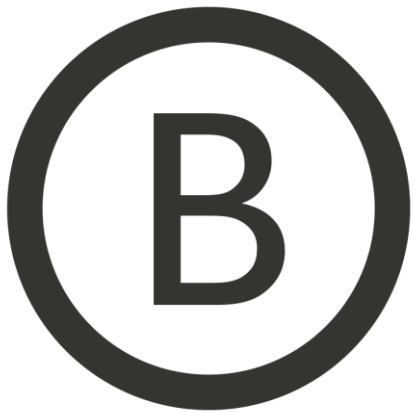


Community Driven Innovation and Sustainability.



Revolutionary IT
Infrastructures

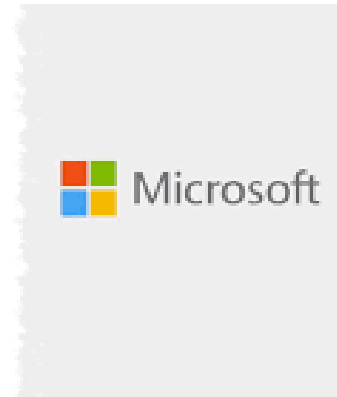


OPEN[™]
COMMUNITY

Why we do it?

Hyper-scale environments are the breeding grounds for new technologies, business models and ideas.

The business case around hyper-scale and in particular the Open Compute Project is migrating down to cloud providers and enterprises alike.



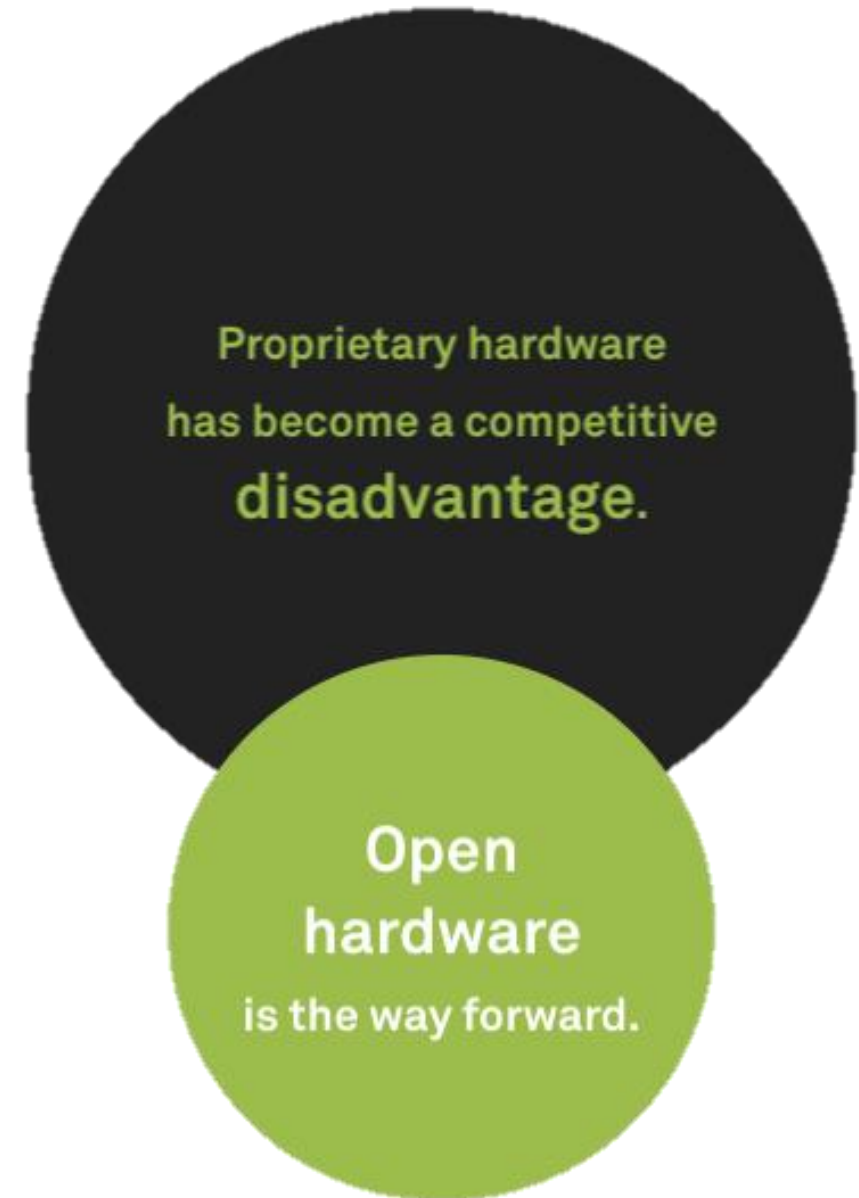
How we do it?

