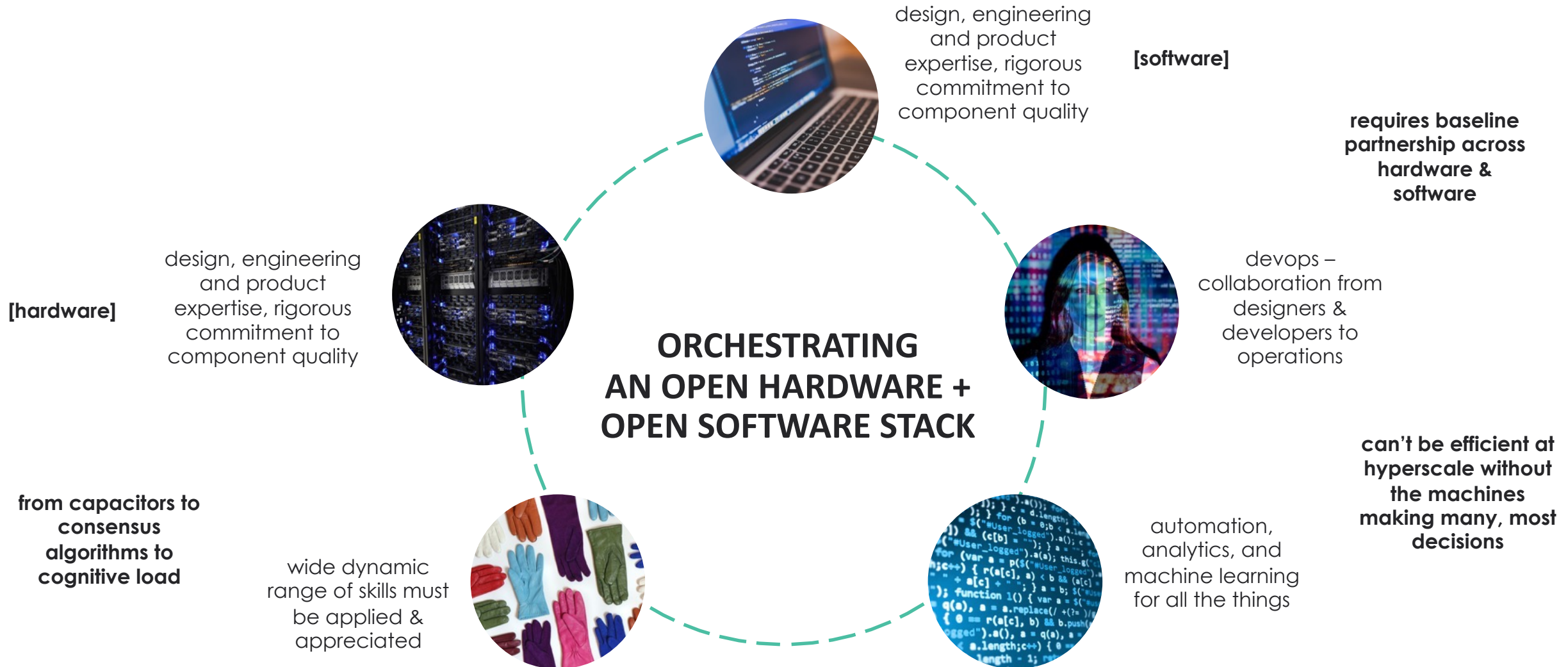


open



Open Is Necessary, But Not Sufficient Per Se



The Benefits of Open Hardware



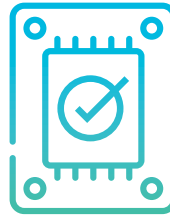
MORE FLEXIBILITY

Multi-vendor, standards-based hardware for modular solutions to fit your needs



HIGH DENSITY COMPUTING

More server, storage, and network capacity, in less space saves costs



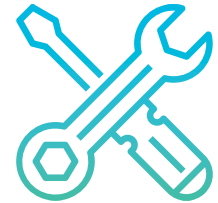
OPTIMIZED POWER

Rack-level power vs. individual server power. More efficient. Less cost. Fewer points of failure



