
cisco Live!
ALL IN

The bridge to possible

Your Kick-Start for the Sustainability Journey

BRKGEN-2200

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Cisco Webex App

Questions?

Use Cisco Webex App to chat
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How

1. Find this session in the Cisco Live Mobile App
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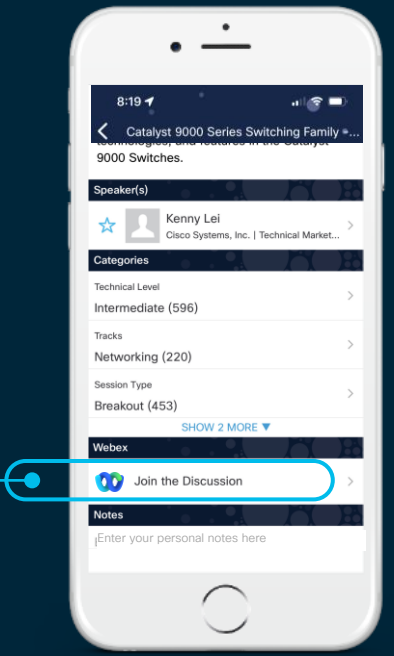

https://ciscolive.ciscoevents.com/ciscolivebot/#BRKGEN-2200

Webex spaces will be moderated by the speaker until June 17, 2022.

Abstract

Today we are dealing with a complex and unprecedented brew of social, environmental, market, and technological trends.

Join us to learn how you can start and elevate your sustainability journey, based on:

- Environmental impact when a product is used, that includes power consumed, thermal cooling, and interconnect speed efficiency.
- Solution Impact as the offset that the solution provides and it can be translated to "CO2e emissions" saved, or eco-efficiency optimization; i.e., travel saved, power consumption reduction.

Product Lifecycle provides information on manufacturing process efficiency, carbon impact, transport, waste management, and Circularity.

This session will benefit Service Provider and Enterprise customers.

What this Session ...

...is About?

- Key metrics during the use of your solution
- Practical ways to achieve sustainability outcomes that will help you meet your sustainability goals
- How Cisco can help to achieve your sustainability goals

...is NOT About?

- It is not about Tools
- Convincing you that Sustainability is important

"Which KEY actions will you perform for a more sustainable future?"

Esther Roure Vila
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"Actionable Insights!!"

Marisol Palmero
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"We're all part of it!!"

Agenda

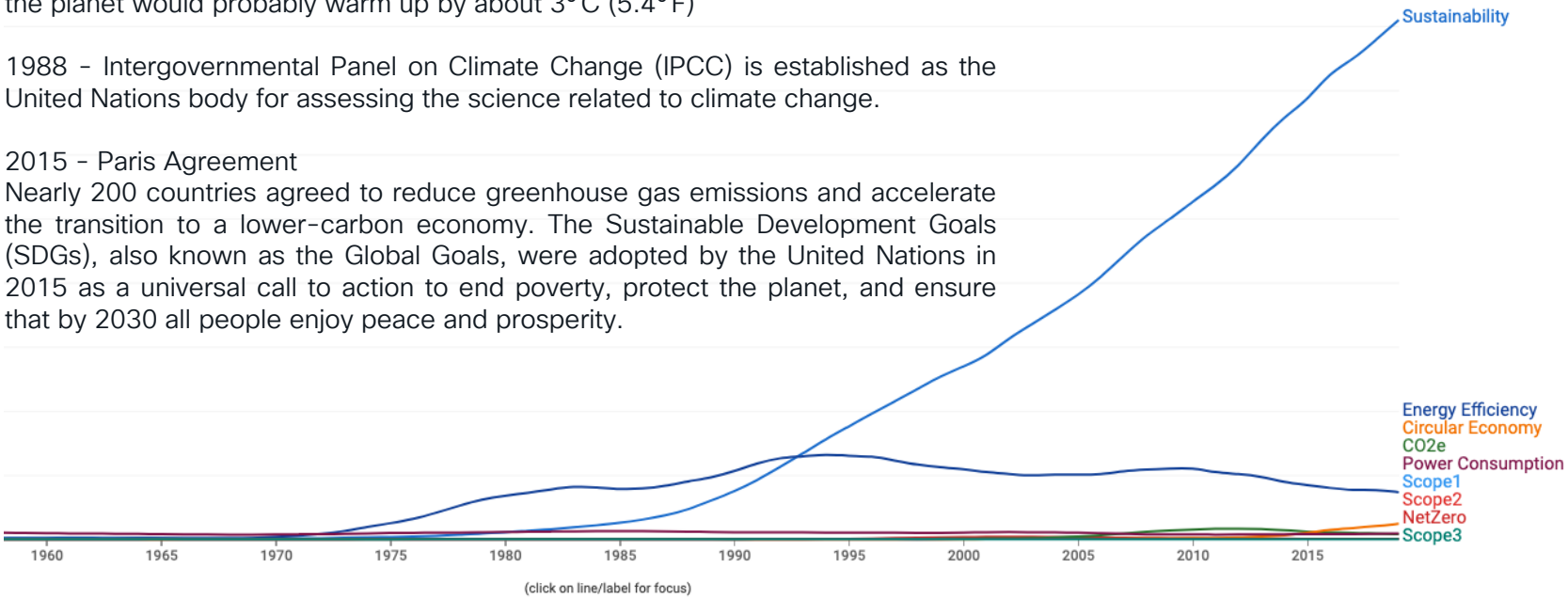
- Introduction
- NetZero Goal
- Achieving Sustainability Outcomes
- Conclusion

Sustainability, new buzzword? or business driver?

