

# Open Compute Project (OCP) as revolution in IT

## General introduction

Connect. Collaborate. Accelerate.





# OPEN Compute Project<sup>®</sup> Agenda



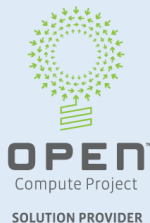
**Łukasz Łukowski**

OCP European Project  
Lead



**Artur Parzyński**

Co-Founder



**Mirosław Chojnacki**

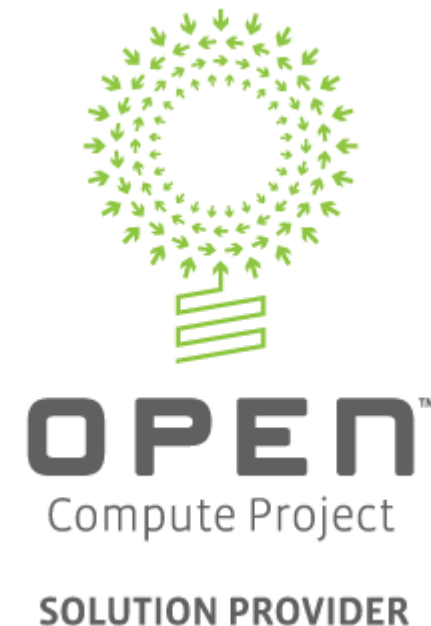
Senior Account  
Manager

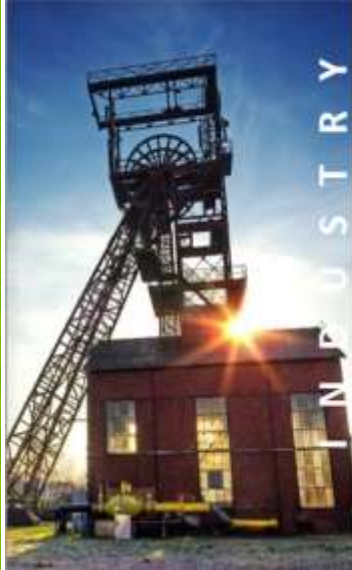
1. OCP introduction
2. OCP Solution Providers in Poland
3. Why OCP?
4. Drivers of OCP adoption in organization
5. OCP market share
6. Q&A

Connect. Collaborate. Accelerate.



- 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

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**PUBLIC ADMINISTRATION**



**HEALTHCARE**



**SECURITY, MILITARY & POLICE**



**TRANSPORT, TRADE SERVICES**



**BANKING, FINANCE, INSURANCE**



**TELECOM OPERATORS**



**GAS & ENERGY**



COMPANIES > FACEBOOK

## Facebook to Build Its Own Data Centers

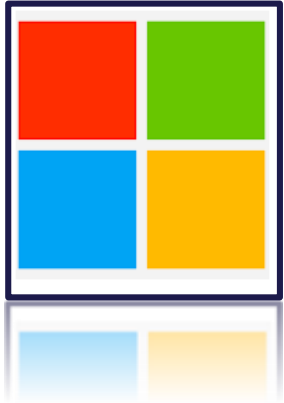
Facebook has decided to begin building its own data centers, and may announce its first facility as soon as tomorrow. The fast-growing social network has previously leased server space from wholesale data center providers.

