

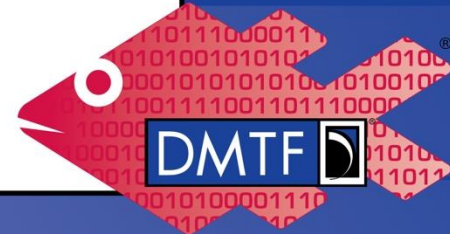


Aggregating the Redfish Model for Expansion Modules

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Redfish

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Announcement: System GPU Management WS

- New workstream under the Hardware Management Project
- Defines and standardizes Redfish-based system manageability for platforms with GPUs
- Leverage outputs from the CLA GPU Management WG to accelerate standardization

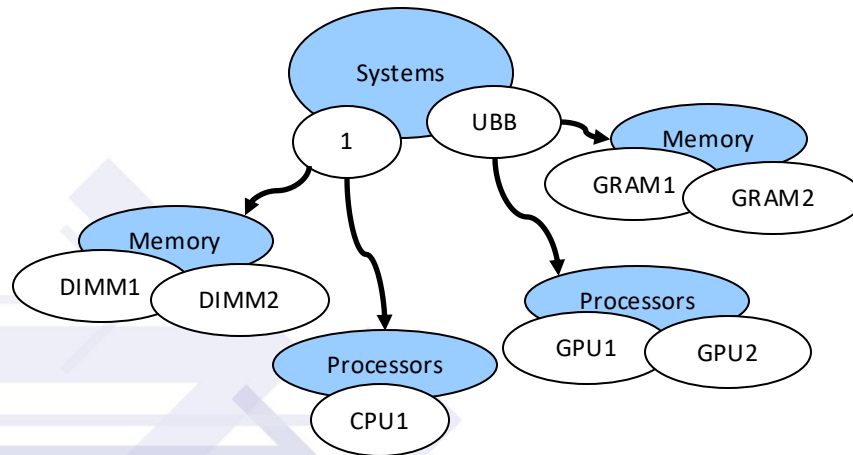
Problem Statement

- New standards are emerging that define methods to design a reusable compute expansion module
 - Ex: Open Accelerator Infrastructure (OAI) Universal Baseboard (UBB)
- Many of these modules contain their own BMC with Redfish
 - The Redfish model is aggregated into the system BMC's data model
 - Follows the *implicit aggregation* method in the Redfish Specification
- If aggregation is not done properly, interop challenges will be observed in a heterogeneous environment
 - DSP2090, *Redfish Aggregation Guidance for Compute Expansion Modules*, provides best practices for aggregating these devices

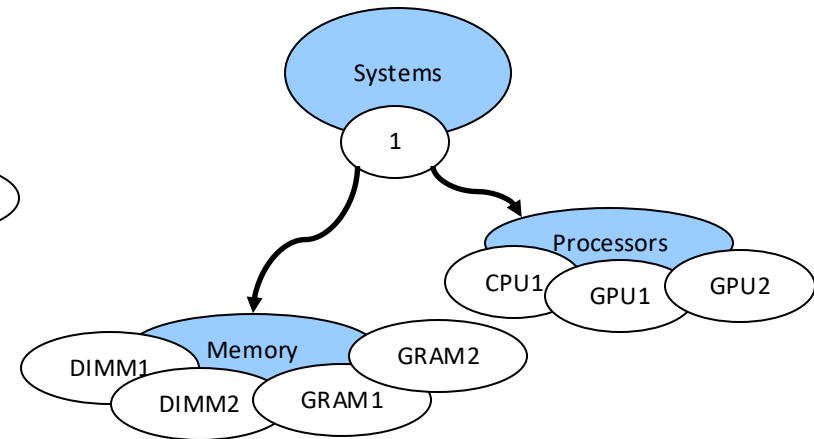
Problem Visualized...

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

Vendor A



Vendor B



Which one is correct?

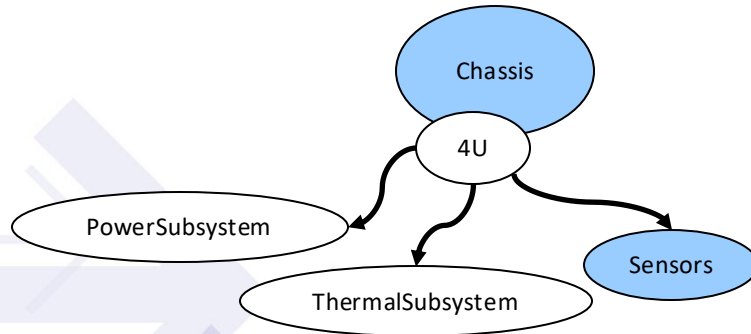
Simple Aggregation

- Certain top-level collections can be extended with minimal adjustments
 - Copy members from the compute expansion module
 - Adjust URIs and links as needed to avoid collisions or add completeness to the model
- For a UBB, this type of aggregation can be applied to the Chassis and Manager resource collections

