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Bryce Canyon
Hardware Specification update

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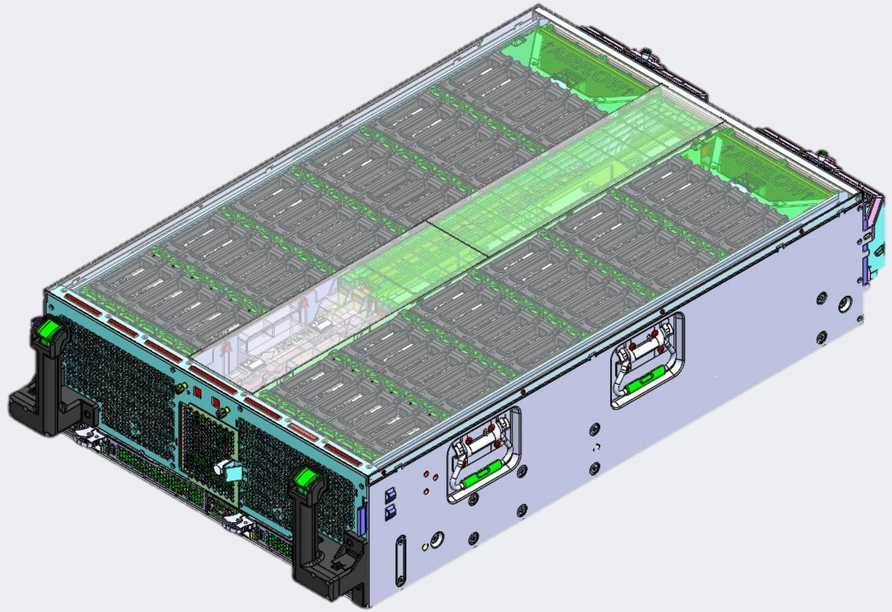
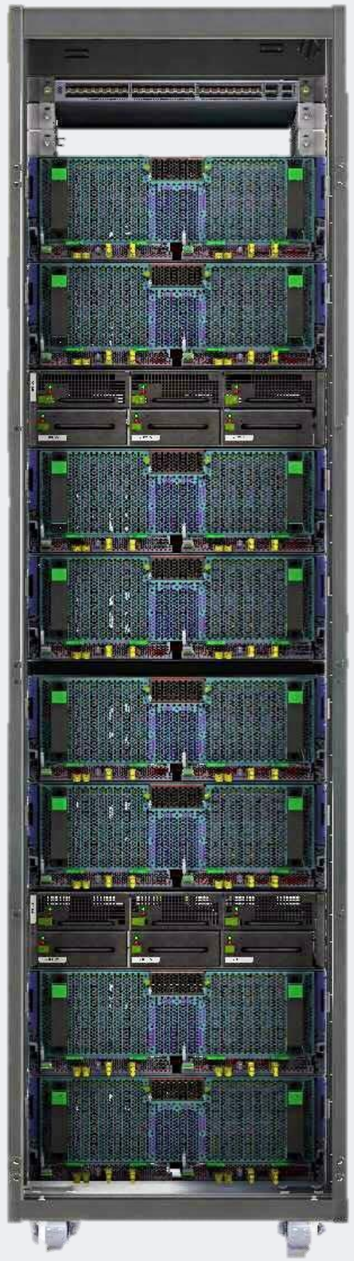
What is Bryce Canyon?