Rich Miller | Jan 20, 2010

Rich Miller | Jan 20, 2010

providers

leased server space from wholesale data center



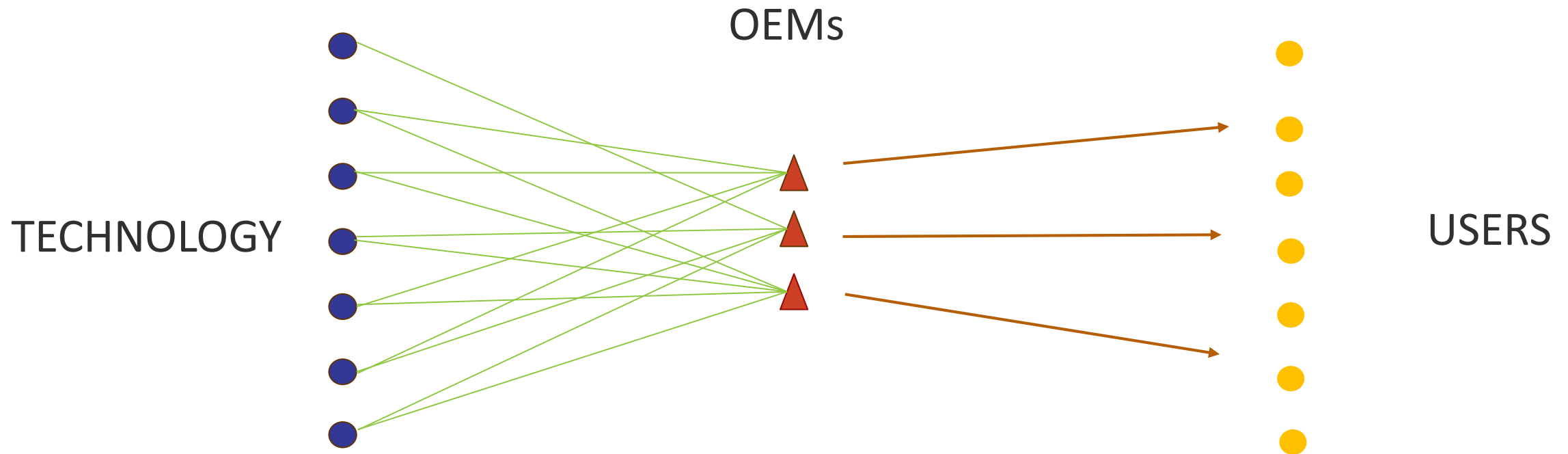
# Open Compute Project

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



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# The old innovation pipeline



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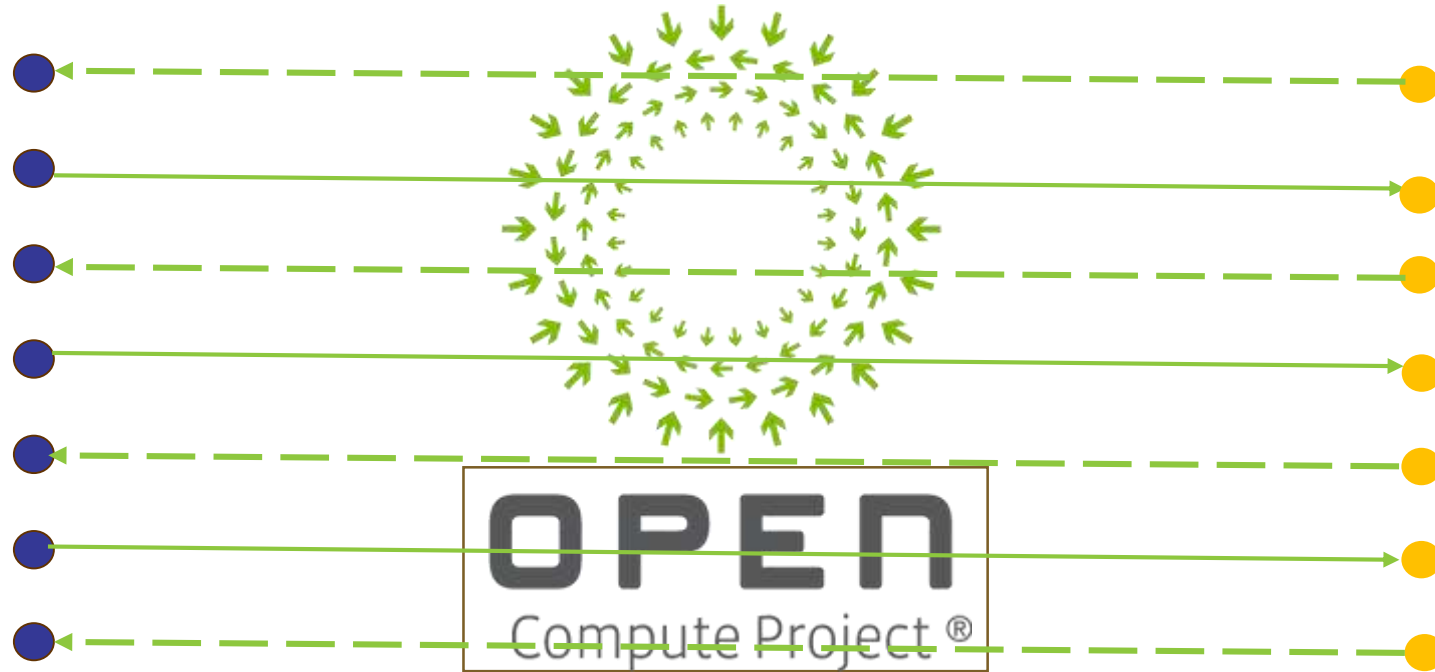


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# Open Hardware Innovation Model



TECHNOLOGY



USERS

Connect. Collaborate. Accelerate.