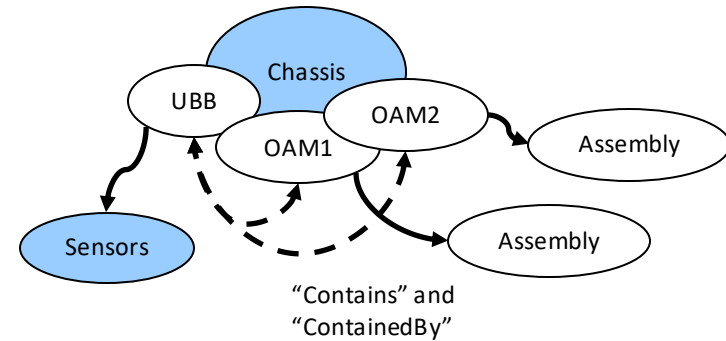
Chassis, Individual

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

System

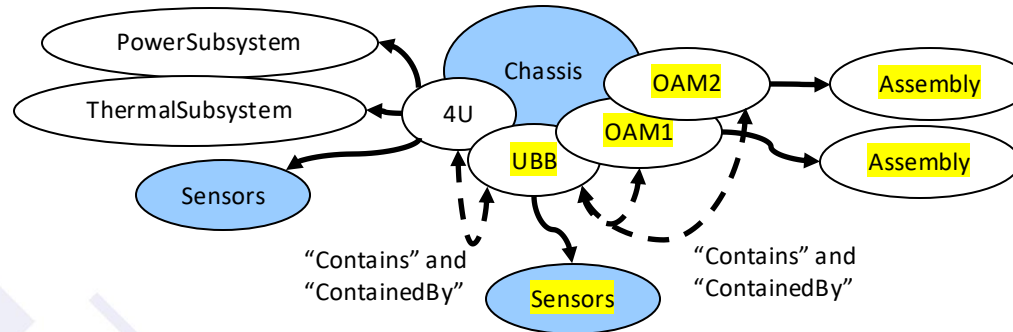


UBB



Chassis, Aggregated

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

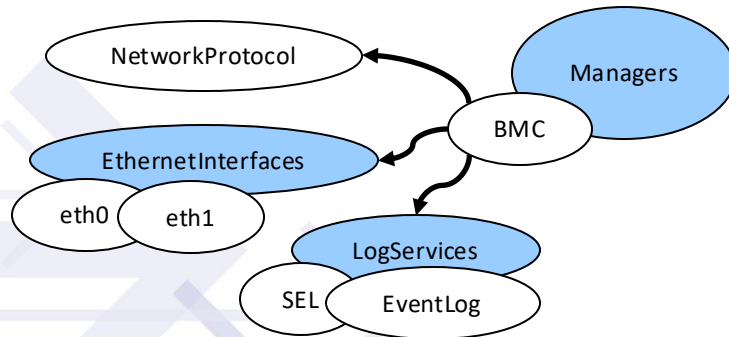


Highlighted: Aggregated from the compute expansion module BMC

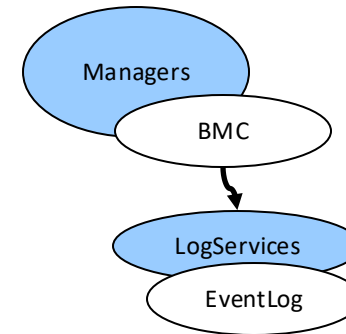
Managers, Individual

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

System

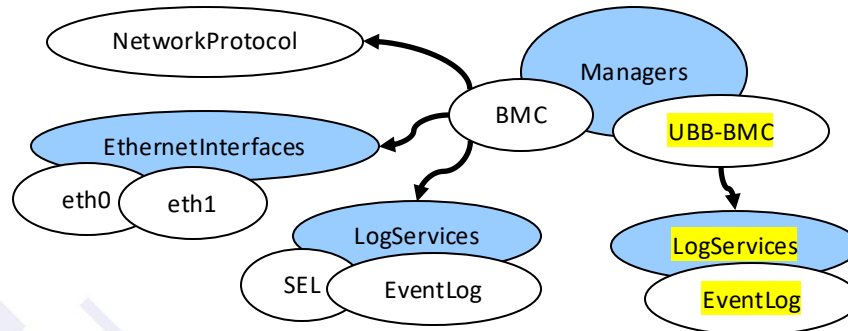


UBB



Managers, Aggregated

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource



Highlighted: Aggregated from the compute expansion module BMC

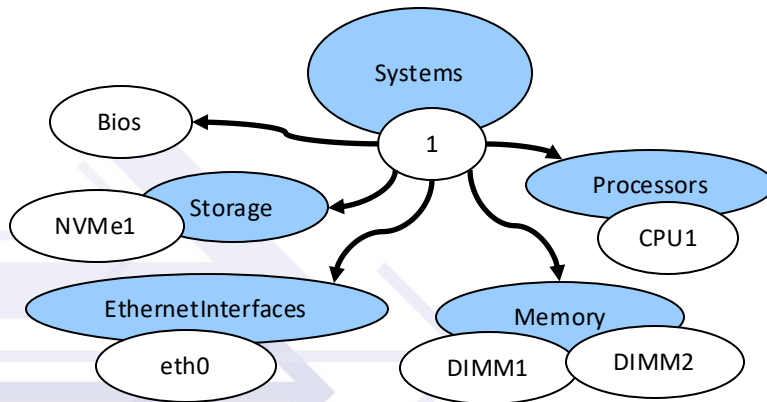
Complex Aggregation

- Certain top-level collections contain members that need to be merged based on the solution's design
 - Logic required in the system BMC
 - Many subordinate collections can be aggregated in the simple manner
- For a UBB, this type of aggregation can be applied to the ComputerSystem and Fabric resource collections

