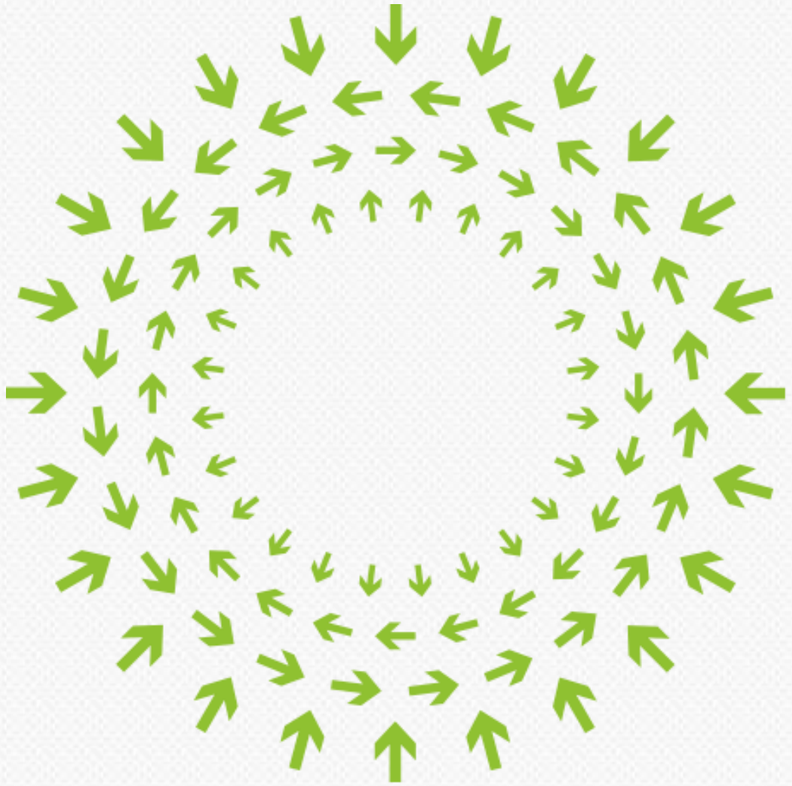

OPEN Compute Summit

March 10–11, 2015

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OPEN Compute Summit

Multi-Node Server Platform

Yosemite

Yan Zhao
Facebook
Hardware Engineer

Platform Definition

- Open ecosystem targeting high performance 1S Server
- Modular design for flexibility and serviceability
- Single network cable, rich network options
- Sophisticated server management
- Open Rack V2 and Cubby chassis

