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OCP
SUMMIT

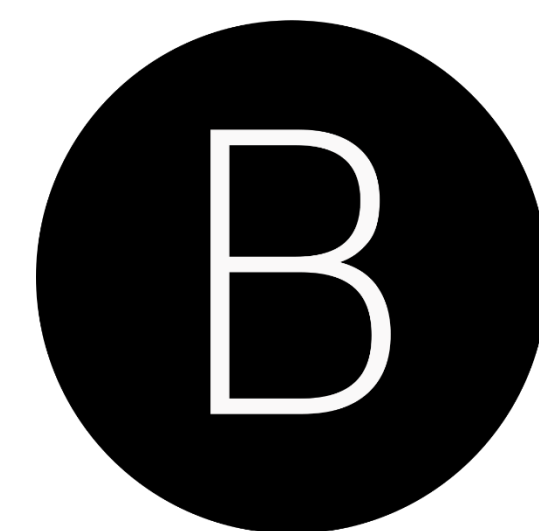


How to Design an ORv2 OCP Based Rack-scale Solution

Menno Kortekaas/CTO/Circle B

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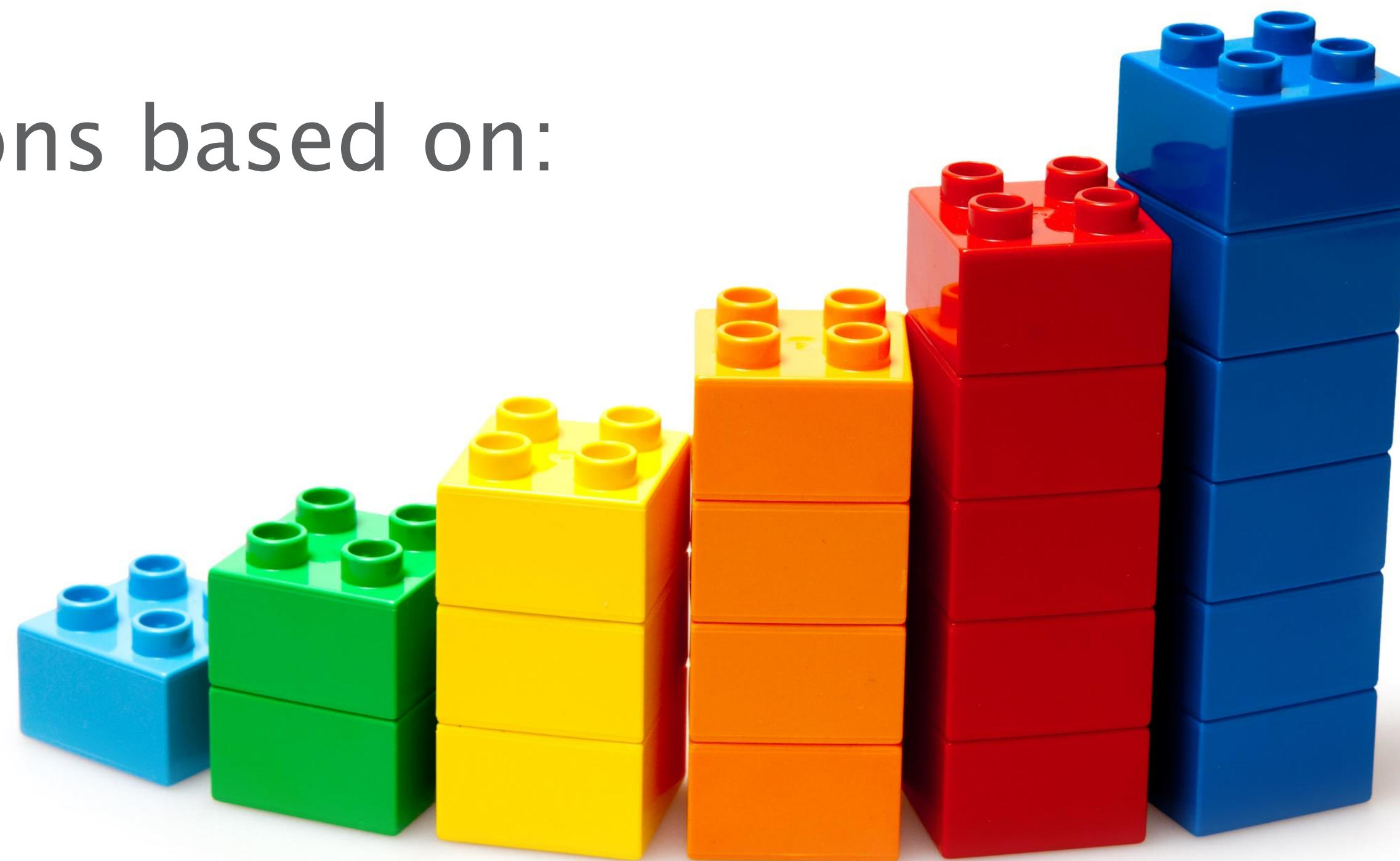
CIRCLE B

Revolutionary IT Infrastructures



Circle B provides solutions based on:

- Rack & Power
- Server
- Storage
- Network
- Services



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For Who?

