SAME BY ITRENEW

HOW CAN I GET ALL THE ADVANTAGES OF A MODERN DATA CENTER ARCHITECTURE?

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@RiedelAtWork

July 2021

ITRENEW

ITRenew Webinar

How Can I Get All the Advantages of a Modern Data Center Architecture?

July 22, 2021 11:00 AM (America/San Francisco)

Are you confident that you have the right data center architecture to support your business-critical applications?

Are you finding it difficult to manage your data center infrastructure when you need to make changes? Can you scale as your needs grow? Now is the time for you to modernize your data center with an architecture that's open and simple. Open architecture allows you to make your data center more efficient, flexible, and scalable.

Join us for a conversation on:

- How open architecture drives massively improved data center density and efficiency
- How the Open Computer Project (OCP) fosters a collaborative community focused on redesigning hardware technology to support your growing compute, storage and networking demands
- Delivering state-of-the-art performance and reliability without compromise

Learn how to gain the advantages of a modernized data center with open architecture and without breaking your budget.

open

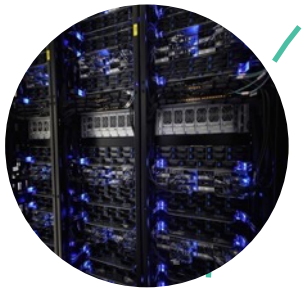
Photo by **Robin Kumar Biswal** from **Pexels**

Open Is Necessary, But Not Sufficient Per Se

design, engineering and product expertise, rigorous commitment to component quality

[software]

requires baseline partnership across hardware & software



[hardware]

design, engineering and product expertise, rigorous commitment to component quality

devops – collaboration from designers & developers to operations

ORCHESTRATING AN OPEN HARDWARE + OPEN SOFTWARE STACK

from capacitors to consensus algorithms to cognitive load

wide dynamic range of skills must be applied & appreciated

automation, analytics, and machine learning for all the things

can't be efficient at hyperscale without the machines making many, most decisions

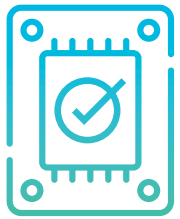
The Benefits of Open Hardware

MORE FLEXIBILITY

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

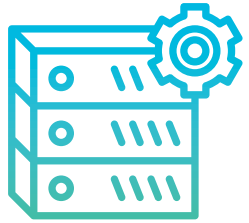
HIGH DENSITY COMPUTING

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

OPEN Compute Project®

Open infrastructure lets everyone realize the advantages of agility, operational efficiency, and energy consumption

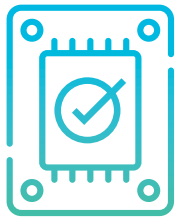
The Benefits of Open Software

MORE FLEXIBILITY

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

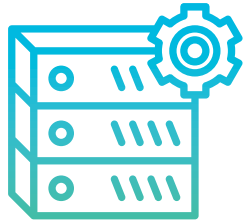
HIGH DENSITY COMPUTING

More automation, with API-driven scalability, allows more software per silicon in^2



OPTIMIZED POWER

Stack-level power vs. individual packaged software. More efficient. Less cost. Fewer points of failure



OPTIMIZED COOLING

Stack-level continuous integration, continuous deployment (CI/CD) to validate more efficiently. Fewer points of failure in the field

STREAMLINED MAINTENANCE

Flexible, API-based, devops-considered design enables faster troubleshooting, updates, and upgrades

THE LINUX FOUNDATION

Open infrastructure lets everyone realize that advantages of agility, operational efficiency, and rapid deployment

TECHNOLOGY PARTNERS

Setting the standard.