1 Modular Design

2 Platform Architecture

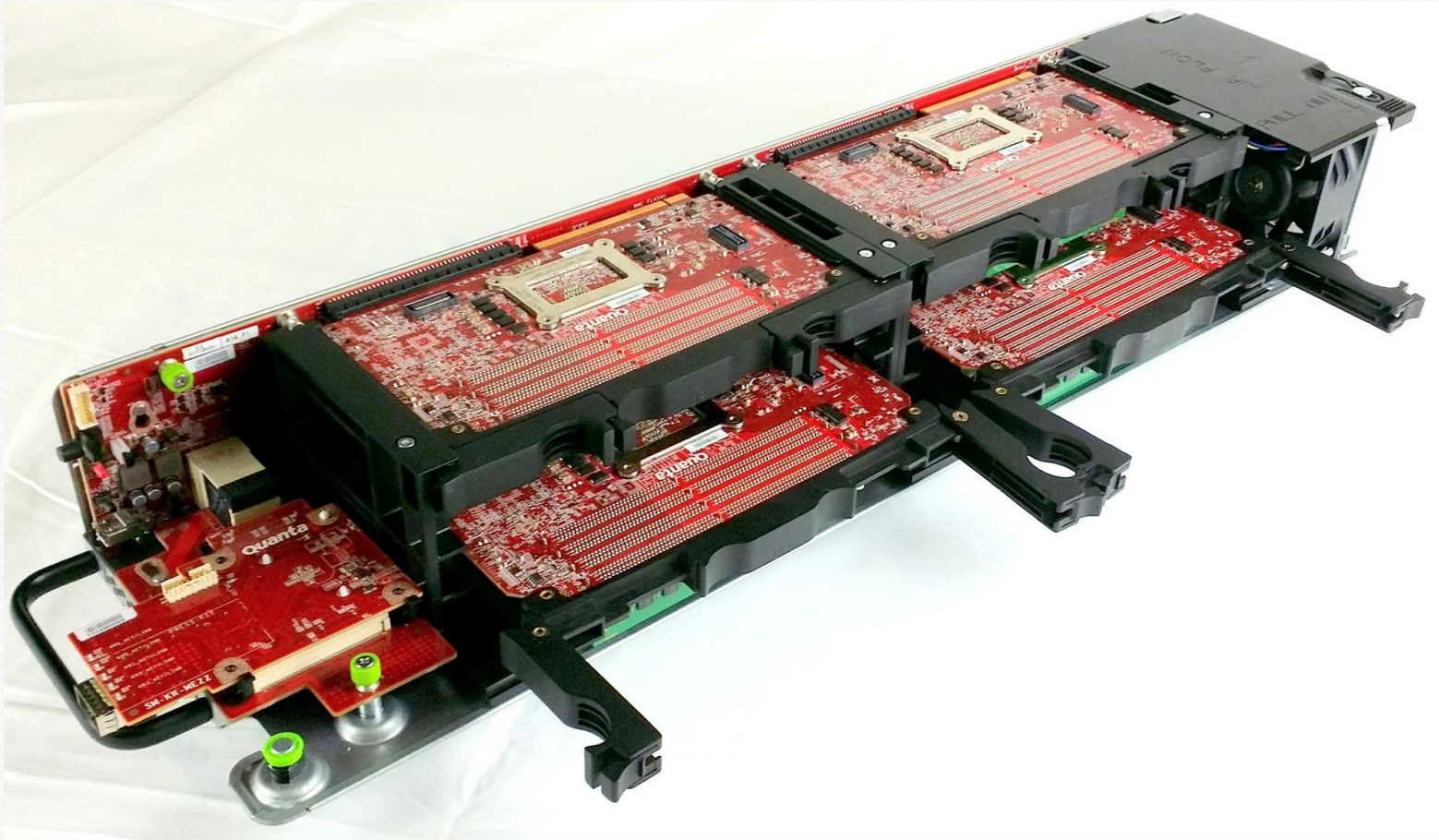
3 Network Options

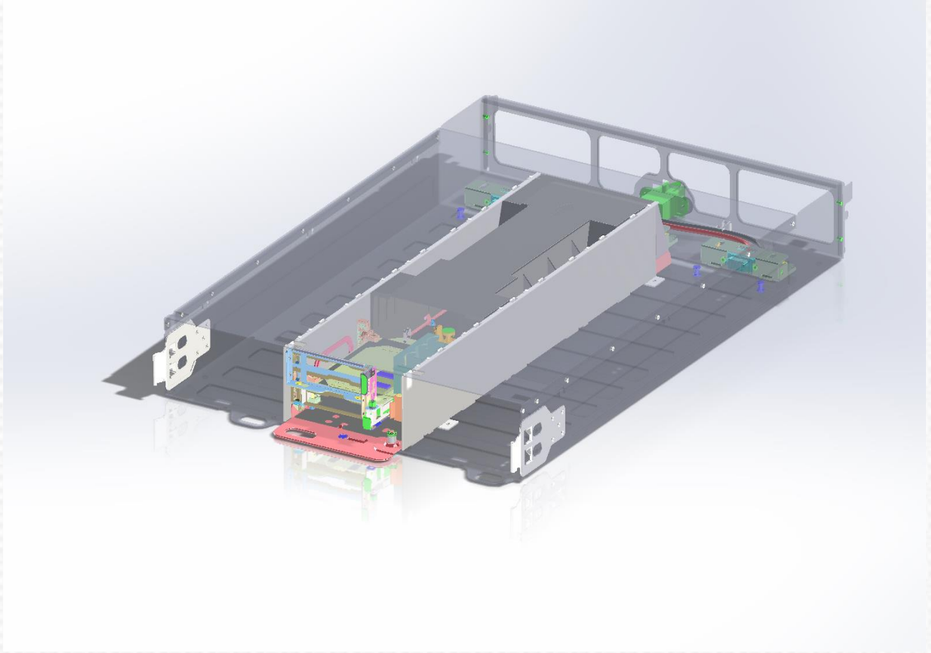
4 Server Management

5 Q&A

