCONFIG	ENABLED	217	  

Implementation in TFS

Open Source for Smart Networks and Services
by ETSI

TeraFlow Home Device Link Service Slice Policy Rules Grafana Debug Load Generator BGPS About Selected Context(**admin**)/Topology(**admin**)

Device R155 (50f6fe52-9cbd-5e7b-b4ad-082a264c4452)

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- Components
 - [chassis](#)
 - [eth-1/0/1](#)
 - [eth-1/0/10](#)
 - [eth-1/0/11](#)
 - [eth-1/0/12](#)
 - [eth-1/0/13](#)
 - [eth-1/0/14](#)
 - [eth-1/0/15](#)
 - [eth-1/0/16](#)
 - [eth-1/0/17](#)
 - [eth-1/0/18](#)
 - [eth-1/0/19](#)
 - [eth-1/0/2](#)
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Implementation in TFS



Open Source for Smart Networks and Services


[Home](#) [Device](#) [Link](#) [Service](#) [Slice](#) [Policy Rules](#) [Grafana](#) [Debug](#) [Load Generator](#) [BGPLS](#) [About](#)

 Selected Context([admin](#))/Topology([admin](#))

Device R155 (50f6fe52-9cbd-5e7b-b4ad-082a264c4452)

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Components

chassis

Component UUID: f53bf8e4-17f2-5dbb-8247-5f42c97340bb

Attributes: {'description': "DRX-30", 'manufacturer-name': "DRX-30", 'software-rev': "21.5.1 (9799)", 'empty': "false", 'removable': "false", 'hardware-rev': "R0D", 'mfg-date': "2020-01-09", 'serial-num': "731527XB1952198"}

Fan#1

Fan#2

Component UUID: d637794b-b553-5b99-9d85-115d151e94e7

Attributes: {'manufacturer-name': "AS7315", 'empty': "false", 'description': "AS7315", 'removable': "true", 'location': "Fans tray"}

Fan#3

Fan#4

Fan#5

Power-Supply#1

Component UUID: 677ce193-eabe-5c99-be1d-87e5d8a735bc

Attributes: {'empty': "false", 'removable': "true", 'description': "CRXT-T0T12A", 'manufacturer-name': "CRXT-T0T12A", 'serial-num': "19430061", 'location': "Power Supplies tray"}

Power-Supply#2

eth-1/0/1

Component UUID: 1343ac3a-c765-5c10-a04c-eb43e4093a46

Attributes: {'description': "100G/40G Fiber"}

Transceiver#1

Component UUID: 201b08ac-5107-577b-85c9-4cc74ece6ce

Attributes: {'removable': "true", 'empty': "true"}

eth-1/0/10



Thank You all for
your participation!