The bridge to possible

Supporting Your Organization's Sustainability Goals

See How Cisco's Newest Datacenter Technologies Can Help Make it Happen

Fausto Vaninetti, EMEA CISG TSA
@fvaninet

Cisco Live!

PSODCN-1799

Cisco Webex App

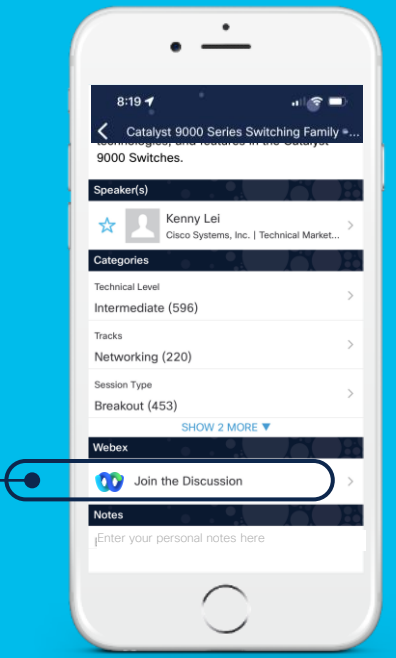
Questions?

Use Cisco Webex App to chat
with the speaker after the session

How

1. Find this session in the Cisco Live Mobile App
2. Click “Join the Discussion”
3. Install the Webex App or go directly to the Webex space
4. Enter messages/questions in the Webex space

Webex spaces will be moderated until February 24, 2023.



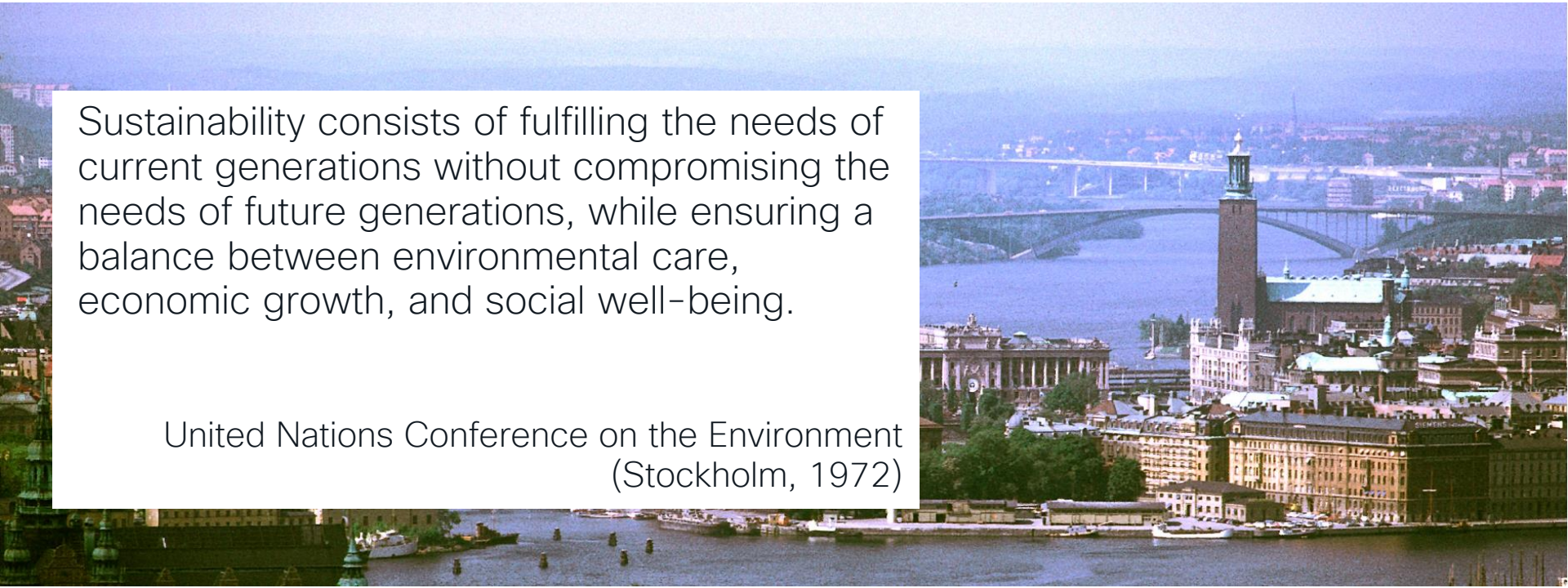
© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Agenda