200+ companies  
8K engineers  
190+ contributions



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# Platinum Members

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**WASKO**®

2crsi (since 2018)	3M (since 2018)	Alibaba (since 2017)	Ampere Computing (since 2019)	inspur (since 2016)	Intel (since 2011)	ITRenew (since 2018)	Microsoft (since 2014)
Arista Networks (since 2018)	ARM (since 2018)	Asperitas (since 2017)	ASUS (since 2019)	MITAC (since 2017)	Nokia (since 2015)	NVIDIA (since 2017)	Quanta Cloud Technology (since 2012)
AT&T (since 2015)	Baidu (since 2018)	Delta Electronics (since 2016)	Deutsche Telekom (since 2016)	Rackspace (since 2011)	Rittal (since 2017)	Schneider (since 2014)	Shell (since 2020)
Edgecore Networks (since 2016)	Facebook (since 2011)	Goldman Sachs (since 2011)	Google (since 2015)	Silicom (since 2018)	Sims Lifecycle Services (since 2020)	STORDIS (since 2019)	Submer (since 2018)
HPE (since 2015)	Huawei (since 2018)	Hyve Solutions (since 2012)	IBM (since 2013)	Tencent (since 2018)	VeriSilicon (since 2020)	Vertiv (since 2019)	Wiwynn (since 2014)

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# Gold & Silver Members



ITOCHU Techno-Solutions  
Corporation (since 2014)



Samsung Electronics (since 2019)

**SAMSUNG**

Seagate (since 2017)



ZT Systems (since 2019)



Celestica (since 2019)



CISCO (since 2014)



Inventec (since 2014)

**Inventec**

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# Our Projects



Networking



Server



Storage



Rack & Power



Advanced Cooling



Data  
Center



Modular DC



Telco



openEDGE



HW Mgmt



Open  
System  
Firmware



HPC



Security

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<https://www.opencompute.org/projects>



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# Project Leads (a few as example)



## Networking

Omar Baldonado (Facebook)  
Roopa Prabhu (Cumulus/NVidia)



## Rack & Power

Hamid Keyhani (Facebook)  
Caleb Lusk (Rittal)



## ONIE Sub Project

Alex Doyle (Cumulus/NVidia)



## Advanced Cooling Systems (ACS) Sub Projects

ACS Immersion Rolf Brink (Asperitas)  
ACS Cold Plate Mike Berktoed (Intel)  
ACS Door Heat Exchange Jacob Na (Facebook)



## Security

Elaine Palmer (IBM)



## SAI/SONiC Sub Project

Xin Liu (Microsoft)



## Chair & Co-Chairs

Dharmesh Jani (Facebook)  
Jeff Catlin (Edgecore)  
Jessica Gullbrand (Intel)



## Server

Jia Ning (Facebook)



## Open Systems Firmware (OSF)

Ryan O'Leary (Google)  
Anjaneya "Reddy" Chagam (Intel)



## Security

Bryan Kelly (Microsoft)  
Nate Klein (Google)



## Storage

Matt Shumway (Seagate)



## Telco

Craig White (Nokia)

<https://www.opencompute.org/projects>

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Cost  
Reduction



Energy  
Efficiency

Standardisation



Reliability





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# Cascade adoption of OCP hardware



Hyperscallers

Telcos (openCORD)

Enterprises

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### Top 5 Companies, Worldwide Server Unit Shipments, Market Share, and Growth, Fourth Quarter of 2019

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

Source: IDC Worldwide Quarterly Server Tracker, March 12, 2020



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# 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%