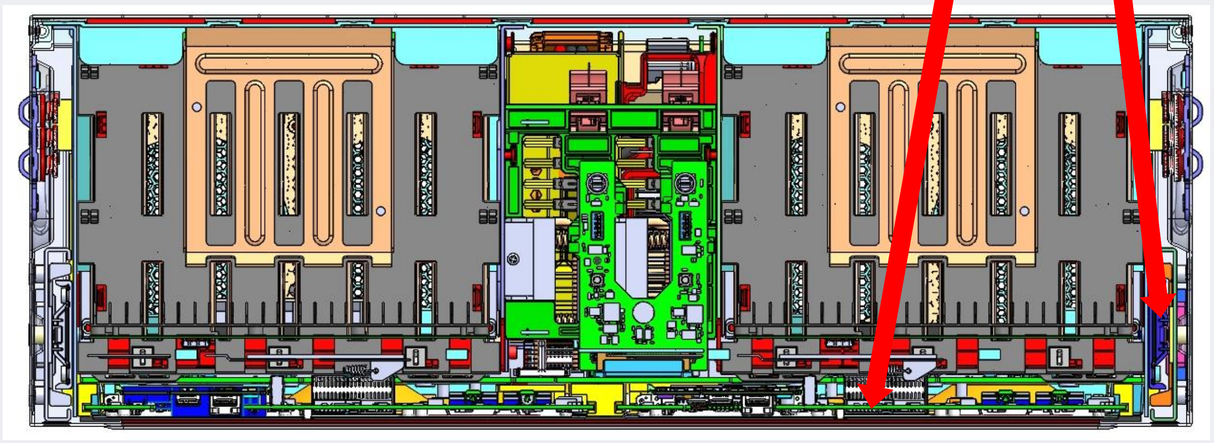
- Disaggregated Storage Server and JBOD
- 2 Storage nodes, each with 36 drives, in a single drawer
- Leverages common 1P servers (Monolake) and NICs (OCP Mezz)
- Flexible and scalable design to meet current and future challenges





Component Details

Thermal	4x dual rotor 92mm fans
Power	ORv2 bus bar clip
Storage Protocol	2x Storage Controller Cards
Serviceability	Cable track for hot swap
	Sliding rails
Compute	2x 1S Server slots (for Monolake)
Network + extensibility	IOM card with NIC and 2x m.2 or SAS controller



OCP Specification Updates list

- All CAD renderings were updated with the latest images
- Added details for the window on the HDD latch to enable scanning of HDD serial number.

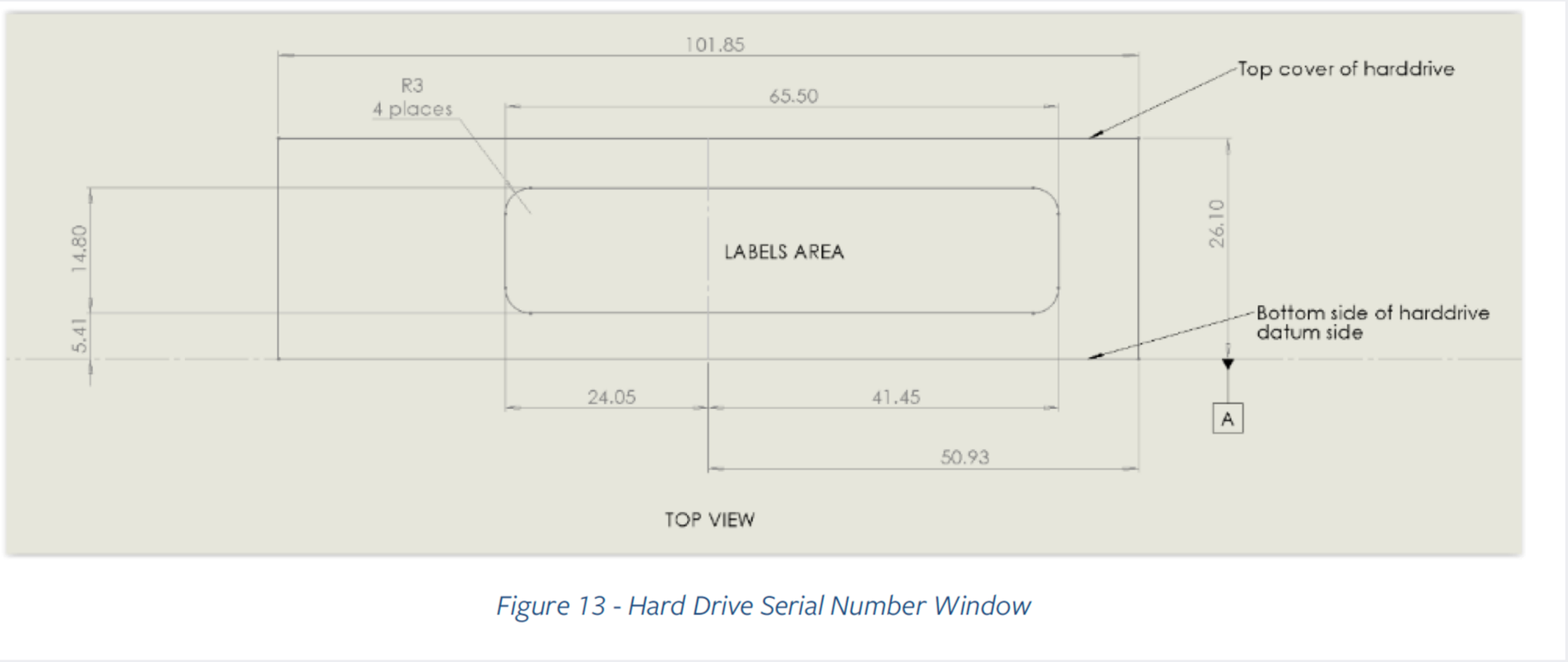
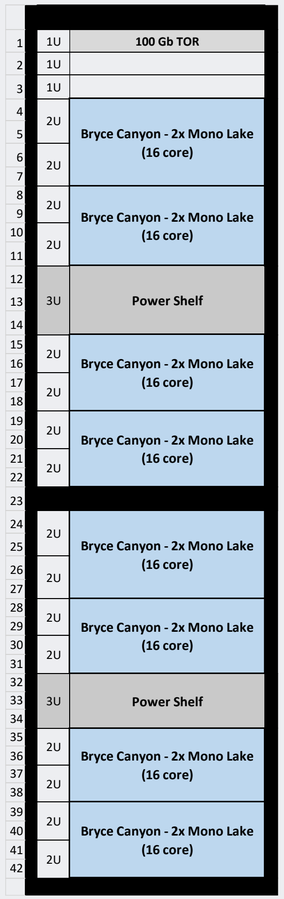


