



# Phase 1 Redfish Model for an Ethernet Switch

DMTF Scalable Platform Management Forum

## Using Redfish to manage the Networking domain

- ✓ **Compute** - the DMTF released models to manage the compute platform and service in 2015
- ✓ **Storage** - SNIA released models to manage networked storage and storage services in 2016
- **Network** – YANG models represent the consensus of industry experts across all networking feature sets. Conversion would leverage this expertise. Focus on Ethernet switch model



Compute



Redfish

Aug 2015

Storage



Swordfish

Aug 2016

Network



YANG

Internet Draft 2017

On-Platform



DCIM (facilities)



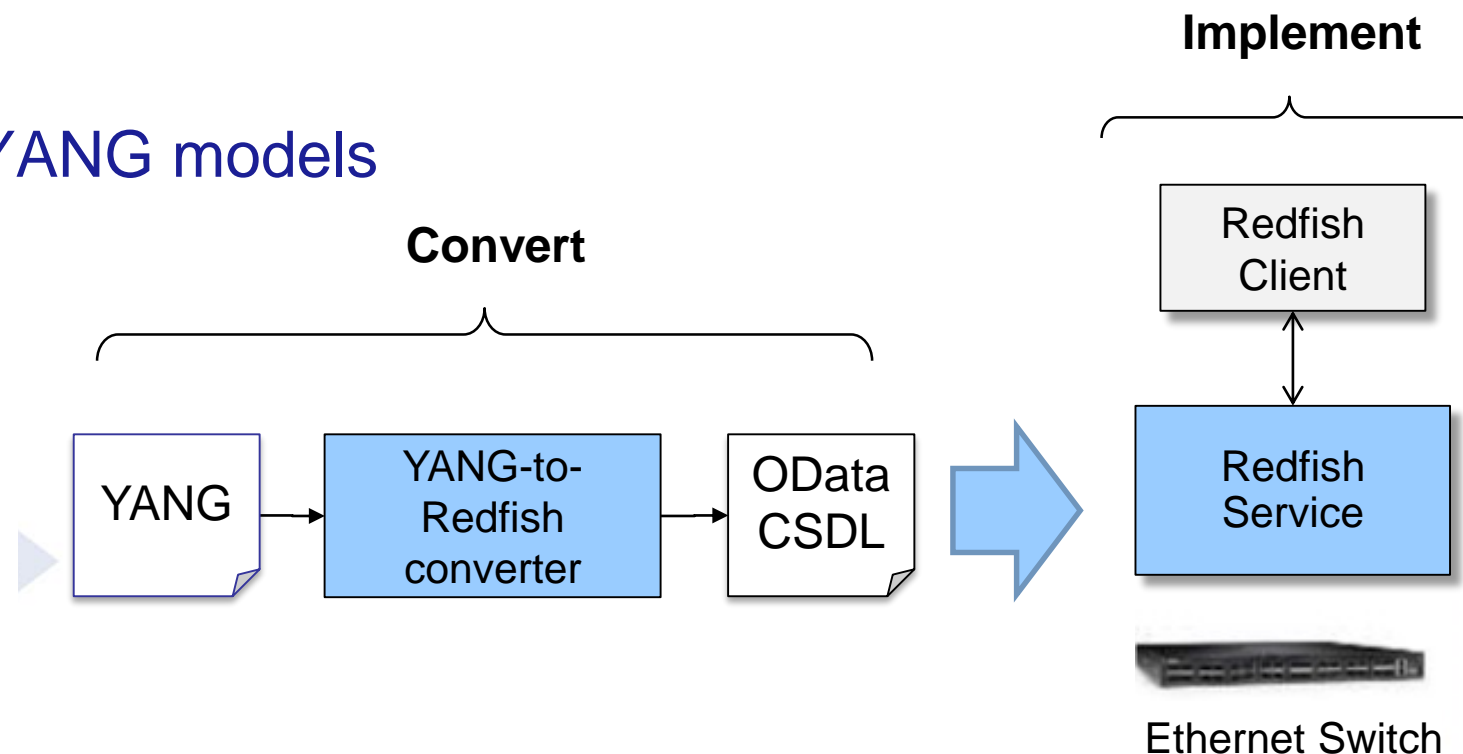
IETF Internet-drafts (-00): "Redfish for Networking" & "Baseline Switch Model"