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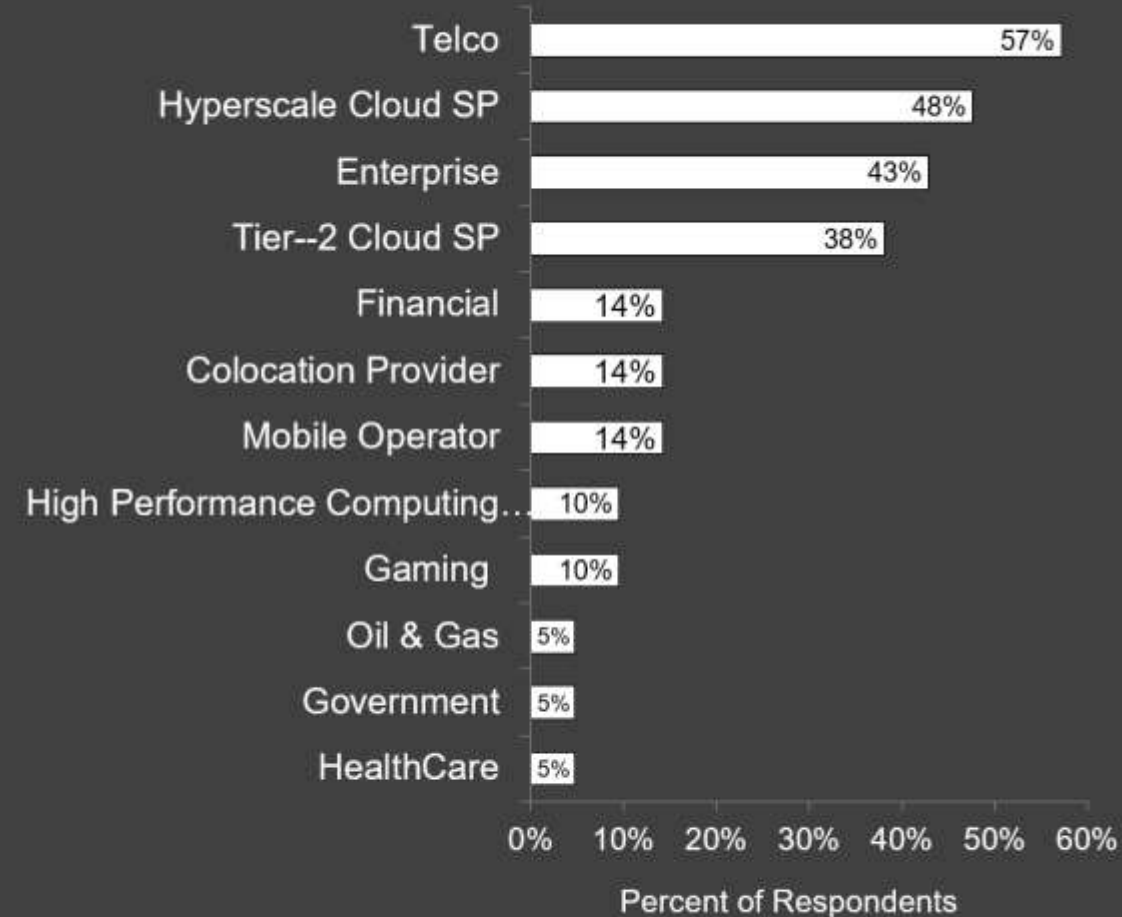
# Vertical Markets



Expansion of telco opportunity

Gaming and HPC “kicking tires”

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





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# OCP Adoption around the World



New hardware layer 35% Reduction in TCO  
30% Reduction in OPEX  
[Link to presentation](#)



Marketing media company w/ 70+ locations  
worldwide implementing OCP for compute  
[Link to article](#)