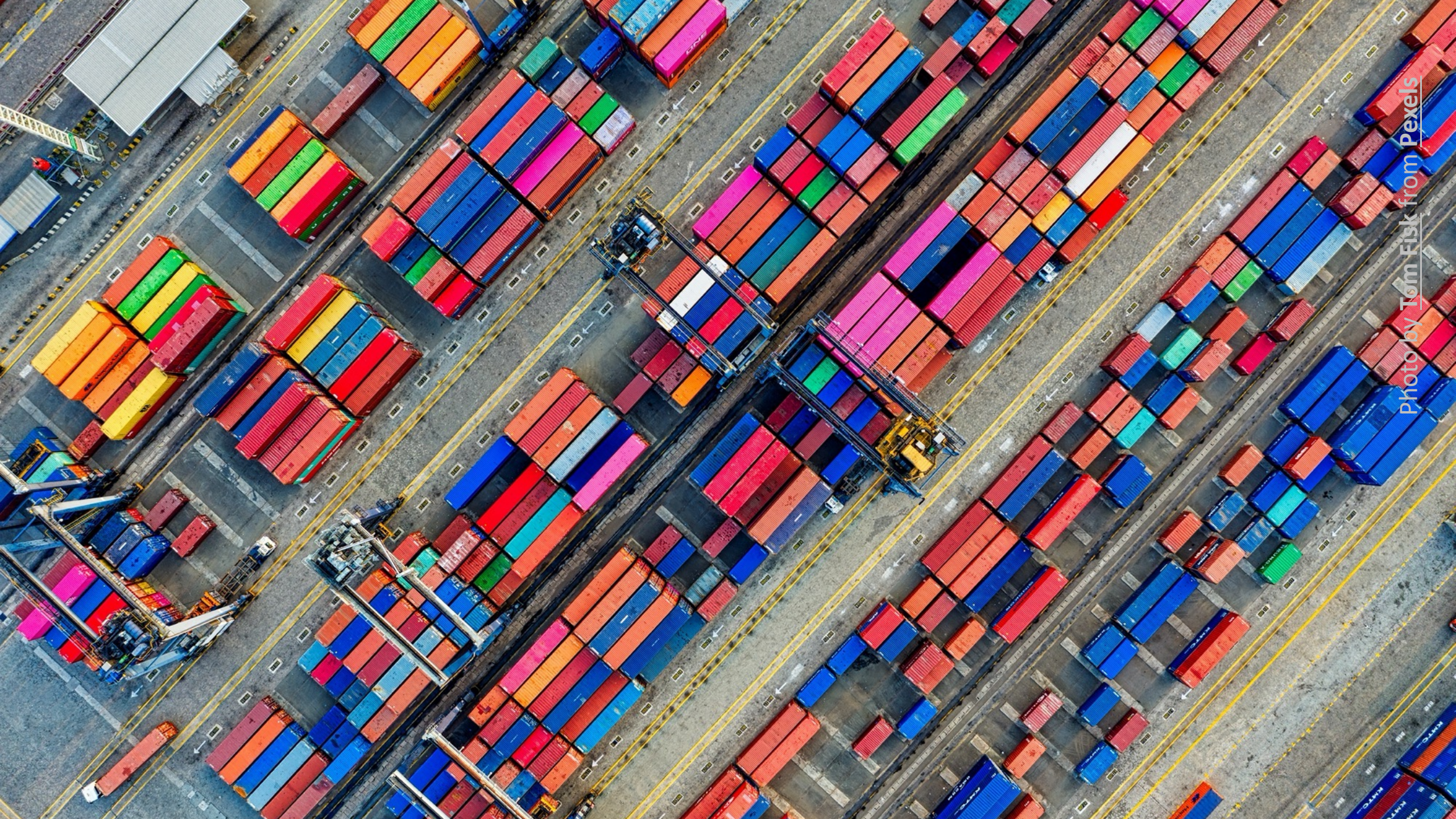
OPTIMIZED COOLING

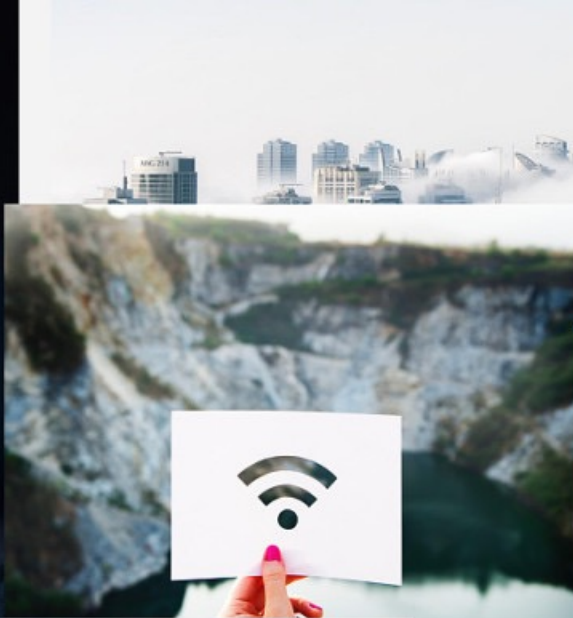
Rack-level cooling to operate more efficiently. Even more with free-air cooling, if the data centers support it



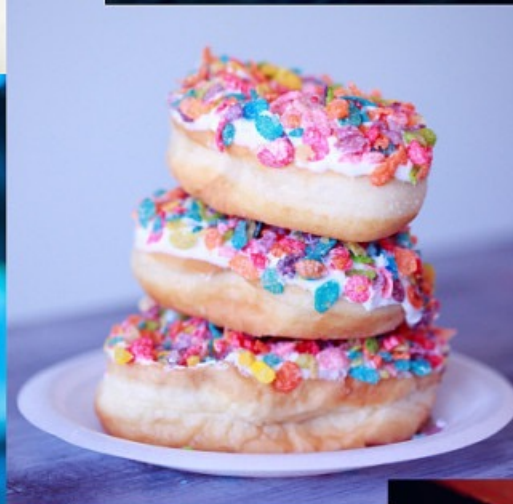
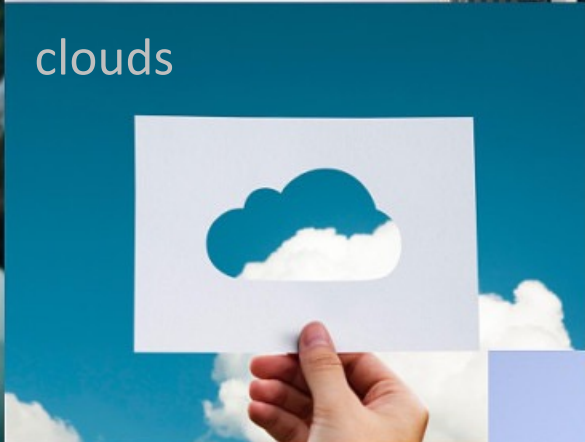
STREAMLINED MAINTENANCE

Flexible, easy-access design enables faster troubleshooting, updates, and upgrades





clouds





Data Center Facility

Sub-Projects:

Modular Data Center
Critical Facility Operations - Incubation
Advanced Cooling Facility - Incubation



Hardware Management

Sub-Projects:

OpenRMC
Hardware Management Module - Incubation
Hardware Fault Management - Incubation



Networking

Sub-Projects:

ONIE
Open Network Linux
SAI
SONiC

Project

- ☐ Server (65)
- ☐ Networking (48)
- ☐ Rack & Power (36)
- ☐ Telco (21)
- ☐ Data Center Facility (15)
- ☐ Storage (13)
- ☐ Security (Incubation) (2)

[Show more](#)

Contributor

- ☐ Facebook (52)
- ☐ Microsoft (35)
- ☐ Edgecore Networks (18)
- ☐ Intel (7)
- ☐ AT&T (6)
- ☐ Delta Electronics (6)
- ☐ Inspur (6)

[Show more](#)