Size Matters, at least 10-20 racks goal to get the benefits of:

- Efficiency
- Tool-less design
- Openness
- Impact



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Change of mindset

- Rack scale (rack = chassis)
- Modular
- Fewer components
- Commodity computing
- Operational efficiency
- Minimize human interaction

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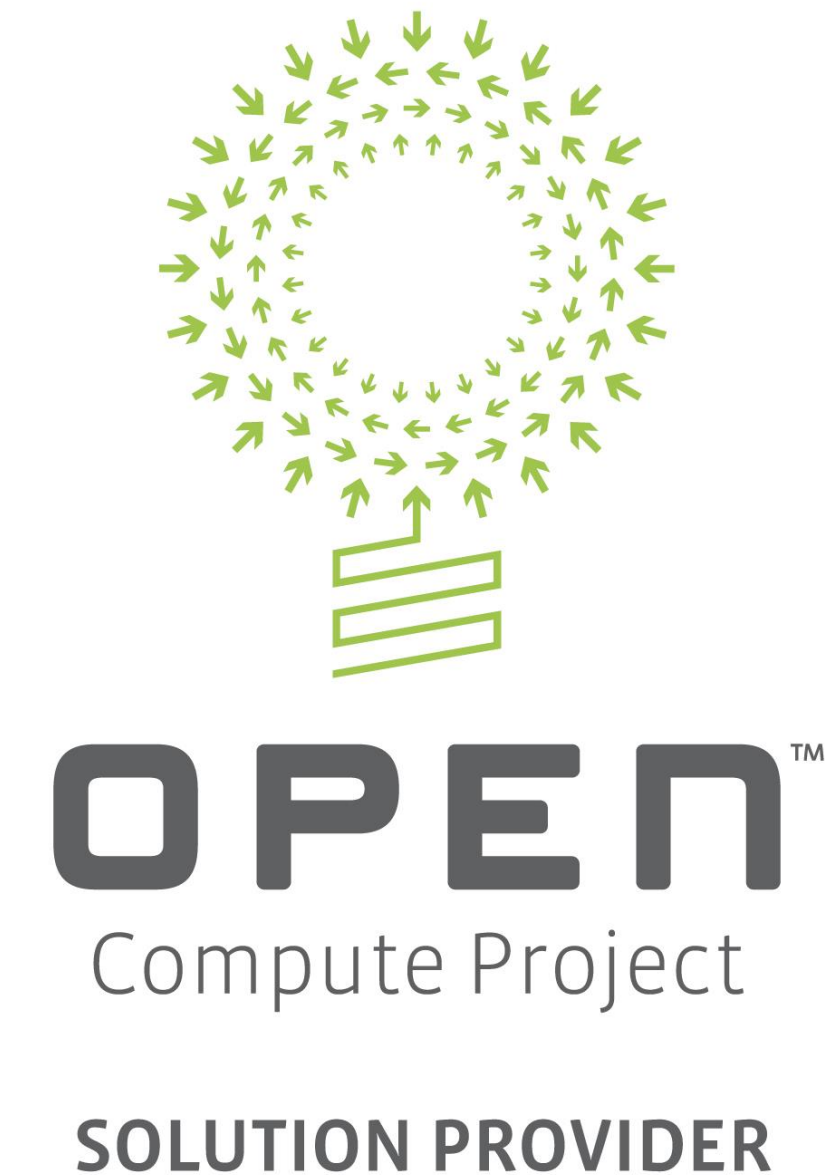
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Why partner with a Solution Provider?

- Single point of contact
- Local support
- Validated designs (R&D, OCP = spec.)
- Conversion services
- Time and resource saver



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Which workload?

- Linux
 - RHEL / CentOS
 - Ubuntu
- Windows Server
- VMware ESXi

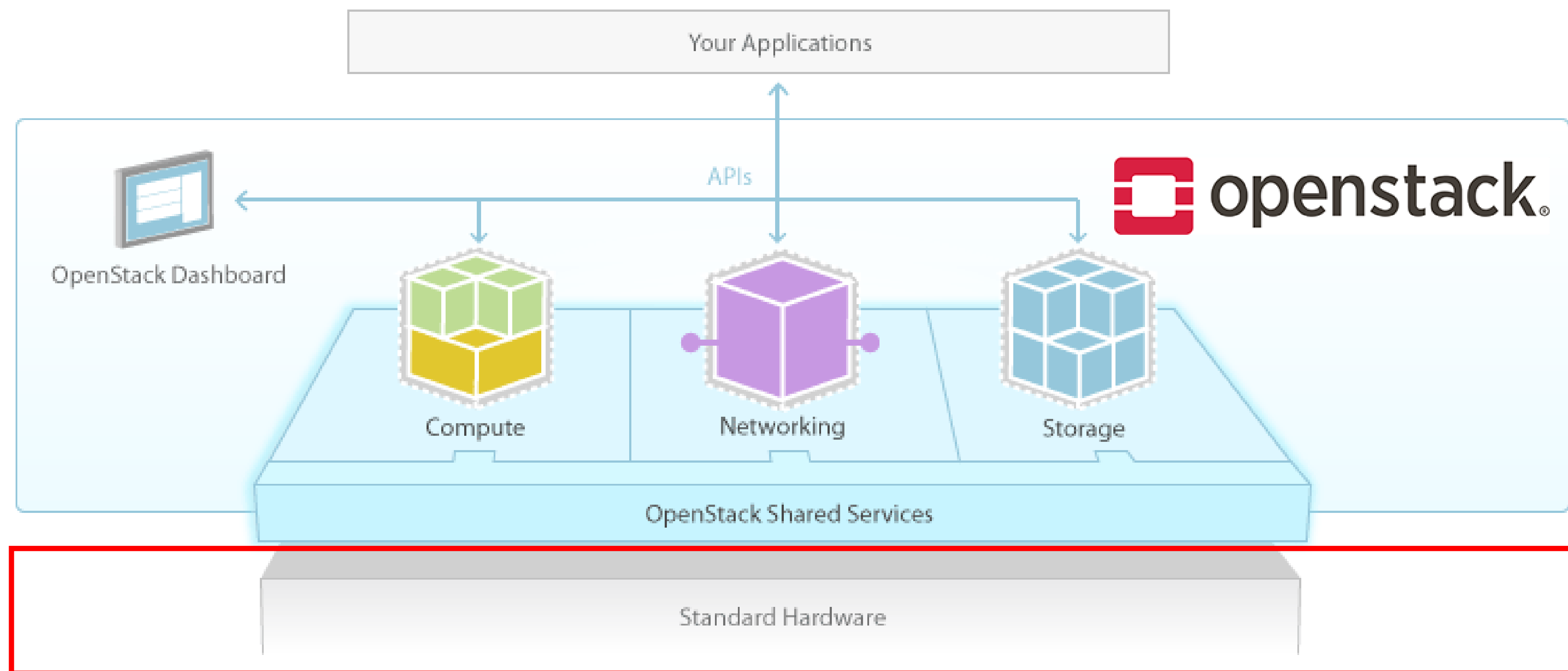


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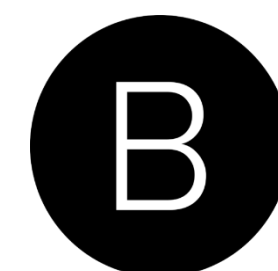