- making open innovative infrastructure technology available.
 - providing exciting new infrastructure.
 - aligning our resources with leading community partners
- offering value through a holistic service and solutions offering that is
OPEN



What we do!

- Delivering best-in-market storage, compute and network solutions for data centers of tomorrow.
- We strive to provide an excellent service combined with solutions that are interoperable, scalable, easy to manage and maintain and....
- One that has minimal environmental impact.





Our missionary work in Europe..

OCP Ready Datacenter Amsterdam

The image shows a modern, multi-story datacenter building with a white, paneled facade and large glass windows. The building is viewed from a low angle, looking up at the upper floors. The sky is blue with some light clouds. The text "OCP Ready Datacenter Amsterdam" is overlaid in the top left corner.

...soon European OCP Demo Center 

Community

Driven



What is the Open Compute Project?

- Not for profit organization, with lots of members...
- The OCP foundation is a global movement
- Mission to design and enable the delivery of the most efficient server, storage and datacenter hardware designs
- Key: sharing of specs, ideas and intellectual property to maximize innovation and reduce operational complexity.



Efficiency



Choice and control



Flexibility



Faster development time



Scalability



Environmental sustainability

Corporate OCP Members



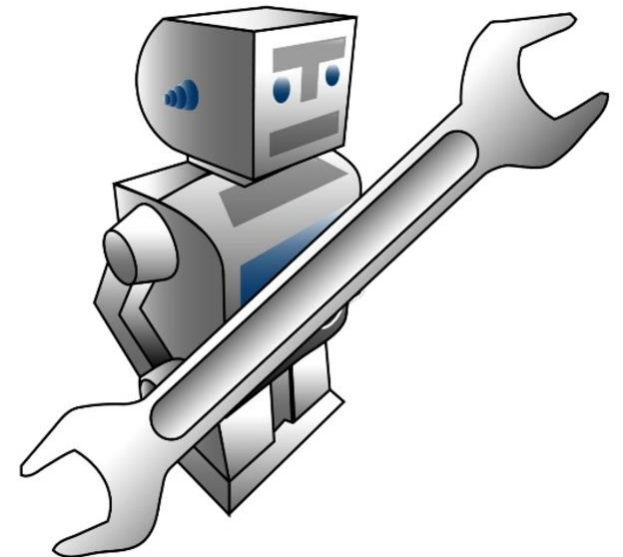
The power of the community... Leverage!