French aerospace, defense, transportation company  
evaluating OCP Compute



French CSP with data centers across Europe and  
N. America

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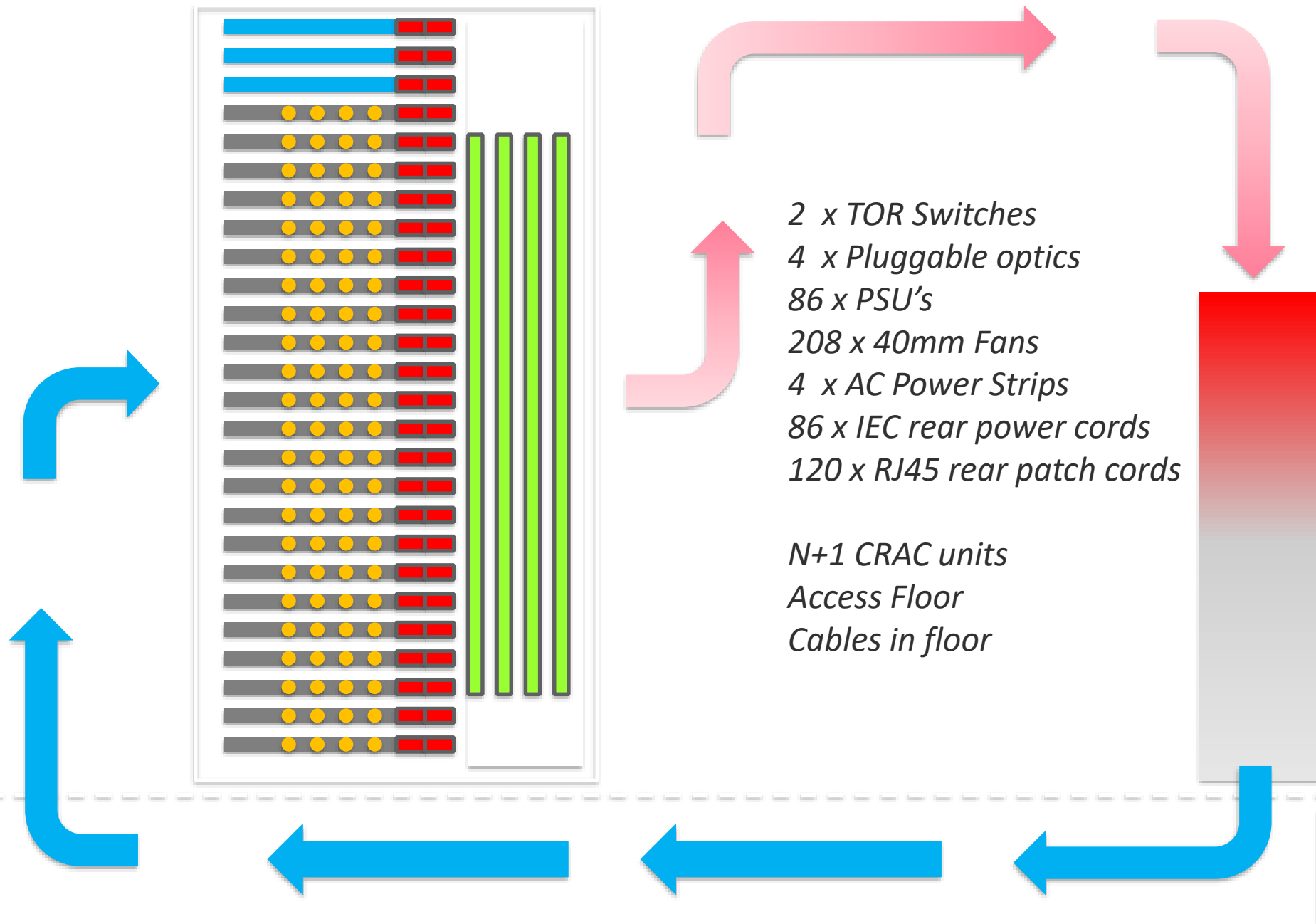
What can we remove from the system?