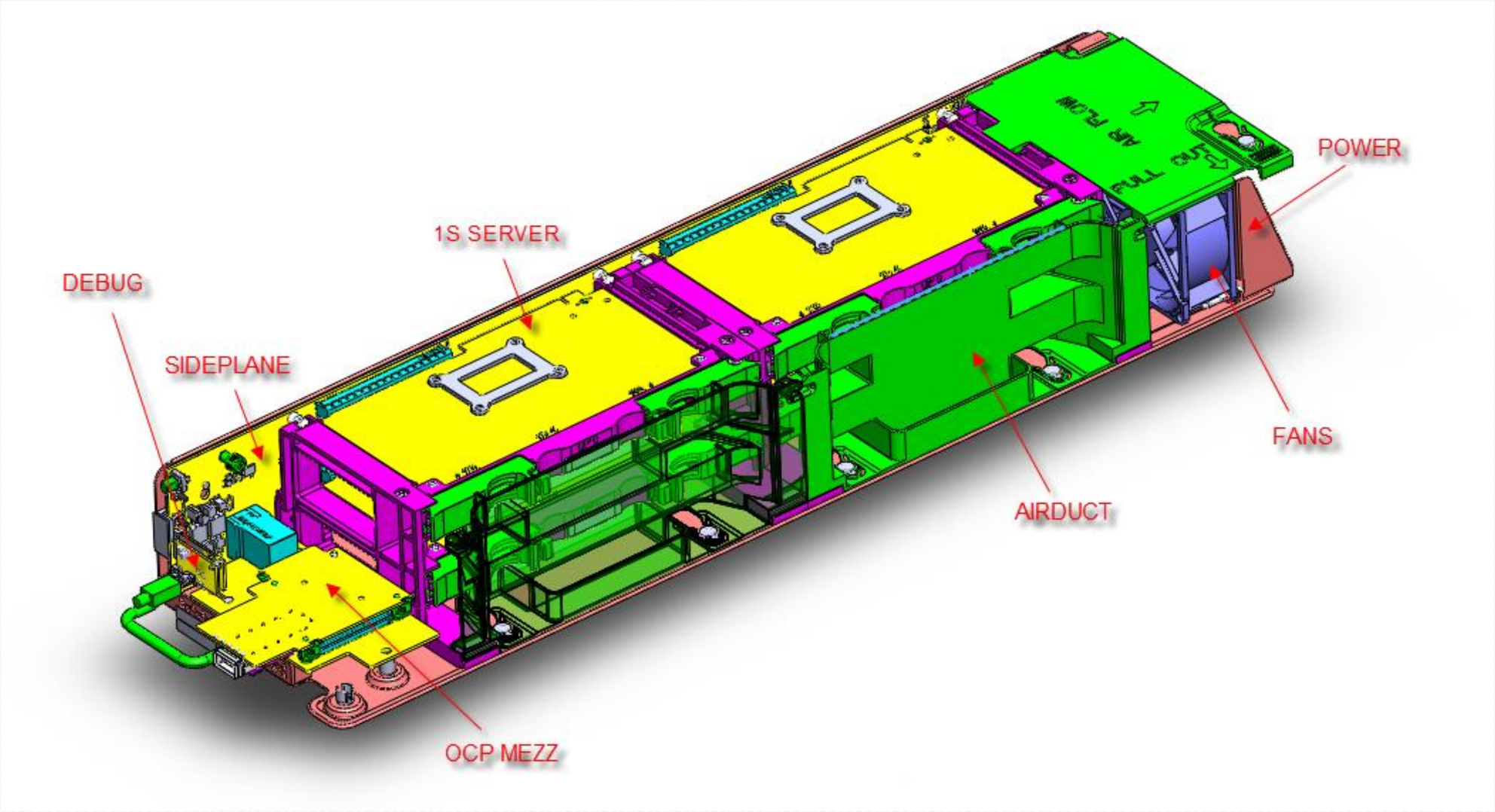
Modular Design

Cubby, Yosemite, and Mono Lake



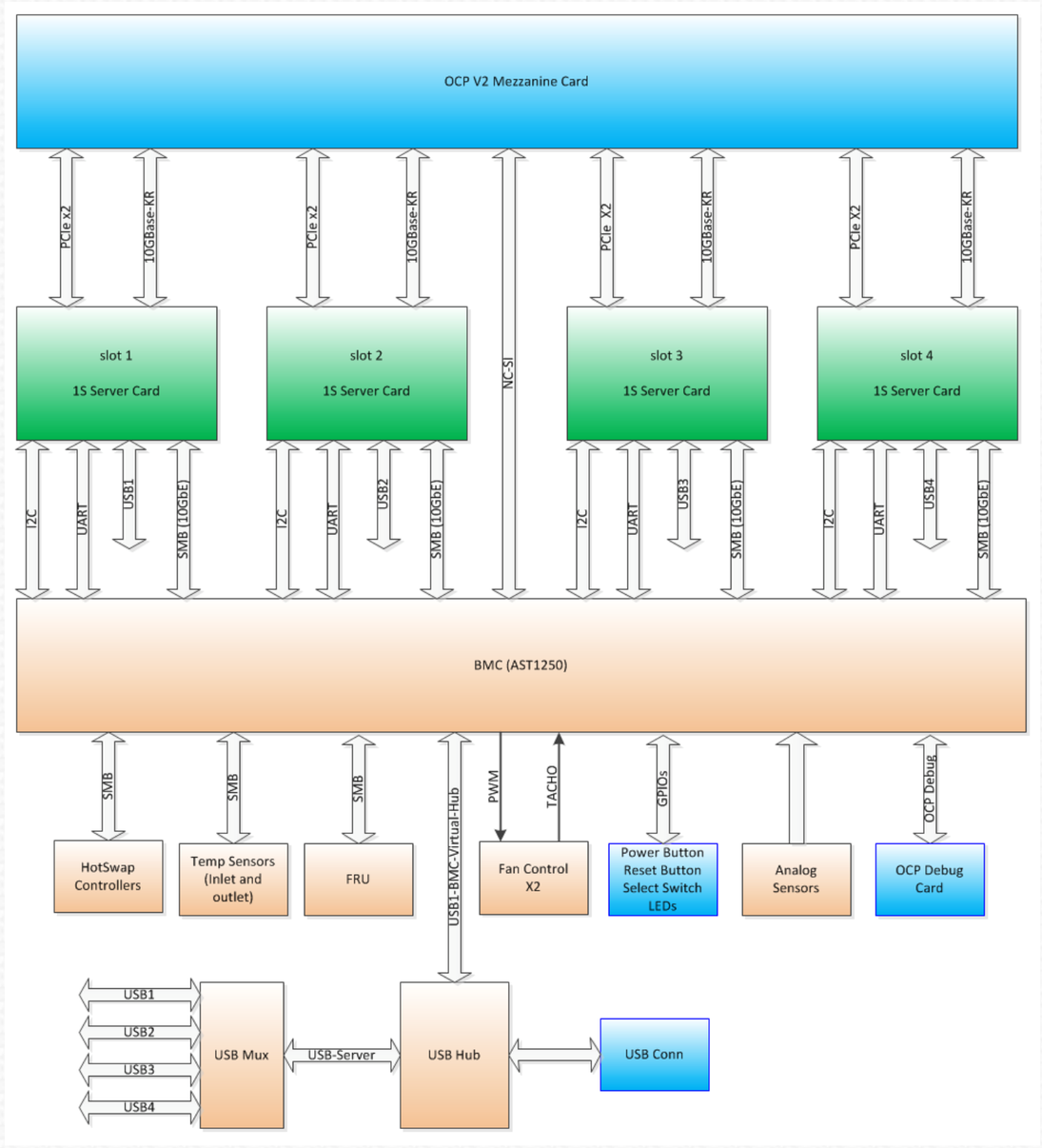


Yosemite's Modules

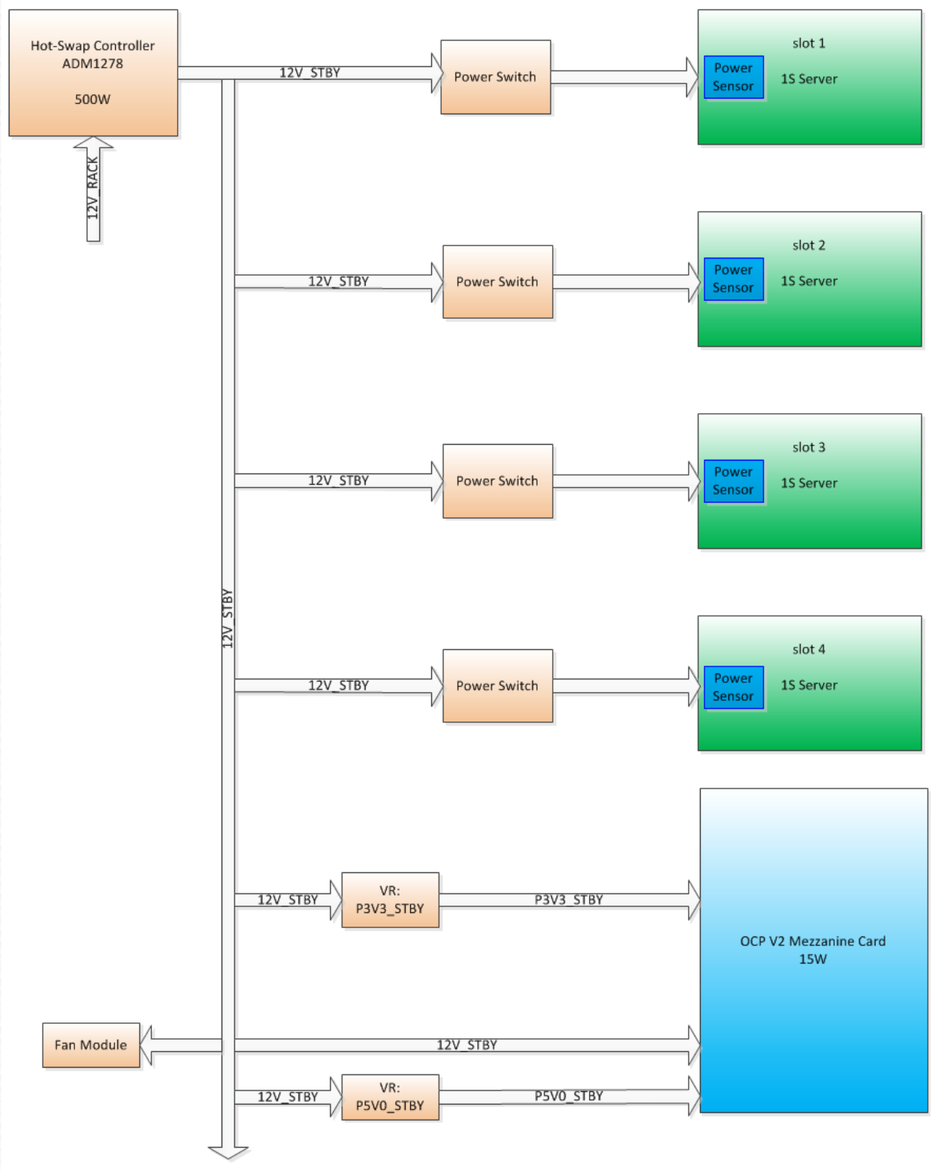


