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# Hardware Fault Management Subproject



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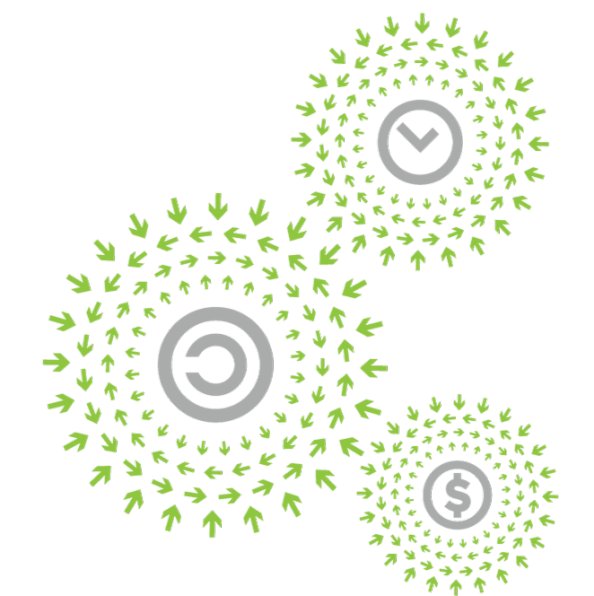
NOVEMBER 9-10, 2021

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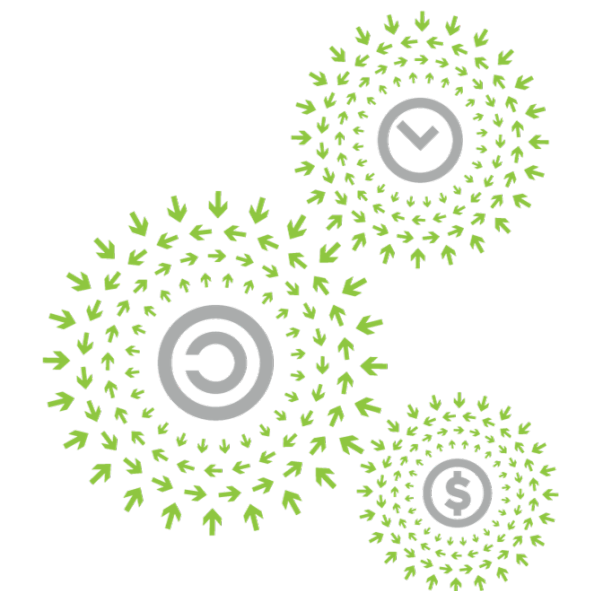
## Status Update

Yogesh Varma, Systems Engineer, Intel

Anil Agrawal, Hardware Systems Engineer, Meta



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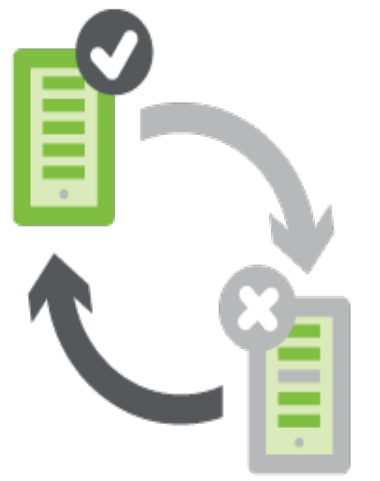


# Hardware Fault Management Subproject

An incubation subproject of Hardware Management Project

Subproject webpage:

## Hardware Fault Management - Incubation



HW FAULT  
MGMT

[Home](#) > [Projects](#) > [Hardware Management](#) > Hardware Fault Management - Incubation



### Project Leads

Rama Bhimanadhuni, Yogesh Varma, Zhengyu Yang

### Details

[Wiki](#)

[Charter](#)

### Get Involved

[✉ Rama Bhimanadhuni](#)

[✉ Yogesh Varma](#)

[✉ Zhengyu Yang](#)

The Hardware Fault Management Sub-Project is under the direction of the OCP [Hardware Management Project Group](#).