Figure 13 - Hard Drive Serial Number Window

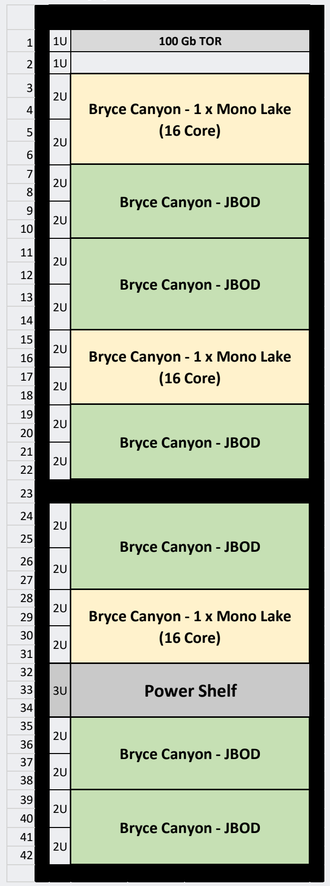
OCP Specification Updates list

- Removed content and all references to Type IV configuration. Only the following 2 configurations are intended to be supported.

Type V – 1:36



Type VII – 1:210



OCP Specification Updates list

- Removed content and all references to Type IV configuration.
- Updated details related to all front panel changes to help with better serviceability.
  - Changed front panel door lock from thumb screw to slide-to-release for quicker service time
  - Moved debug USB port away from the IOM latch to enable plugging debug card directly
  - Rotated Front Panel board USB port to match the same direction as the IOM debug USB port.
  - Added a bicolor status led to the IOM with the following behavior.