Partnerships from across the industry ensure Sesame by ITRenew sets the standard for flexible, scalable and efficient IT infrastructure – optimized for any deployment or workload

ARISTA
CLOUD & HEAT
kinvolk
Mellanox TECHNOLOGIES
NUTANIX
vmware
Pluribus NETWORKS
CLOUD NATIVE COMPUTING FOUNDATION
NAUTILUS DATA TECHNOLOGIES
Asperitas
RANCHER
TSANET
blockheating Recycling datacenter energy
CUMULUS
NVIDIA
SUSE
submer
THE LINUX FOUNDATION
CircleB Revolutionary IT Infrastructures
WD Western Digital
Micron
kubernetes
OPEN Compute Project

DENSITY & EFFICIENCY

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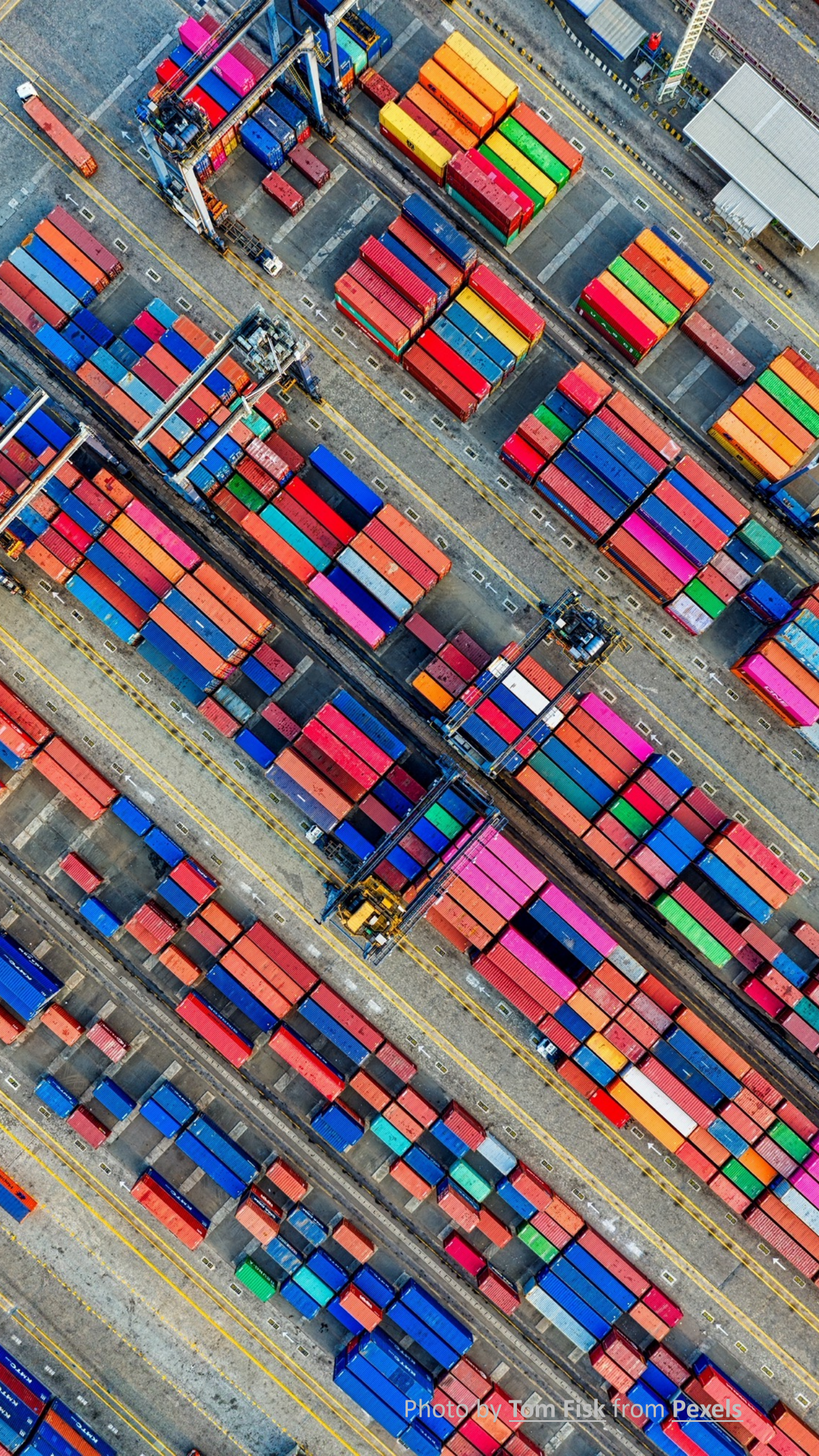
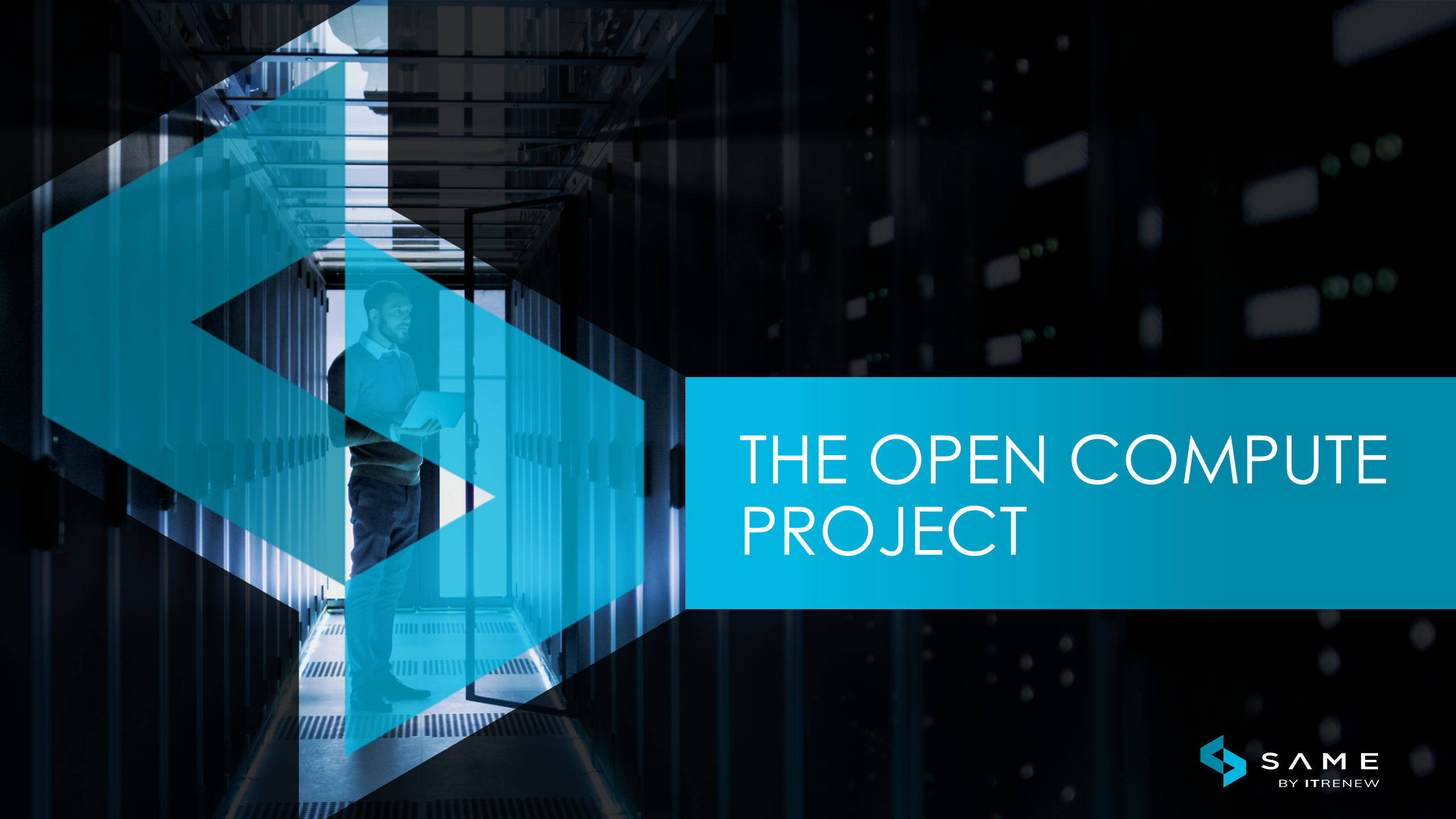