Example Workload OpenStack



Source: <http://www.openstack.nl/en/what-is-openstack/>

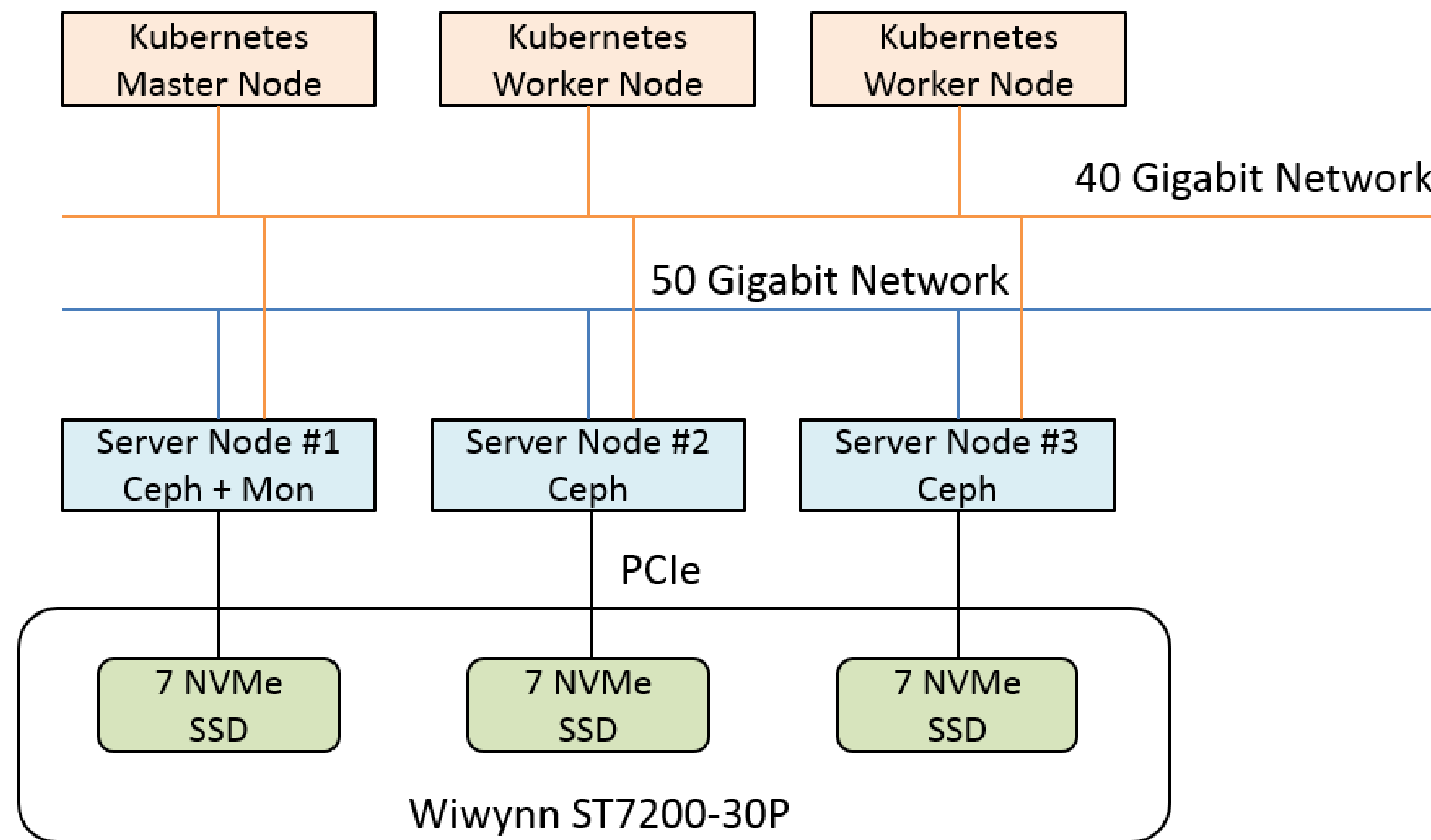


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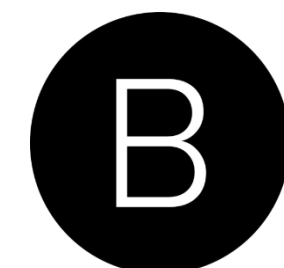