1979 - U.S. National Academy of Sciences reached a consensus that when CO2 reached double the pre-industrial level, sometime in the following century, the planet would probably warm up by about 3°C (5.4°F)

1988 - Intergovernmental Panel on Climate Change (IPCC) is established as the United Nations body for assessing the science related to climate change.

2015 - Paris Agreement
Nearly 200 countries agreed to reduce greenhouse gas emissions and accelerate the transition to a lower-carbon economy. The Sustainable Development Goals (SDGs), also known as the Global Goals, 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.



Reference: https://books.google.com/ngrams

What do people mean when they talk about “sustainability”?

“Sustainability meets the needs of the present generation without compromising the ability of future generations to meet their needs”

(Brundtland, 1987)

Carbon and greenhouse gas (GHG) emission reduction strategies are at heart of sustainability efforts

You will hear them classified as “Scope 1, 2 or 3” emissions, along with efforts to become “net zero”

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What is “net zero”?

A state where we add no incremental greenhouse gases to the atmosphere

Cisco Global Problem Solver Challenge 2022

$100,000 USD Climate Impact & Regeneration Prize

A single team will be designated as the winner of this prize.

$50,000 USD Climate Impact & Regeneration Prize Runners-Up

Four teams will be designated as the winners of this prize.

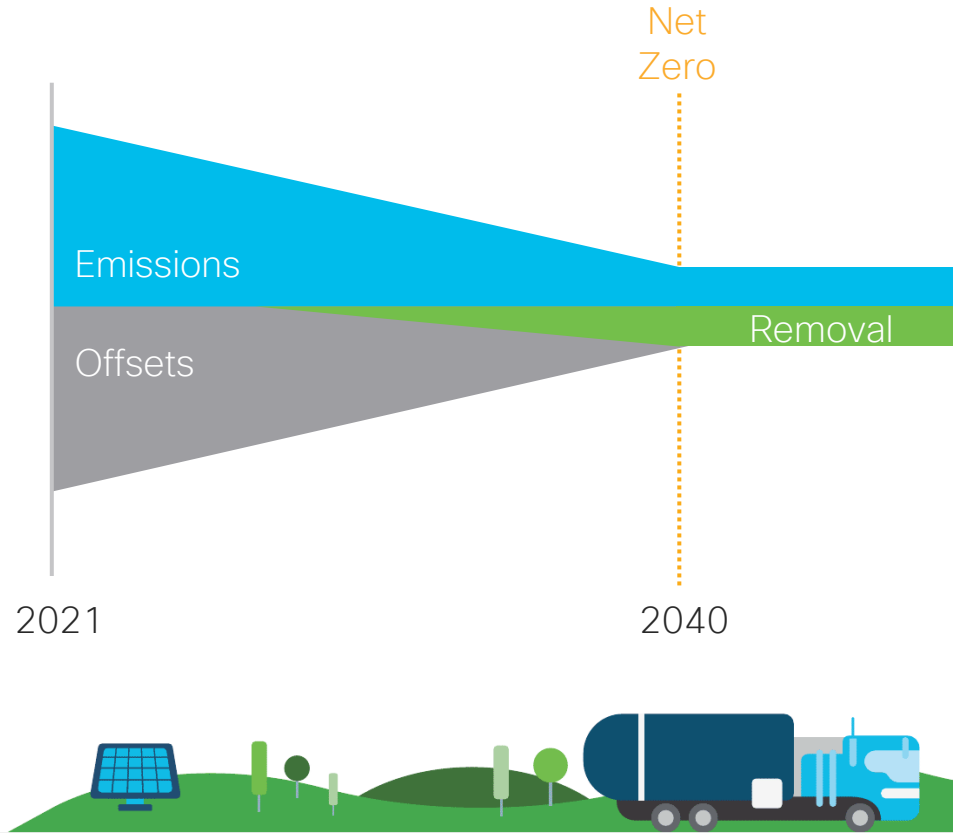
REMORA

$50,000 USD Greenhouse Gas Solutions Prize

2021 winner
https://remoracarbon.com

Remora

Carbon capture for semi trucks.



NetZero: How?

Trip to Cisco Live	Emissions lbs	Emissions kg
Flight Madrid (MAD) to Dallas, TX (DFW)	3225 lbs CO_2e	1463 kg CO_2e
Flight Dallas, TX (DFW) to Las Vegas, NV (LAS)	573 lbs CO_2e	260 kg CO_2e
Total round trip	7596 lbs CO_2e	3445 kg CO_2e

Absolute zero

Carbon credits

Carbon Removal

NetZero: How?

	Emissions lbs	Emissions kg
Flight Madrid (MAD) to Dallas, TX (DFW)	3225 lbs CO_2e	1463 kg CO_2e
Flight Dallas, TX (DFW) to Las Vegas, NV (LAS)	573 lbs CO_2e	260 kg CO_2e
Total round trip	7596 lbs CO_2e	3445 kg CO_2e

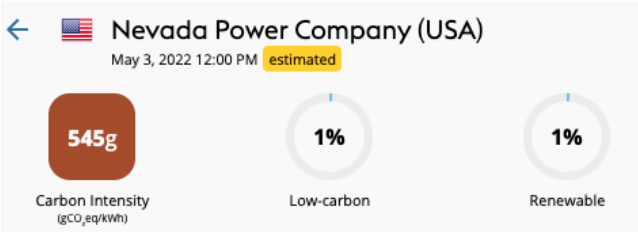
Beef (beef herd) – 26.5 kg CO_2e per 100g of protein

