

TeraFlow
SDN
by ETSI

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
```

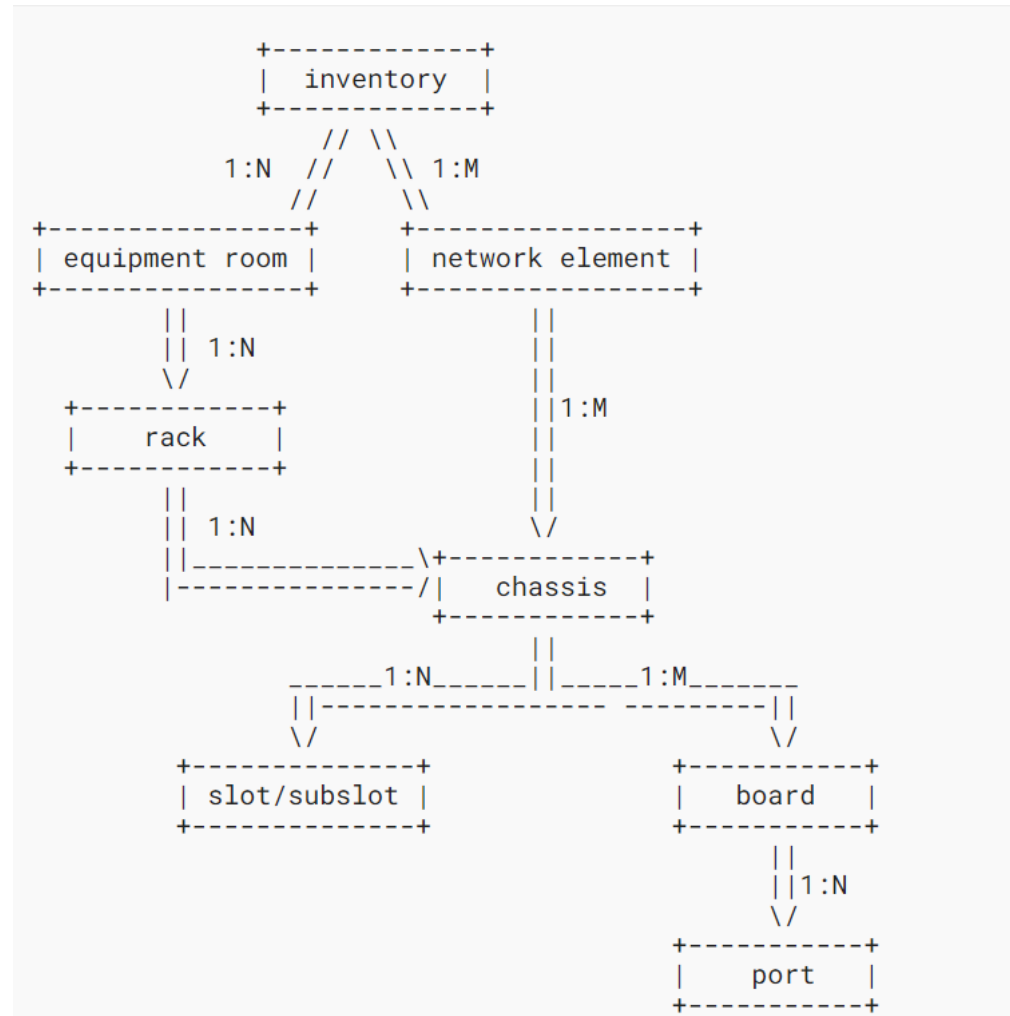
Overview of the Hardware Management

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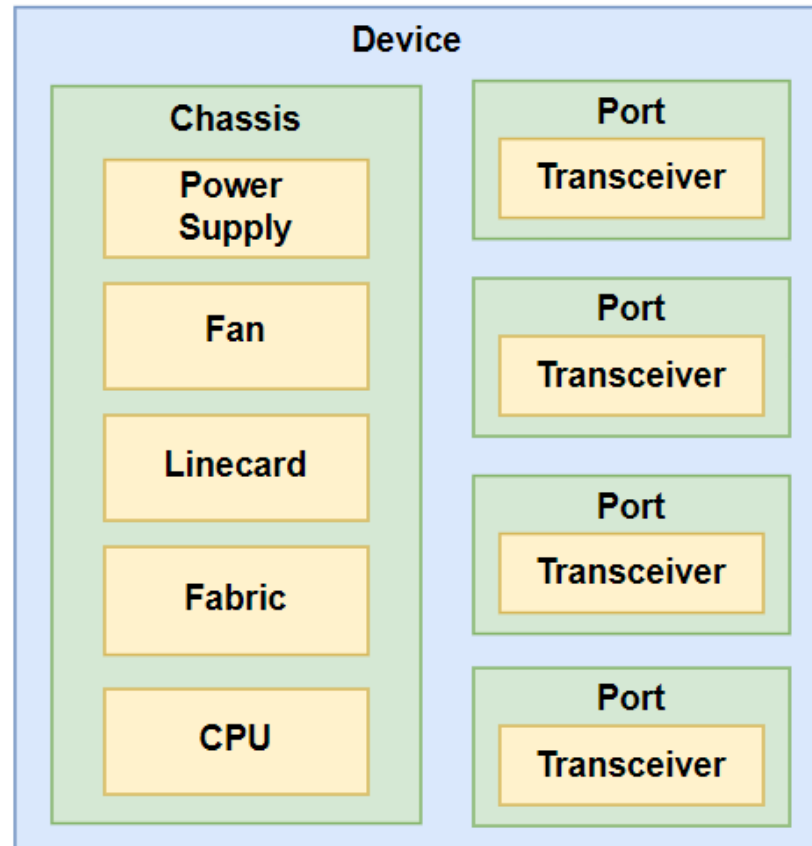
Functionalities

- 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

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Key Components

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

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

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

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

[Back to device list](#)

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
- ▶ eth-1/0/20
- ▶ eth-1/0/21
- ▶ eth-1/0/22
- ▶ eth-1/0/23

Implementation in TFS

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': 'ROD', 'mfg-date': '2020-01-09', 'serial-num': '731527XB1952198'}

Fan#1

Fan#2

Component UUID: d637794b-b553-59b9-9d85-115d151e94e7

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

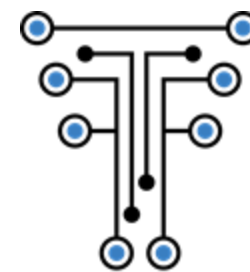
Attributes: {'description': '100G/40G Fiber'}

Transceiver#1

Component UUID: 201b08ac-5107-577b-85c9-4cc742ece6ce

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

eth-1/0/10



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Thank You all for
your participation!