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Compute Project



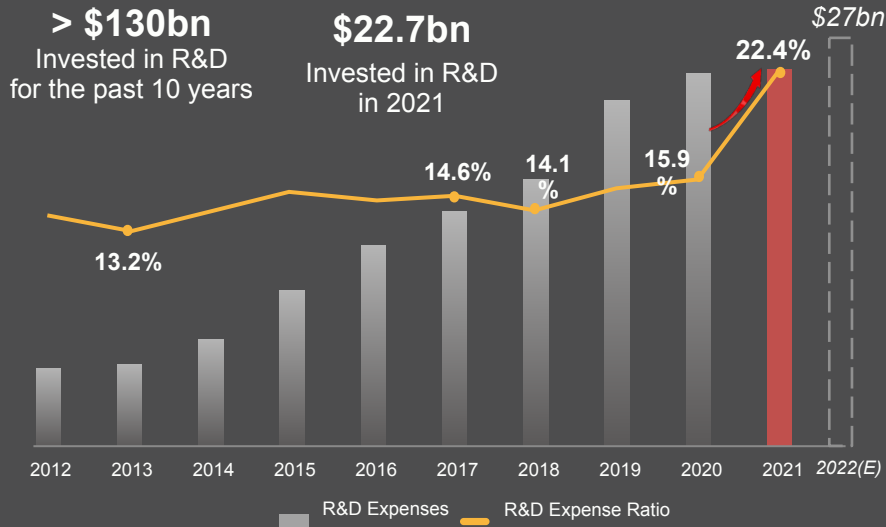
Future of Compute - Why is Huawei an active member of the OCP Foundation?

Copenhagen
29.09.2022

Driving Future Development through Nonstop Innovation



Hit a 10-year High in 2021: R&D Investment in Amount & Percentage of Revenue



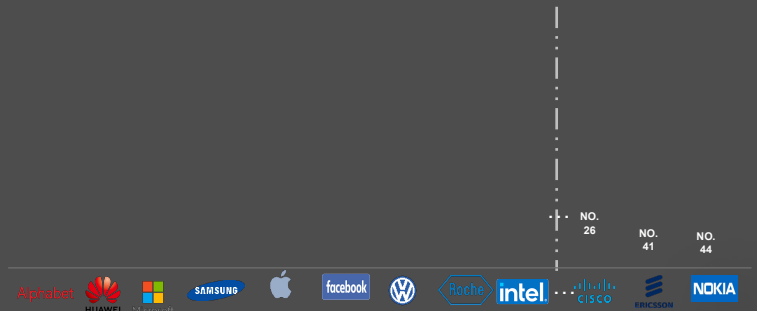
Source: Huawei annual report, 2021

No.2 R&D Investment in ICT Industry

€bn (€=1.23\$)