VS

Pulses (legumes, chickpeas, lentils, beans, etc.) – 0.4 kg CO_2e per 100g of protein

Verified Carbon Standard
A VERRA STANDARD

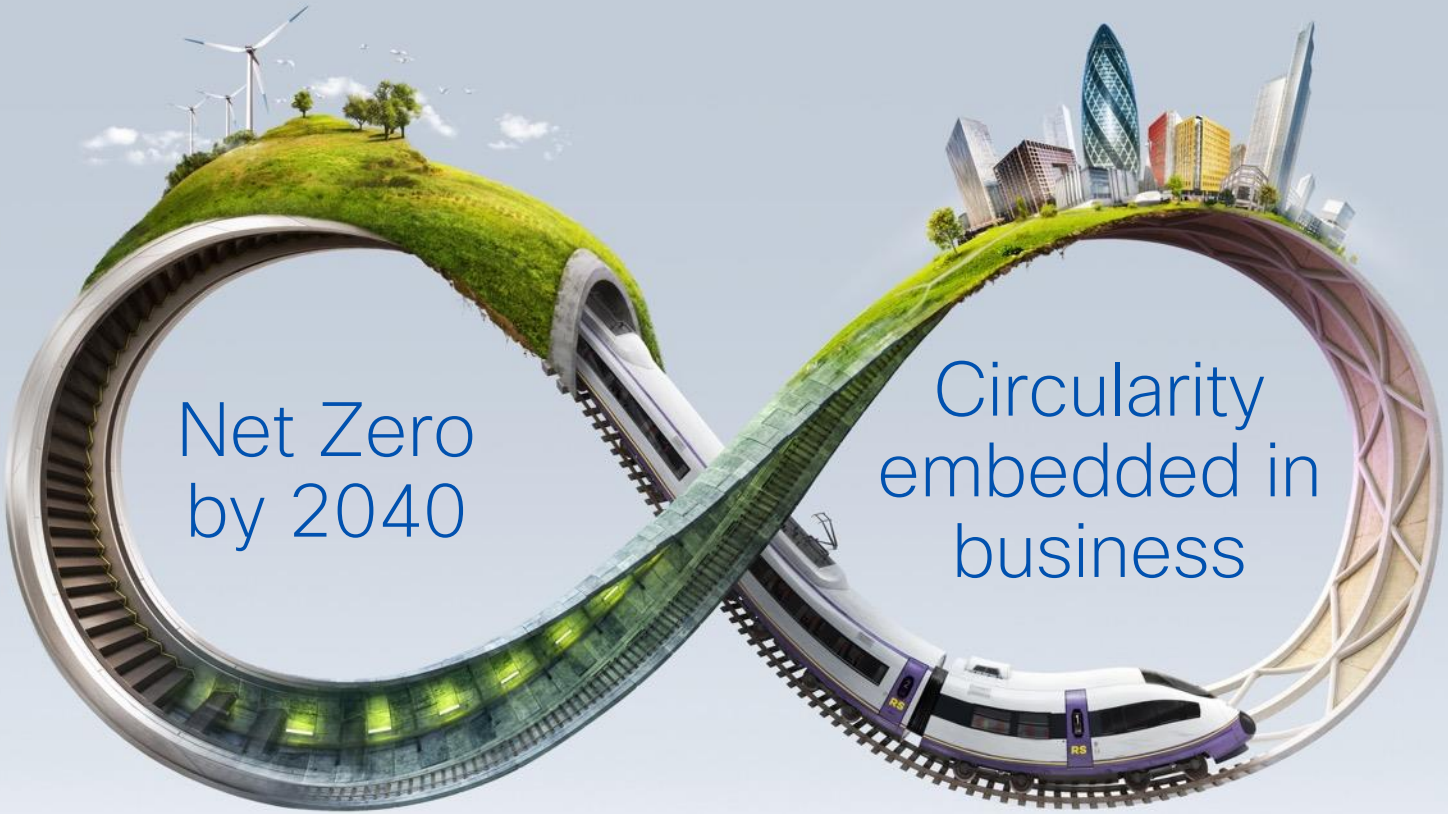
10 kg CO_2e



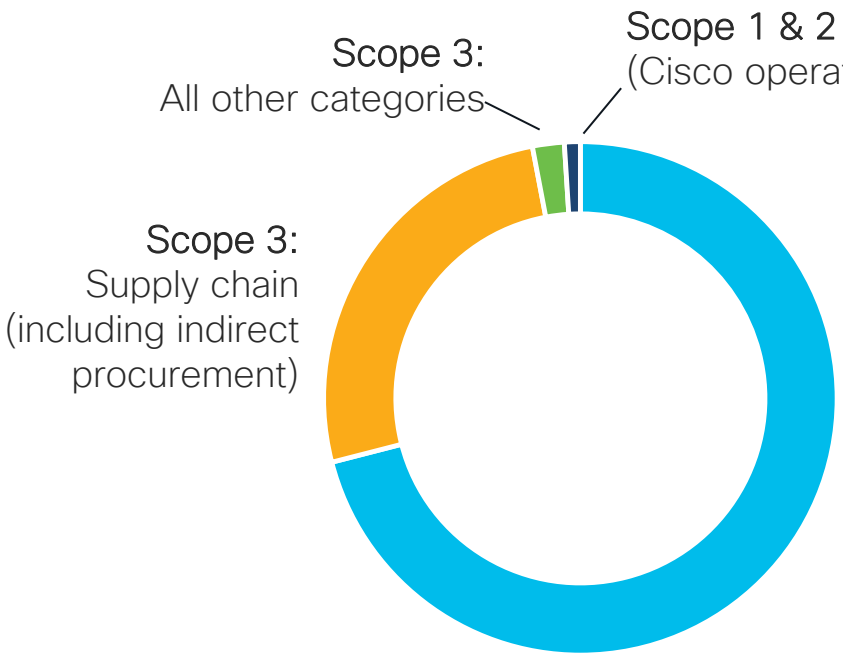
3.445 kg CO_2e
/ 545 g CO_2e
= 6.322 kWh

https://onetreeplanted.org/pages/tree-facts
https://app.electricitymap.org/zone/US-NW-NEVP
https://breakingboundaries.count-us-in.com/methodology

Do you have a NetZero Goal?