- Cisco as an enabler of digital sustainability
- Cisco solutions for datacenter sustainability
- Cisco datacenter sustainability synoptic chart

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

The Quest For Sustainability



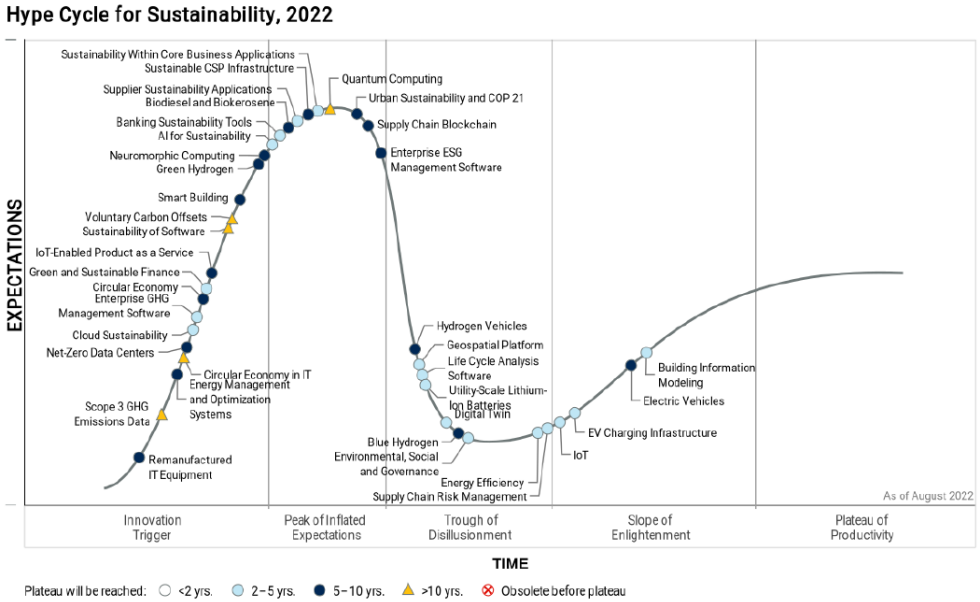
Sustainability consists of fulfilling the needs of current generations without compromising the needs of future generations, while ensuring a balance between environmental care, economic growth, and social well-being.

United Nations Conference on the Environment (Stockholm, 1972)

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Sustainability Now Top Of Agenda

- Environmental sustainability is one of the most challenging issues facing society, economies and enterprises.
- Sustainability is one of the top 10 business priorities for CEOs
- Enterprises with the best capabilities in exploiting these technologies will create substantial value for their stakeholders and society.



Gartner

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

The Sustainable Development Goals

- The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet and ensure that by 2030 all people enjoy peace and prosperity.
- There are 17 Goals with 169 sub-goals

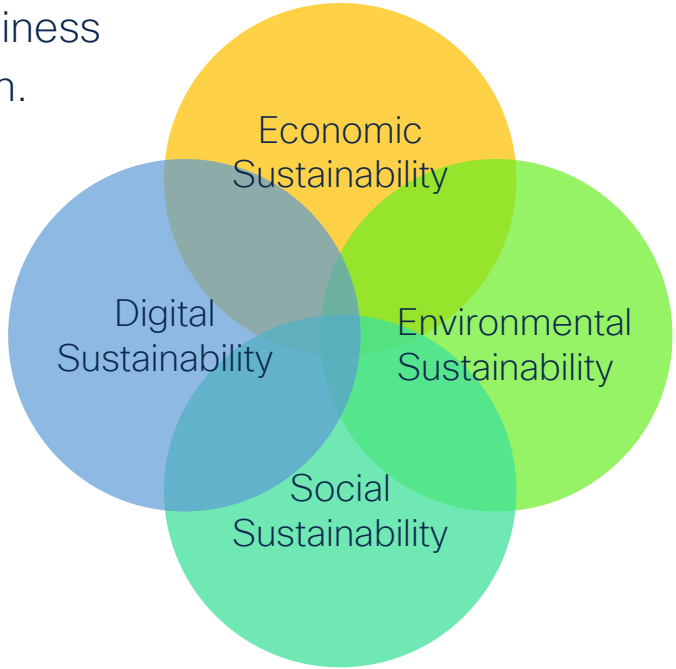
© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Cisco Enables Digital Sustainability

Cisco has made sustainability a cornerstone of its business model by adopting a "sustainable by design" approach.