No.1
2021 PCT* patent application rankings

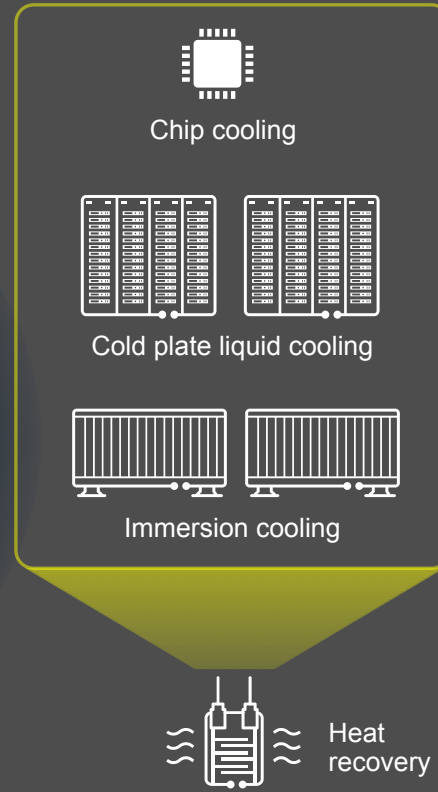
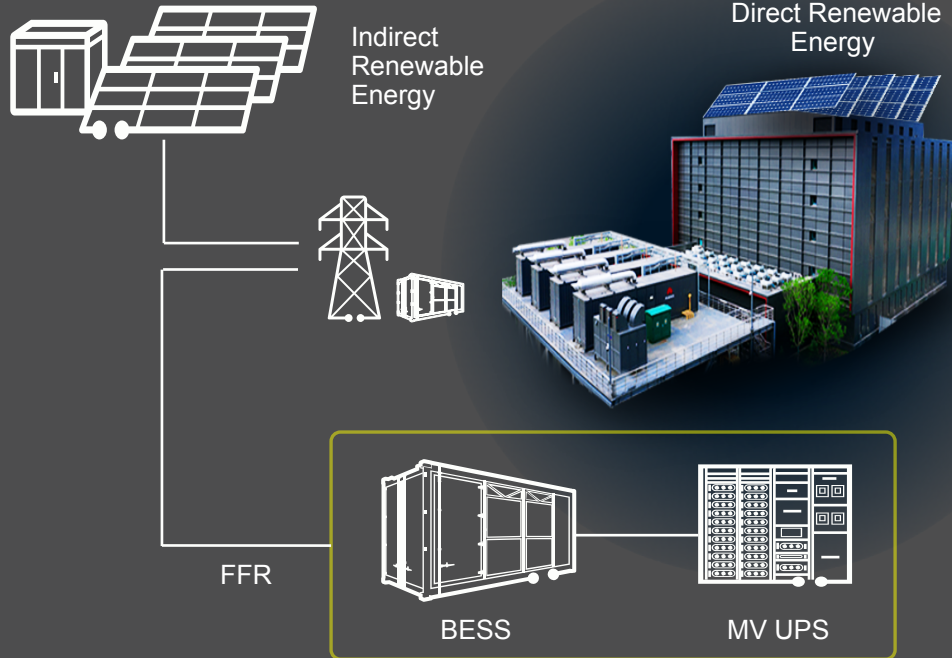
No.1
5G leadership and standards contributions



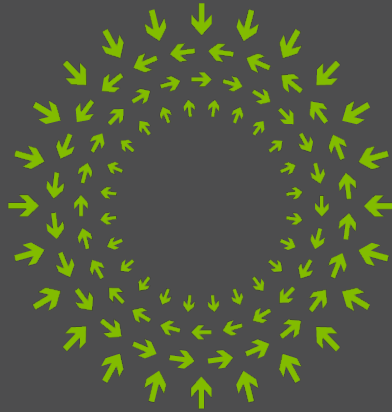
Source: 2021 EU industrial R&D investment scoreboard, EU, WIPO report 2022, IPIytics report Nov 2021