Cisco's Scope 1, 2, and 3 Emissions



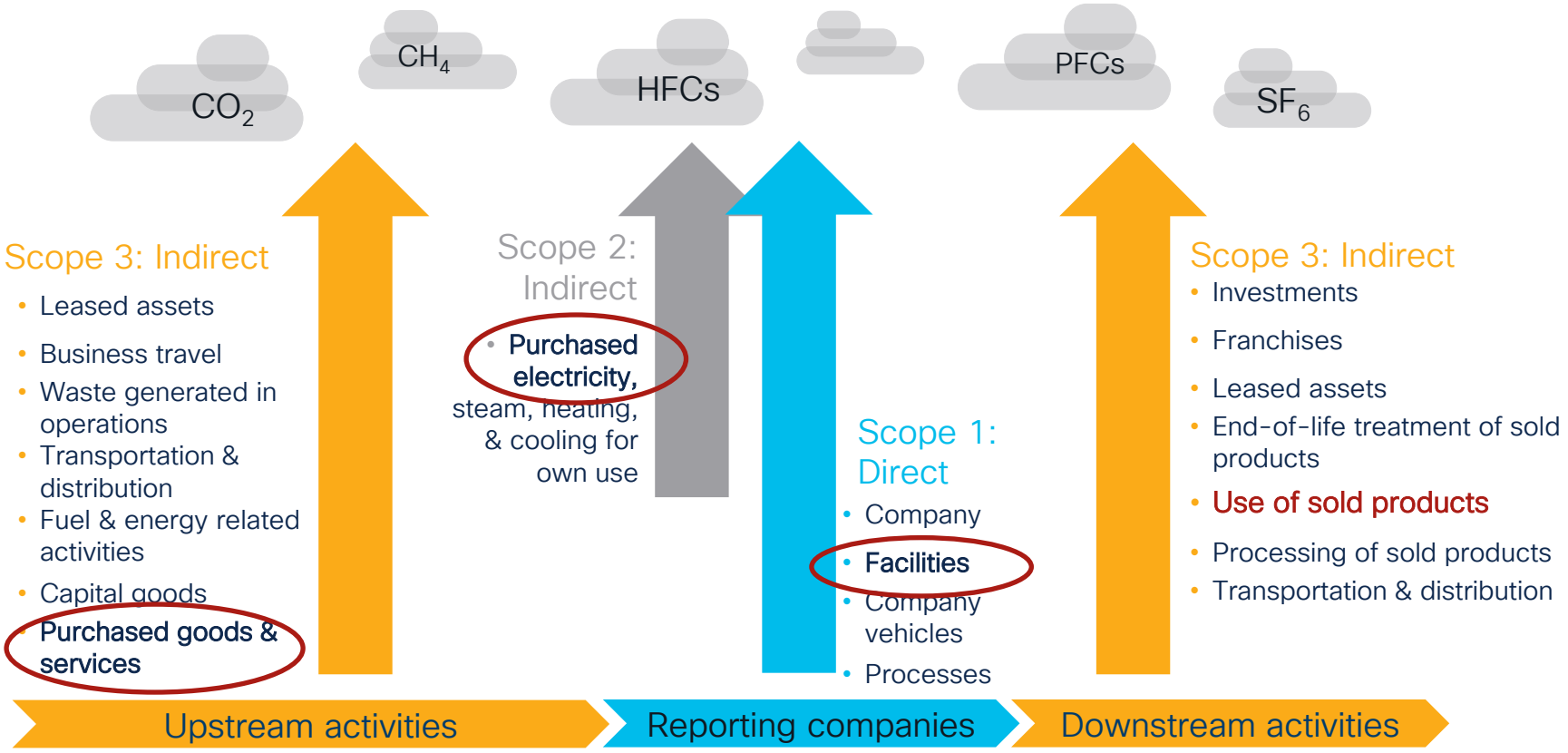
Scope 3 (Category11):
73% - Use of sold products

Avoided emissions are emission reductions that occur outside of a product's life cycle or value chain, but as a result of the use of that product. Other terms used to describe avoided emissions include climate positive, net-positive accounting, and **Scope 4**.[1]

For more detail, see the ESG Hub: cisco.com/go/esg-hub

[1] Do We Need a Standard to Calculate "Avoided Emissions"?

What Is Scope 1, 2, & 3 for Me?