Family

- ☐ Network Switch (38)
- ☐ OpenRack v2 (24)
- ☐ OCS (18)
- ☐ OTHER (15)
- ☐ Olympus (14)
- ☐ Data Center (10)
- ☐ Storage (8)
- ☐ Telco (8)
- ☐ Power (7)
- ☐ OpenRack (6)
- ☐ SOC Boards (6)
- ☐ Server (6)
- ☐ 19" Server (5)
- ☐ Software (5)
- ☐ Accessory (4)
- ☐ Optical NW (4)
- ☐ ACS (3)
- ☐ CG-Openrack-19 (3)
- ☐ PCI Card (3)
- ☐ Access Point (2)
- ☐ Barreleye (2)
- ☐ Mezz Card (2)
- ☐ OCP Mezzanine (2)
- ☐ Security (2)
- ☐ uCPE (2)
- ☐ Debug Card (1)
- ☐ Honey Badger (1)
- ☐ Information (1)
- ☐ Open Vault Storage (1)



Open System Firmware



Rack & Power

Sub-Projects:

ACS Immersion
ACS Cold Plate
ACS Door Heat Exchange



Security



Server

Sub-Projects:

High Performance Computing - Incubation
Mezz (NIC)
Open Accelerator Infrastructure
Open Domain-Specific Architecture



Storage



Telco





Sub-Projects:

openEDGE

Platinum

2crsi (since 2018)	3M (since 2018)	Alibaba (since 2017)	Arista Networks (since 2019)	Inspur (since 2016)	Intel (since 2011)	ITRenew (since 2018)	Microsoft (since 2014)
							
ARM (since 2018)	Asperitas (since 2017)	ASUS (since 2019)	AT&T (since 2015)	MitAC (since 2017)	Nokia (since 2015)	NVIDIA Networking – Mellanox (since 2012)	Quanta Cloud Technology (since 2012)
							
Baidu (since 2019)	Cumulus Networks (since 2013)	Delta Electronics (since 2016)	Deutsche Telekom (since 2016)	Rackspace (since 2011)	Rittal (since 2017)	Schneider (since 2014)	Silicom (since 2018)
							
Edgecore Networks (since 2016)	Facebook (since 2011)	Goldman Sachs (since 2011)	Google (since 2015)	STORDIS (since 2019)	Submer (since 2018)	Tencent (since 2018)	VeriSilicon (since 2020)
							
HPE (since 2015)	Huawei (since 2018)	Hyve Solutions (since 2012)	IBM (since 2013)	Wiwynn (since 2014)	Yahoo! Japan (since 2017)		
							

Gold

ITOCHU Techno-Solutions Corporation (since 2014)	Samsung Electronics (since 2019)	Seagate (since 2017)	ZT Systems (since 2019)
			