Platform Architecture

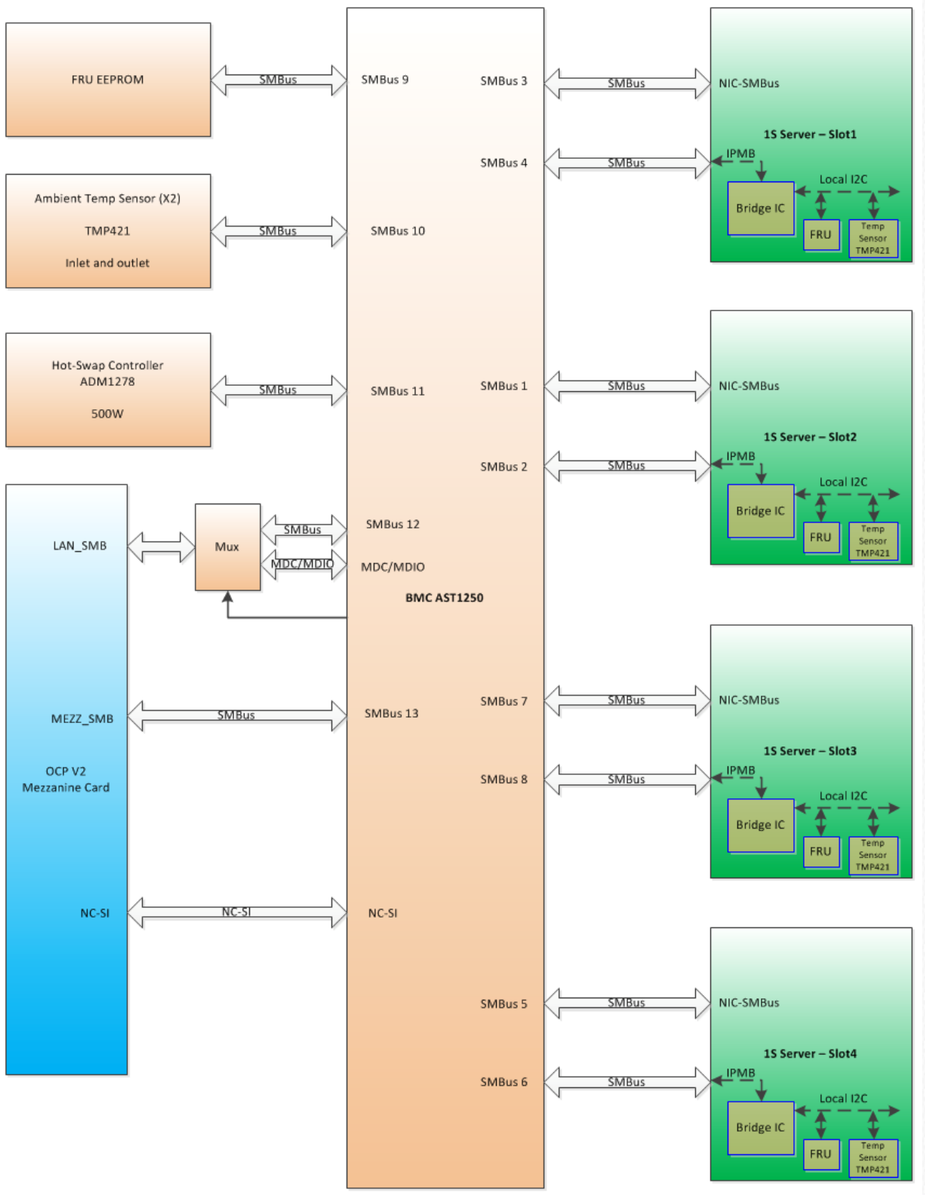
Platform Architecture



Power Distribution



Management Block Diagram

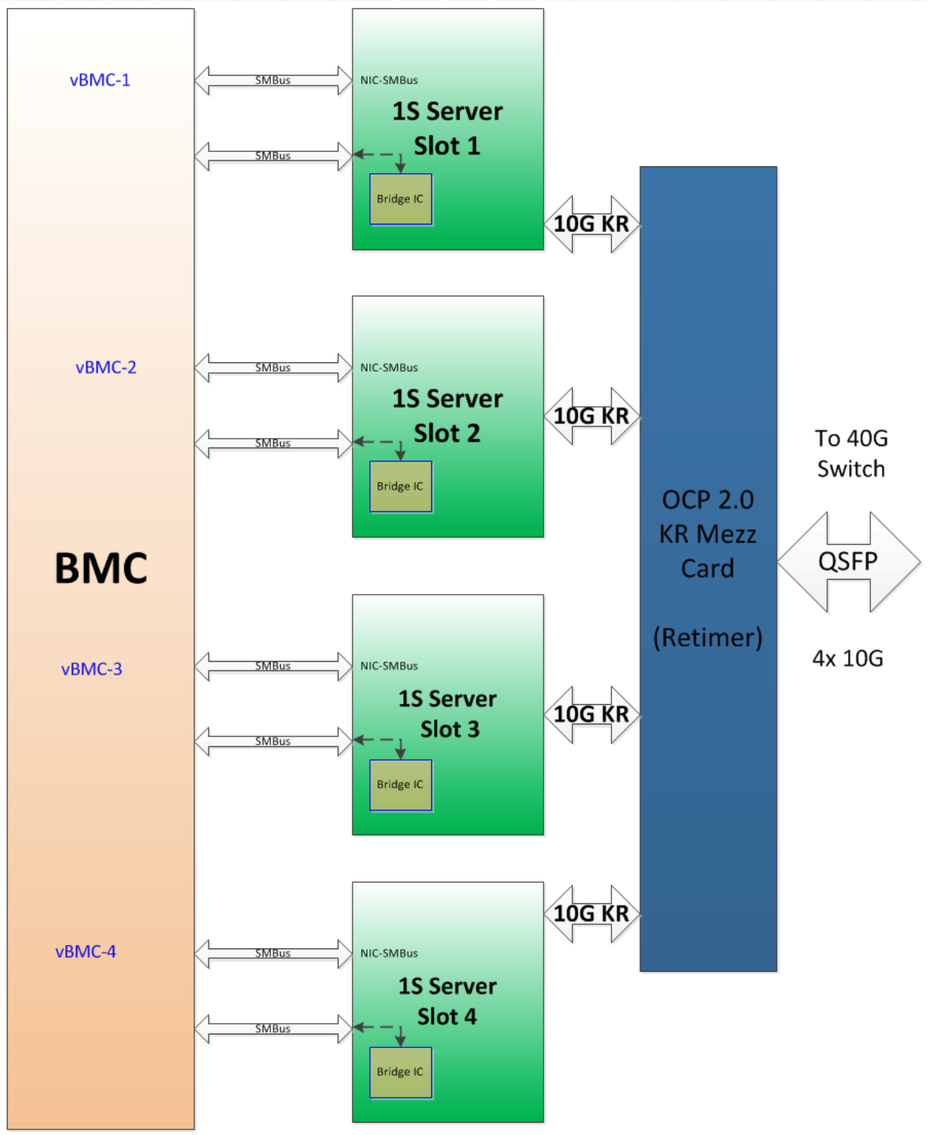


Network Options

Hybrid OCP Mezz 2.0 Interface

- 4 x2 PCIe links on Mezz connector A
- 4 10GbE on Mezz connector B
- NC-SI
- Mezz SMB for Mezz card management
- LAN SMB or MDIO for sideband or configuration