Example workload CEPH & Kubernetes



Source: <https://cdn.circleb.eu/pdf-ceph-and-kubernetes-on-st7200/>



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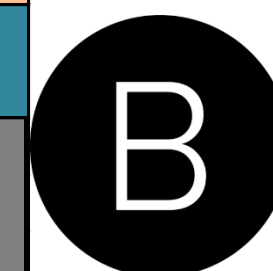
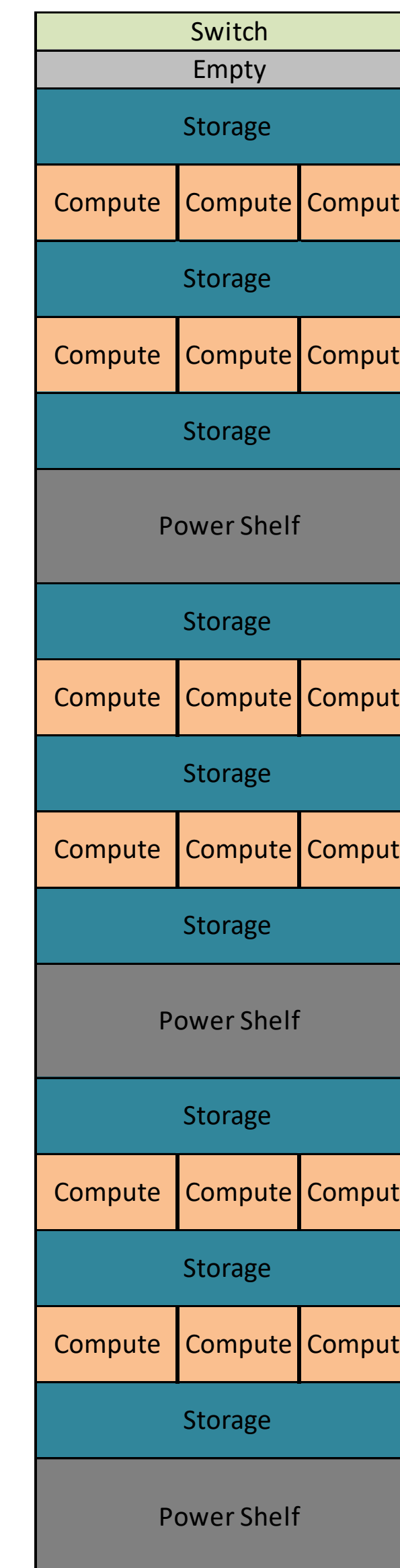




Thinking Rack Scale

Type IV

- Data warehouse storage and analytics (for ex. Hadoop)
- Powerful Compute + Mass Storage



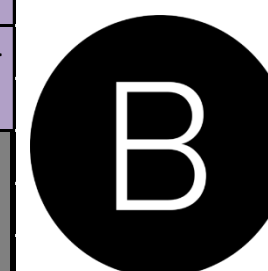
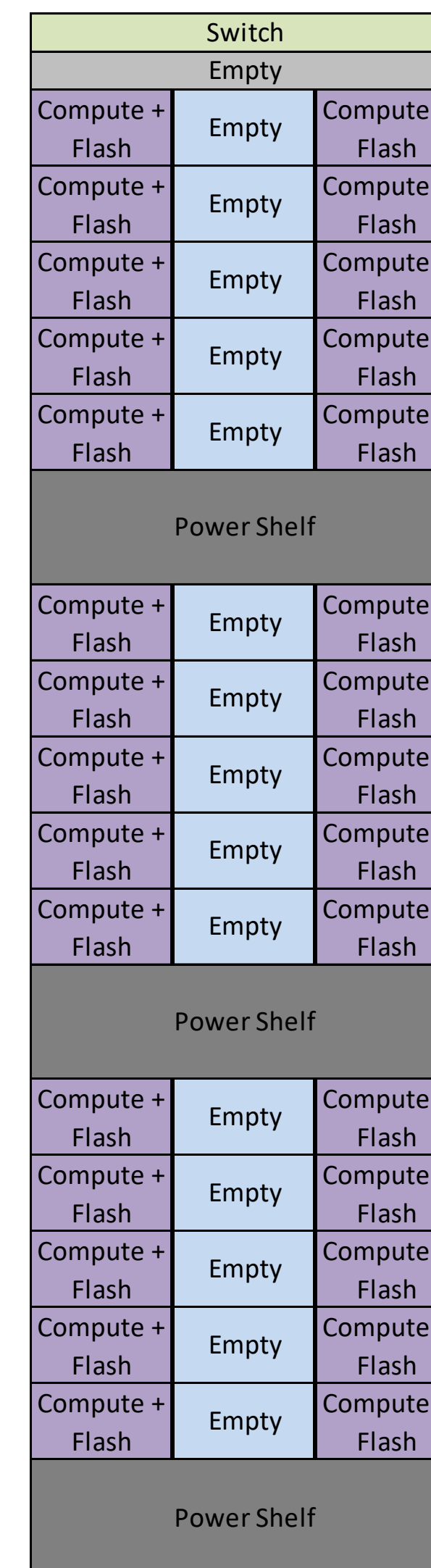
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Thinking Rack Scale

Type III

- High performance database applications
- Compute nodes w/ PCI-E Flash Cards



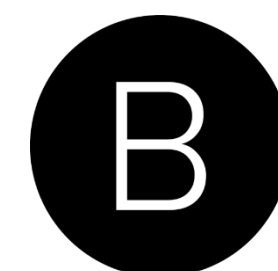
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Rack & Power

- Open Rack v2
- 220h x 600w x 106,6d mm
- 2 zones with single 12V DC bus bar



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Rack & Power



Colo configuration

- *Dual AC input*
- 3-phase, 32A
- 2 zones of 6,6kW
- 2 C13 on each shelf
- Management card

Telco configuration

- *Dual -48VDC input*
- 2 zones of 6,6kW
- Management card

OU41	10U
OU40	
OU39	20U
OU38	
OU37	20U
OU36	
OU35	20U
OU34	
OU33	20U
OU32	
OU31	20U
OU30	Power Shelf
OU29	
OU28	20U
OU27	
OU26	20U
OU25	
OU24	20U
OU23	
OU22	20U
OU21	
OU20	20U
OU19	
OU18	20U
OU17	
OU16	20U
OU15	
OU14	20U
OU13	
OU12	20U
OU11	Power Shelf
OU10	
OU9	20U
OU8	
OU7	20U
OU6	
OU5	20U
OU4	
OU3	20U
OU2	
OU1	20U