Silver

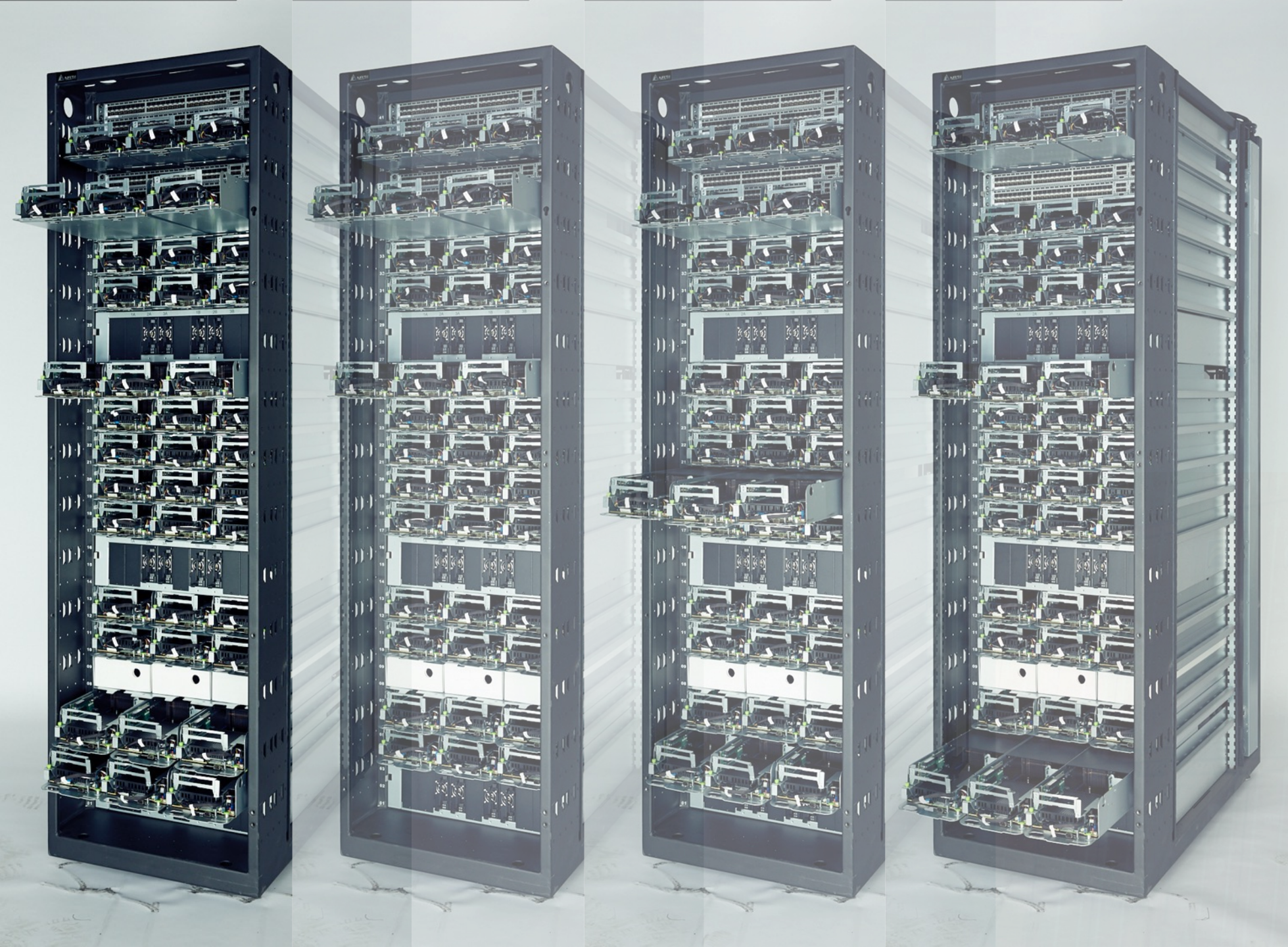
Circle B (since 2016)	Cisco (since 2014)	Inventec (since 2014)	NVIDIA (since 2017)
			



OPEN
Compute Project®



Photo by [Brayden Law](#) from [Pexels](#)