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Sustainability Journey

Enabler

- Innovative & Clean Product Portfolio
- Technology as an Enabler

Baseline

- Asset Management
- HW & SW Upgrades
- Refurbish / Refresh
- Circular Design Lifecycle Management

Eco-design

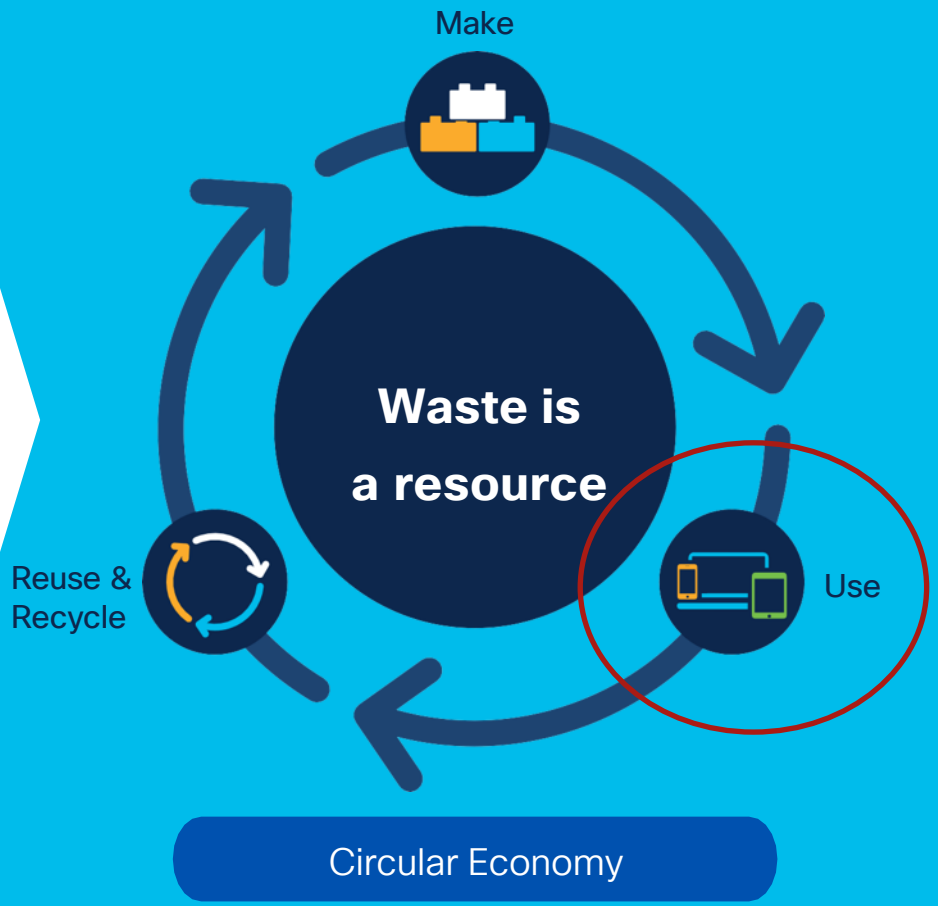
- Sustainable Innovation and Design
- Adoption and Optimization
- Capacity Management

Example of Sustainability Priorities

Sustainability Journey	Strategic Imperative	Objective	Success Metric/Outcomes
Baseline	Circular Consumption	Reuse Recycling	50% product recycling FY23 90% product recycling FY24 10% product reuse
Baseline	Visibility into Green House Gas (GHG)	Real-time data on Green House Gas (GHG)	40% reduction FY23 60% reduction FY24 80% reduction FY25 90% reduction FY26 10% GHG capture FY26
Baseline **Eco-design**	Green IT Infrastructure	Reduce Power Consumption	30% reduction FY23 40% reduction FY24 No increase in power consumption FY25
Eco-design	Green IT Infrastructure	Resource Optimization Capacity Management	Exactness of Capacity Forecast Capacity Adjustments
Enabler	Environmental protection	Tech as an Enabler	Optimize office utilization Business continuity Travel reduction

How we define Circular Economy

Linear Economy



Circular Economy

Circular Economy
Reuse & Recycling

100% product return pledge

E-waste contain various components and pieces, some valuable, some toxic, and some both.

- Asset management system
- Work with your suppliers to identify reuse and recycling programs
- Make it part of your process, do not leave it to chance!
- Check Circular Business models

01 Leverage Asset Management Services or CX Cloud

02 Product Takeback & Reuse

03 Send IT Back Mobile App Available in EU, UK, and U.S.

04 Cisco Green Pay offers a 5% incentive on Cisco hardware, predictable payments for five years, and free product returns.

Telemetry Specifications
Recommendations & Certifications

Parameters	Loading	80 Plus	Bronze	Silver	Gold
Efficiency	20%	80%	82%	85%	87%
	50%	80%	85%	88%	90%
	100%	80%	82%	85%	87%
Power Factor	50%	90% (@100% load)	90% (across the full range)		

ITU-T

TELECOMMUNICATION STANDARDIZATION SECTOR OF ITU

L.1310

(09/2020)

SERIES L: ENVIRONMENT AND ICTS, CLIMATE CHANGE, E-WASTE, ENERGY EFFICIENCY; CONSTRUCTION, INSTALLATION AND PROTECTION OF CABLES AND OTHER ELEMENTS OF OUTSIDE PLANT

Energy efficiency metrics and measurement methods for telecommunication equipment

EUROPEAN COMMISSION

COMMISSION RECOMMENDATION

of 16.12.2021

on the use of the Environmental Footprint methods to measure and communicate the life cycle environmental performance of products and organisations

ATIS-0600015.03.2016

Energy Efficiency For Telecommunication Equipment: Methodology For Measurement And Reporting For Router And Ethernet Switch Products