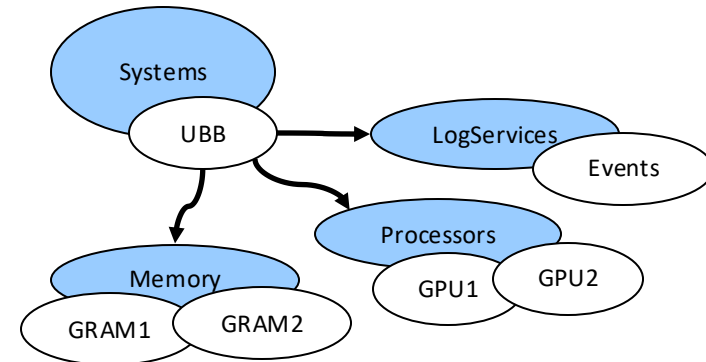
Systems, Individual

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

System

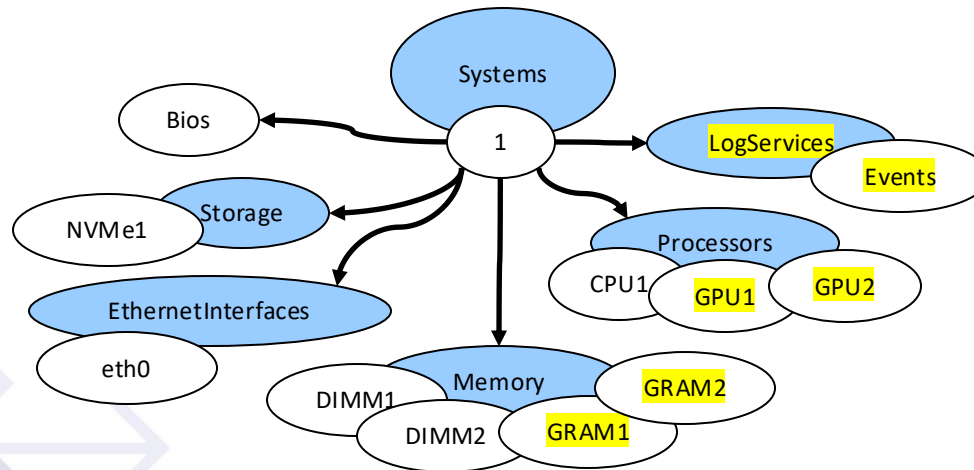


UBB



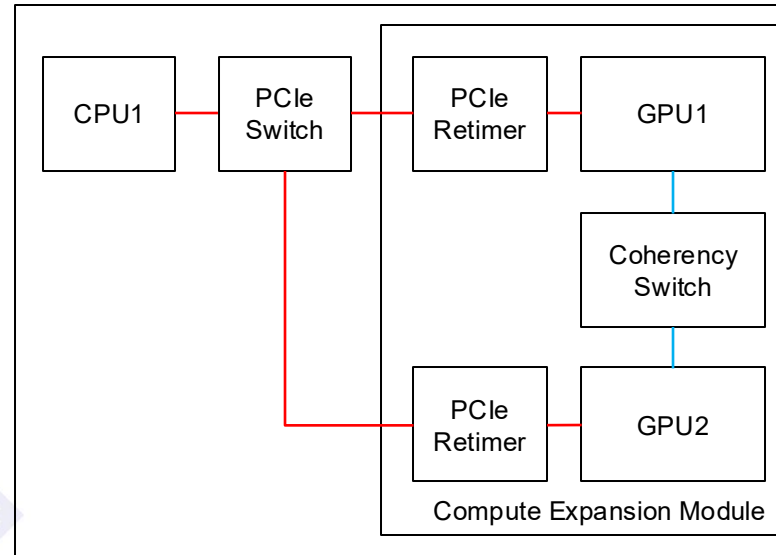
Systems, Aggregated

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource



Highlighted: Aggregated from the compute expansion module BMC

Fabrics, Sample Topology

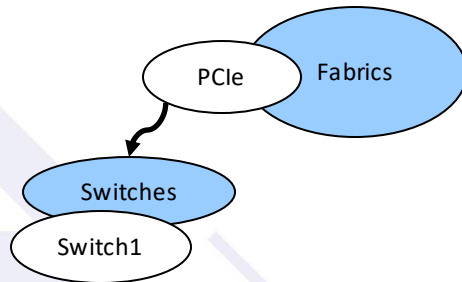


— PCIe Fabric
— Cache Coherency Fabric

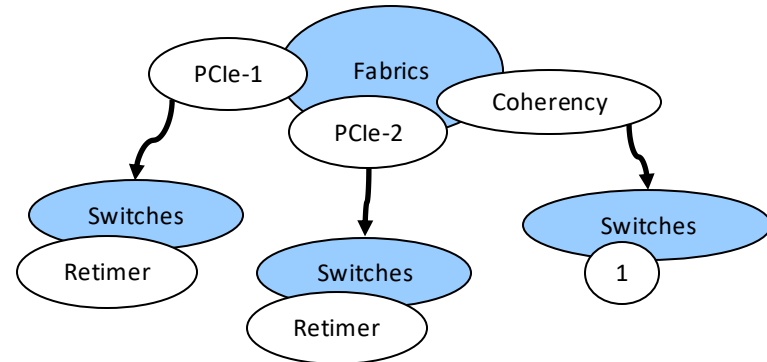
Fabrics, Individual

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource

System

