Open Compute Project (OCP) as revolution in IT

General introduction
1. OCP introduction
2. OCP Solution Providers in Poland
3. Why OCP?
4. Drivers of OCP adoption in organization
5. OCP market share
6. Q&A
Company established in 2018 by a group of experienced consultants from DC and IT branch

- OCP Solution Provider
- Promoting Open Hardware solutions
- OCP solutions distributor
- OCP knowledge HUB
WASKO®

- One of the biggest IT Integrator in Poland
- 30+ years on the market
- Company listed on Warsaw Stock Exchange (WIG) since 2006
- Employment: 1500 people
- Sales in Poland in 2019: 400mln PLN
- Number of ongoing projects: ~300
- 15 branch offices located on the whole Poland
Facebook has decided to begin building its own data centers, and may announce its first facility as soon as tomorrow. The fast-growing social network has previously leased server space from wholesale data center providers.

Rich Miller | Jan 20, 2010
Open Compute Project

A collaborative community focused on redesigning hardware technology to efficiently support the growing demands on compute infrastructure.
The old innovation pipeline

TECHNOLOGY

OEMs

USERS

Open Hardware Innovation Model

TECHNOLOGY

Open Compute Project®

 USERS

Gold & Silver Members

ITOCHU Techno-Solutions Corporation (since 2014)

Samsung Electronics (since 2019)

Seagate (since 2017)

ZT Systems (since 2019)

Celestica (since 2019)

Cisco (since 2014)

Inventec (since 2014)

Our Projects

Networking  Server  Storage  Rack & Power  Advanced Cooling

Data Center  Telco  HW Mgmt  Open System Firmware  HPC  Security

Modular DC  openEDGE

https://www.opencompute.org/projects
Project Leads (a few as example)

Networking
- Omar Baldonado (Facebook)
- Roopa Prabhu (Cumulus/Nvidia)

ONIE Sub Project
- Alex Doyle (Cumulus/Nvidia)

SAI/SONiC Sub Project
- Xin Liu (Microsoft)

Advanced Cooling Systems (ACS) Sub Projects
- ACS Immersion Rolf Brink (Asperitas)
- ACS Cold Plate Mike Berktold (Intel)
- ACS Door Heat Exchange Jacob Na (Facebook)

Chair & Co-Chairs
- Dharmesh Jani (Facebook)
- Jeff Catlin (Edgecore)
- Jessica Gullbrand (Intel)

Security
- Bryan Kelly (Microsoft)
- Nate Klein (Google)

Rack & Power
- Hamid Keyhani (Facebook)
- Caleb Lusk (Rittal)

Security
- Elaine Palmer (IBM)

Server
- Jia Ning (Facebook)

Storage
- Matt Shumway (Seagate)

Telco
- Craig White (Nokia)

Open Systems Firmware (OSF)
- Ryan O’Leary (Google)
- Anjaneya “Reddy” Chagam (Intel)

https://www.opencompute.org/projects

Drivers of OCP Adoption

- Cost Reduction
- Standardisation
- Energy Efficiency
- Reliability

Source: IHS Markit
Cascade adoption of OCP hardware

Hyperscallers

Telcos (openCORD)

Enterprises
<table>
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<tr>
<th>Company</th>
<th>4Q19 Unit Shipments</th>
<th>4Q19 Market Share</th>
<th>4Q18 Unit Shipments</th>
<th>4Q18 Market Share</th>
<th>4Q19/4Q18 Unit Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dell Technologies</td>
<td>549,488</td>
<td>16.1%</td>
<td>580,579</td>
<td>19.4%</td>
<td>-5.4%</td>
</tr>
<tr>
<td>2. HPE/New H3C Group*</td>
<td>507,228</td>
<td>14.9%</td>
<td>484,668</td>
<td>16.2%</td>
<td>4.7%</td>
</tr>
<tr>
<td>3. Inspur/Inspur Power Systemsb</td>
<td>270,567</td>
<td>8.0%</td>
<td>247,600</td>
<td>8.3%</td>
<td>9.3%</td>
</tr>
<tr>
<td>T4. Lenovo*</td>
<td>233,896</td>
<td>6.9%</td>
<td>190,721</td>
<td>6.4%</td>
<td>22.6%</td>
</tr>
<tr>
<td>T4. Huawei*</td>
<td>216,734</td>
<td>6.4%</td>
<td>211,618</td>
<td>7.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>ODM Direct</td>
<td>1,054,743</td>
<td>31.0%</td>
<td>689,394</td>
<td>23.1%</td>
<td>53.0%</td>
</tr>
<tr>
<td>Rest of Market</td>
<td>570,667</td>
<td>16.8%</td>
<td>582,070</td>
<td>19.5%</td>
<td>-2.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,403,323</strong></td>
<td><strong>100%</strong></td>
<td><strong>2,986,651</strong></td>
<td><strong>100%</strong></td>
<td><strong>14.0%</strong></td>
</tr>
</tbody>
</table>

Source: IDC Worldwide Quarterly Server Tracker, March 12, 2020
The OCP Market

$11B in 2023 (Non-Board Revenue)

2020 YoY Growth 46%
5 Year CAGR of 36%

ODM Direct Server Market Share 28% +

Open Networking $1.35B in 2023
(Non Hyperscale) – CAGR 33%

Source: OMDIA, IDC, 650 Group
Expansion of telco opportunity

Gaming and HPC “kicking tires”

OCP Open Edge solutions getting attention in new verticals such as Retail & Energy [Oil & Gas]
OCP Adoption around the World

New hardware layer 35% Reduction in TCO
30% Reduction in OPEX

Marketing media company w/ 70+ locations worldwide implementing OCP for compute

French aerospace, defense, transportation company evaluating OCP Compute

French CSP with data centers across Europe and N. America

What can we remove from the system?

Can we raise operating temperatures and have the servers survive?

Can we increase relative humidity operational ranges to make the system much more efficient?

Do we need a centralized power supplies?
OCP eats rack hardware

- 2 x TOR Switches
- 4 x Pluggable optics
- 86 x PSU’s
- 208 x 40mm Fans
- 4 x AC Power Strips
- 86 x IEC rear power cords
- 120 x RJ45 rear patch cords
- N+1 CRAC units
- Access Floor
- Cables in floor
Tool less OCP vanity free open source cubby servers

Questions?
# Upcoming Webinars

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<th>OCP Servers and Storage</th>
<th>OCP Open Networking</th>
<th>OCP for Telco Providers</th>
<th>OCP Facility (Data Center)</th>
<th>OCP Case Studies</th>
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Thank you