Photo by Tom Fisk from Pexels


agile
clouds
stacks
infrastructure
FE
FIELD ENGINEER
fieldengineer.com



THE OPEN COMPUTE PROJECT

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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

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

Project

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

Show more

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- [ ] 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)

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®

PERFORMANCE & RELIABILITY WITHOUT COMPROMISE

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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

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Rack-scale solutions built on open architecture

PROVEN
HYPERSCALE
TECHNOLOGY

DEPENDABLY
AVAILABLE
CONSISTENT
PRODUCT

BUSINESS-
CHANGING
TCO

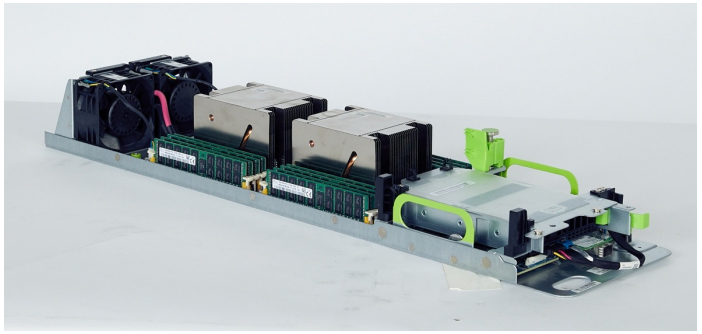
Discovery deskside chassis

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

threads

Photo by Ksenia Chernaya from Pexels

containers

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Rack-scale solutions built on open architecture

HIGH PERFORMANCE ON DEMAND

- Hyperscalers have had unfair advantage
- Technology purpose built for largest data centers
- Plug-and-play integrated systems for the Enterprise data center

ACCELERATED TIME TO VALUE

- Closed-loop supply chain for ready supply
- Racks delivered in 2-3 weeks, deployed in 60-90 minutes
- Common building blocks that enable scale on demand

BETTER-THAN-EVER TCO

- Circular economic model reduces acquisition/CapEx costs
- Lower OpEx with high density, efficient power/cooling design
- 50% TCO advantage over traditional approaches

SUSTAINABILITY

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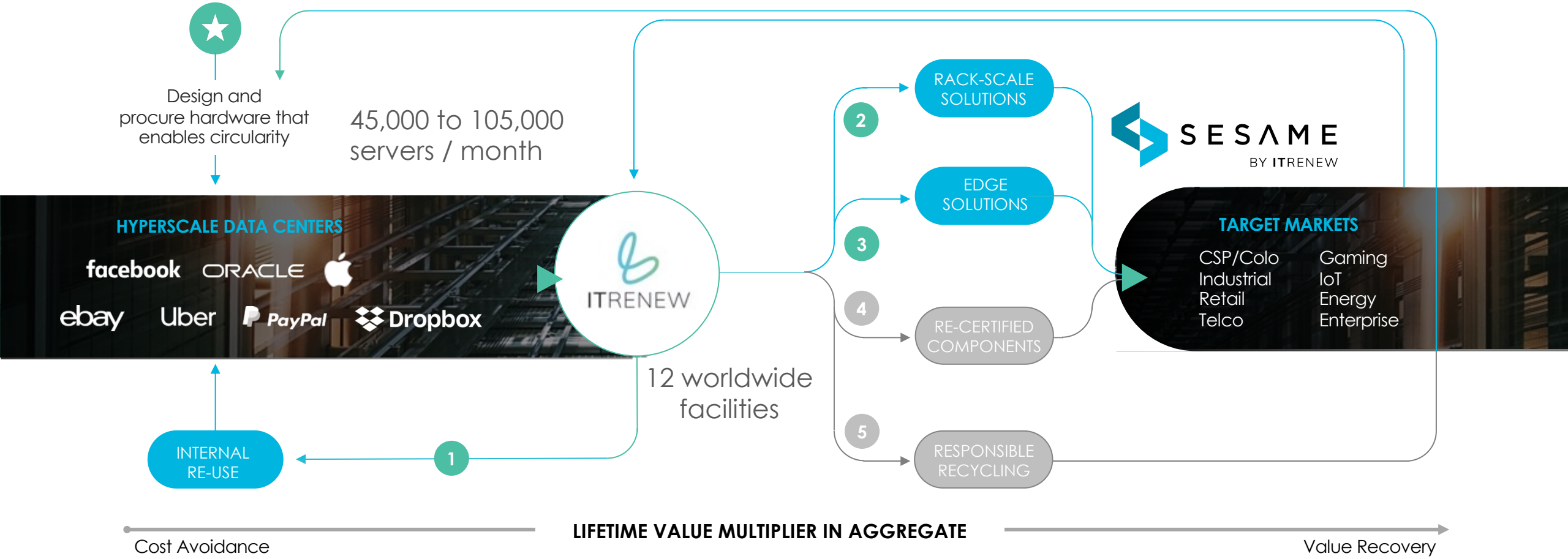
Photo by asim alnamat from Pexels