* PCT: Patent Cooperation Treaty

Huawei – Platinum member OCP



ODM/White Box + Open Source

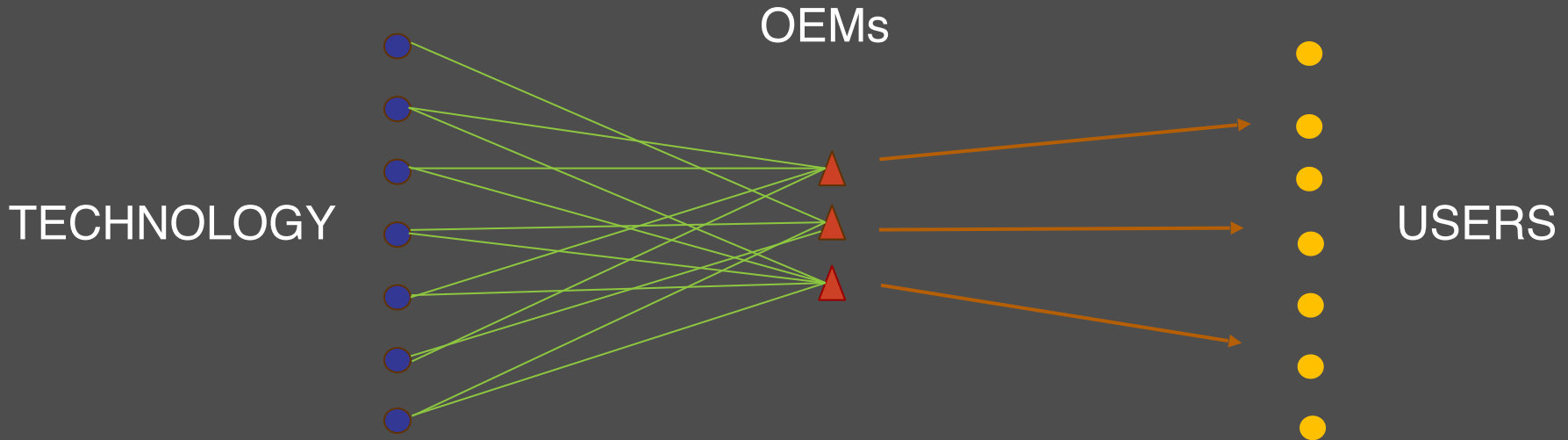


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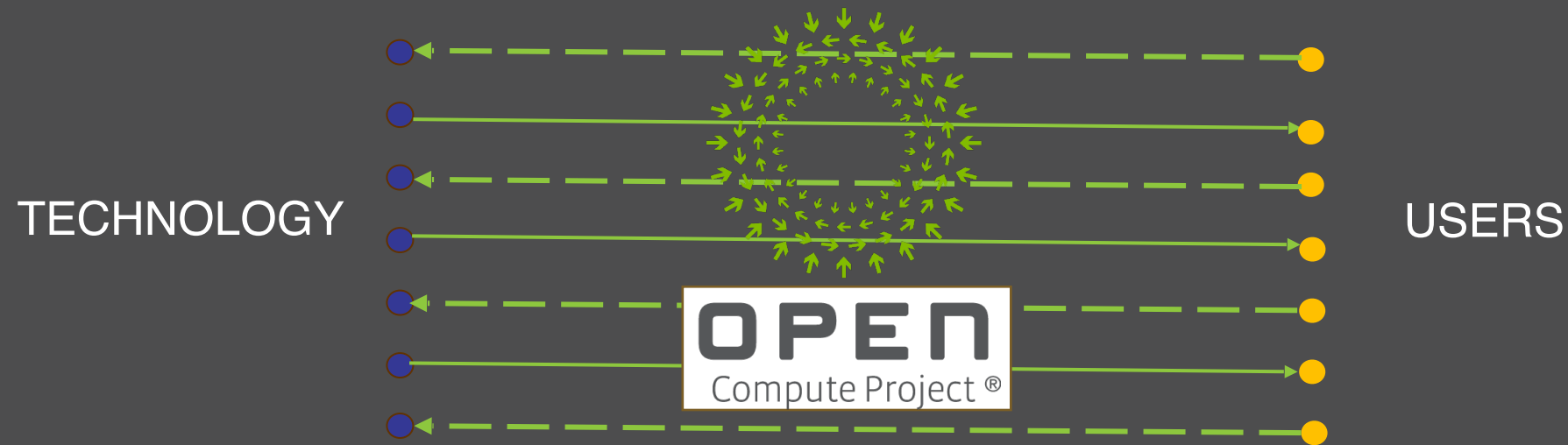


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The old innovation pipeline



Open Hardware Innovation Model





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

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?