Leveraging the collective wisdom of the OCP community

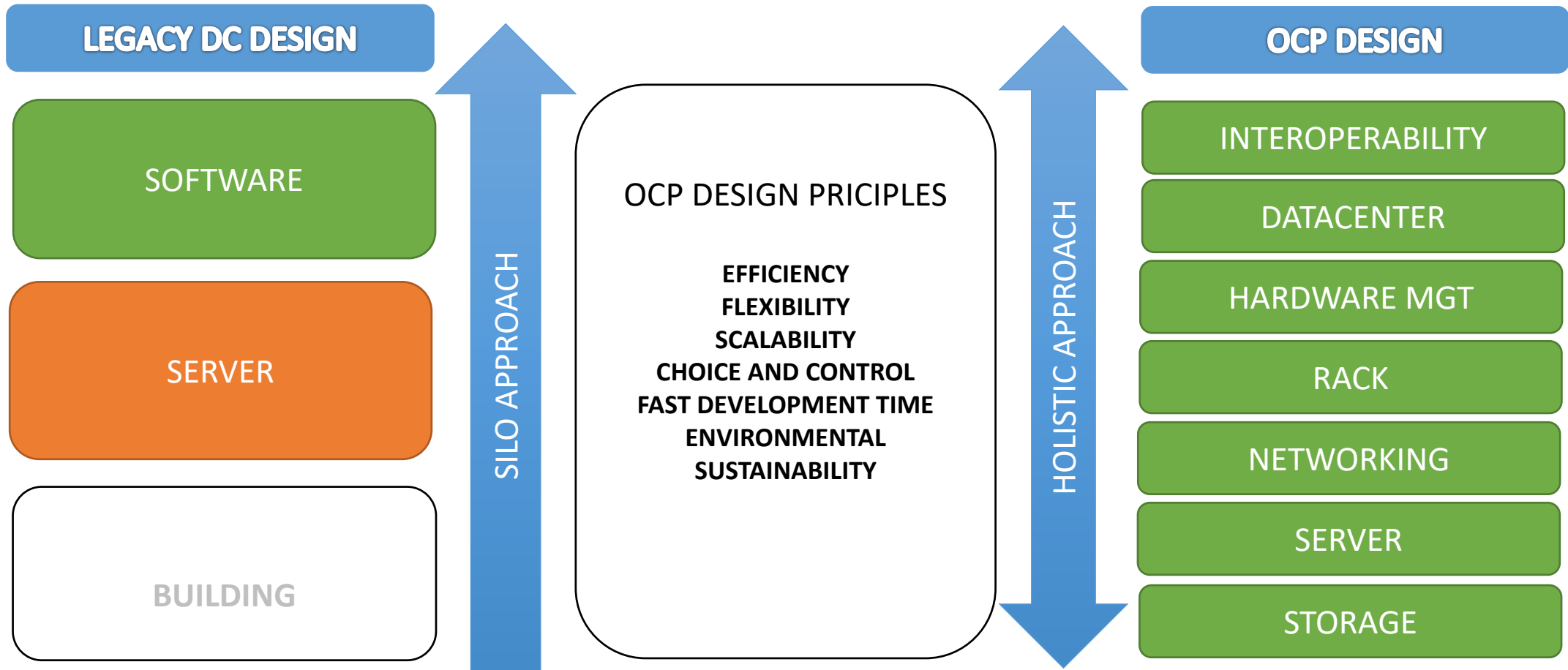
It is like having a virtual engineering staff.

Do you have a question about a spec?

We talk directly to the person who designed it



For OCP a holistic approach is needed

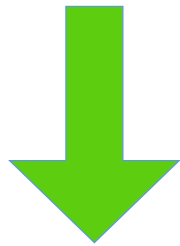
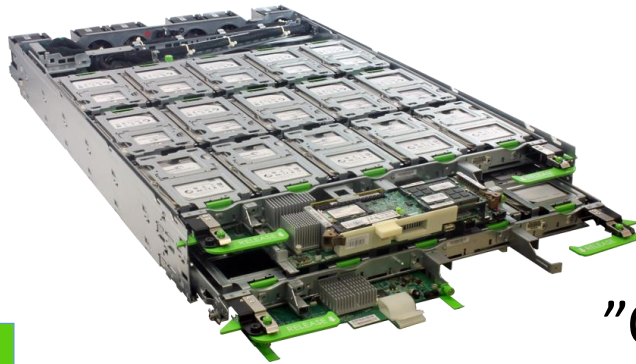




Innovation

Innovation speed

Honey Badger 2016



+20%
HDD
density

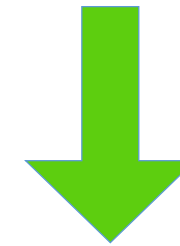
x4
compute
power



Bruce Canyon - 2017

"Open hardware increases the pace of automation, It makes it possible for everyone to work at the speed of software." - Vijay Rao, Director of Technology Strategy Facebook