4x10G KR Mezz Card



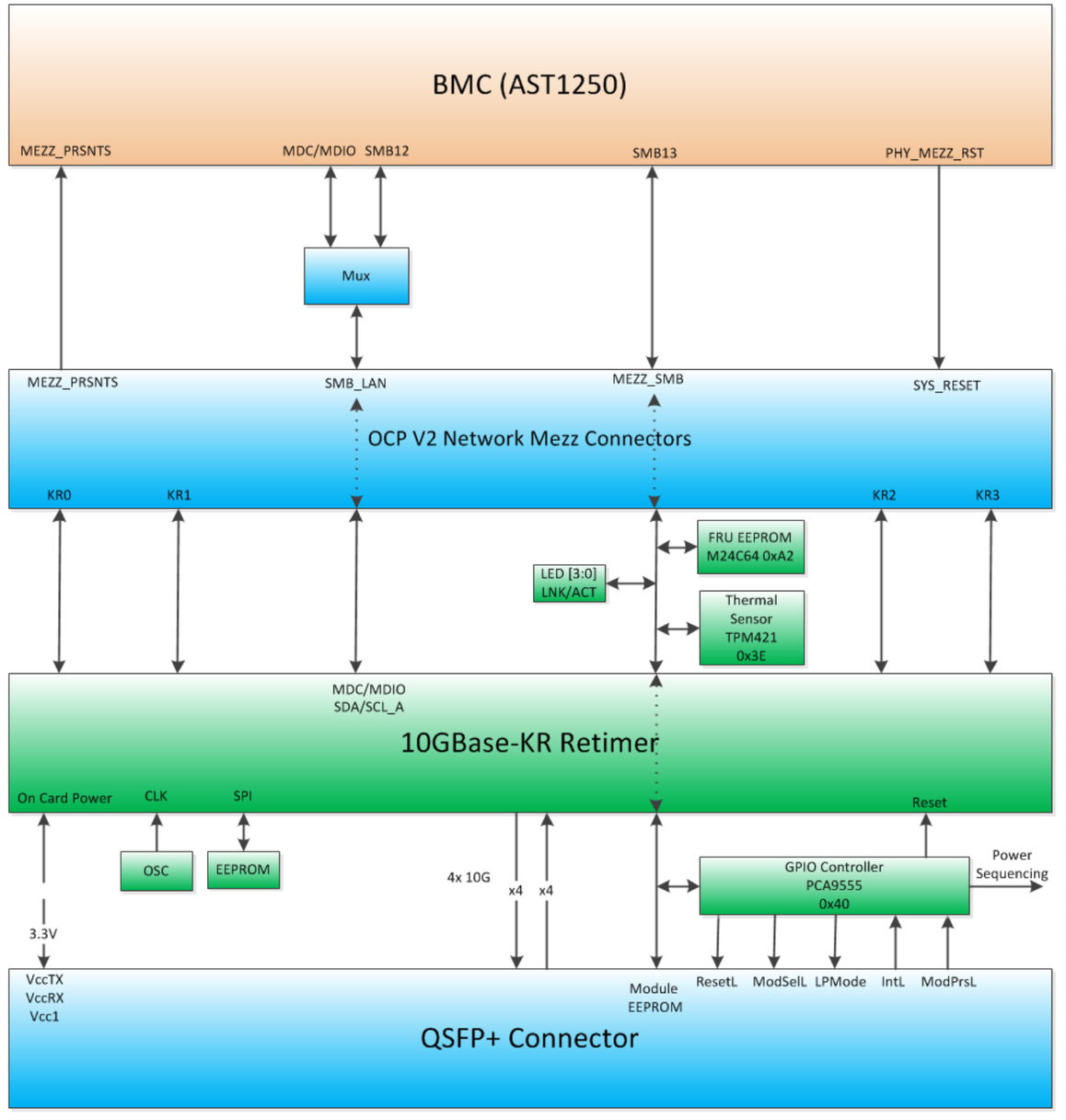
❑ Network

- ➢ 10GBase-KR NIC on 1S Server
- ➢ 4x10G to ToR Switch
- ➢ SMBus side-band
- ➢ LED control through BMC/Bridge IC

