Agenda

1. Background & Key Objective
2. Guidelines
   • Definitions, Acronyms, Abbreviations & Units of Measurement
   • Data Center Access
   • Architectural
   • Cooling
   • Electrical Systems
   • Telecommunications Cabling Infrastructure, Pathways & Spaces
   • Appendices
3. Checklist for an OCP Rack
4. Questions?
Open Compute Rack Types

- Open Rack v2.0
- CG-OpenRack-19
- Project Olympus
<table>
<thead>
<tr>
<th>OR</th>
<th>Open Rack</th>
</tr>
</thead>
<tbody>
<tr>
<td>OU</td>
<td>OpenU is the Open Rack equivalent of the rack mount spacing found in an EIA-310 19” rack.</td>
</tr>
<tr>
<td></td>
<td>OU = 48mm vs 1 RU = 44.5mm</td>
</tr>
<tr>
<td>Out Of Band (OOB)</td>
<td>Is the use of a dedicated channel typically Ethernet for managing network switches, servers and storage devices.</td>
</tr>
<tr>
<td>PDU (V2)</td>
<td>The AC power distribution unit is designed to accept an input voltage of 3-phase WYE wiring 230/400VAC RMS voltage (4 wires + ground). The five wires will be split into two outputs via a terminal block, which will then be terminated via a Positronic connector with a custom over-molding. There will be no fuses or other secondary safety devices</td>
</tr>
</tbody>
</table>
Data Center Access

Delivery Pathway

Delivery Clearances
Data Center Access: Delivery Pathway
Architectural: White Space

White Space slab to slab and ceiling heights

- **Ceiling slab**
- **Access ceiling**
- **Access floor**
- **Floor slab**

**Optimum**
- Min 4.5 m

**Acceptable**
- Min 3.1 m

900 mm to 450 mm
Architectural: Floor Loading

A full OCP rack can weigh more than traditional IT equipment.

Spreader plates can be used to increase rolling load capacity.
Cooling

Acceptable

Optimal
Electrical Systems

Traditional Datacenter Design

Optimal

Acceptable

Chilled water based cooling
Dual redundant UPS’s for power backup

Modern Datacenter Design with LES

Migrate to Distributed UPS within IT load
Smaller failure domain → Improved uptime
Appendices: OCP Principles

- Efficiency
- Scale
- Openness
- Impact
## Appendices: Checklist for an OCP Rack

<table>
<thead>
<tr>
<th>Data Center Subsystems</th>
<th>Attribute</th>
<th>Acceptable</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Center Access</td>
<td>must-have</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Access routes from loading dock to Goods in Area (Storage)</td>
<td>Road level, step and threshold free access</td>
<td>loading dock with lift or leveller</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Access routes from loading dock to Goods in Area (Storage) delivery pathway</td>
<td>2.7m High x 1.2m Wide unobstructed access and threshold free</td>
<td>2.7m High x 2.4m Wide x 2.4 m Deep unobstructed access and threshold free</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Ramps - Gradient</td>
<td>1:12</td>
<td>None</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Ramps - Width</td>
<td>1.2m</td>
<td>1.5m</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Ramps - Landing area</td>
<td>1.2m X 1.2m</td>
<td>1.5m X 1.5m</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Ramps - Railings</td>
<td>900mm - 1000mm</td>
<td>900mm - 1000mm</td>
</tr>
<tr>
<td>Data Center Access</td>
<td>Corridor floor rolling load</td>
<td>567Kg (1250lb) (5.56kn)</td>
<td>680Kg (1500 lb) (6.67kn)</td>
</tr>
</tbody>
</table>
Questions?
OCP Web Links and more information

Website
http://www.opencompute.org/

Data Center Project Wiki
http://www.opencompute.org/wiki/Data_Center

Colo Facility Guidelines for OCP Racks v1.0
https://tinyurl.com/y9byx7ya

Colo Facility Guidelines – Checklist v1.0
https://tinyurl.com/ya3tuy3r

Data Center Project Mailing List
http://lists.opencompute.org/mailman/listinfo/opencompute-datacenter

Ask
Mark Dansie
+44 7986 502896
mark.dansie@inflectiontech.net
@markdansie
THANK YOU