OU41	10U
OU40	
OU39	20U
OU38	
OU37	20U
OU36	
OU35	20U
OU34	
OU33	Battery
OU32	
OU31	Power Shelf
OU30	
OU29	20U
OU28	
OU27	20U
OU26	
OU25	20U
OU24	
OU23	20U
OU22	
OU21	20U
OU20	
OU19	20U
OU18	
OU17	20U
OU16	
OU15	20U
OU14	Battery
OU13	
OU12	Power Shelf
OU11	
OU10	20U
OU9	
OU8	20U
OU7	
OU6	20U
OU5	
OU4	20U
OU3	
OU2	20U
OU1	

With Battery Backup System

- *Dual AC input*
- 3-phase, 32A
- 2 zones of 6,6kW
- 2 C13 on each shelf
- *7kW backup power (up to 21 w 3)*
- Management card

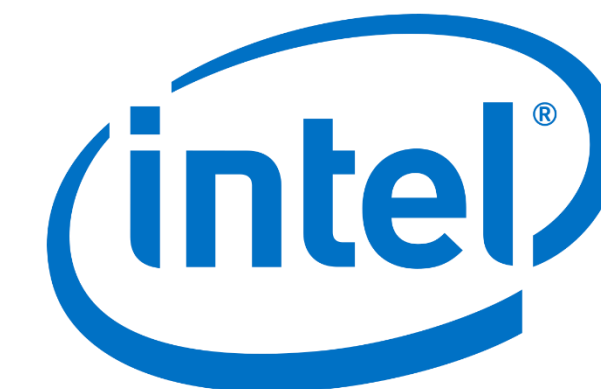


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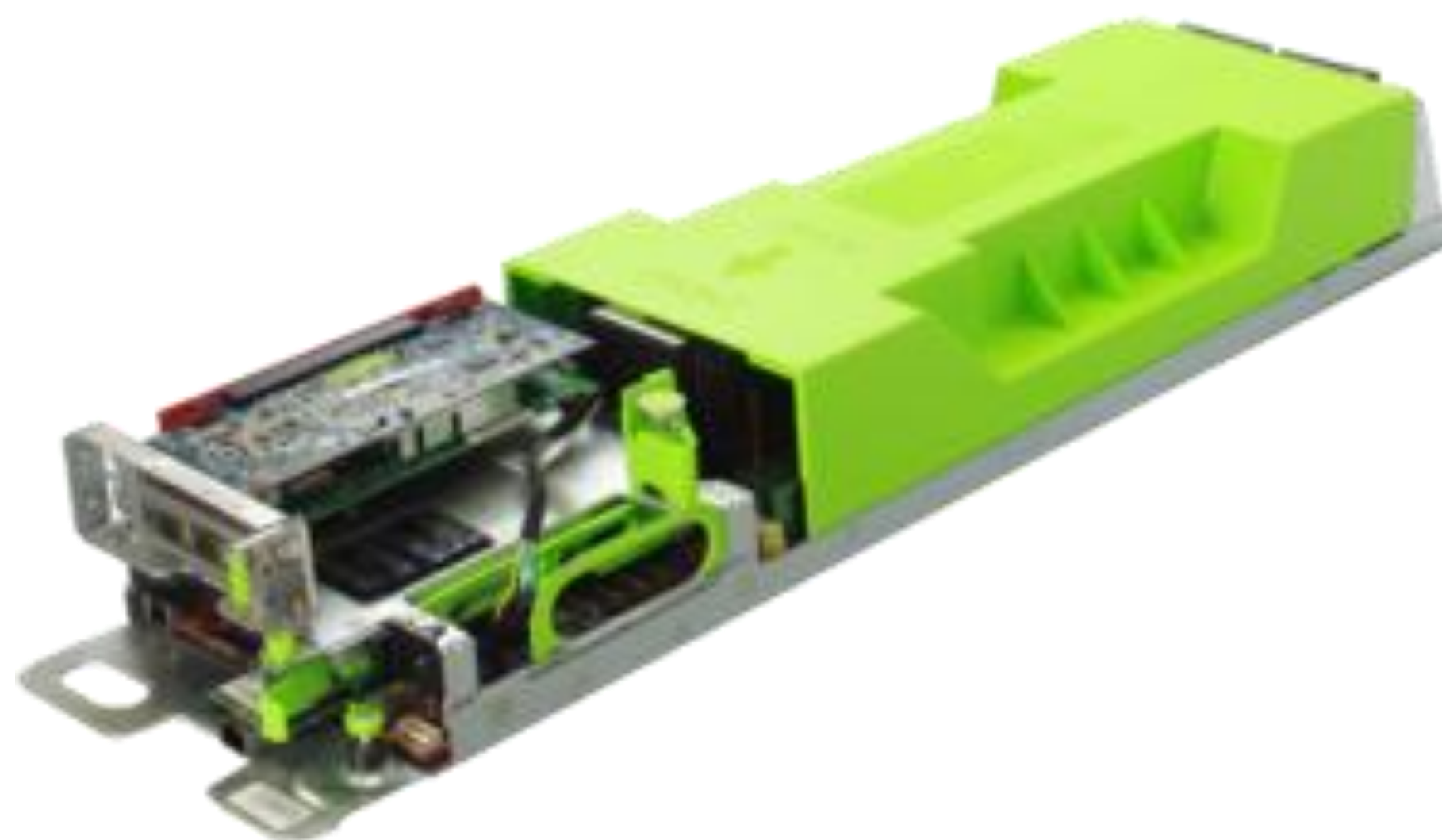




Server



- Tioga Pass design
- Intel Scalable Family
- 20U 3-Node
- M.2 on-board
- single 3.5" or up to 4x 2.5"
- 12V DC input