Product Sustainability in Data Sheets

Sustainability Topic		Reference
General	Information on product-material-content laws and regulations	Materials
	Information on electronic waste laws and regulations, including our products, batteries and packaging	WEEE Compliance
	Information on product takeback and resuse program	Cisco Takeback and Reuse Program
	Sustainability Inquiries	Contact: csr_inquiries@cisco.com
Material	Product packaging weight and materials	Contact: environment@cisco.com

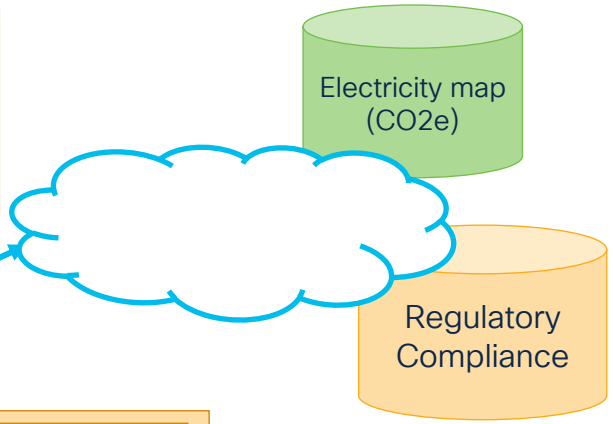
Information about Cisco's environmental, social and governance (ESG) initiatives and performance is provided in Cisco's CSR and sustainability reporting. (1)

(1) Cisco 8000 Series Routers Data Sheet

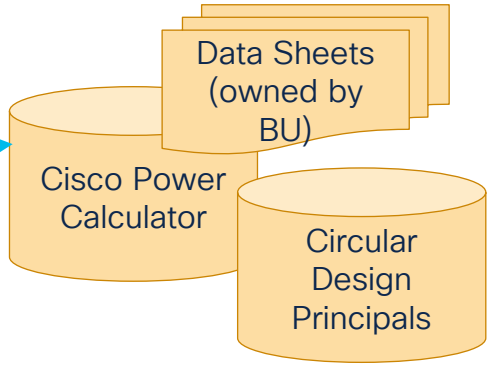
Telemetry Specifications

"Telemetry" is defined for most of the platforms in different forms:
Show commands, MIBs, YANG modules, ...
different transport mechanisms:
SNMP, RESTConf, NetConf, ...

Business bring us to new needs for Telemetry




```
router#show energy-efficiency
   Input Power:           1100 watts
   Used Power:            900 watts
   Traffic Power:         X watts/packet
   Energy Efficiency:     81%
```



Telemetry Specification
Real-time Data

"Telemetry" is defined for most of the platforms/systems in:

- different forms: show commands, MIBs, YANG modules, ...
- different transport mechanisms: SNMP, RESTConf, NetConf, ...
- different data storage systems: datasheets, internal and external databases.
- different certifications and regulatory compliances

Implementing any Sustainability Solution at scale with a broad range of Cisco equipment requires consistently available covering Power Consumption/Energy Efficiency Telemetry.

Telemetry specification will benefit internal Business Entities, including Corporate Social Responsibility, also customers and partners and even other vendors facilitating consistency and integration.

01 Cisco CX Telemetry Specification covering Power Consumption and Energy Efficiency

02 Work towards hardware and software applications, providing CO_2e equivalent

03 Enable API access for different data storage systems

04 Work to be extended to Circular Design Principals & Sustainability

Revolutionary Power Efficiency
Reduce Power Consumption and Resource Optimization

In 2018, data centers were estimated to have consumed 205 TWh/yr of electricity worldwide, up from 194 TWh/yr in 2010. During this time traffic through data centers has increased 5-6X.

It is forecasted that by 2030 3.2% of all EU electricity demand will come from data centers (1)

Cisco 8000 Series routers utilize **Silicon One** to achieve a 163x increase in power efficiency over previous generations. The power required for memory is reduced by 98%.

This also allows for a substantial reduction in transportation footprint: a 2,000-pound system that required 16 cubic meters now ships in one 32-pound box and takes up just 0.07 cubic meters—a 202x reduction.

01
NCS6008 vs. 8201
- 48x reduction in Space
- 35% increase in BW
- Power 26x reduction
- Shipping Weight and Volume reduction

02
NPU Power Modes
Based on network traffic and power consumption requirements

03
Dynamic Power Management
Optics power allocation will not be added at card level allocation.

04
Cisco UCS X9508 Chassis
- Modularity
- Size
- Power
- Cooling (2)

(1) Green and Digital: study
(2) The power of innovation

Routed Optical Networking (RON)

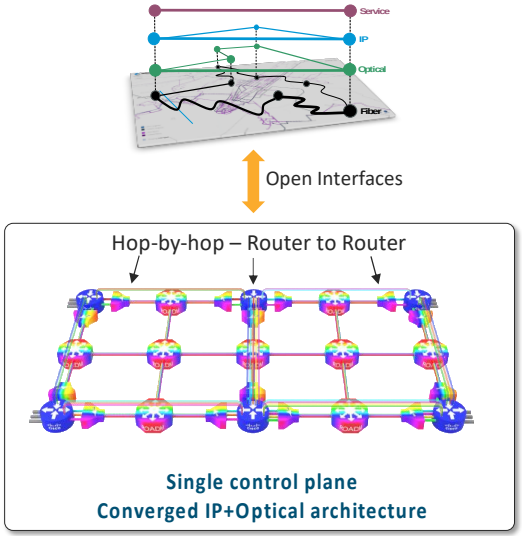
- Integrate
- Automate E2E
- Converge Layers
- Provision Hop to Hop / Router to Router

Provides for

- Reduced TCO – Greater than 30% Reduction
- Network Simplification
- Increased Network Longevity
- Meets and exceeds existing Network Service Level Agreements

Built on Standards

- Enables a Win, Win, Win at any layer of the network
- Third party interop at the SW (Management/Automation) Layer, Network Layer and DWDM Layer



RON “Dynamic” Inventory
Resource Optimization and Real-time Data

A tradition of using separate networks with multi-layered architectures is now unproductively redundant, complex, and expensive to operate.