Big Sur 2016



quadruple
memory

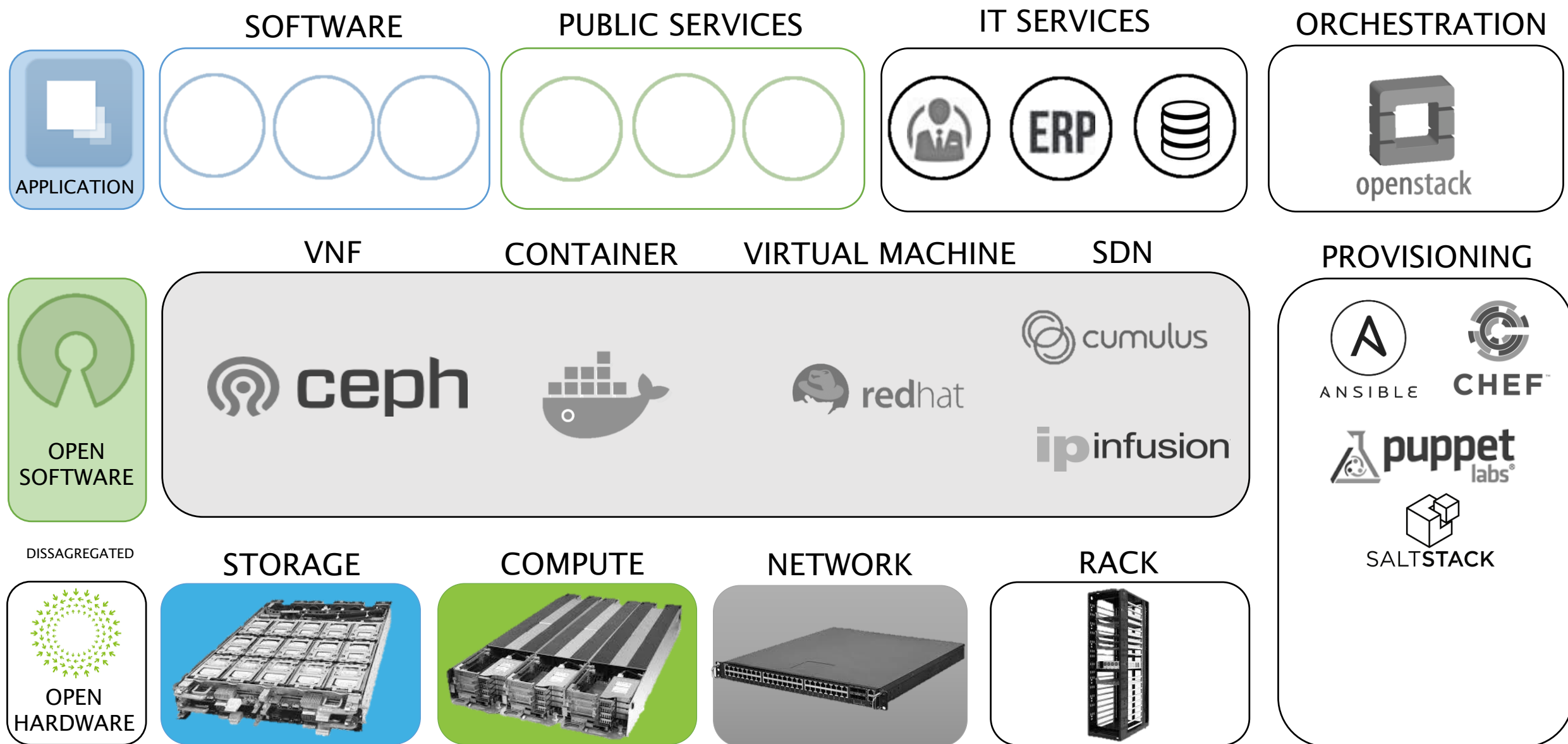
+33%
capacity

+3
teraflops



Big Basin 2017

Revolutionary Cloud Reference Architecture



Rack-Scale

NETWORK

SERVER

STORAGE

POWER

RACK

Network Infrastructures

VENDOR CENTRIC INFRASTRUCTURES

THE LEGACY SHIP

SDN

JUNIPER CONTRAIL
CISCO ACI

VENDOR
