Fabrics Overview

Redfish

Agenda

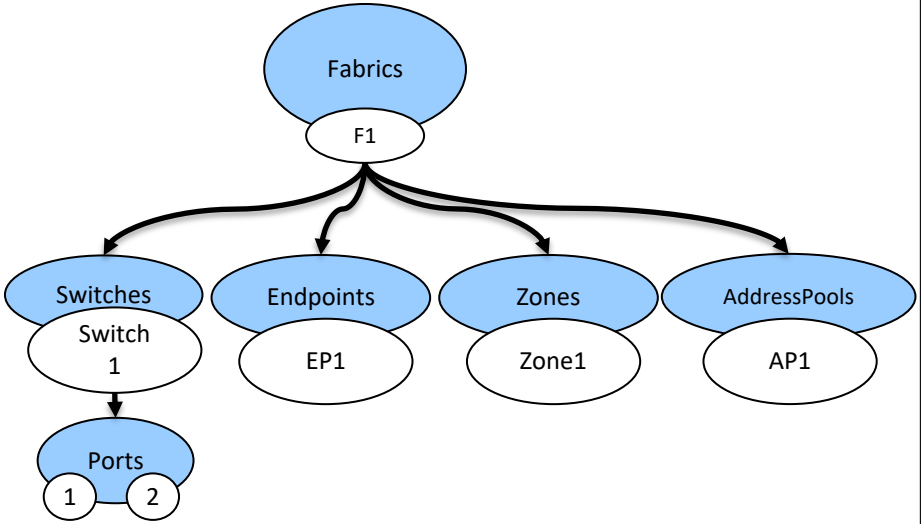
- Overview of Fabrics
- Fabric representation
  - Connectivity
  - Endpoints/Switches/Ports
  - Adapters
  - Metrics

Fabrics Overview

- Data centers connect many servers to needed resources or other servers
  - Some require connecting groups of servers and resources to support specific workloads
  - High speed fabrics provide connectivity between nodes and components to support those workloads
- Redfish fabric model incorporates fabric infrastructure components to manage and describe these interconnect fabrics and their constraints
- Fabric model describes the connectivity of these cluster resources as
  - Switches, ports, routers, endpoints
  - Fabric adapters and network adapters
- Also describes connectivity constraints and isolation
  - Zones
  - Address pools
  - Connections

Fabric Representation

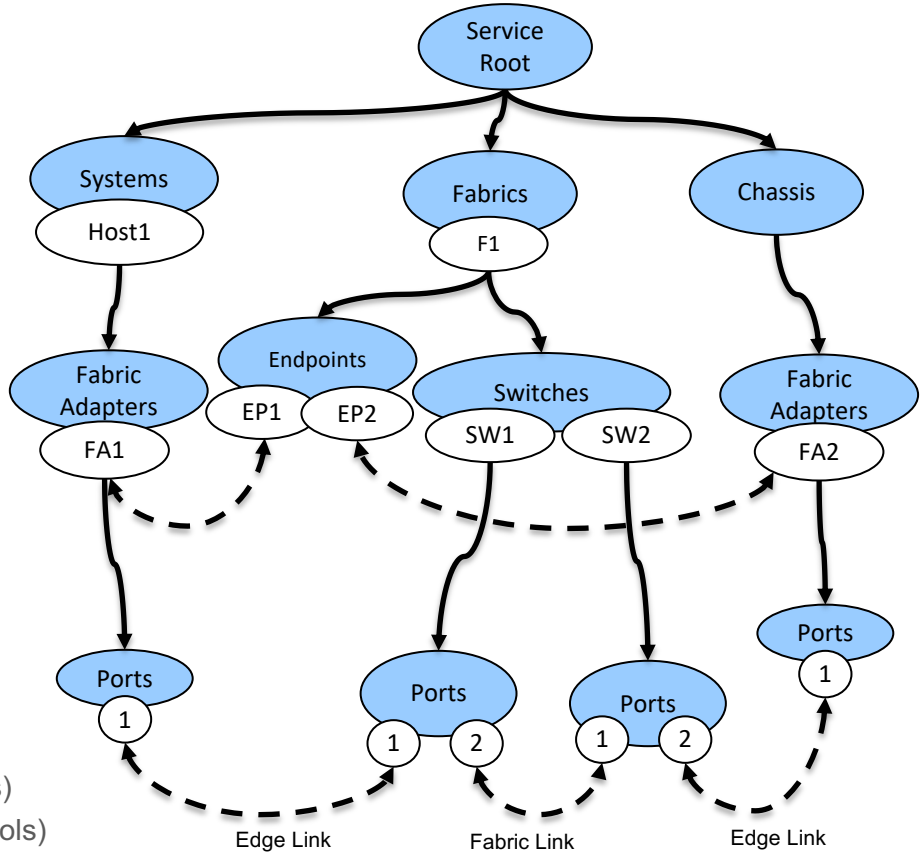
- Fabrics connect resources together across a shared medium
- Physical resources are connected through switches, routers, and ports
  - Switches compose the fabric
  - Endpoints represent the shareable physical resources
  - Organization of the switches and endpoints defines a topology
  - The fabric model depicts a single fabric of a specific technology, such as...
    - Ethernet
    - CXL
    - SAS
  - Hierarchically organized in Redfish model from the service root