Circular Economy for Data Center Hardware

recertified, warrantied, no compromise open hardware compute and storage solutions



The circular IT hardware industry opportunity

WHAT IF…

46 million servers

›

31 million tonnes CO2e

=

6.7 million cars' annual emissions

Make sustainability your competitive advantage

Achieve your decarbonization goals faster, without compromising quality, reliability or performance

Zero waste.
Zero carbon.
Zero compromise.

Sesame has designed eWaste and CO_2 out of new hardware. Our circular economic model reduces your costs and carbon footprint.

EXPERIENCE THE BENEFITS >

ENVIRONMENTAL

Avoid up to 75%+ of the carbon emissions tied to legacy IT manufacturing. Materials used to build recertified systems are sustainably-sourced.

75%

CO_2 tied to IT mfg avoided

+

FINANCIAL

High-density designs deliver significantly better performance, efficiency compute and storage economics. Savings available through reduced CapEx and reduced OpEx.

50%

Higher density & lower TCO

+

OPERATIONAL

Built on open architecture which beats legacy solutions on compute density, operational efficiency, and energy consumption.

33%

more energy efficient

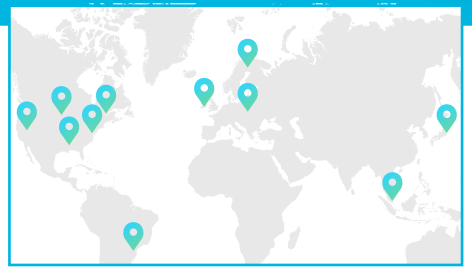
ITRenew advantage

TCO-SMASHING, RACK-SCALE COMPUTE AND STORAGE SOLUTIONS THAT OPTIMIZE **VALUE , PERFORMANCE, EFFICIENCY & SUSTAINABILITY** FOR OUR CUSTOMERS

Two decades working with hyperscale technology and data centers

Serving hyperscalers, CSP, Co-Lo, Telco, Gaming, Healthcare, Energy, Retail...

Operations worldwide with 12 facilities globally



amazon · Dropbox · facebook · Microsoft · ORACLE · PayPal · UBER

DC services and infrastructure

OPEN Compute Project®

Leader in driving the circular economy and data center transformation

600+ employees

Platinum member Open Compute Project (OCP)