LOCKIN

SUPPORT

J-CARE SMARTnet

€€€
CARE
PACK

SWITCH AND NOS

JUNOS CISCO
NX-OS

Bundled
HW
NOS

over
priced
HW

INVESTMENT

OPEN WORLD

DEV OPS TOOLS



ANSIBLE



CHEF



SALTSTACK

AUTO
PROVISION

SUPPORT

UNIVERSAL CARE PACK

€
CARE
PACK

NOS

ipinfusion

cumulus

CHOICE
OF OS

BARE METAL SWITCHES



WHITE
BOX,
CHOICE
OF CPU

OPEN NETWORK INFRASTRUCTURES

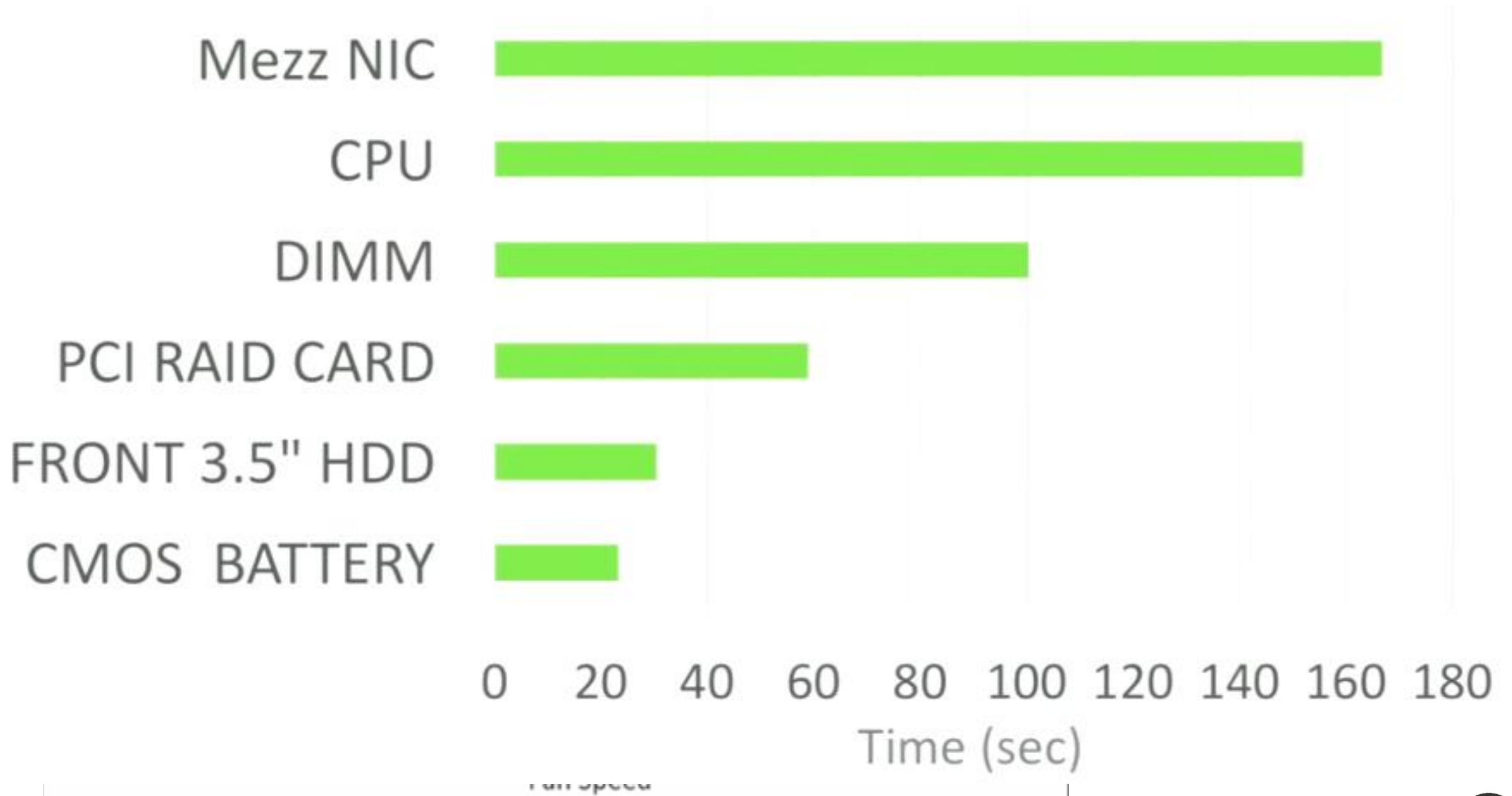
B

Vanity Free Design

“Vanity can easily overtake wisdom. It usually overtakes common sense”

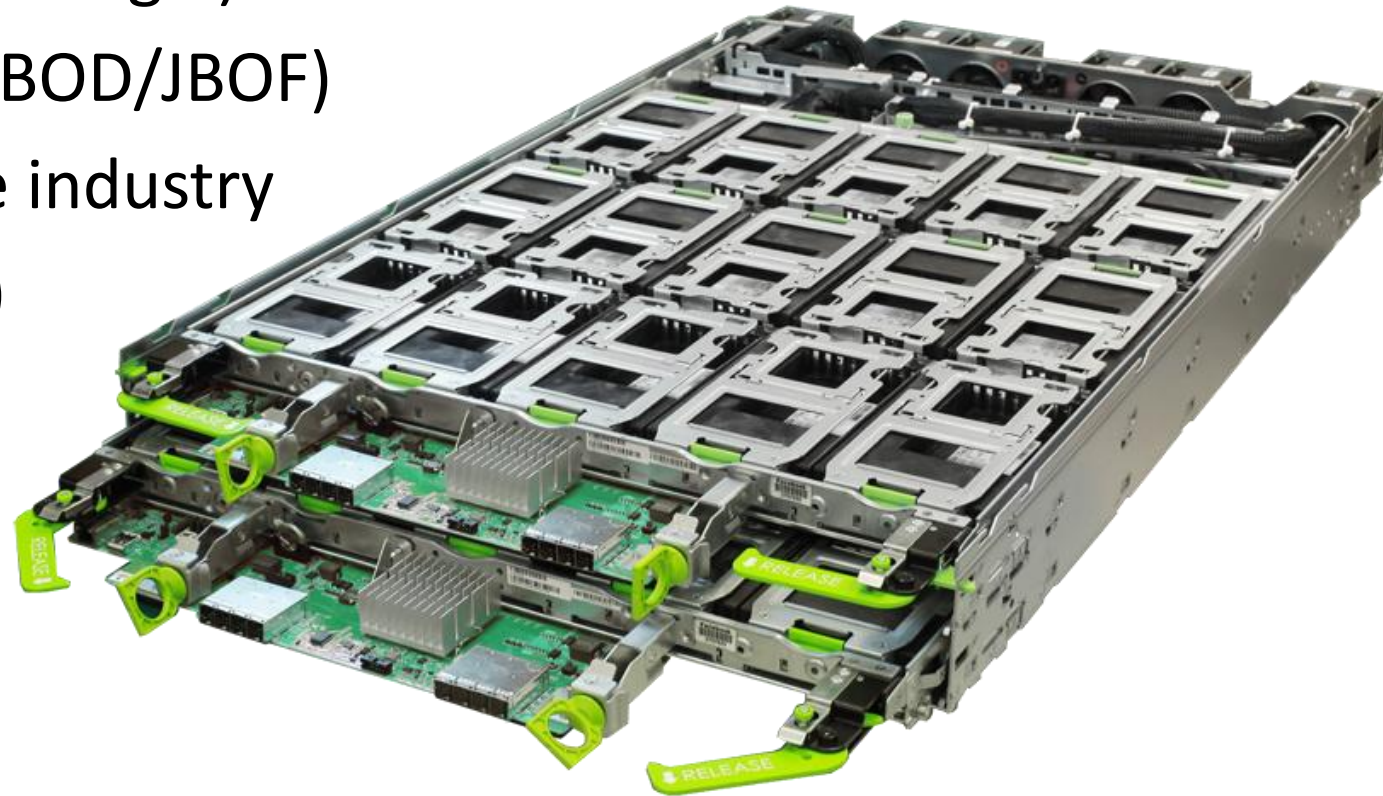
- Does a server need to look expensive?
- What function does a server's looks contribute to its use?
- What else is unnecessary?