Sustainability is pursued in two directions:

- Cisco as a sustainable company: this is relevant in the implementation of our own internal processes, and in the realization of the products, solutions and services we offer;
- Cisco as a digital sustainability enabler: in this role, Cisco supports customers and partners in the pursuit of their sustainability goals.



© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Cisco Digital Solutions Enable Sustainable Transformation

CISCO Refresh

CISCO Capital

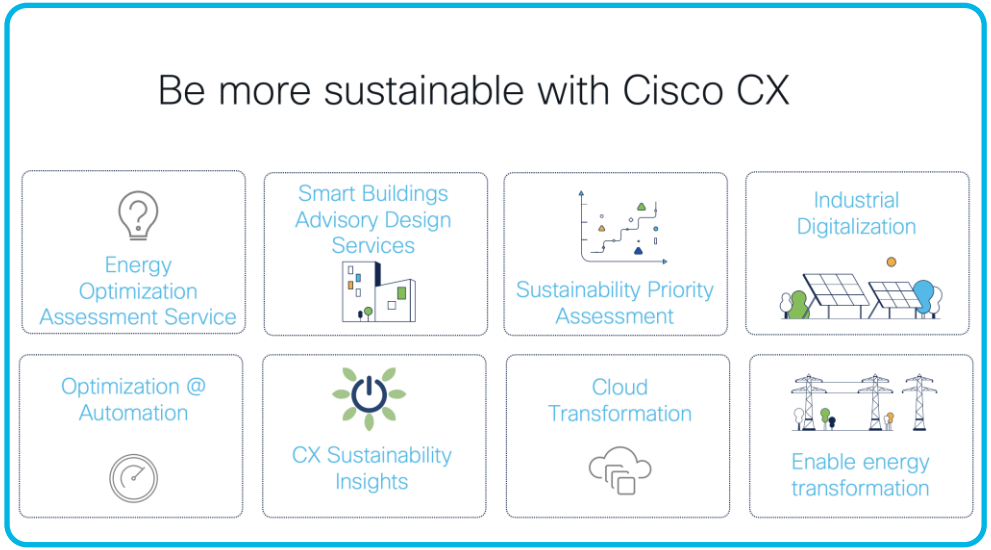
CISCO Send IT Back

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Cisco
Customer Experience

Discover how we can help you on your sustainability journey

Our portfolio of services is designed to help customers leverage technology to achieve their sustainability goals, approaching sustainability as a business outcome, not an add-on. We can help you kick-start your sustainability journey.

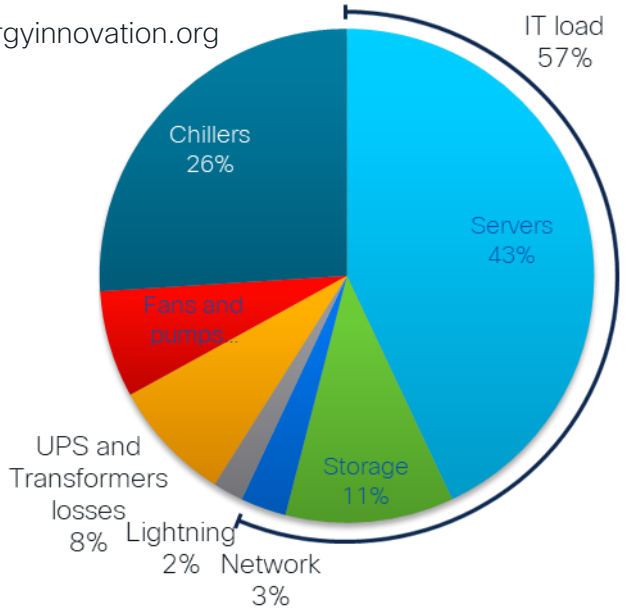


You don't have to do it alone.
For more insight, visit the Cisco CX stand in the World of Solutions for Lightning Talks and Demos

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Power Distribution Within Datacenters