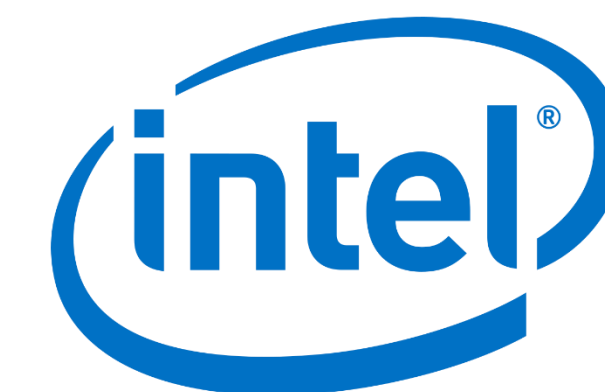


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Server (example)



Low

- Single Silver 4116
- 12 cores, 85 W
- 4x 32G = 128G RAM
- 256G M.2
- Single 10G LAN

High

- Dual Gold 6130
- 16 cores, 125 W
- 12x 32G = 384G RAM
- 256G M.2
- Dual 25G LAN

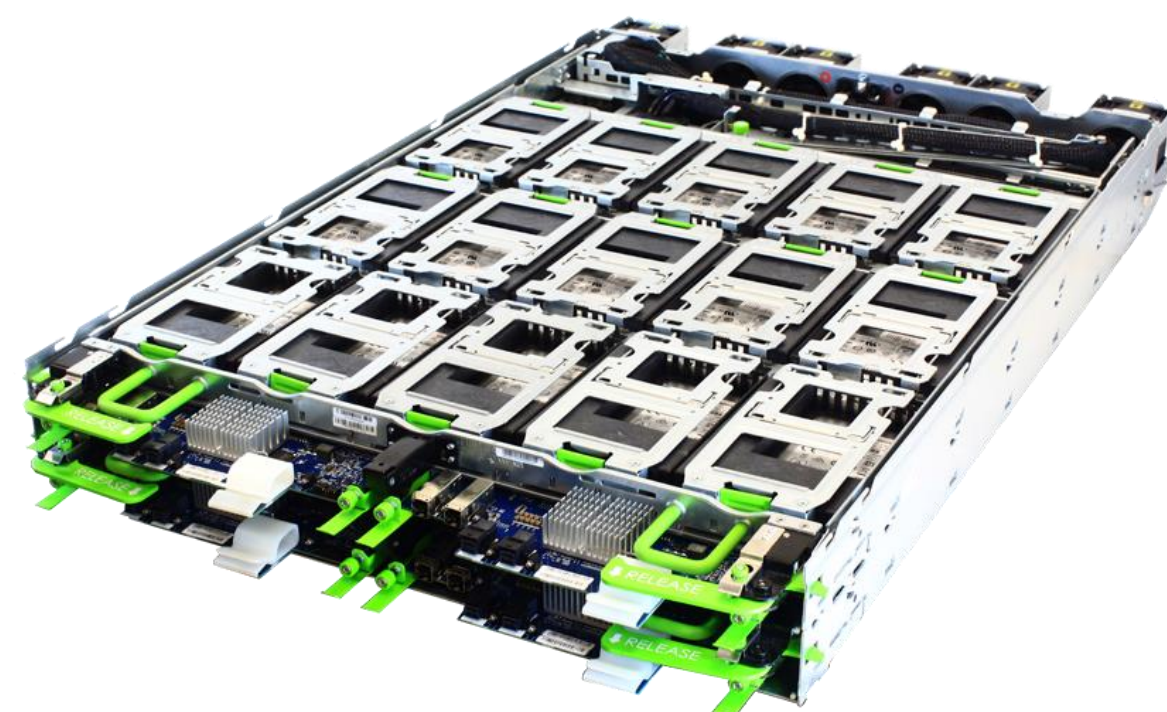
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Storage



2U OCP SAS12G Storage

- 12G SAS Expander
- 15 drives per tray
- 3.5" to 2.5" carrier



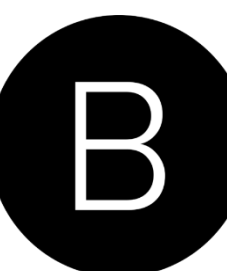
4U OCP 72Bay SAS12G Storage

- 12G SAS Expander
- 36 drives per side
- Xeon-D microserver option



2U OCP All-Flash NVMe Storage

- 15 U.2 / 30 M.2 per tray
- PCIe Switch, 2x 16 lanes



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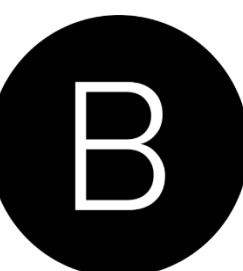




Network

There is a lot of choice! But what do you need?

- Choose Silicon / Manufacturer
- Choose OS
- Single ToR / Dual ToR
- Edgecore Wedge can connect to the 12V DC bus bar!