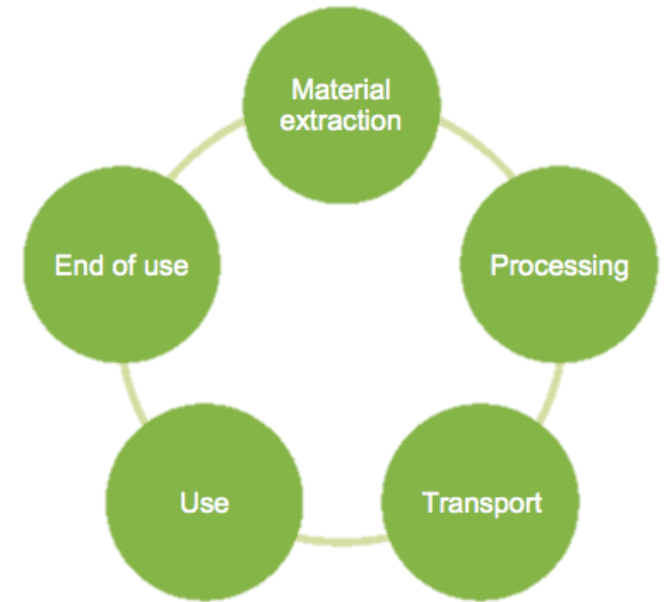
OCP storage design

- Hot and Cold Storage (energy savings!)
- Support various form factors (JBOD/JBOF)
- Densest storage capacity in the industry
- Better Space Utilization (+25%)



Life Cycle Design (Material)

- Hardware design keeping entire lifecycle in mind
- Currently natural fiber materials (NFFPP) are used on various OCP systems designs
- NFFPP minimizes the carbon footprint and impact of these products