Business-grade Time-Division Multiplexing (TDM) services were established before IP. IP networks emerged as a separate layer over existing high-margin optical (TDM) networks and continue to operate in silos with separate staff.

In the worst of cases, problems are resolved with manual trouble tickets between IP and optical organizations. With today’s higher speeds, larger scale, and need for agility, this disjointed model challenges any hope for economic viability into the future.

Cisco’s Routed Optical Networking (RON) solution, new approach that unifies IP and optical domains to simplify network design, operations, engineering, planning, and management. (1)

01 Understand how layers/domains are connected to each other

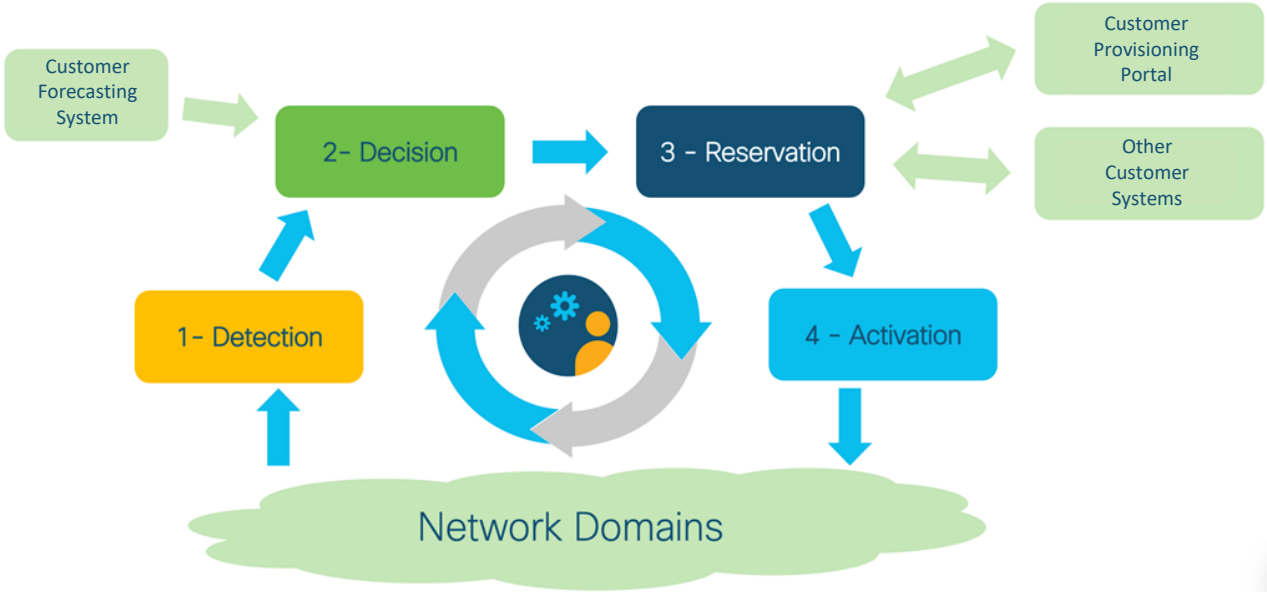
02 Improve agility for new services: Understand inventory hierarchy

03 Correlate network faults to customer impact: Reduce the MTTR

04 Lower Operational cost: Optimized based on the current state and even prediction

(1) Solutions for IP Optimized Optical Transport

Auto Capacity Management
Business Process



Integrated Components

Cisco:
- NSO (Network Services Orchestrator)
- UOP (Unified Operation Portal)
- BPA (Business Process Automation)
- WAE (WAN Automation Engine)

Customer:
- PP (Provisioning Portal)
- FS (Forecasting System)

Auto Capacity Management
Resource Optimization & Capacity Management

Network managers face increasing challenges in providing higher availability, including unscheduled downtime, lack of expertise, insufficient tools, complex technologies, business consolidation, and competing markets.

Capacity and performance management helps network managers achieve new business objectives and consistent network availability and performance.

01 Detection of the need of capacity expansion

02 Decision logic to decide what action should be taken on detected elements requiring capacity expansion

03 Reserving and provision the network elements selected for expansion

04 Activation of the elements previously selected, completes the process of adding capacity to the network.

05 Automation Services

Zero Touch Provisioning (ZTP)
Travel Reduction and Time to Market

Manual configuration takes time and is prone to human error, especially if many devices must be configured at scale.

ZTP helps IT teams quickly deploy network devices in a large-scale environment, eliminating most of the manual labor involved with adding them to a network.

ZTP covers Day0, Day1 and Day2 Services.

01 Reduced time to get network devices operational

02 Multiples Sites can be deployed in same time

03 Multivendor support Service Change

04 Automation Services

GHG Monitoring and Assurance
Real-time Data on Greenhouse Gas (GHG)

Gases that trap heat in the atmosphere are called greenhouse gases. Greenhouse gas emissions from human activities strengthen the greenhouse effect, causing climate change.