Open Compute Project

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



200+ companies
8K engineers
190+ contributions

Our Projects



Networking



Server



Storage



Rack & Power



Advanced Cooling



Data Center

Modular DC



Telco

openEDGE



HW Mgmt



Open System Firmware



HPC



Security



Efficiency



Scalability

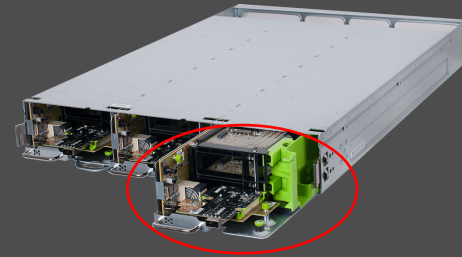
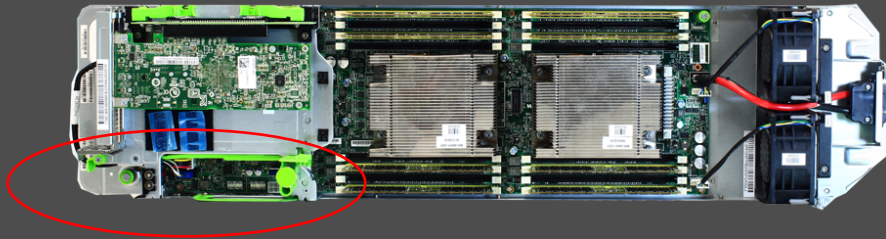
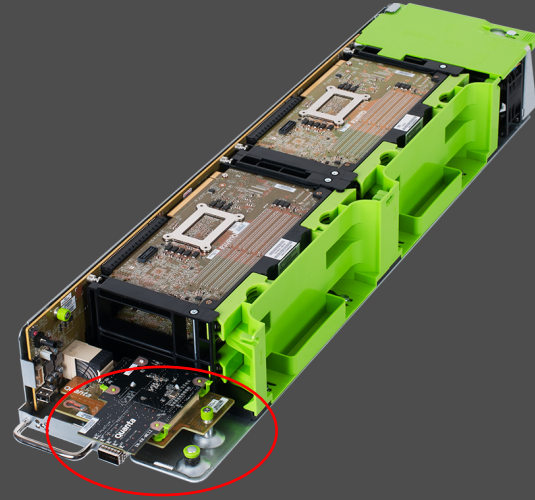
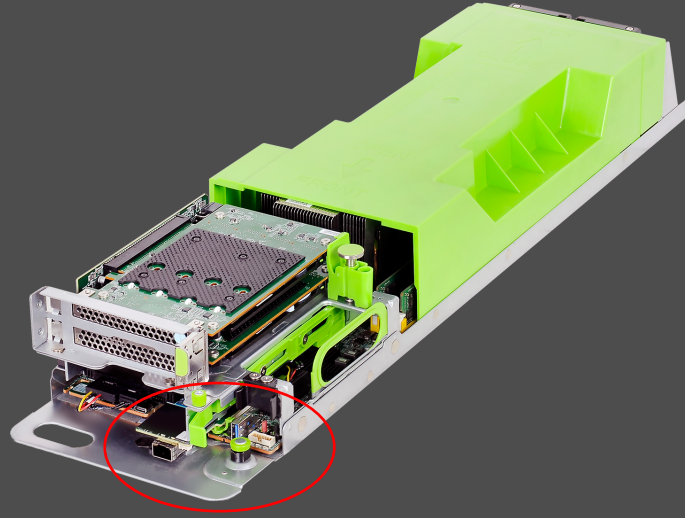
Impact

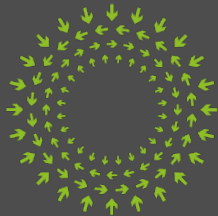
Openness



Sustainability

Tool less OCP vanity free open source cubby servers





Open Rack Unit Innovations Server "Fan Cube Law"

OPEN
Compute Pro

40 mm
Fans



EIA
"U"

80 mm
Fans



OCP
"OU"