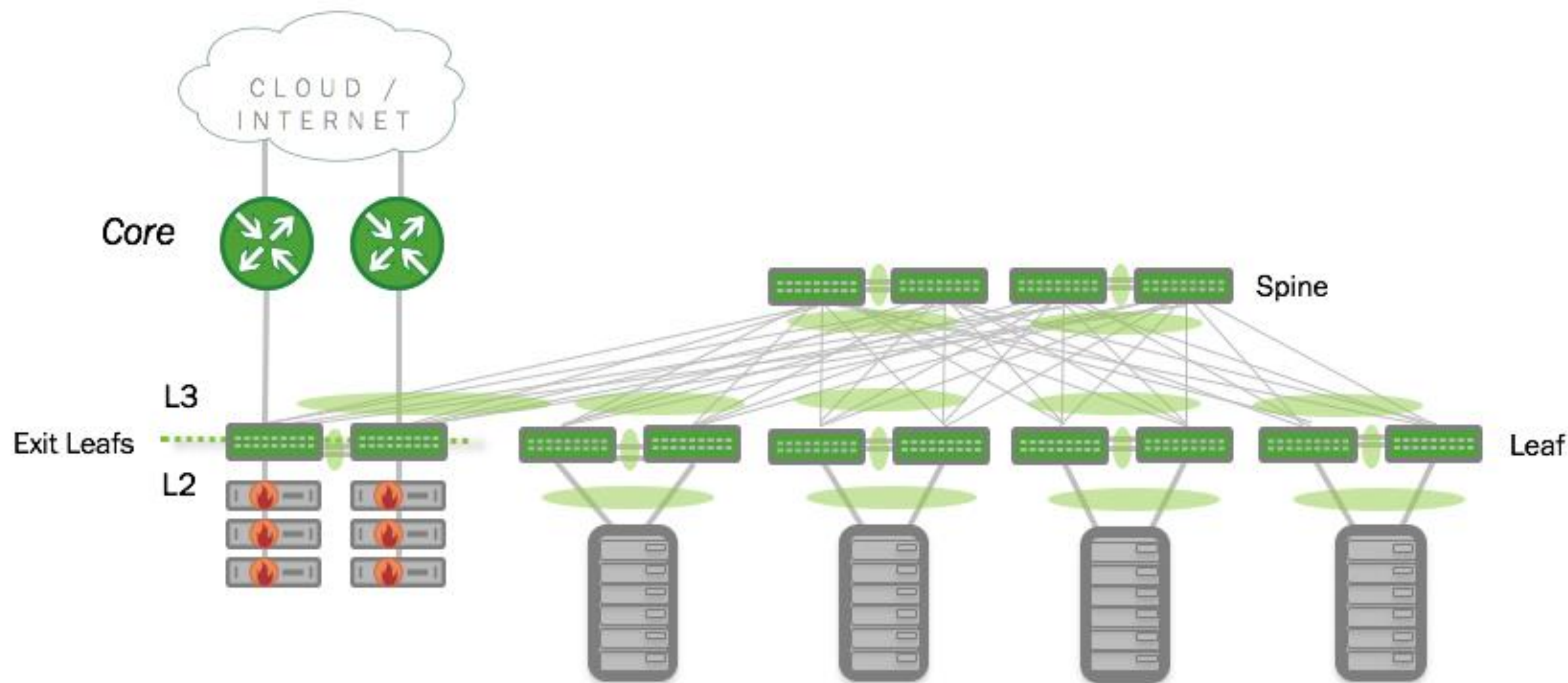


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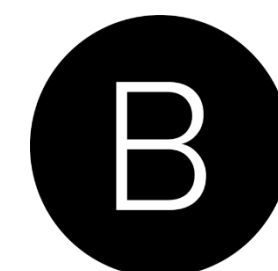




CLOS Architecture for the Data Center



Source: Cumulus Networks



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Limitations in:

- Space
- Power
- Cooling



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Ready to accept OCP ORv2

- Facility Guidelines at:

https://www.opencompute.org/wiki/Data_Center_Facility



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Delivered anywhere in the world

Circle B Partner assembling locations:

- ZhongShan, China
- Juarez, Mexico
- Brno, Czech Republic

Non-U.S. supply chain



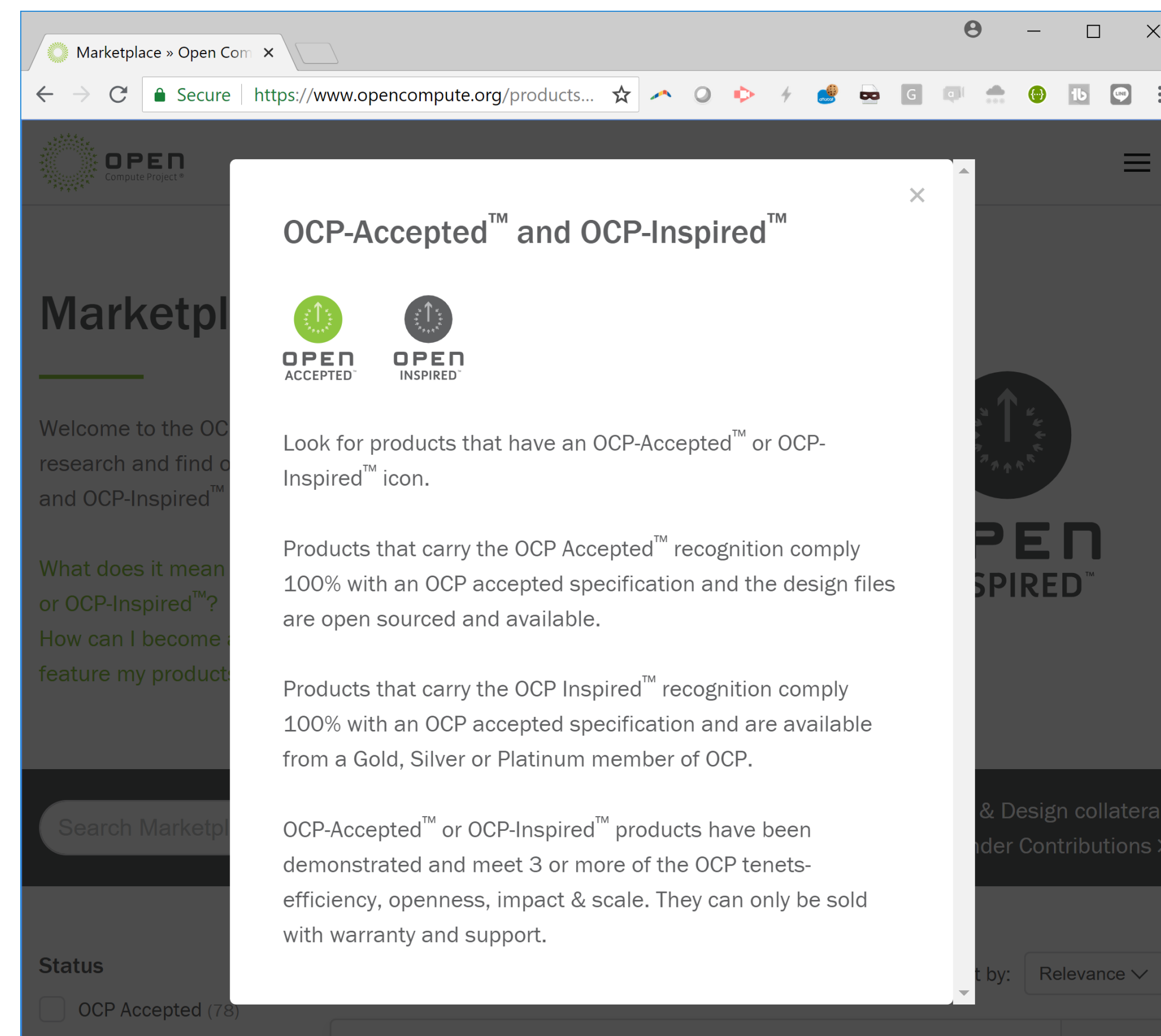
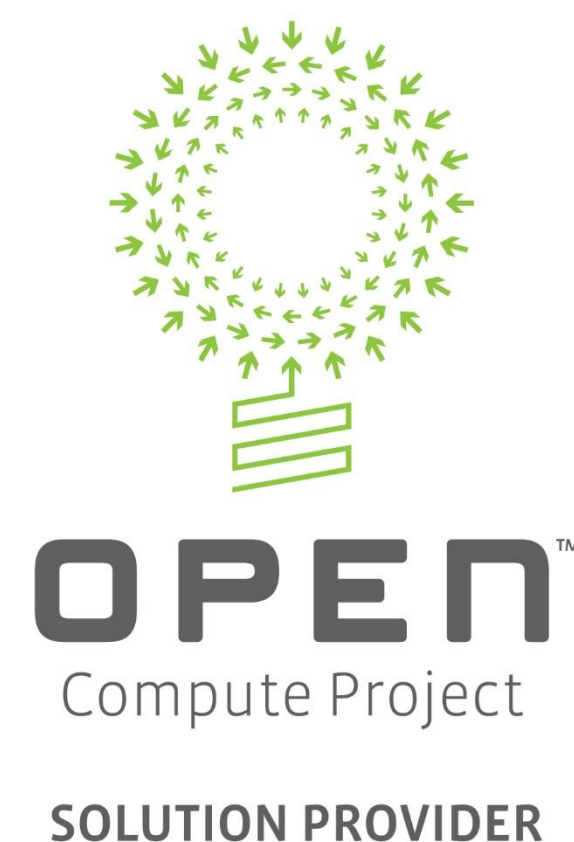
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Marketplace