Source: energyinnovation.org



Year 2014: avg. PUE = 1.75

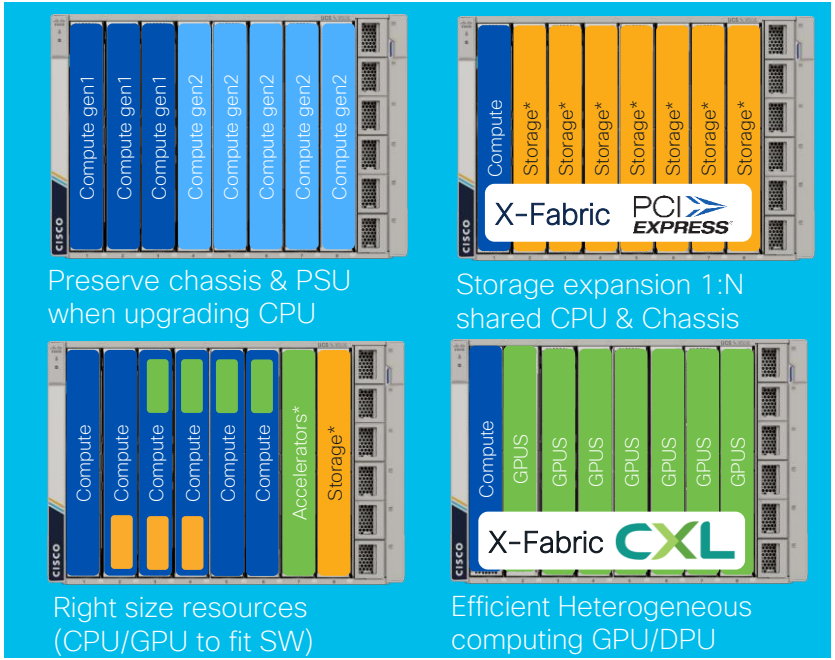
Trending at year 2022:

- Average PUE ↓
- Compute contribution ↑
- Storage contribution ↓
- Network contribution =
- Infrastructure contribution ↓

Each watt consumed by IT infrastructure carries a “burden factor” of 1.1 (Best in class) to 2.5 (old style) for power consumption associated with cooling, conversion/distribution and lighting

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

UCS X-Series: Eco Design for Next Generation



Sustainable material choice

New UCS-X reduced powder coat by 62% vs previous generation,
Removed use of wet paint, and uses recycled resin for plastic parts

Extend lifespan with modularity

UCS-X composable architecture brings next level of modularity for compute
Decouple lifecycle of CPU / Storage / Accelerators / Chassis & PSUs

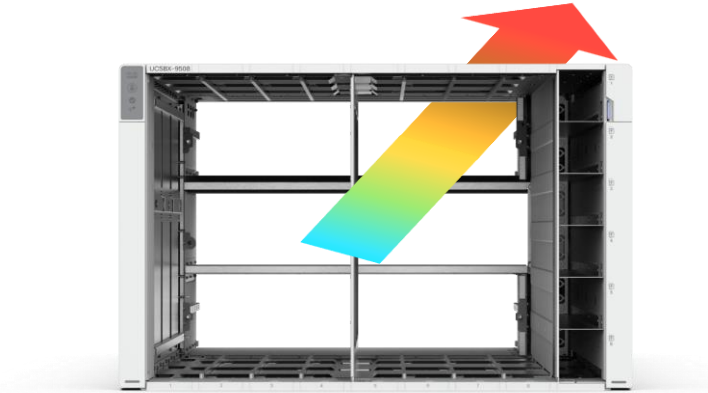
Power efficient design

UCS-X clean sheet design to optimize power efficiency
Backplane mechanical design, electricity distribution, cooling algorithms

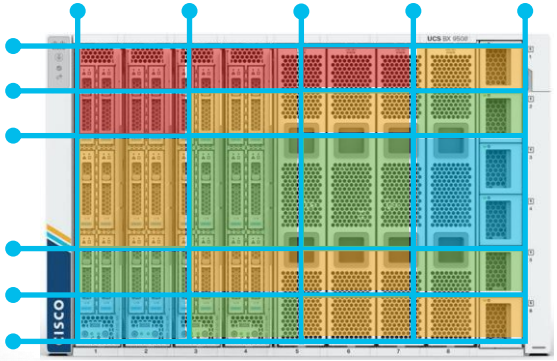
© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

UCS X-Series: Designed for Power Efficiency

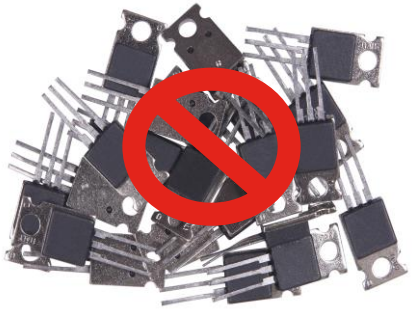
Achieves 11% power efficiency gain compared to the previous design