QUESTIONS

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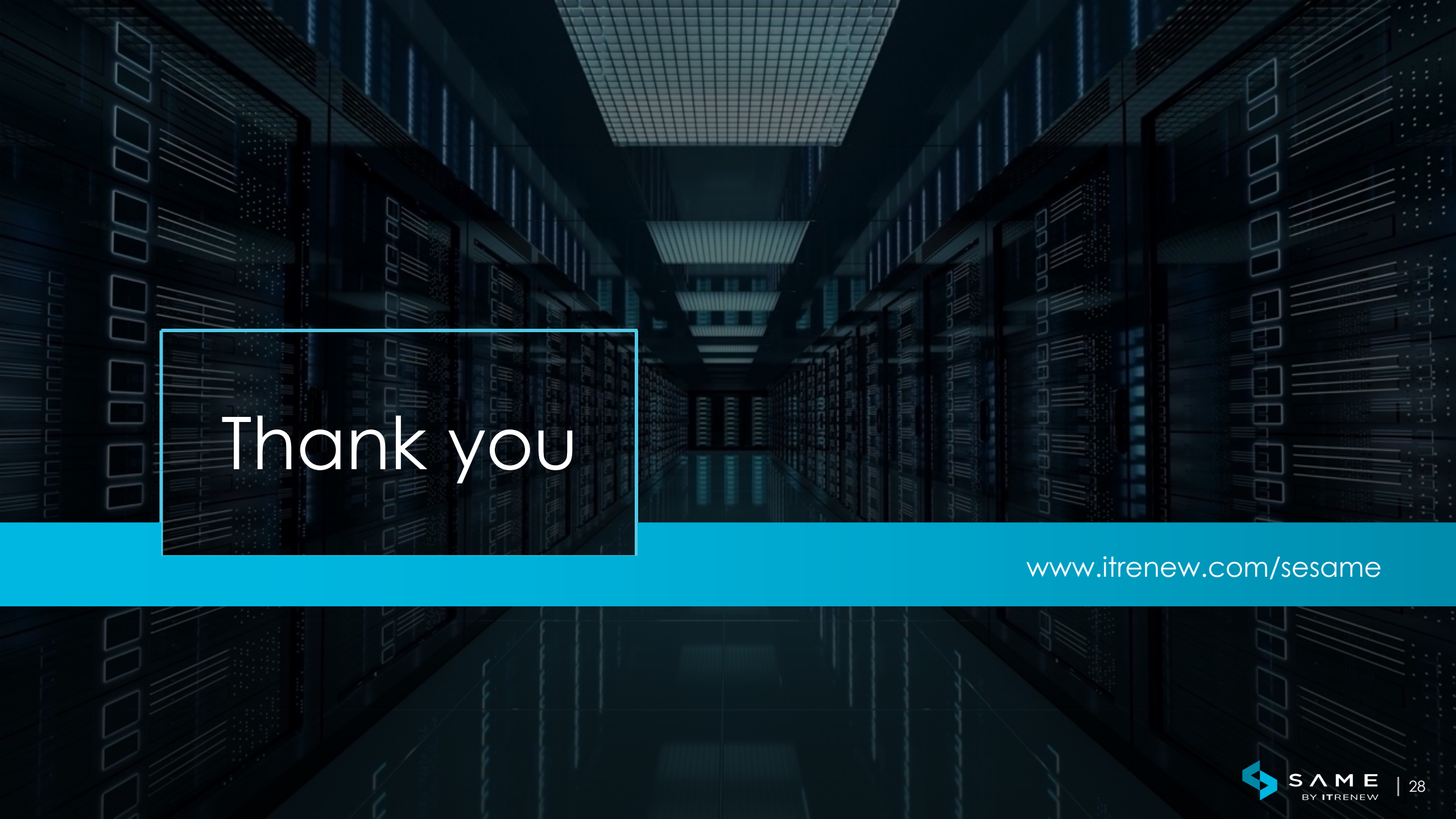

Thank you
www.itrenew.com/sesame

RESOURCES

SAME
BY ITRENEW

For more information: www.itrenew.com/resources

VIDEOS

FROM SERVERS TO SERVERLESS IN TEN MINUTES

Want to deploy and provision a scale-out Kubernetes cluster for running and orchestrating containers & VMs on bare metal in minutes not months? Deploying such clusters on racks of bare metal requires preparation and planning. Learn from ITRenew's evaluation and optimization of various approaches. See how we took a high-density OCP rack with over 1,000 compute cores and 9TB of memory from bare hardware to running a serverless demo app in around 10 minutes.

https://www.itrenew.com/resources/from-servers-to-serverless-in-ten-minutes/

WEBINAR ON-DEMAND

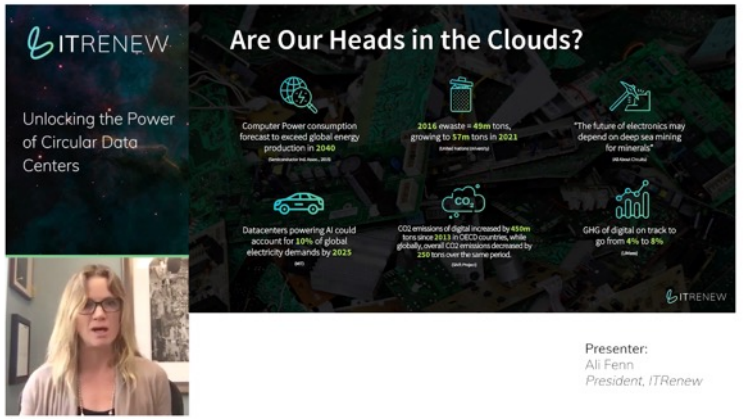
Simultaneous Scaling For User and Application Growth

Is the clock suddenly ticking on your cloud-native and elastic infrastructure initiatives?