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

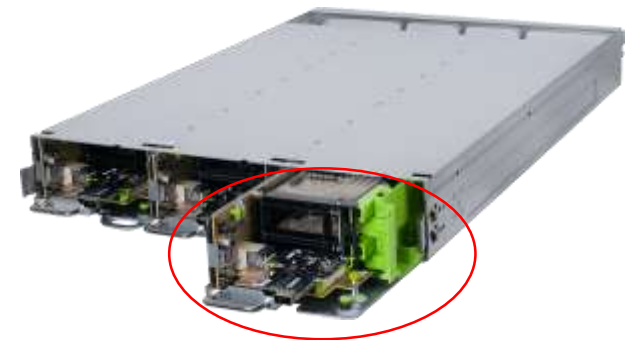
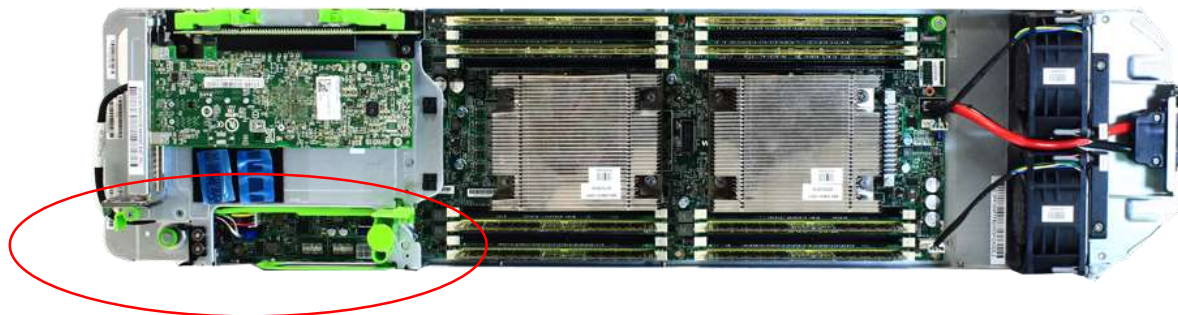
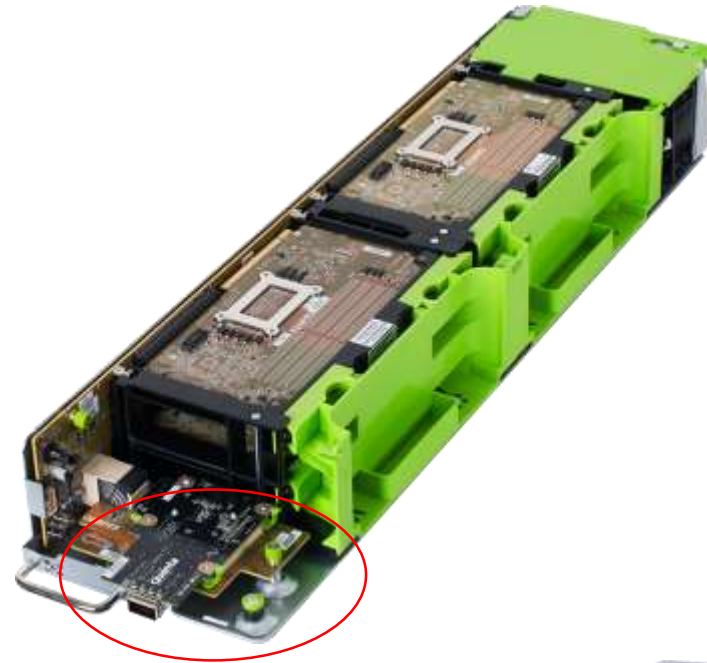
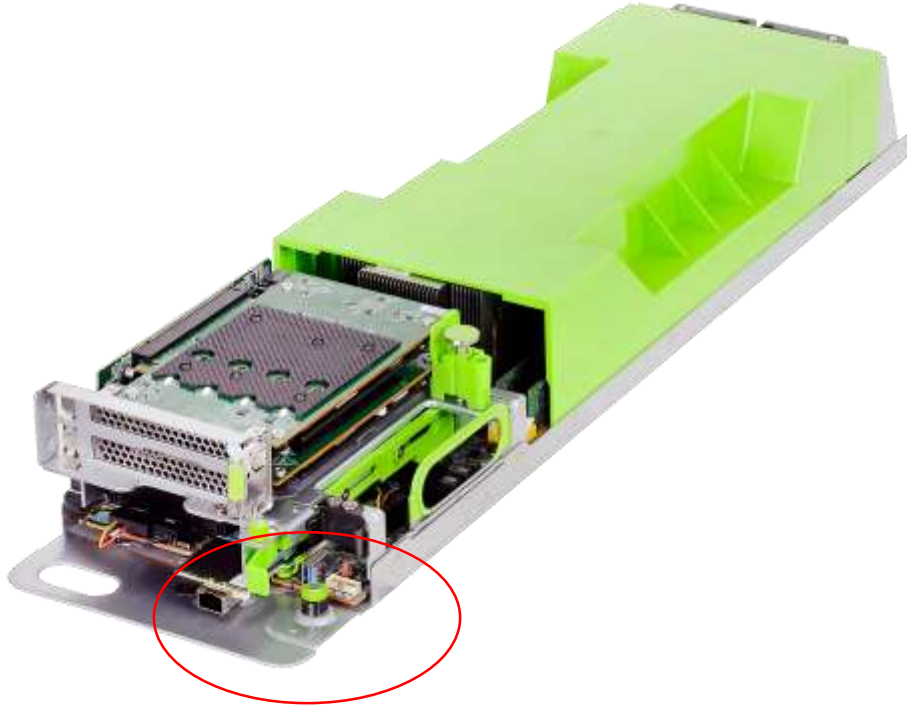




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# Tool less OCP vanity free open source cubby servers

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Regional  
Community

# Questions?





# UPCOMING WEBINARS



**OCP Servers and Storage**



**OCP Open Networking**



**OCP for Telco Providers**



**OCP Facility (Data Center)**



**OCP Case Studies**



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# GET IN TOUCH

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CONNECT WITH US:



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[/opencompute.org/](https://opencompute.org/)



[/vodea.pl/](https://vodea.pl/)



[/wasko/](https://wasko/)



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# Thank you



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