## Ethernet Switch – Phase 1 YANG models

- Phase 1 - convert a small set of YANG models to Redfish models to manage an Ethernet Switch
  - Prove out the process
  - Validate the tool
- Phase 2 – larger list of YANG models

### Phase 1 RFCs

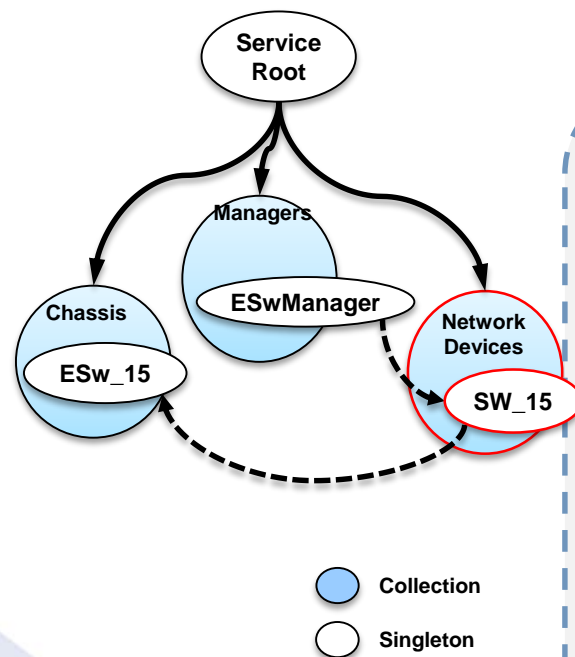
- RFC6991 (YANG types)
- RFC7223 (Interfaces)
- RFC7224 (IANA Interface types)
- RFC7277 (IPv4 and IPv6)
- RFC7317 (system, system\_state, platform, clock, ntp)



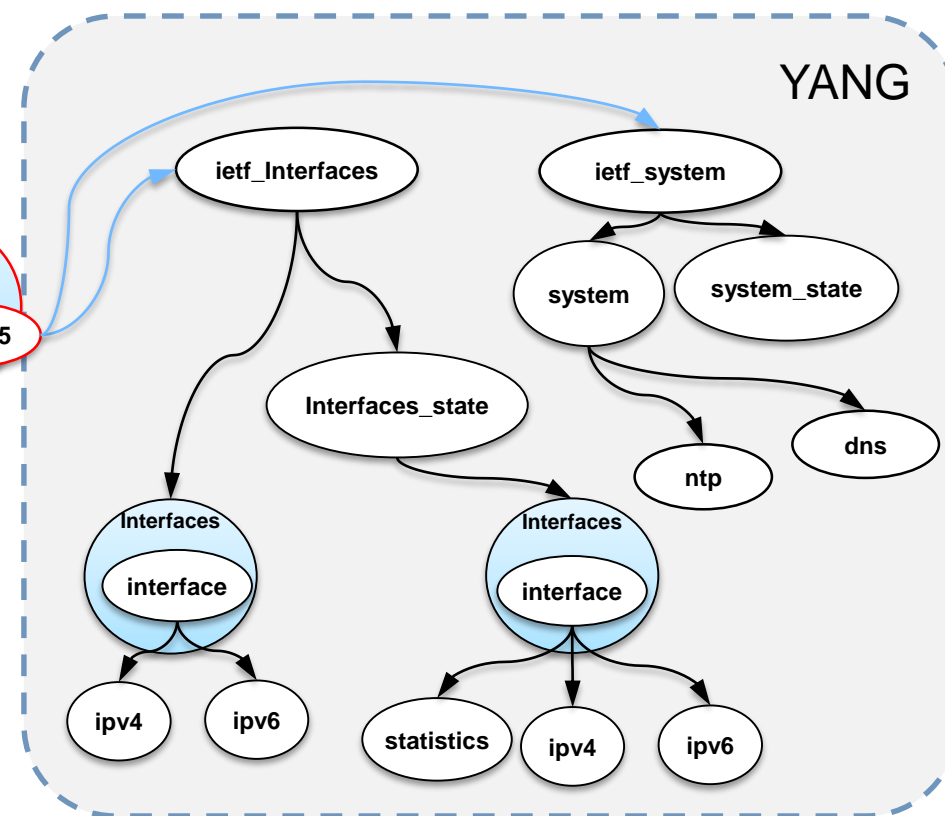
## The NetworkDevice Resource

- The NetworkDevice resource (SW\_15) is the attachment point for Redfish models mapped from the YANG models