- Scope 2 includes emissions from all purchased/acquired and consumed electricity, heat, steam, or cooling. Companies can identify these energy uses on the basis of utility bills or metered energy consumption at facilities within the inventory boundary. Based on https://ghgprotocol.org/
- Real time data: telemetry + energy provider (or similar ex https://app.electricitymap.org/)
- Monitor device utilization and power consumption
- Review energy efficiencies
- Upgrade devices to more efficient if available
- Remove/power down under-utilized devices

01 Migrating ASR1001-HX to C8500-12X provides 60% power reduction per Gb/s

02 C8500 Intelligent thermal management schemes based on module complexity (reducing wattage by 31% or more) and installation altitude (reducing wattage by up to 42%)

03 Powering smart buildings. 90W Power over Ethernet enables 18% reduction in energy waste

04 Business Critical Services

Cisco Migration Support Services

Smart Building
Optimize Office Utilization

60% of European office space is unused during working hours and in India, 15% of the office space is reported vacant.
By 2025, 1 billion houses are needed worldwide, of which 75% will be residential and 25% will be commercial. It requires an investment of around USD 9–11 trillion. (1)
Housing is estimated to Generate 40% of the GHG emissions.

Better use of the spaces using smart building solutions: (2)

- Real-time space utilization and office occupancy analytics
- Room scheduling with wayfinding
- End-to-end visitor management
- Spaces, zone and IoT automation with BMS
- Smart parking
- Social distance monitoring
- Integrated room environment controls
- A reference architecture
- Reusable templates
- “How to” instructions for the construction industry

01 PoE-powered lighting with Catalyst switches

02 DNA Spaces for location analytics, ISE, DUO security

03 Meraki MV and Webex end device sensors

04 Explore use cases

(1) Ellen Macarthur Foundation Fact Sheets
(2) A Smart Building Designed for the Future

Hybrid Work
Business Continuity and Travel Reduction

Congestion costs 2-5% of global GDP annually in lost time, wasted fuel, and increase the cost of doing business(1)

100% business continuity.

Travel reduction and business continuity via hybrid work: (2)

- Maintain seamless communication between external suppliers and internal design and production teams.
- Make design adjustments in real-time to reduce material waste (heel molds) and speed delivery.
- Meet exacting standards for shoe design partners and clientele for big fashion brands
- Maintain 100 percent business continuity in the midst of Italy's lockdown

01 Internal teams, external suppliers, and fashion partners meet via Cisco Webex to review designs

02 Cisco Webex Board facilitates real-time design adjustments

03 Transitioned operations to fully remote in a single day

04 One independent study(3) showed that total emissions from the few hours of a single long-haul flight are equal to the whole lifecycle of the Desk Pro – its production and five years of cloud collaboration for your business.

(1) Ellen Macarthur Foundation Fact Sheets
(2) Case Study: Del Brenta
(3) NORSUS Norweigian Institute for Sustainability Research, Nov 2021

Conclusion and Key Takeaways

“What you do makes a difference, and you have to decide what kind of difference you want to make.”

Dr Jane Goodall, Scientist & Activist

- ✓ NetZero and Scopes
- ✓ Practical ways to achieve Sustainability Outcomes
- ❑ Translate your goals to actions

Reference

Sustainability

Social, Environmental and Technology Trends

Cisco is embedding sustainability into everything we do. Cisco has sustainable technology offers and solutions that are available today. We're on the journey to net zero with you and we have new sustainable technologies on the roadmap.

START

June 13 | 10:30 a.m.
INTGEN-1200
How Cisco Solutions Can Help Your Journey to Net Zero

June 13 | 11:00 a.m.
BRKGEN-2200
Your Kick-Start for the Sustainability Journey

June 13 | 12:30 p.m.
Thought Leadership Broadcast Session
COP President Alok Sharma on the role technology can play delivering on sustainability commitments our Sustainability Journey

June 13 | 1:00 p.m.
IBOGEN-1453
Design Thinking Working Session on our Sustainability Journey

June 14 | 1:00 p.m.
BRKGEN-1009
The Road to Net Zero Emissions: Advancing Sustainable IT

June 15 | 11:15 a.m.
PSOENT-1005
Creating Safe, Smart, Sustainable Workspaces

June 15 | 11:15 a.m.
ITLGEN-2204
The Road to Net Zero

June 15 | 2:00 p.m.
ITLGEN-2205
Delivering on Our Purpose: To Power an Inclusive Future for All

June 16 | 8:30 a.m.
PSOENT-1001
Powering an Inclusive Future for All: Green and Digital with Cisco and the Catalyst Family of Products

June 16 | 10:30 a.m.
PSOMER-1002
IT - The Secret Weapon to Building a More Sustainable Future

FINISH

On-Going in World of Solutions
DEMWFO-09
Sustainable PoE Connectivity - Sustainability, flexibility and visibility are key, with PoE and smart building technology as the foundational enablers.

If you are unable to attend a live session, you can watch it On Demand after the event.

Learn more: ESG Reporting Hub & Purpose Report

Visit: cisco.com/go/esg-hub

Meet the Engineer

Technical Session Surveys

- Attendees who fill out a minimum of four session surveys and the overall event survey will get Cisco Live branded socks!
- Attendees will also earn 100 points in the Cisco Live Game for every survey completed.
- These points help you get on the leaderboard and increase your chances of winning daily and grand prizes.

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IT learning hub that guides teams and learners toward their goals

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Network simulation platform for design, testing, and troubleshooting

Cisco Learning Network
Resource community portal for certifications and learning

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Intensive team & individual automation and technology training programs

Cisco Learning Partner Program
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Accelerated curriculum of product, technology, and certification courses

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Recertification training options for Cisco certified individuals

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Thank you


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