Drivers of OCP Adoption



Cost
Reduction

Standardisation

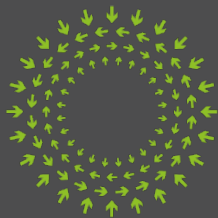


Energy
Efficiency

Reliability



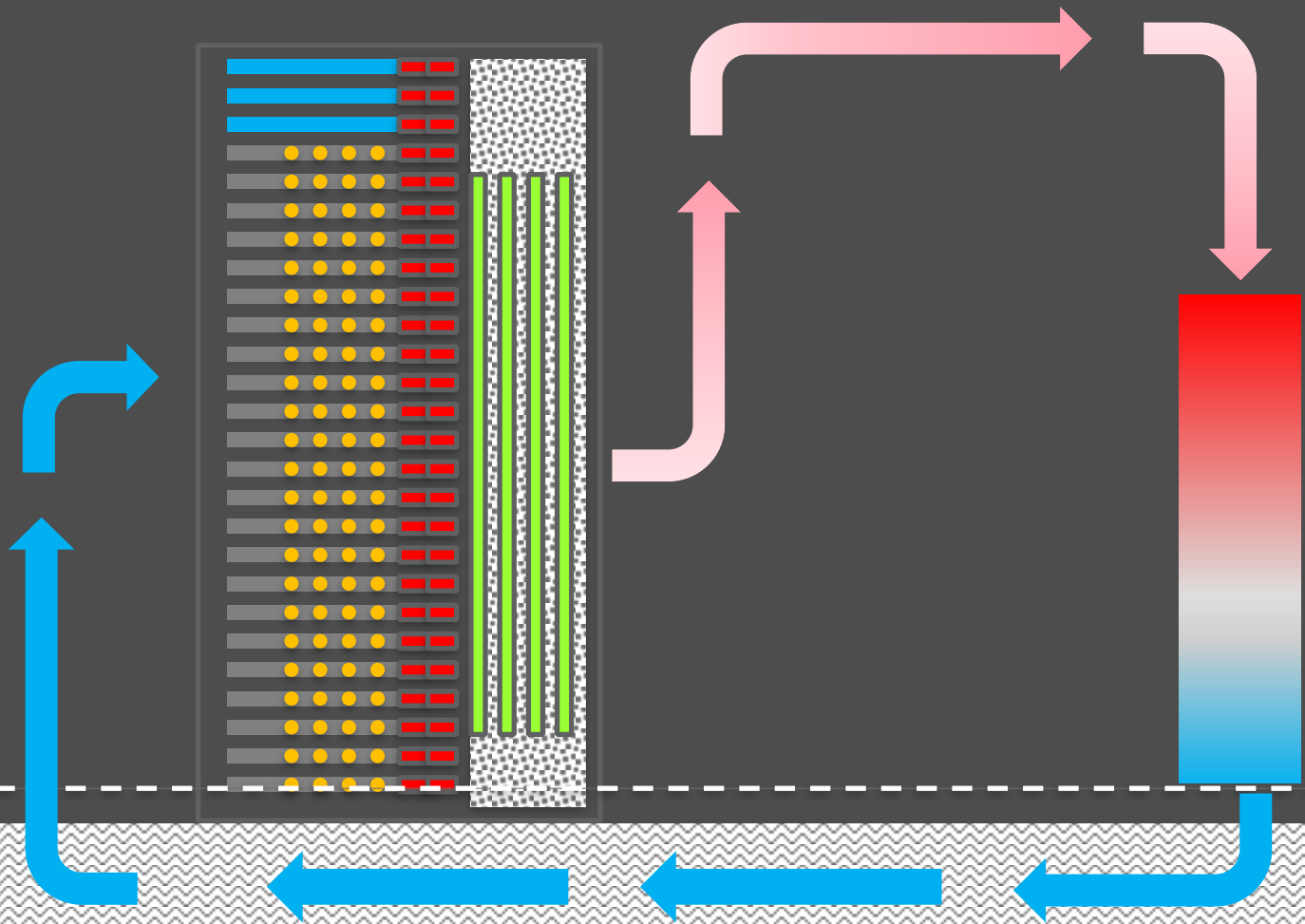