/redfish/v1/NetworkDevices/SW\_1

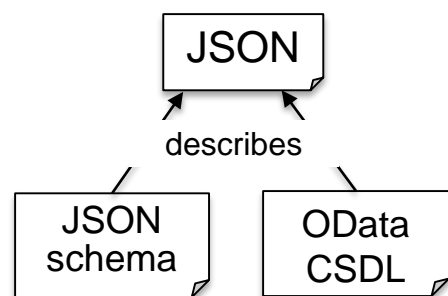


- RFC7223 (Interfaces)
- RFC7224 (IANA Interface Types)
- RFC7277 (IPv4 and IPv6)
- RFC7317



## NetworkDevice Resource

- Redfish response to  
HTTP GET /redfish/v1/NetworkDevices/SW\_15
- The format of the JSON is described  
in schema/metadata files



Properties

Subordinate  
resourcesAssociated  
resources

Actions

```

{
  "@odata.type": "#NetworkDevice.v1_0_0.NetworkDevice",
  "@odata.context": "/redfish/v1/$metadata#NetworkDevice.NetworkDevice",
  "@odata.id": "/redfish/v1/NetworkDevices/SW_15",
  "Id": "SW_15",
  "Name": "Ethernet Switch",
  "NetworkDeviceType": "BaselineEthernetSwitch",
  "AssetTag": "xxx",
  "Manufacturer": "Manufacturer Name",
  "Model": "Model Name",
  "SerialNumber": "2M220100SL",
  "PartNumber": "76-88883",
  "IndicatorLED": "Off",
  "FirmwareVersion": "1.2.4",
  "Status": { "State": "Enabled", "Health": "OK", "HealthRollup": "OK" },
  "LogServices": { "@odata.id": "/redfish/v1/NetworkDevices/SW_15/LogServices" },
  "IetfInterfaces": { "@odata.id": "/redfish/v1/NetworkDevices/SW_15/ietf_interfaces" },
  "IetfSystem": { "@odata.id": "/redfish/v1/NetworkDevices/SW_15/ietf_system" },
  "Links": {
    "Chassis": [ { "@odata.id": "/redfish/v1/Chassis/EthernetSwitch_15" } ],
    "ManagedBy": [ { "@odata.id": "/redfish/v1/Managers/EthernetSwitchManager" } ]
  },
  "Actions": {
    "#NetworkDevice.Reset": {
      "target": "/redfish/v1/NetworkDevices/SW_15/Actions/NetworkDevice.Reset",
      "@Redfish.ActionInfo": "/redfish/v1/NetworkDevices/SW_15/ResetActionInfo"
    }
  }
}
  
```

OData is an OASIS Standard  
CSDL = Common Schema Definition Language



## Contents of Work-in-Progress

### ./metadata

RedfishYangExtension\_v1.xml

./rfc7223/\*\_xml

./rfc7224/\*\_xml

./rfc7277/\*\_xml

./rfc7317/\*\_xml

### ./mockups/public\_ethernet\_switch

./Chassis/EthernetSwitch\_15

./Managers/EthernetSwitchManager

./NetworkDevices/SW\_15

./LogServices/\*

./ietf\_interfaces/\*

./ietf\_system/\*



## Additional Documentation

- "Redfish for Networking" (IETF -00 Internet-draft)
  - <https://tools.ietf.org/html/draft-wbl-rtgwg-yang-ci-profile-bkgd-00>
  - Provides a background and describes the rationale for a baseline data center switch device profile, e.g., for top-of-rack switches in data center converged infrastructure.
- "Baseline Switch Model" (IETF -00 Internet-draft)
  - <https://tools.ietf.org/html/draft-wbl-rtgwg-baseline-switch-model-00>
  - The list of IETF drafts, RFCs, and Redfish models will constitute the management interface to the baseline switch.
- YANG-to-Redfish Mapping Specification (DMTF work-in-progress)
  - [http://www.dmtf.org/sites/default/files/standards/documents/DSP0271\\_0.5.6.pdf](http://www.dmtf.org/sites/default/files/standards/documents/DSP0271_0.5.6.pdf)
  - Specifies how to convert a YANG model to a Redfish model