No midplane obstruction



Zone-based cooling



Optimized power distribution

AIR COOLED

+30% air cooling efficiency

WATER COOLED

Liquid cooling ready design

200+ component sensor to feed cooling algorithm

Optimized fan power with zone-based cooling

Less and high-efficient voltage regulators

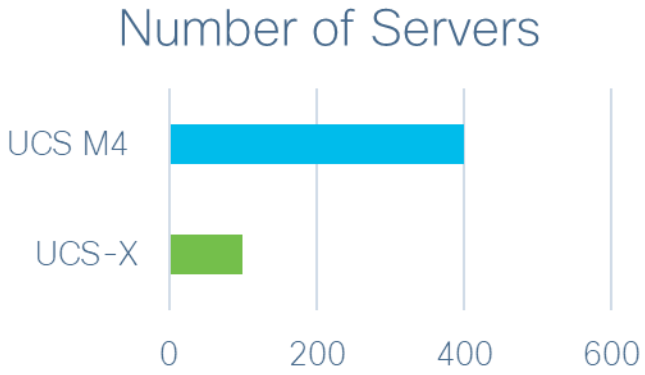
High voltage power distribution to reduce power losses, slim wires

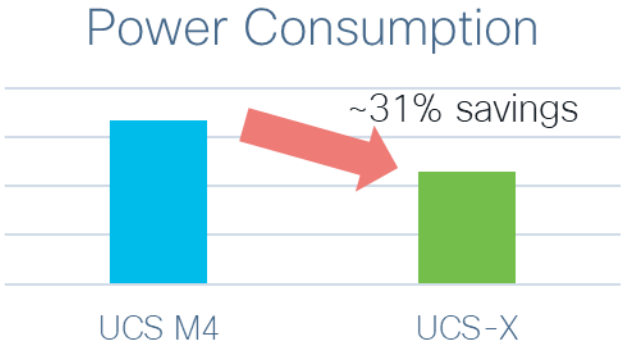
© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Energy Reduction Through Modernization

- UCS X-Series provides consolidation of old servers leading to:
  - 31% power consumption reduction
  - 27% recurring software cost reduction
  - 39% HW maintenance cost reduction

- Environmental contribution
  - Mid-size enterprise, PUE=2.0
  - Saves ~ 612 MWh per year
  - Reduces ~ 250 Tonnes of CO_2 emission
  - Equivalent to ~ 4900 trees grown for 10 years