threads

- 180 nodes
- 5,760 physical cores
- 11,520 virtual cores

containers

- 180 nodes
- 90 TB (terabytes)
- memory
- 9,000 containers
- to 18,000



Discovery deskside chassis



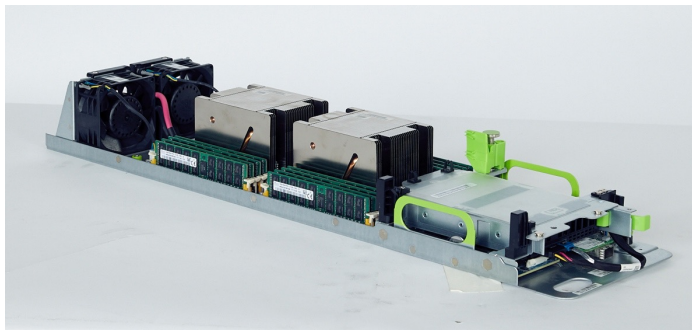
3 to 5 hyperscale nodes



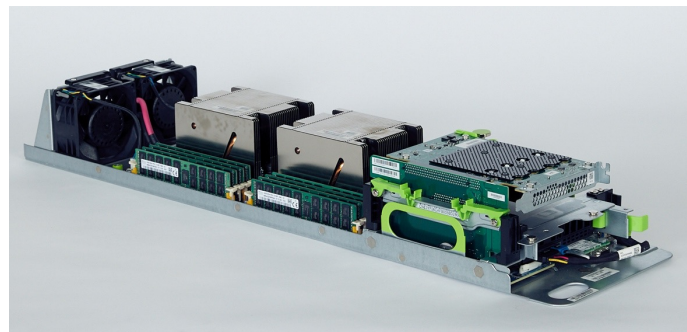
25G/100G external switch

threads

- 5 nodes
- 160 physical cores
- 320 virtual cores



compute node – dual 16-core, 512GB



storage node – to 6x 3.84TB NVMe flash

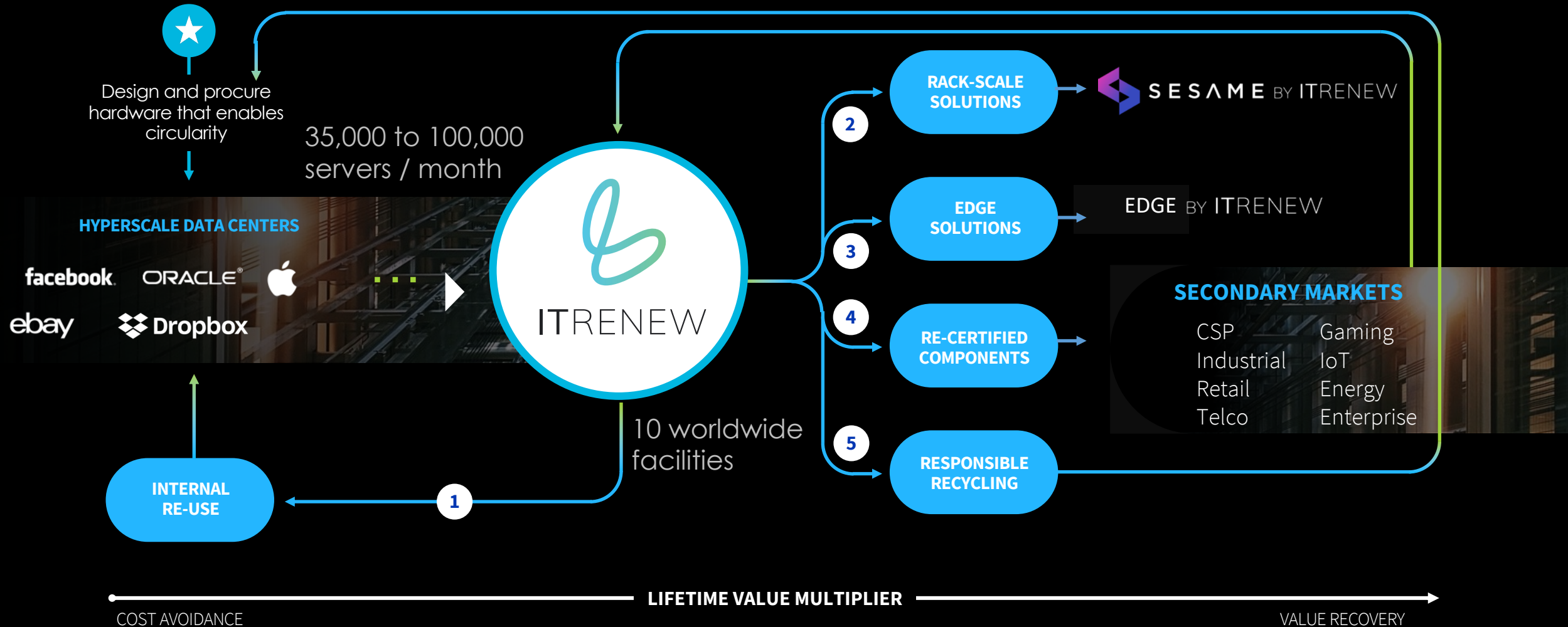
containers

- 5 nodes
- 2.5 TB (terabytes) memory
- 250 containers
- to 500

Photo by [asim alnamat](#) from [Pexels](#)

circular

Circular economy for data center hardware



The circular IT hardware industry opportunity

WHAT IF...

46

million
servers



31

million
tonnes CO₂e



6.7

million
cars' annual emissions



SESAME BY ITRENEW

QUESTIONS