- See what is available at:
<https://www.opencompute.org/products/>

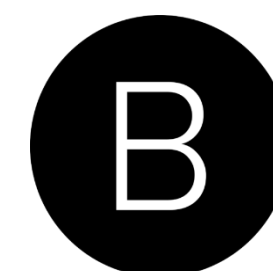


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Turn key solution 21" Open Rack v2

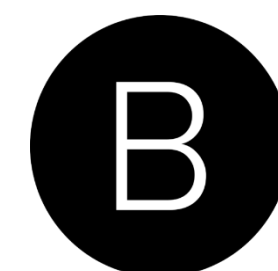


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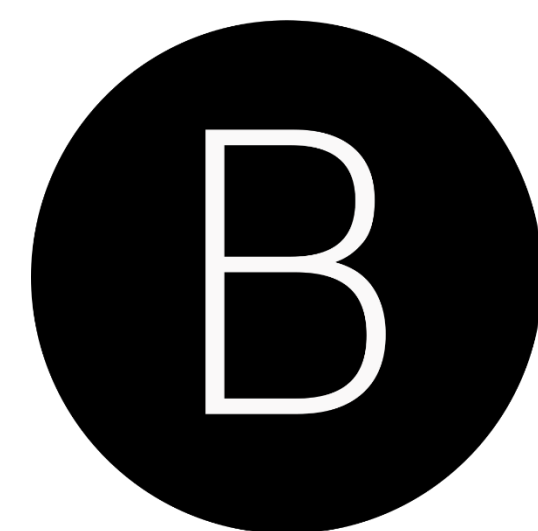


Turn key solution 19" MiTAC ESA



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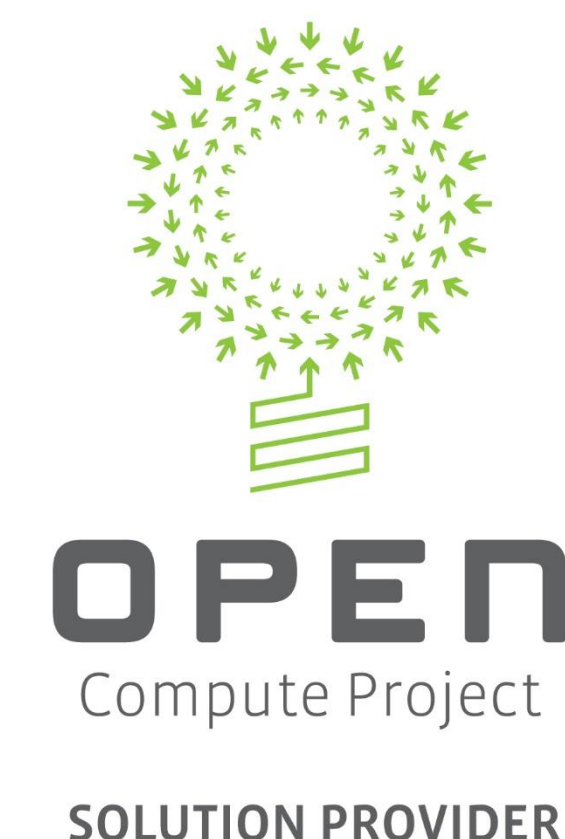


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Here to help!

- <https://circleb.eu>
- Twitter [@CircleB_eu](https://twitter.com/CircleB_eu)
- Youtube <https://www.youtube.com/c/CircleB>



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