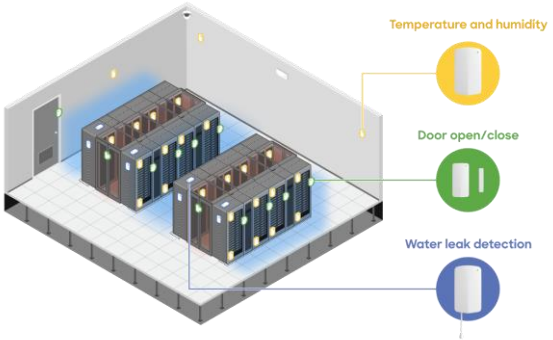


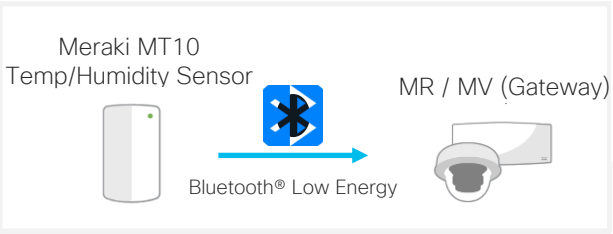


© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

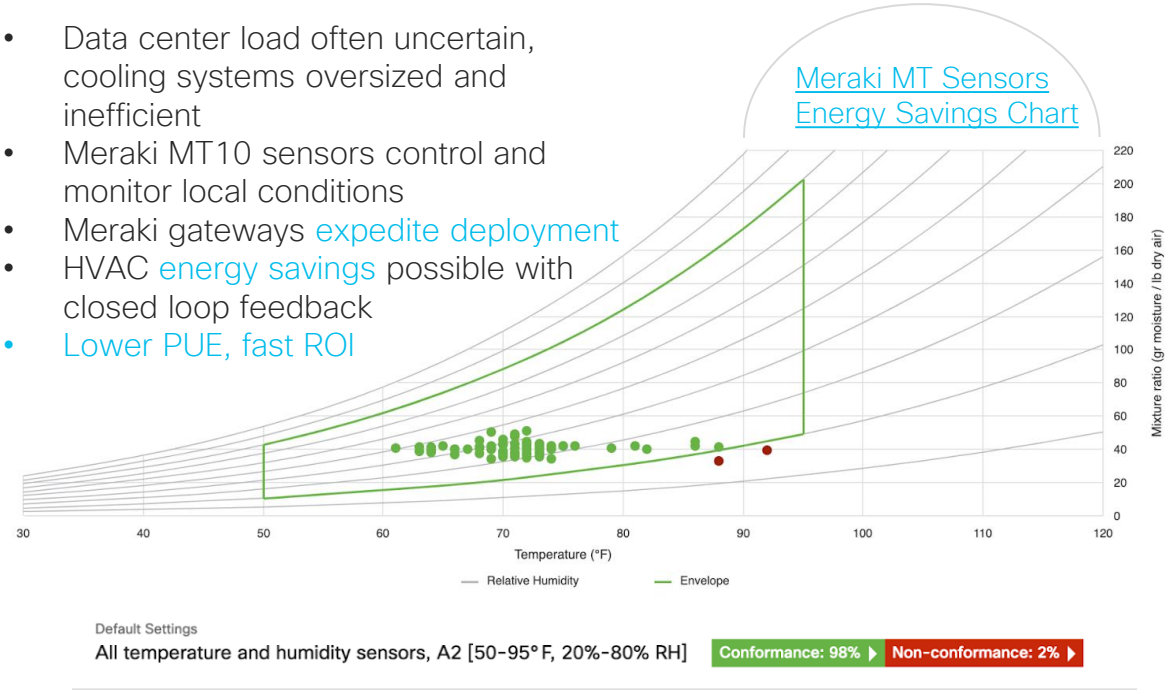
More Efficient Air Conditioning Enabled by Meraki MT

Consistent Meraki API for integration into HVAC





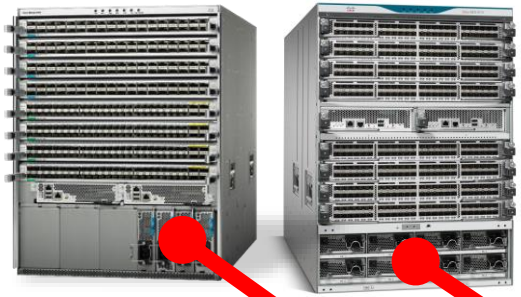
- Data center load often uncertain, cooling systems oversized and inefficient
- Meraki MT10 sensors control and monitor local conditions
- Meraki gateways expedite deployment
- HVAC energy savings possible with closed loop feedback
- Lower PUE, fast ROI



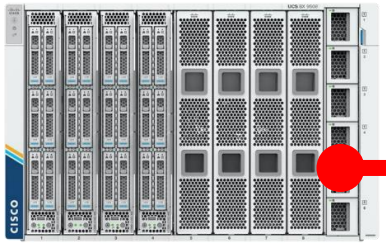
© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Product Power Supply Efficiency

