Hardware Management Project Overview

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Project Mission

• Cover hardware management of OCP platforms

• Enable interoperable manageability for OCP platforms

• Provide a common foundation for manageability for OCP projects
Importance to OCP

• OCP is focused on compute infrastructure scale
• Scale computing requires a stable set of tools for management
• The hardware management project enables infrastructure and tools for remote machine management of OCP platforms
Project Scope

- Standard manageability interfaces
- Baseboard management controller (BMC) requirements
- Interoperability and conformance to manageability specifications
- Provide guidance and feedback to other Open Compute projects
- Oversee the OCP’s OCP-Profiles repository
- Rack Management Controller (RMC) Sub-Project
- Device Manager Sub-Project
- Hardware Management Module Sub-Project
- Hardware fault management Sub-Project
Hardware Mgmt Project Structure

- HW Mgmt Project
- Profile Workstream
- Module HW Mgmt SubProj
- OpenRMC SubProj
- Device Manager SubProj
- HW Fault Mgmt SubProj

https://www.opencompute.org/projects/hardware-management
Published Specifications

- OCP Redfish Profiles: baseline and server v1.0.0
- Usage Guide for OCP Baseline Profile v1.0.0
- Usage Guide for OCP Server Profile v1.0.0
- Usage Guide for OpenRMC Northbound Profile v1.0.0
- OpenRMC Northbound API Specification v1.0.0
- OpenRMC Northbound API Profile v1.0.0
- OpenRMC Design Specification v1.0.0
- RunBMC BMC daughter board I/O specification v1.4.1
- DataCenter Secure Control Module (DC-SCM) Specification v1.0.0
OCP Manageability Profiles

- Baseline HW management profile created
- Baseline includes common manageability features across OCP platforms
- Other OCP projects may extend and create platform specific profiles

Baseline Profile: https://github.com/opencomputeproject/HWMgmt-OCP-Profiles
Server Profile: https://github.com/opencomputeproject/HWMgmt-OCP-Profiles
Conformance Test Suite: https://drive.google.com/file/d/1R05H0LaqG9DmTDJdMGhKkLckPwIfEONT/view?usp=sharing
OpenRMC Overview

• Approved Sub-Project
• Creates designs and specifications to enable interoperable manageability for Open Compute rack managers
  • Specification for the interface exposed by the rack manager to the rest of the datacenter
  • Requirements on the interface between the rack manager and the on-platform components
  • An open-source implementation of the rack manager controller software
OpenRMC Scope

Rack Manager API
• Northbound interface for the RMC
• Southbound interface requirements for the RMC
• OCP’s Rack-Manager source repository

Rack Manager HW
• Edge RMC
• Rack & Power RMD (Meta, Google, MSFT)

Unified RMD proposal
Device Manager

- Sub-project in incubation
- Provides a unified asset management, monitoring, and control
- Redfish-based device manager architecture

**Use Cases**

- Asset Management: identify and query devices
- Monitoring: Help with fault Isolation, and take preventive actions
- Manage SW and FW including updates
Hardware Management Module

Charter:

• Specification for the interface between the management subsystem (i.e., BMC and ROT) and the underlying platform
• Design guides for platform designers wanting to use the module
• Designs for reference modules and carrier cards
Hardware Management Module

- Currently two specifications: DC-SCM and RunBMC
- Both standardize the connector definition for management subsystem
- Allows designers to separate the subsystem and future-proof

Run-BMC

DC-SCM
Hardware Fault Management

- Sub-project in incubation
- Focuses on standardizing system behavior under hardware failures
- Defines key baseline requirements of managing HW errors
- Provides reference/guidance on system HW failure management