STANDARDIZING MORE EFFICIENT POWER SUPPLY MODULES FOR 19” EQUIPMENT IN OPEN COMPUTE RACK

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Agenda

- About Penguin Computing (& why we care about OCP standards)
- Birth of an OCP HPC Cluster
- Need for more power supply options
- Switches for HPC in OCP
- Arctica Product Line
- Component not on OCP marketplace
- Productization requires standardization
- Discussion
About Penguin Computing

- U.S.-based 20 year old, global provider of HPC hardware, software, and services
- Home to Scyld® Beowulf cluster software & bare metal HPC on cloud Penguin Computing On-Demand™
- Over 300 OCP racks delivered to date based on Tundra™ Extreme Scale design*
- Platinum OCP member, Penguin CTO Phil Pokorny is HPC representative of the OCP Incubation Committee

* OCP Inspired, for discussion Q2
Birth of an OCP HPC Cluster

• Client needed OCP HPC cluster
• Needed to create one from scratch
• Result:
  Tundra™ Extreme Scale* with 1OU, 3 node, CPU compute, leverage v1 rack

* OCP Inspired, for discussion Q2
Need for More Power Supply Options

- Only DC Power, no AC courtesy plugs
- "Off the Shelf" top of rack switch won’t work in OCP
  - Another rack for 19” – Just for network?
  - Angus rack - Lose half density, and lose Tundra’s value add as high density
  - DC to AC inverter - Fire danger
Switches for HPC in OCP

- Intel Omnipath 100 Edge Switch*
  - Designed new power board, replacing existing AC-DC PDB
  - New PDB is 12V passthrough to the switch baseboard

* OCP Inspired, for discussion Q2
Arctica Product Line

- Arctica Ethernet Switch*
  - Designed new power board, replacing existing AC-DC PDB
  - Designed new 12VDC modular PSU for high-end models

* OCP Inspired, for discussion Q2

Arctica 4804IP 1G Switch (fixed power design)

Arctica 4806XP 10G Switch (modular power design)
Component Not on OCP Marketplace

- There are network switches are on OCP marketplace, but not devices to convert off shelf switches to support Open Rack
  - The pass-through component is customized to each individual switch
  - Discuss standardization to allow wider range of off shelf switches to work with Open Rack
Productization Requires Standardization

- Possible to cost-effectively productize – Penguin is proof
  - Penguin Tundra solution required Arctica in same rack
  - Penguin Tundra solution required OPA in same rack
- Ask OCP members to standardize so that each network switch is not its own OEM project
Discussion