OCP Eats Rack Hardware



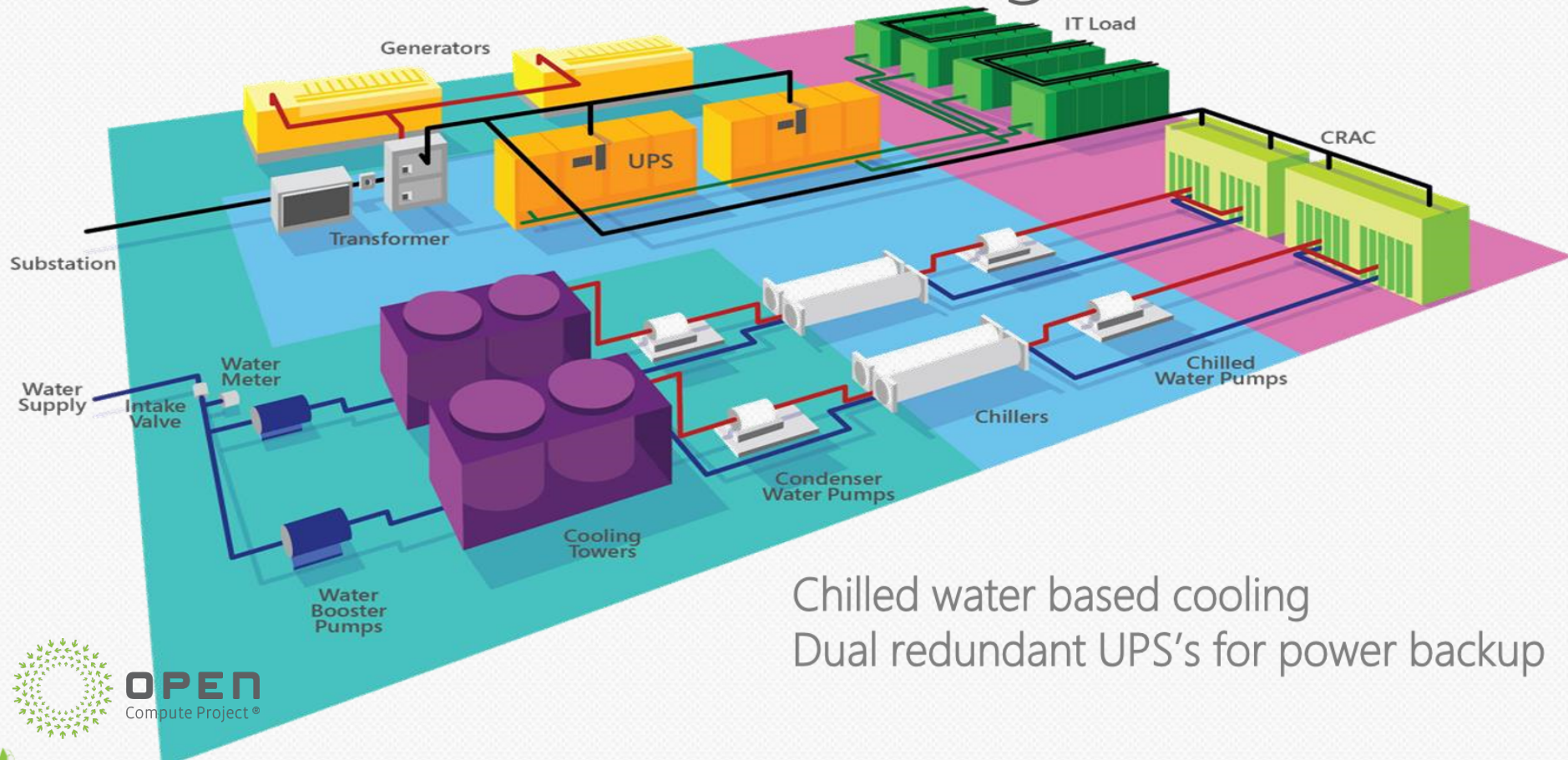
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No Longer Needed