Networking

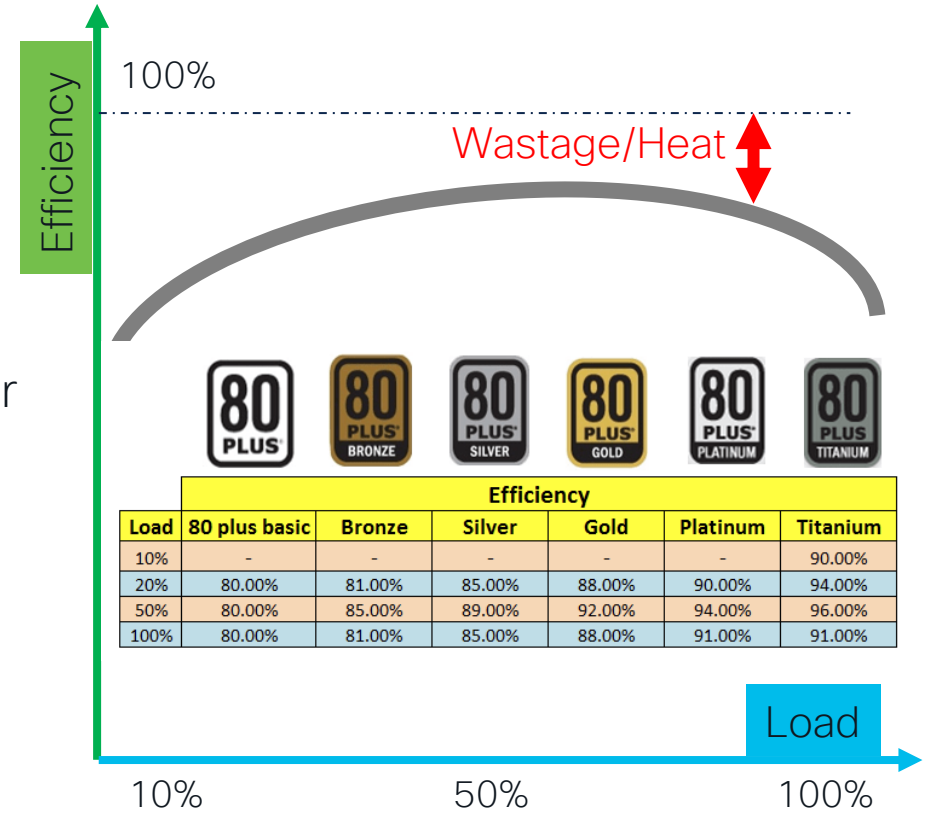


Platinum or Titanium



Titanium

Computing



	Efficiency					
Load	80 plus basic	Bronze	Silver	Gold	Platinum	Titanium
10%	-	-	-	-	-	90.00%
20%	80.00%	81.00%	85.00%	88.00%	90.00%	94.00%
50%	80.00%	85.00%	89.00%	92.00%	94.00%	96.00%
100%	80.00%	81.00%	85.00%	88.00%	91.00%	91.00%

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Cisco Cloud Networking

ASIC innovation leads to generational improvement in power efficiency

2017

C9336C-FX2 – 36x100GE

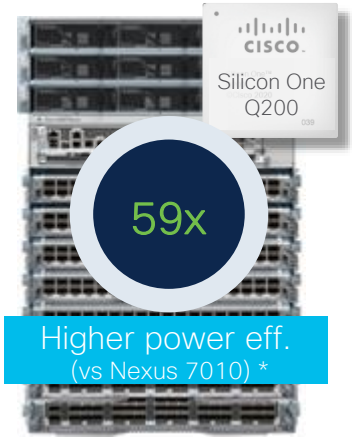
9W / 100GE

60%

5W / 100GE

2021

C9332D-GX2B – 32x400GE

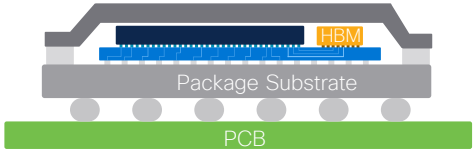


Nexus 9808

Silicon Photonics

QDD-**400G**-FR4-S

QDD-**4X100G**-FR-S



Silicon One w/HBM

36%

400GE optics vs
4x100GE ports
(port level consumption on
silicon one with FR optics)

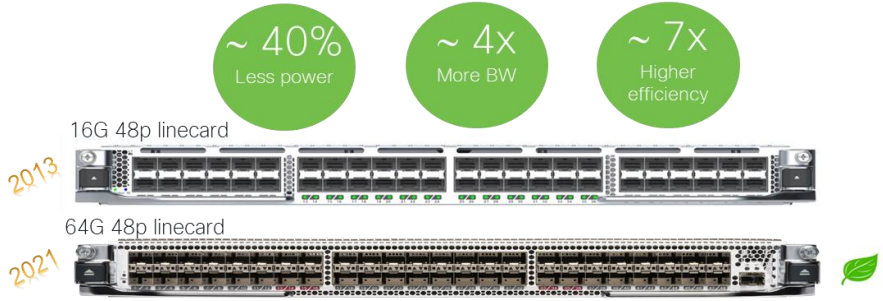
(*) Cisco Sustainable Solutions ebook 2022

cisco Live!

