







OCP & 2CRSi talk

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A strong and valuable partnership

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The **OPEN PLUS** portfolio at a glance.

May 6th, 10am CEST.

Today 's speakers



Steve HELVIE VP Channel Development, OCP. *steve.helvie@opencompute.org*







Adrien BADINA Director of Innovation, 2CRSi Group. *ab@2crsi.com*

Tolga DOGAN Senior Product Manager, 2CRSi. tdo@2crsi.com







Connect. Collaborate. Accelerate.





One thing about open source is that even the failures contribute to the next thing that comes up.

Unlike a company that could spend a million dollars in two years and fail and there's nothing really to show for it,

If you spend a million dollars on open source, you probably have something amazing that other people can build on.

> Matt Mullenweg Founder – WordPress.





240+ companies8K engineers190+ contributions.





OCP Tenets









Discussing the value of an Open Community and the story of how a customer's requirements changed 2CRSi Group's perspective on "Open".

OCP & 2CRSi partnership.

Adrien BADINA, Director of Innovation.







A global Tech Group





Our core business



Since 2005, we design, manufacture and sell customised, environment-friendly high-performance IT servers.



Our vision

We want to reconcile IT with the planet.

Today we provide high performance servers able to reduce energy consumption.

Tomorrow, we will reuse waste heat and develop a cradle-to-cradle approach.

#powerReductioNeed'19

Reducing the power consumption of high-performance servers

#reusEnergies'23 Reuse of fatal heat from servers for other purposes

#producElectricity'25

Creation of alternative sources of electricity.



Our customers throughout the globe











The story behind our partnership with the Open Compute Project.

From 19" to OPEN

2017: The tender

It started with a Tender of 500 standard Server : 2CRSi was selected but couldn't apply due to a mandatory shipping date that couldn't be met and also due to a component shortage at the time

3 months later, the Customer touched base with a new request of 1000 servers this time!

We decided to build new servers based on the OCP form factor which brought a much better OPEX score card to our customer.

The **OCtoPus** servers were born! (1.OU Dual socket Intel with 4 GPU – No fan) . We sold more than 8000 to this customer! What a success story!

We are now proud **OCP members** since **2018** and we were able to contribute many times (PDU, PDB,...)

The **2CRSi R&D Team** is engaged in various projects such as Rack designs & Power or Advanced Cooling solutions.







Revealing the OPEN PLUS portfolio

Inspired by the



Tolga DOGAN, Senior Product Manager.

Market Analysis

2crsi







□ Rack densities (below 10kW/Rack remain most common).

Source : Uptime Institute 2020

IT Environment with OCP technology and the 2CRSI solutions



Innovative data center

- → IEC60364-8-1 + IEC30134-1 rules on Energy Efficiency
- ➔ Optimization of CAPEX and OPEX

Need innovative data center

2CRSi

OCP

→ PUE Power Usage Effectiveness

- Open Compute Project (OCP) → Scalability. More efficient, flexible hardware
- \rightarrow Performance of Data Centers
- \rightarrow Share design with the community.

OPEN Plus & OCtoPus ranges by 2CRSi

- → Best <u>advantages of OCP</u> architectures
- R&D innovation for customized design
- → New technologies from <u>strategic partners.</u>



The Benefits of Open Hardware





HIGH DENSITY COMPUTING & FLEXIBILITY

- 21" form factor allows more flexibility compared to 19".
- More server, storage and network capacity in less space save costs.
- Modular solutions.



OPTIMIZED POWER

- Centralized powershelf instead of individual PSU in 19" permits higher power capacity per rack.
- More efficient on power consumption.



OPTIMIZED COOLING

- 21" size permits greater thermal dissipation.
- Better temperature flow allows efficient cooling.
- Optimization of cold/hot aisle.



STREAMLINED MAINTENANCE

- Hot-pluggable power supply unit and servers.
- Tool-less.
- Easy access design with serviceability from the front.
- Power modules are redundant and hot-swappable.
- Improved MTBF thanks to less PSU and robust fans.