Table 2: IOM Status/Fault LED indicator

BMC	Mono Lake	Event	IOM bicolor LED
off	off	system off	off
Booting	off	BMC booting	Solid Yellow
on	off	BMC ready, ML power off	Blinking Yellow
on	on	ML ready, no faults	Solid blue
on	on	BMC Fault critical (BMC health, sensors health, NIC health)	Solid Yellow
on	on	ML Health/Fault Status Critical	Solid Yellow
on	off	BMC Fault critical (BMC health, sensors health, NIC health)	Solid Yellow
on	on	Expander Fault critical (Expander, sensors health)	Solid Blue
on	on	System identification	NA

OCP Specification Updates list

- Added OpenBMC firmware implementation overview section (Section 13 in the spec) covering the following topics.
  - Front panel, remote console and chassis power control
  - IPMI FRUIDs defined in the system
  - In-system firmware updates via BMC
  - Chassis Fan speed control
  - Enclosure management including error codes, event lists
  - IPMI and IPMB command support list

- Added Expander firmware overview section (Section 14 in the spec) covering the following topics.
  - Summary of functionalities
  - Details regarding drive link LED, fault LED, and identification LED patterns.
  - Drawer-open thermal warning LED behavior
  - Power Consumption measurements on a PCBA level and chassis level
  - Chassis fan speed control
  - Event log and reporting, including sensor warnings, bus errors, HDD errors, SAS link errors, etc.

- Added Section 15 outlining all the system sensors monitored via BMC and Expander firmwares.

OCP Specification Updates list

- Updated Thermal section
  - Final Bryce Canyon fan speed curves
  - Final fan cage and latch design
  - Mylar added under the IOM and transparent mylar added under HDD drive retention latch to improve online service time to >20mins when the drawer is pulled out all the way.
- Updated Mechanical section with the final implementation and CAD renderings of all chassis latches including PCBA and other FRU latches.
  - Drawer Sliding rail
  - Drawer release handles
  - Rack release latches
  - Rack lift latch
  - Drive Retention latch
  - IO Module card latch
  - Storage Controller card latch

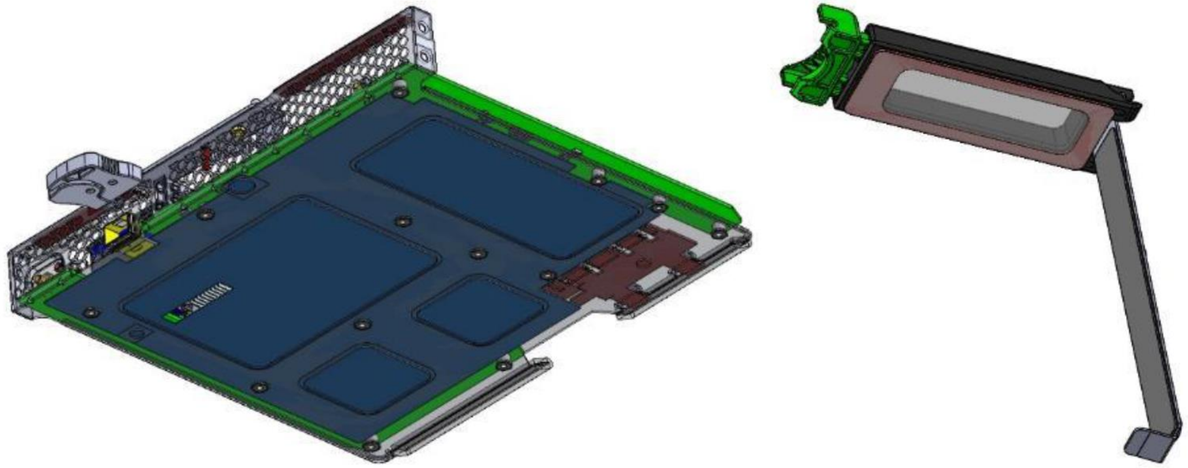
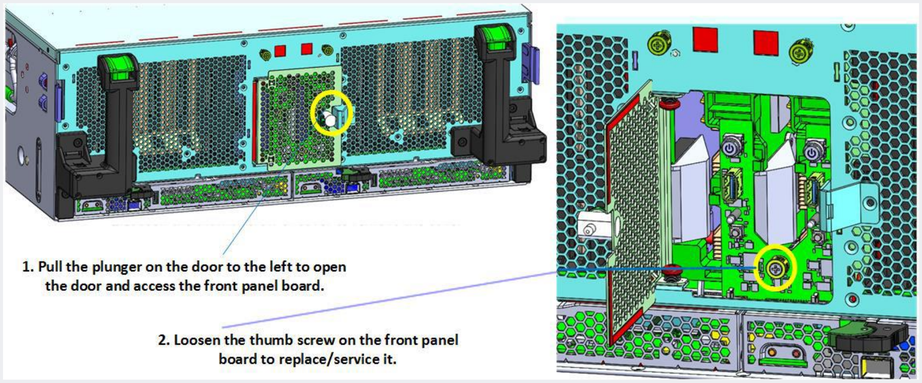
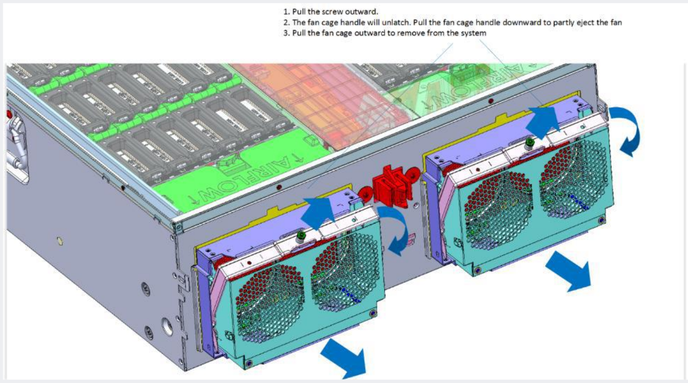