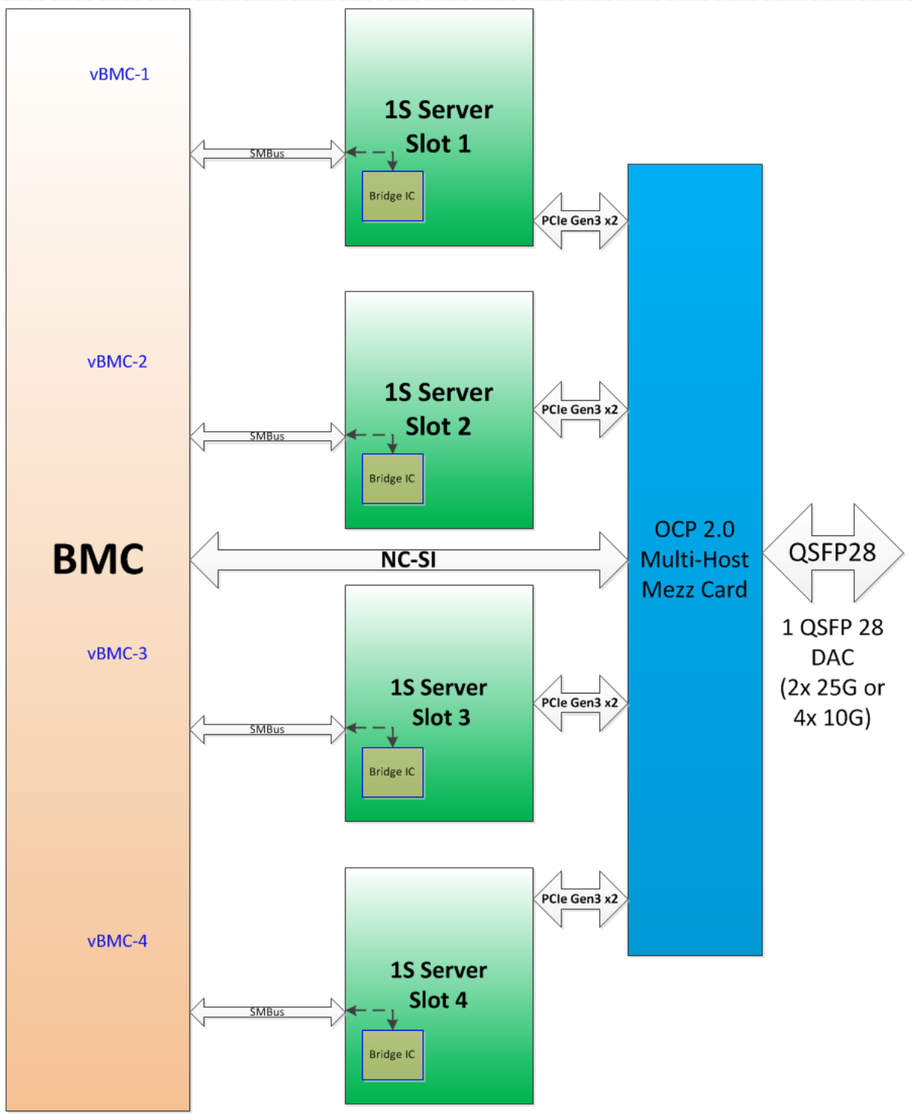
❑ Retimer Chip Vendors

- ➢ Semtech GN2407
- ➢ Inphi CS4223

Block Diagram



40G/50G Multi-Host Mezz Card



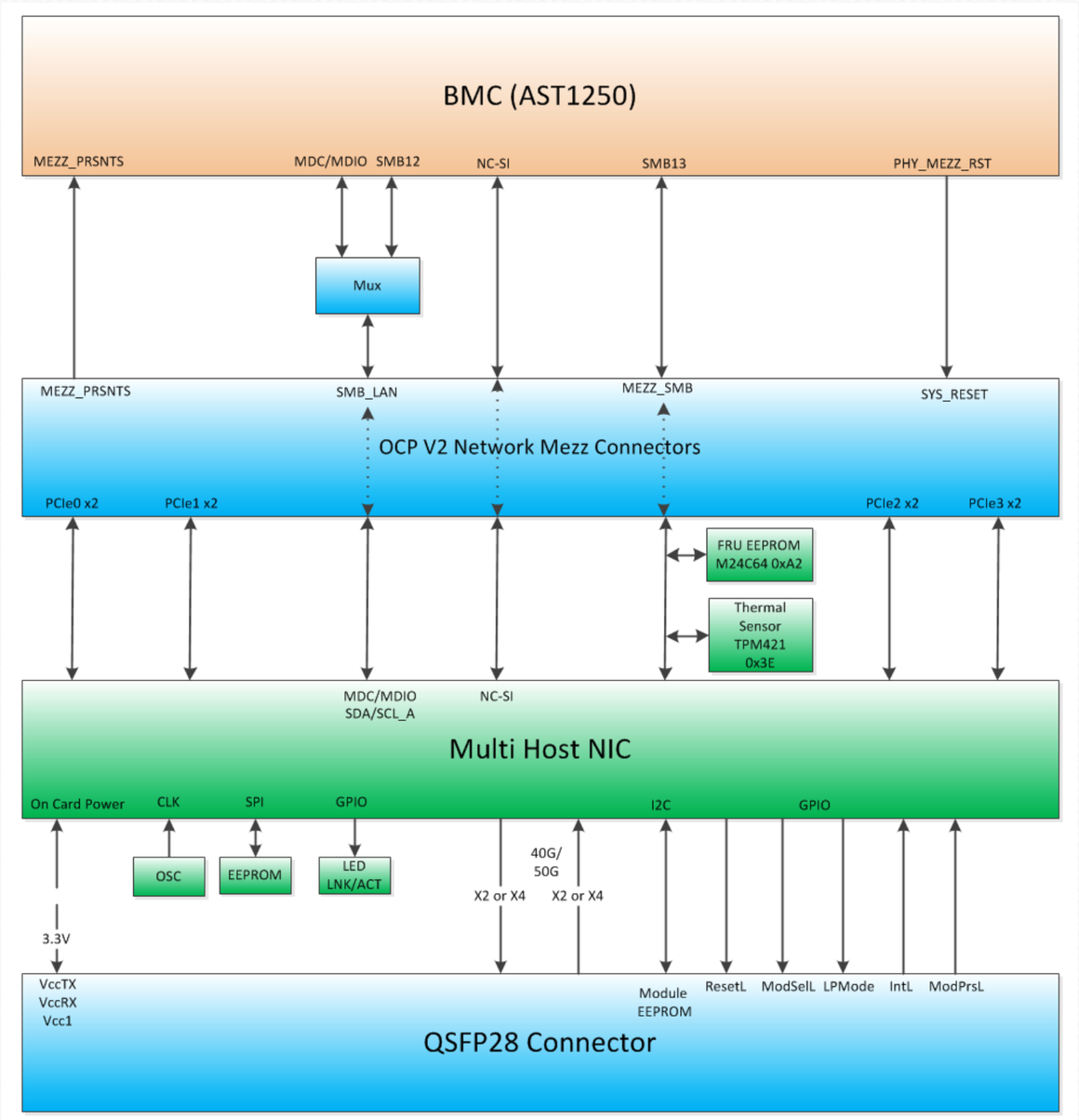
❑ Network

- ➢ PCIe based Multi-Host NIC
- ➢ Single 40G or 50G port to ToR Switch
- ➢ Virtualized NC-SI side-band