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Contributing participants include Intel, Microsoft, Facebook, HPE, Google, Dell, amongst others.

We meet every Friday @2 PM PST



# Hardware Fault Management Subproject

- Charter - address the pain-points in managing hardware faults at scale
- Methodology:
  1. Collaborate with OCP/industry stakeholders\* to develop a shared knowledgebase of universal fault taxonomy and scalable methods.
  2. Improve hardware fault management by leveraging and expanding existing industry standards e.g. Redfish, ACPI and OpenBMC, etc.

*\*Stakeholders – including but not limited to System HW & SW Vendors (SoC, Memory, IO, GPU, BMC, OS, Hypervisor, BIOS, System/Rack Manager etc.), System Integrators, Conventional Enterprise, Cloud and Hyperscale Datacenters Fleet Operators.*

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# Recap – Past Updates

- OCP 2020 Tech Week: HW Fault Mgmt Sub-Project Update recording: <https://youtu.be/fhuPGccWG4I>
- OCP Virtual Summit 2020: Overview of Hardware Fault Management Subproject recording: <https://youtu.be/foUZav2GvMs>

## Common Pain-points

### Categorized by:

- Target uptime
- Performance impact
- Diagnostic capability
- Validation coverage

## Common Taxonomy

### To define:

- Universal hardware fault classification
- Define common error reporting format
- Common fault handling interface
- Enhance existing industry standards

## Shared Knowledgebase

### Outlining:

- HW Fault Mgmt Pain-points
- HW Error Classification
- HW Error Reporting Formats
- Framework for HW FM Infrastructure
- Best Practices – case studies

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# Goals and Activities:

HW Fault Mgmt Goal	Activities and Deliverable
Identify requirements for hardware fault management to guide activities of this sub-project	<p><b>Capture, classify and prioritize actionable HW Fault Management pain-points:</b>            Status – ongoing accessible at - <a href="#">OCP-PainpointList</a></p>
Standardizing system behavior under hardware failures	<p><b>Hardware Error Reporting format Standardization:</b>            Status: version 0.5 accessible at - <a href="#">HW error reporting format</a></p> <p><b>Create Hardware Error Classification:</b>            Status: under review accessible at - <a href="#">HW Error Classification</a></p>
Standardizing interface to monitoring HW Infrastructure errors at scale	<p><b>Fault Management Infrastructure Proposal:</b>            Status: under review accessible at - <a href="#">OCP Fault Management Infrastructure Proposal</a></p>
Provide reference and guidance on system hardware failure management	<p><b>A Compendium of HW Fault Mgmt handling Best Practices and Case Studies following the above proposals:</b>            Status: version 0.1 is accessible at - <a href="#">OCP-BestPractice</a></p>

# Call to Action

- *Our work has just started, and community participation is essential:*
  - ✓ **Join the conversation:** *Subproject meets every Friday at 2 PM PST*
  - ✓ **Share your thoughts:** *Review documents and proposals offline*
  - ✓ **Stay around** *for the following hardware Fault Management sessions:*
    - *3:10pm - 3:35pm | Memory Corrected Error profiling (via Linux EDAC Driver) within large-scale cloud infrastructure*
    - *3:35pm - 3:50pm | Hardware Error Reporting Standardization for Cloud-scale and Edge Infrastructure*

## Links:

- Subproject Wiki: [https://www.opencompute.org/wiki/Hardware\\_Management/Hardware\\_Fault\\_Management](https://www.opencompute.org/wiki/Hardware_Management/Hardware_Fault_Management)
- Join the mailing list: <https://ocp-all.groups.io/g/OCP-HWFaultMgt/>
- Propose discussion topics via email: [ramab@microsoft.com](mailto:ramab@microsoft.com); [zhengyuyang@fb.com](mailto:zhengyuyang@fb.com); [Yogesh.Varma@intel.com](mailto:Yogesh.Varma@intel.com)

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Thank you!



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