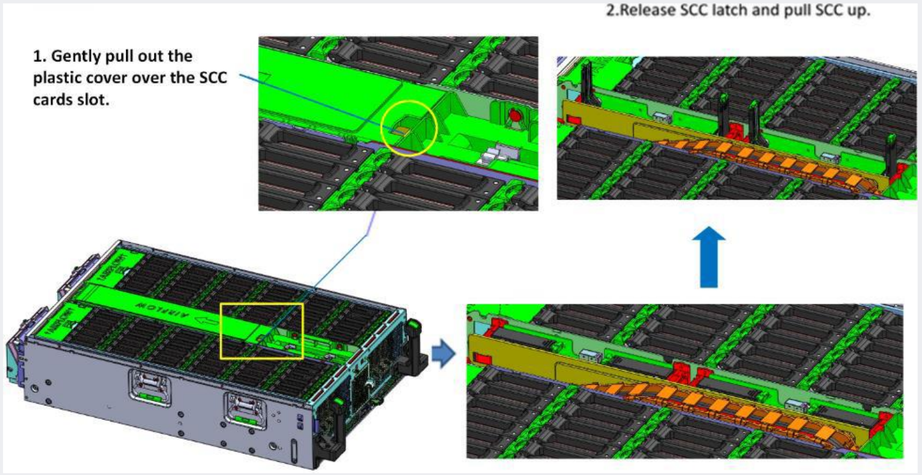
Figure 101: Mylar on IOM tray and HDD latch to improve service time

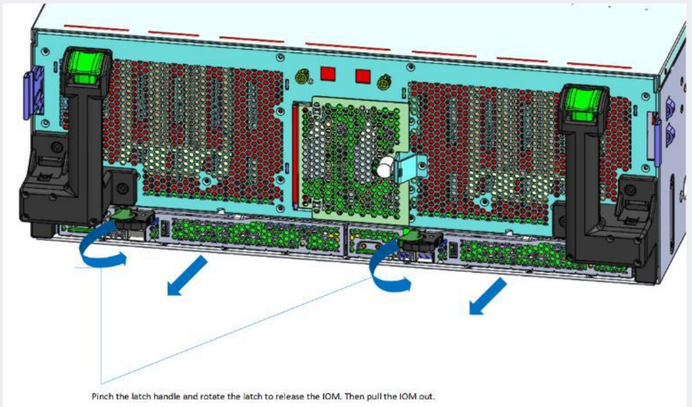
OCP Specification Updates list

- Updated Serviceability section with updated chassis pictures and latest latches.









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