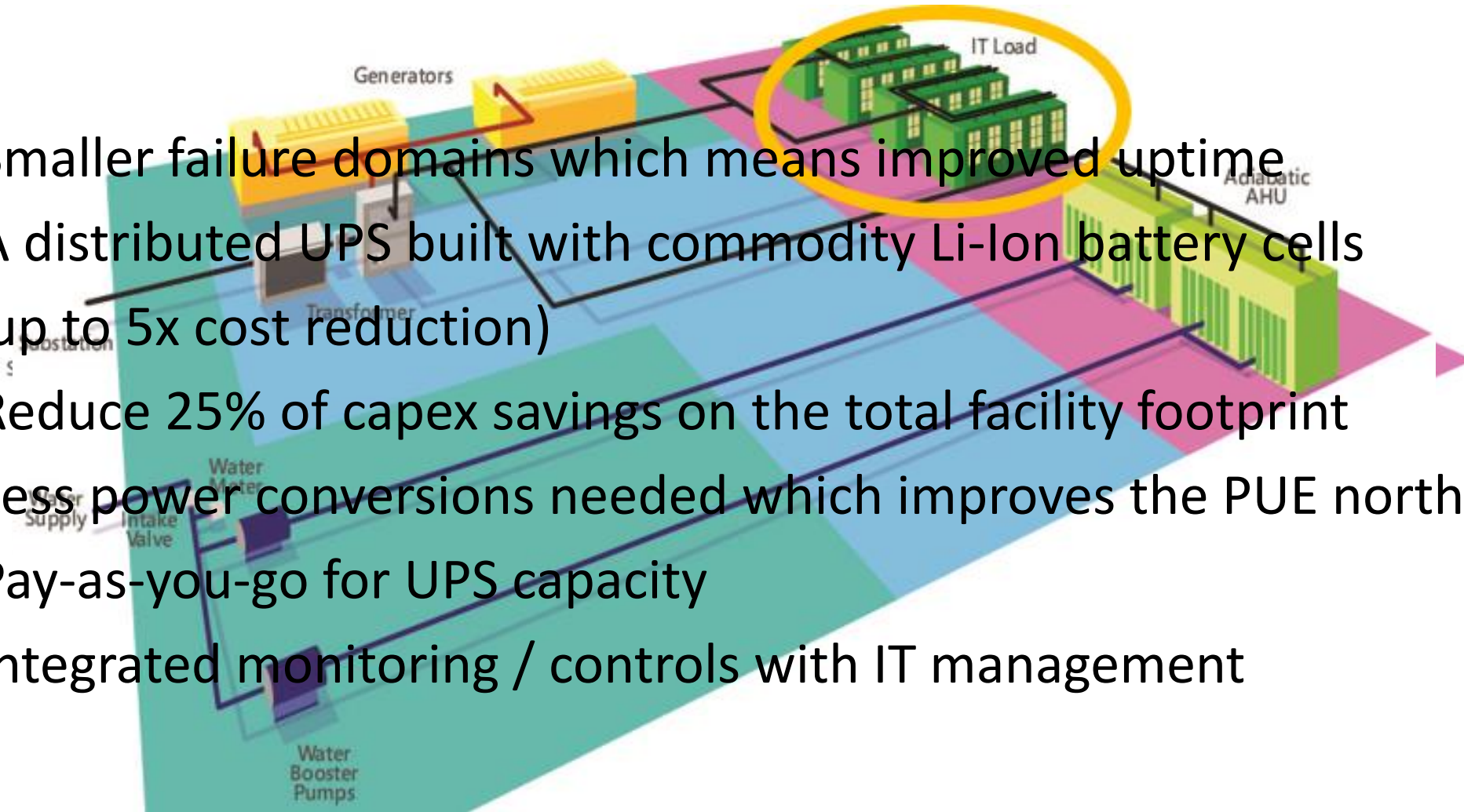
21" Open Rack

- 19" EIA standard is old
- 1911 designed for railroad signaling
- OR has 25% better space utilization
- 19" EIA and 21" OCP have same outside dimensions
- OR supports wider equipment modules
- All nodes share a centralized power shelf that provides 2+1 redundancy



Datacenter design with Local Energy Storage

- Smaller failure domains which means improved uptime
- A distributed UPS built with commodity Li-Ion battery cells (up to 5x cost reduction)
- Reduce 25% of capex savings on the total facility footprint
- Less power conversions needed which improves the PUE north of 15%
- Pay-as-you-go for UPS capacity
- Integrated monitoring / controls with IT management



Energy Efficiency (Actual Test Results)

- An OCP system is about 20% more power efficient than legacy 19" EAI
- As room temperature rises, the efficiency of the OCP system also rises
- Fan and Power curve tuning may optimize efficiency rates further

Fully Packed (43 Servers)				Half Packed (21 Server)		
Utilization	Legacy	OCP	Power Saving (OCP/Legacy)		OCP	Power Saving (OCP/Legacy)
0%	152.5W	79.3W	48%	➔	88.0W	42%
20%	276.9W	225.0W	19%	➔	230.6W	17%
50%	343.1W	272.5W	21%	➔	297.4W	13%
100%	348.9W	282.9W	19%	➔	309.7W	11%

※ Inlet Temp: 27.5°C

Take Aways

OCP is about...

- making a strategic investment
 - Technology Innovation (the forefront!)
 - Community (knowledge base!)
- OCP is about driving down Operational Expenditure
- OCP is about adopting DC sustainability
- OCP is about holistic mindset, ~~silo~~

OCP is not just about...
“cheap hardware”

Circle B is here to help!





Revolutionary IT Infrastructures



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[Circle B](https://www.youtube.com/CircleB)



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