Fabrics are represented by switches, endpoints, zones, and address pools

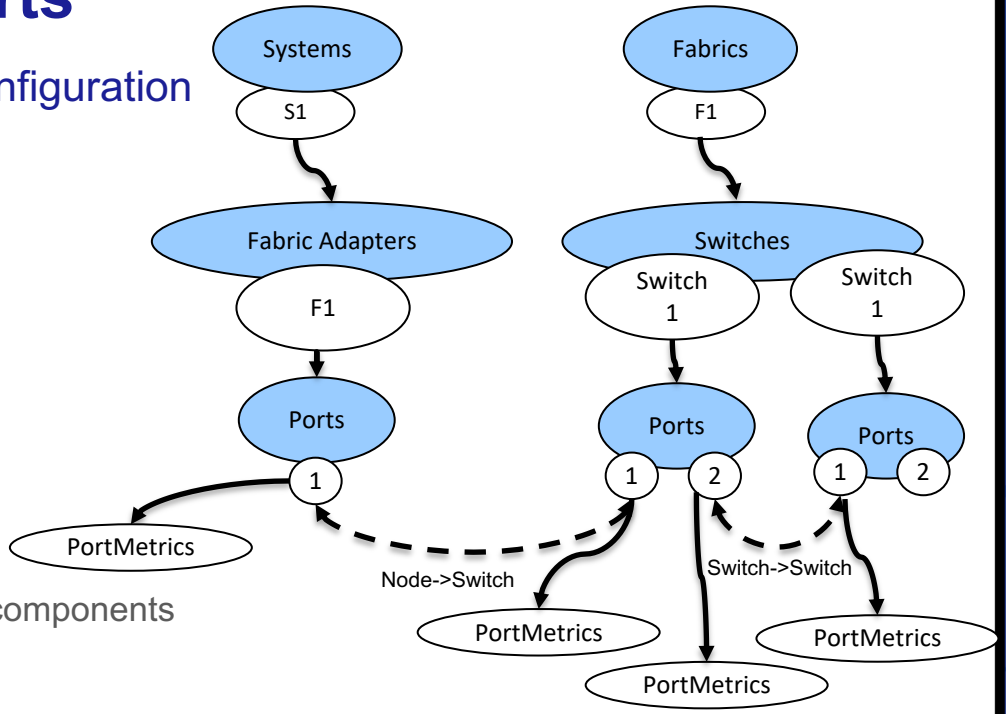
Connectivity

- Resources connect to fabric with a fabric adapters or network adapters
  - Adapters connect to a local switch
  - Represented as endpoints on the fabric
- Switches connect to endpoints or other switches
- In some cases, fabric ports can be directly attached to a processor
- Endpoints describe the resource and its connectivity to the fabric
  - Target, initiator, or both
  - Entities connected to this endpoint
  - Identifier for this resource on the fabric
  - Protocol for communication
  - Links to connected entities (remote switch ports)
  - Constraints for this endpoint (zones/address pools)



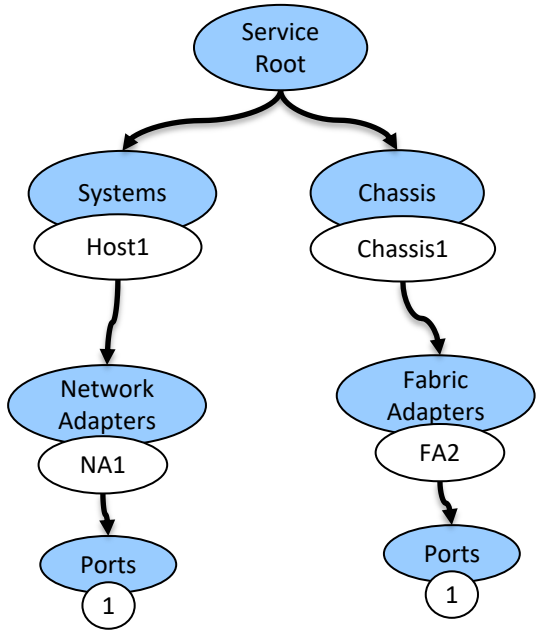
Switch and Adapter Ports

- Describes the capabilities and configuration of a fabric components ports
  - Transmission protocol
  - Port speed and width
  - Identifiers of the port on the fabric
  - Features and functions
    - LLDP
    - LACP
    - Auto Negotiate
  - Connected ports
- Port metrics
  - Indicates the operational health of components on the fabric
    - I/O Statistics
    - Errors



Fabric Adapters and Network Adapters

- Network and fabric adapters
  - Expresses endpoint physical connectivity with Port resources
  - Specific to fabric type
  - Describe the capabilities and configuration of the adapter
    - Routing tables
    - Embedded switch configuration
    - Virtual Channels/Traffic Classes



Thank you!

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