❑ Chip Vendor

- ➢ Mellanox ConnectX-4 Multi-Host

Block Diagram

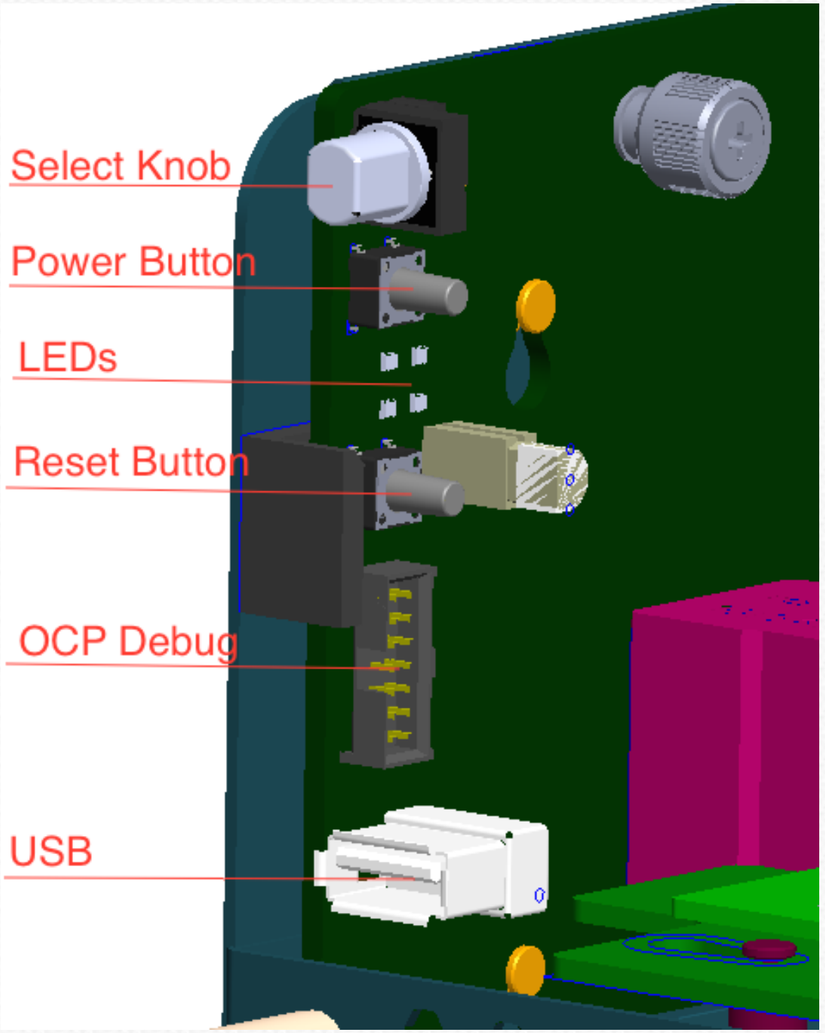


Server Management

Server Management

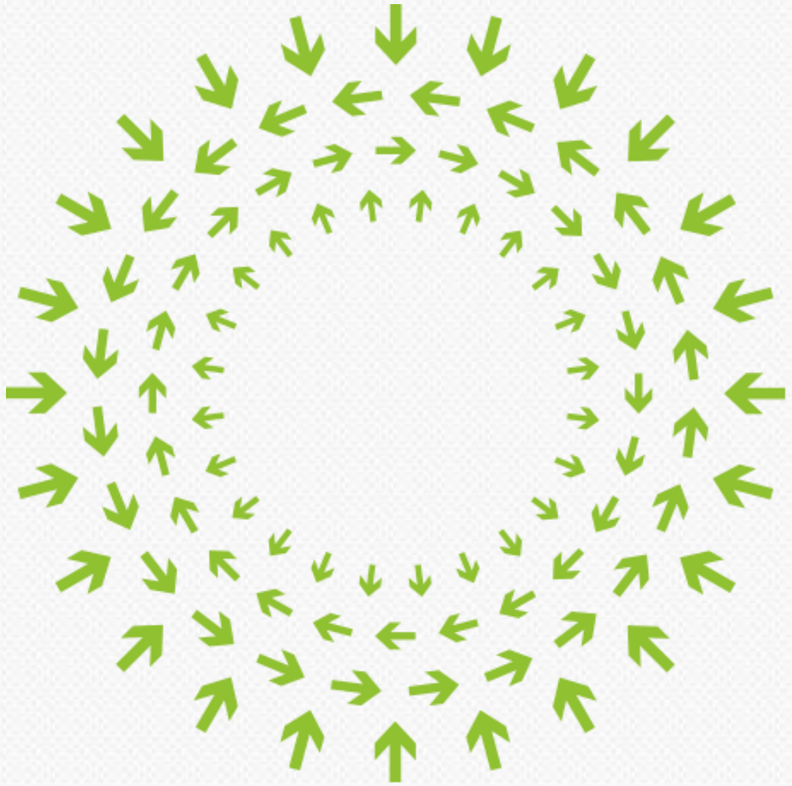
- Platform Management
  - 1 physical BMC per sled
  - 4 virtual BMC, 1vBMC per Server
  - In-Band and Out-Of-Band Access
  - AC/DC cycling
  - Bridge IC manages server on behalf of BMC
- Field service support
- Remote update all programmable devices
- Power management
  - Power reading and power capping
  - FAST_THROTTLE_N, POWER_FAIL_N

Field Access



- **Select Active server through knob**
- **LED indication**
- **Active server owns OCP debug card, USB, Power button, Rese button**

Q&A



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