Servers



Dimensions comparison

Key features :

Increases airflow and thermal dissipation Optimize the component management

Serviceability from the front

Modular design of the chassis

Cable-less power distribution system by 12VDC busbars.



dimensions	19"		21″		
umensions	Standa	rd	OCtoPus		
	Inch	mm	Inch	mm	
Type of U / OU	1U to 7U		0,50U to 100U		
Width (total)	19"	482	21"	537	
Width for components	17,5"	444,5	21"	537	
Height (1U or OU)	1,75"	44,45	1,89''	45 <i>,</i> 5 (48 pitch)	
Depth - nominal	30"	760	31,5"	800	
Ground surface (m ²)	-	0,34	-	0,43	
Volume (dm3)	-	15	-	20	

Racks

Dimensions comparison

Key features :

Efficient use of space for 24" column width (standard floor tile pitch is 600mm for 19" & 21" servers)

19" = 73% space efficiency21" = 88% space efficiencyServiceability from the front

Cable-less power distribution system by bus bars.



dimensions	19" ETA traditional Rack		21" Open Rack		
	inch	mm	inch	mm	
Number of U / OU	42U		410U		
Width	24''	600	24''	600	
Height	78''	1990	87''	2210	
Depth - nominal	40''	1000	42''	1067	
Depth - with Fans	-	-	44''	1125	
Ground surface (m ²)	-	0,6	-	0,6402	
Volume (dm3)	-	1194	-	1415	



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Focus on Open Rack



Data Center designs

Power Shelves:



Focus on Power

Model : 2.5 OU 27kW+3kW



Model : 1 OU 14.4kW+3kW

Battery Backup System:

• 7kW system backup power

• Up to 6 hot swappable PSU

5+1 redundant operation
Dual input PSU with ATS
Network Access Controller
PMBus protocol support
C13 outlets at the rear

- PMBus protocol support
- Powers you Edgecore network switch with ORSA-1RU and 12V passthrough card



Data Center designs



Power management

Traditional **or** OCP architecture:



Back view

Back view

Features and advantages



Density and Efficiency

- **Reduction up to 30%** of cooling costs (Optimization of cold/hot aisle)
- 30% less space compared to regular air-cooled racks
- Lower complexity.

200 regular air-cooled racks Space > 1,000m²

150 OCP air-cooled racks Space < 700m²



Q&A session with our speakers



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Power consumption & PSU Product cost



	19" 1U Server		21″		
			OCP Se		
FAN					
Form Factor	19U		210U - C	СР	
Server	100		20U		
Nodes	40		48		
IT Power	8	kW	14,4	kW	
Number of Fan for 1 U or OU	9	units	3	units	
Number of Fan for 2 U or OU	18	units	6	units	
Number of Fan for 4 U or OU	36	units	12	units	
Number of Fan per Rack (40 U/OU)	360	units	96	units	
Fan (Individual Power Consumption)	15	watt	10	watt	
Fans power consumption per Rack	5,4	kW	0,96	kW	
Electricity cost (€/kWh)	0,094	€/kWh	0,094	€/kWh	
Cost per rack for 1 hour	0,505	€	0,090	€	
Cost per rack for 1 year	4428	€	787	€	
Cost per Node	110,69	€	16,40	€ Sa	aving 364
Saving per Rack	-	-	3641	€	per yea



Rear view OCP

Key features :

Reduce Fans power consumption

→ saving 3641€/year

Reduce product Power Supply Unit (PSU)

→costs saving 12000€

L L	Number of Fan for 4 U or OU	36	units	12	uni	ts	
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	Saving per Rack	-	-	3641	€	p	er year
	PSU						
	Form Factor	19U		210U - 0	СР		
<u> </u>	Server	server 10U		server 20U			
Ne	Nodes	40	nodes	54	noc	les	
0 D	IT Power	8	kW	14,4	kW		
Ξ.	Number of PSU for 1 server	1	2 modules	-	-		
ost	Number of PSU for 2 servers	2	4 modules	0,02	-		
t C	Number of PSU for 8 servers	8	16 modules	12	-		
nc	Number of PSU per Rack (40 U/OU)	40	80 modules	54	-		
00	PSU (price) unit or Powershelf	400	€	4000	€		
ď	PSU (price) or Powershelf per Rack	16000	€	4000	€		
้งวา	Cost per server	400,000	€	74,074	€	Savin	g* 12000€
<u> </u>	Saving per Rack	-	-	12000	€	pe	r Rack

* Power shelves can be reuse in server are renewed.

Thank you!





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