Agenda

• Fabric configuration and routing
  • Fabric model hierarchy
  • Zones
  • Address pools
  • Connections
Fabric Model Resources

- Switches, ports, and adapters are used to model physical topology
- Zones and address pools are used to control routing in a fabric
- Connections are used to control access rules for fabric connected devices
Fabric Zones, Connections, Address Pools

- Represents the customer intent of the fabric
  - Provides mechanisms to constrain traffic in the fabric
  - Defined by a fabric administrator
  - Models which endpoints can communicate with other endpoints
Fabric Zones

- Expresses routing constraints in a fabric
  - Provides isolation of groups of endpoints
    - Enables multi-tenant access on the fabric
    - Communication is limited to the zone
  - “Default zone” defined for entire fabric
    - New endpoints are added to the default zone
  - Zone of zones
    - Fabrics can provide zone-to-zone connectivity via zone of zones
    - Allows for scalability for large fabrics
    - Can only contain zones of endpoints
Fabric Address Pools

- Constrains control plane-specific pools of addresses and configuration
  - Example: In Ethernet fabrics, address pools can contain subnet, default gateway, VLAN, BGP underlay, and EVPN information
- Can be applied to entire fabric or specific zones
Fabric Connections

- Contains access permissions for resources once endpoints establish a communication channel
- Connections are between initiators and targets, or groups
- Does not define routing between the endpoints
Example Zone

```
"Id": "Zone1",
"Status": {
  "State": "Enabled",
  "Health": "OK"
},
"ZoneType": "ZoneOfEndpoints",
"DefaultRoutingEnabled": true,
"Links": {
  "Endpoints": [
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/1" },
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/2" },
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/3" }
  ],
  "AddressPools": [
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/AddressPools/AP1" }
  ]
},
```

Traffic routing is enabled between the endpoints in this zone

Zone type is “ZoneOfEndpoints”; routing between nodes within the zone is enabled

Endpoints participating in this zone

Addressing constraints for this zone
Example Address Pool

```
"Id": "AP1",
"Name": "AddressPool 1",
"Status": {
  "State": "Enabled",
  "Health": "OK"
},
"Ethernet": {
  "IPv4": {
    "VLANIdentifierAddressRange": {
      "Lower": 1,
      "Upper": 100
    },
    "FabricLinkAddressRange": {
      "Lower": "192.168.1.1",
      "Upper": "192.168.3.254"
    },
    "SystemMACRange": {
      "Lower": "AA:BB:CC:DD:EE:00",
      "Upper": "AA:BB:CC:DD:EE:FF"
    }
  }
}
```

All endpoints within this address pool must conform with the constraints provided in this address pool.

- Ethernet fabric; IPv4 addressing constraints
  - Upper and lower bounds for VLAN IDs
  - Constraints on system MAC IDs
Example Connection

```
"Id": "24",
"Name": "Connection 24",
"ConnectionType": "Memory",
"MemoryChunkInfo": [ 
  
  "MemoryChunk": { "@odata.id": "/redfish/v1/Chassis/GenZ/MemoryDomains/2/MemoryChunks/1" },
  "AccessCapabilities": [ 
    "Read",
    "Write"
  ],
  "AccessState": "Optimized"
],
"Links": {
  "InitiatorEndpoints": [ 
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/5" }
  ],
  "TargetEndpoints": [ 
    { "@odata.id": "/redfish/v1/Fabrics/GenZ/Endpoints/4" }
  ]
}
```

Endpoint 5 is allowed to read or write the memory chunk provided by endpoint 4

Connection type and resource info

Connected resource and access information

Initiator and target endpoints affected by this connection
Thank you!

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