OPEN COMPUTE BRIEF

7x24 Exchange – Carolinas Chapter
2017 Winter Meeting
AGENDA

- Open Compute Project History & Definition
- General Open Compute Server & Rack Overview
- Detailed Open Compute Compliant Rack Overview
- The Impact or Non-Impact on Data Center Power & Cooling
Group founded by Facebook in 2011 after Prineville data center

Create a collaborative community to build and share efficient designs for servers and data centers

Solve common problems and reach common goals
COMMON GOALS

- Hyperscale
- Down cost
- Improves application availability
- Increases efficiency
- Energy Costs
- Accelerated time
- Reduce downtime
- Reduced operating costs
- Response time
OPEN COMPUTE SERVER & RACK
Where did it all Start? Past...

IBM 2311 Disk Drive
Present and Future?
OCP Path (2012 – Present)

- 2012: Facebook engages Rittal
- 2013: Rittal starts v1.0 production
- 2014: Lead developer of v1.2 Open Rack
- 2015: V1.2 Open Rack Spec completed
- 2016: V2.0 Spec started
- 2017: Proof of concept v2.0 built
- 2012: V1.0 Open Rack Spec completed
- 2015: Rittal leads developer of v2.0
OCP Highlights

Application Focused.

Less network cabling and No Power Cords at Server level

OCP is transitioning the servers from a Pet to Cattle concept.
OCP-FB V1.2

3 OU Power Shelf

2 OU Server Shelf

21” Spacing
Open Rack Development

v1.0/1.1
- 12vDC
- 3 Power zones
- 3 bus bars/zone
- 4.4kW/zone
- 13.2kW/rack
- 3200 lb. payload
- 600 x 2110 x 1068

v1.2
- 12vDC
- 2 Power zones
- 1 bus bars/zone
- 6.6kW/zone
- 13.2kW/rack
- 3200 lb. payload
- 600 x 2110 x 1068
Open Rack Development

v1.2
- (Alternative Option)
- 12vDC
- 2 Power zones
- 3 bus bars/zone
- 20kW/zone
- 40kW/rack
- 3200 lb. payload
- 600 x 2110 x 1068

v2.0
- 48vDC
- 1 Power zones
- 1 bus bars/zone
- 15kW/zone
- 15kW/rack
- 3200 lb. payload
- 600 x 2110 x 1068
Design & Development

- NEBS simulations
- Design for manufacture
## Rittal Open Rack Roadmap

<table>
<thead>
<tr>
<th></th>
<th>12vDC</th>
<th>48vDC</th>
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<tbody>
<tr>
<td><strong>Depth</strong></td>
<td>Shallow (30&quot;)</td>
<td>Deep (44&quot;)</td>
</tr>
<tr>
<td><strong>Power Rating</strong></td>
<td>13.2kW (Standard Power)</td>
<td>25+kW, Probably 40kW (High Power)</td>
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<tr>
<td><strong>User</strong></td>
<td>Facebook</td>
<td>Probable users are HPC applications</td>
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<tr>
<td><strong>Status</strong></td>
<td>In Production</td>
<td>Q2</td>
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<tr>
<td><strong>Next Steps</strong></td>
<td>Develop the frame to add 3 x busbar systems from low power version</td>
<td>Show at OCP to gauge interest</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/UL Complete</td>
<td>CE/UL Required</td>
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Open discussion (and we mean open, please speak up):

Impacts on cooling design in the data center.

Impacts on power design in the data center.

Impacts on other:

Airflow

Commissioning

???
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Thank You!