Changing market demands and priorities during this global crisis mean businesses can no longer afford to take a multi-year journey to cloud-native. Yet going cloud-native right now means that, overnight, your IT teams must scale capacity up from thousands to millions of users, and scale infrastructure out to support hundreds rather than dozens of apps and workloads. No pressure.

Erik Riedel shares his insights on these trends and addresses why industry leaders worldwide are taking this approach to the multi-dimensional scaling dilemma.

https://www.itrenew.com/webinar-ondemand-full-scaling-for-growth/



VIDEOS

THE TCO OF OCP

The world's largest data center owners leverage open hardware to optimize TCO and refresh cycles, and minimize CO2e impact. Now ITRenew's circular economic model makes the same financial and sustainability opportunity available to broader global markets. Ali Fenn shares the real-world data and is joined by Hydro66 to show the impact of the model in action. Build data centers on the Circular Data Center model to achieve zero waste, lead in energy efficiency, and make a positive impact on the environment – all while lowering your TCO.

Download Slides

https://www.itrenew.com/resources/the-tco-of-ocp/

Call to action

CHECK US OUT ON OUR WEBSITE:

Watch Video:
Sesame By ITRenew

www.itrenew.com/sesame

www.itrenew.com/resources

QUESTIONS OR COMMENTS, REACH US:

@RiedelAtWork

https://github.com/SesameEngineering

ITRENEW

DATA CENTER IMPACT REPORT:

THE FINANCIAL & SUSTAINABILITY CASE FOR CIRCULARITY

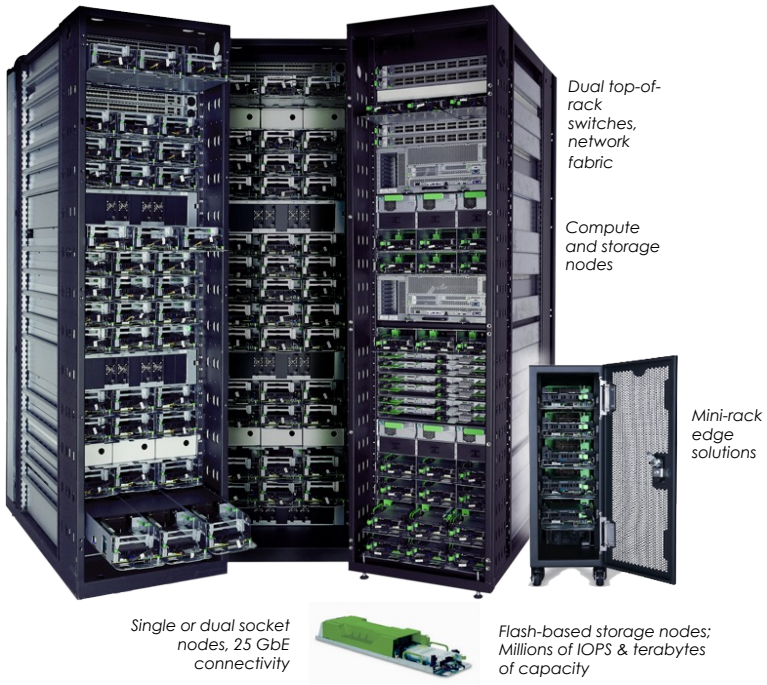
Download at itrenew.com

APPENDIX

SAME
BY ITRENEW

Sesame by ITRenew integrated rack-scale solutions

- Designed for your most demanding workloads
- Tuned to your specific requirements
- Ready to plug-and-play



ENGINEERED SYSTEMS READY TO DEPLOY

Engineered, tested, supported as a single stack

Roll it in, turn it on

FLEXIBLE SCALE & CAPACITY

6 to 96 nodes per rack

600+ nodes per cluster

25/100G networking

PURPOSE-BUILT CONFIGURATIONS

Open Systems (Disaggregated)

Converged (HCI)

AI/ML

STANDARD RACK SIZE & POWER

No data center redesign

Leverage existing power

TECHNOLOGY PARTNERS

kubernetes · Red Hat · NVIDIA · RANCHER · SUSE · vmware