- 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

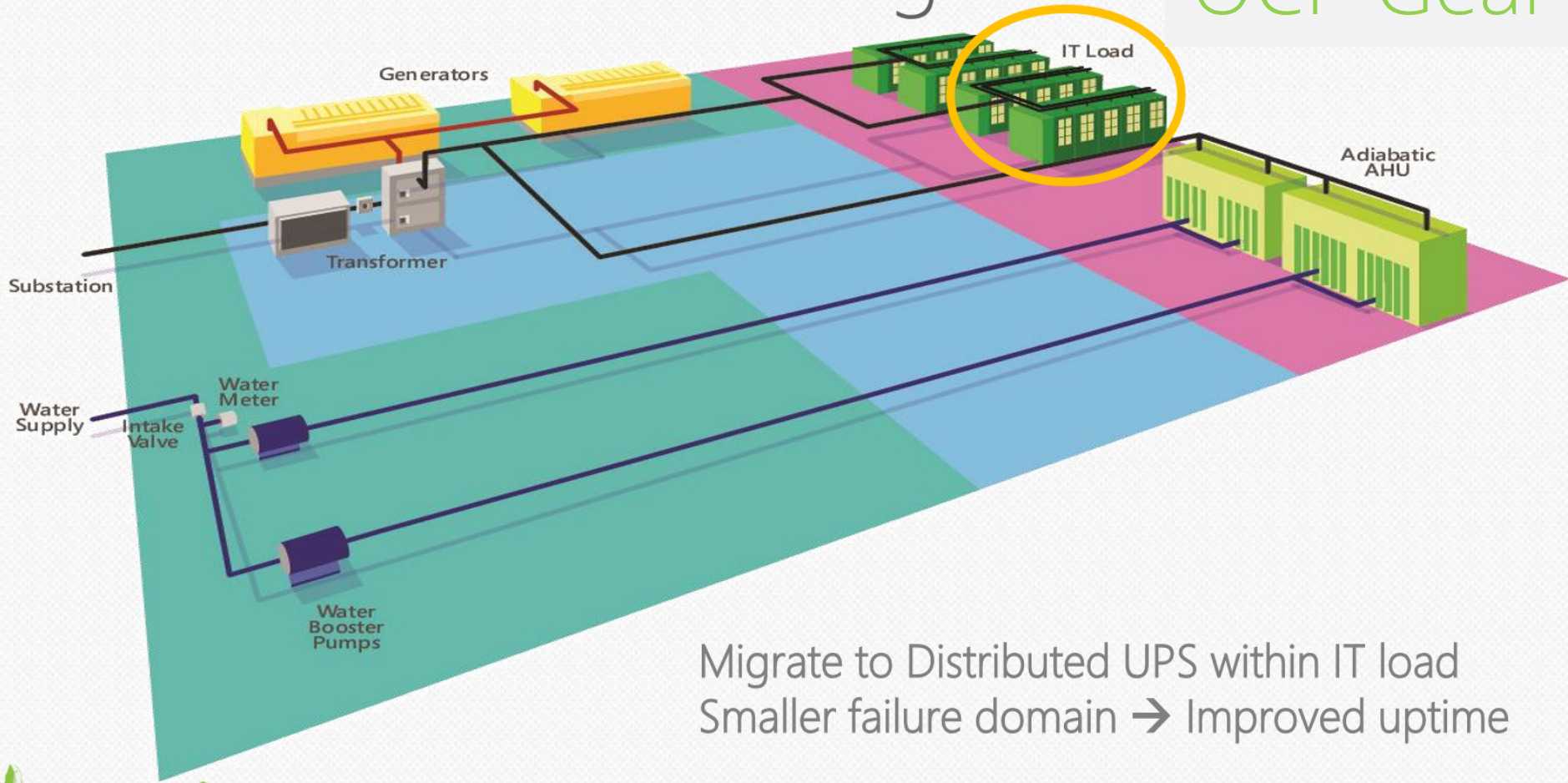


Traditional Datacenter Design

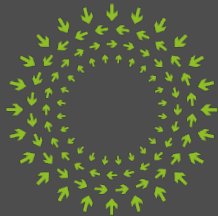


Chilled water based cooling
Dual redundant UPS's for power backup

Modern Datacenter Design with OCP Gear



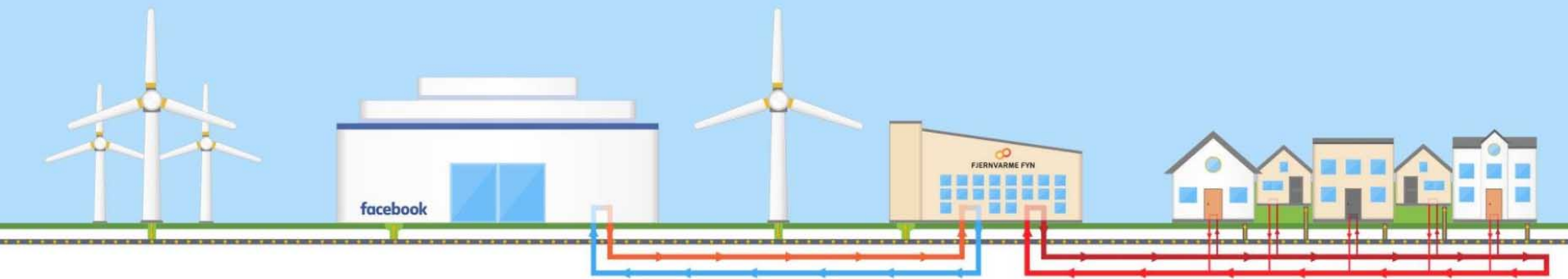
Migrate to Distributed UPS within IT load
Smaller failure domain → Improved uptime



Combined Heat & Compute (CHC)

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Odense Data Center: Heat Recovery Process

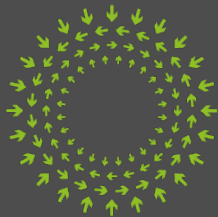


Wind turbines add renewable energy to the electric grid that supplies our data center and powers our servers

Hot air from the servers is directed over water coils to heat water

The warm water from the data center coupled with additional renewable energy is used in a heat pump facility to create hot water for the district heating network

The hot water delivers the heat to the community via the district heating network



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Q&A

Many thanks for your attention!

Pls feel free to get in touch with us.



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