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Powering Next Generation Storage Networking

- Environmental contribution
  - Enterprise with 2000 SAN Ports, PUE=2.0
  - Saves 140 MWh per year
  - Reduces 53 Tonnes of CO_2 emission
  - Equivalent to 1060 trees grown for 10 year
- Benefit: less power, 4x bandwidth



Linecard Nominal Port Speed	Equivalent Linerate (Gbps)	Power consumption (typical, Watt)	Efficiency (Watt/Gbps)
16G	14,025	480	0.713
64G	57,8	300	0.108

MDS F64 ASIC innovations

- Uncompromised flash performance
- Flow level visibility at scale with Analytics
- Advanced slow drain identification with TxWait and RxWait counters
- Congestion avoidance with DIRL
- Reduced components on module
- Leads to 7x higher power efficiency

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Cisco Software Contribution to Sustainability

1 Direct contribution to net zero: sustainable coding

2 Primary indirect contribution to net zero: digitization of industries, processes, lifestyle

3 Secondary indirect contribution to net zero: IT assets optimizations, efficiency improvements

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Datacenter Sustainability with Cisco Technologies

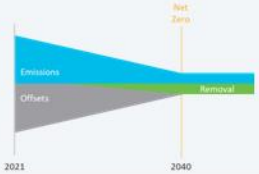
Cloud Infrastructure and Software Group

The why

- We must limit temperature increase at 1.5 °C
- 83% of companies have sustainability as one of top criteria for IT buying decisions
- CIOs rely on infrastructure vendors to help them meet their ESG goals
- High energy cost, scarcity of raw materials

Cisco ambitious sustainability goals

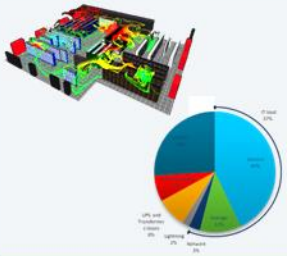
- Net zero by 2040 (SBTi validated)
- 90% reduction for Scope 1 and 2 GHG emissions by 2030
- 50% plastic recycled by 2025
- 98% reuse/recycle of take-back IT assets
- Helping customers decarbonize their supply chain



Sustainability programs

- Cisco Refresh
- Cisco Green Pay
- Send IT back
- Cisco Plus
- Environmental Sustainability Specialization
- Sustainability Black Belt Academy training

Where power goes

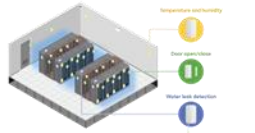


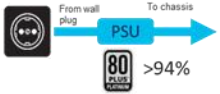
Cisco business direction

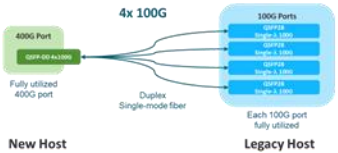
- Power efficient infrastructure
- Raw materials savings and extended lifetime
- Software tools for IT assets optimization with continuous and automatic monitoring
- Packaging optimizations
- Digitization of industries
- Sustainability programs

Cisco Technologies

- UCS X series
- Nexus and MDS
- Nexus cloud, IWO
- Silicon photonics
- Meraki sensors for datacenter







Cisco IT sustainability framework

- 100% renewable energy in US, 72% at worldwide level
- Growing on-site solar panels (~1.8MW), planning for 10MW
- 38% less datacenters, 40% reduced monthly power capacity
- 27% power reduction per VM
- 90% patch cables recertified
- 1,813 Cisco UCS servers sold for reuse
- Infrared scanning to identify heat leakages

Testimonials

- Case study: WPP
- Cisco on Cisco: Cisco IT sustainability framework
- Partnership: BT and Cisco expand business e-waste takeback service

"Transitioning to a net-zero world is one of the greatest challenges humankind has faced"
United Nations

"We urgently need every business, investor, city, state and region to walk the talk on their net zero promises. We cannot afford slow movers, fake movers or any form of greenwashing"
António Guterres, UN Secretary General

"We expect to see annual energy and CO2 savings between 15% and 50% per year"
Chris Hyder, Enterprise Architect, WPP

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Continue Your Education

Visit the Cisco Showcase for related demos.

Book your one-on-one Meet the Engineer meeting.

Attend any of the related sessions at the DevNet, Capture the Flag, and Walk-in Labs zones.

Visit the On-Demand Library for more sessions at ciscolive.com/on-demand.

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

Complete your Session Survey

- Please complete your session survey after each session. Your feedback is important.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Session Catalog and clicking the "Attendee Dashboard" at https://www.ciscolive.com/emea/learn/sessions/session-catalog.html

© 2023 Cisco and/or its affiliates. All rights reserved. Cisco Public

The bridge to possible

Thank you

Are you playing the Cisco Live Game?

Scan the QR code and earn your Cisco Theater points here

cisco Live!
ALL IN