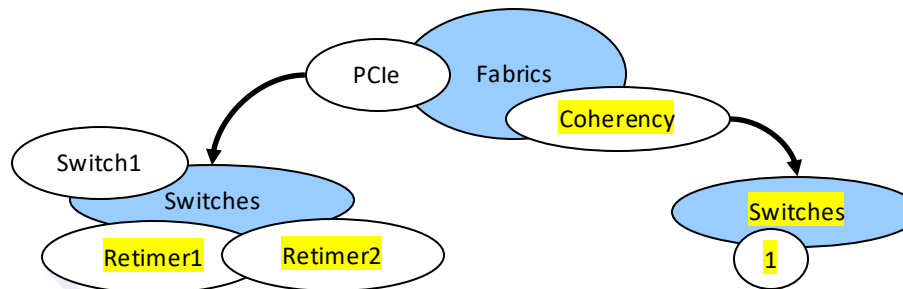


UBB



Fabrics, Aggregated

-  Collection resource
-  Singleton resource
-  Subordinate resource
-  Related resource



Highlighted: Aggregated from the compute expansion module BMC

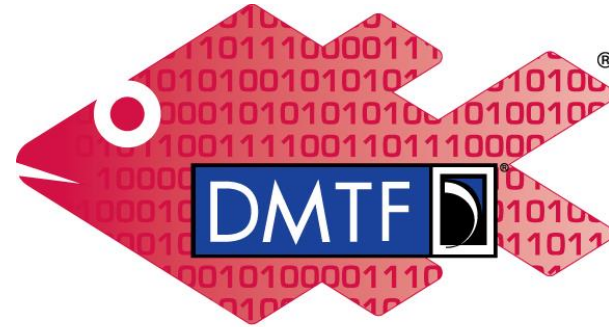
Call to Action

- Review DSP2090, *Redfish Aggregation Guidance for Compute Expansion Modules*
 - <https://www.dmtf.org/dsp/DSP2090>
- Provide feedback or participate directly in the System GPU Management Workstream
 - <https://github.com/opencomputeproject/ocp-hm-system-gpu-management/wiki>

Thank you!

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Redfish