



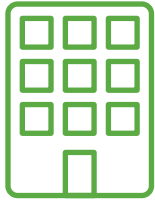
Data Center and Sustainability

Infrastrutture Cloud Networking a supporto della sostenibilità

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Manager, Cloud Networking

23 Gennaio 2024

Businesses are acting



66%

of organizations are increasing the efficiency of energy use in buildings.



57%

of organizations are using more energy-efficient or climate-friendly machinery, technologies, and equipment.



55%

of organizations have reduced the amount of air travel post-pandemic.

Deloitte Global CXO Sustainability Report, 2022



Agenda

- Introduzione al Cloud Networking
- Cloud Networking e Sostenibilità
- Storie di Successo



Cisco Meraki Cloud Networking Platform



750,000+ customers



13+ million active Meraki devices

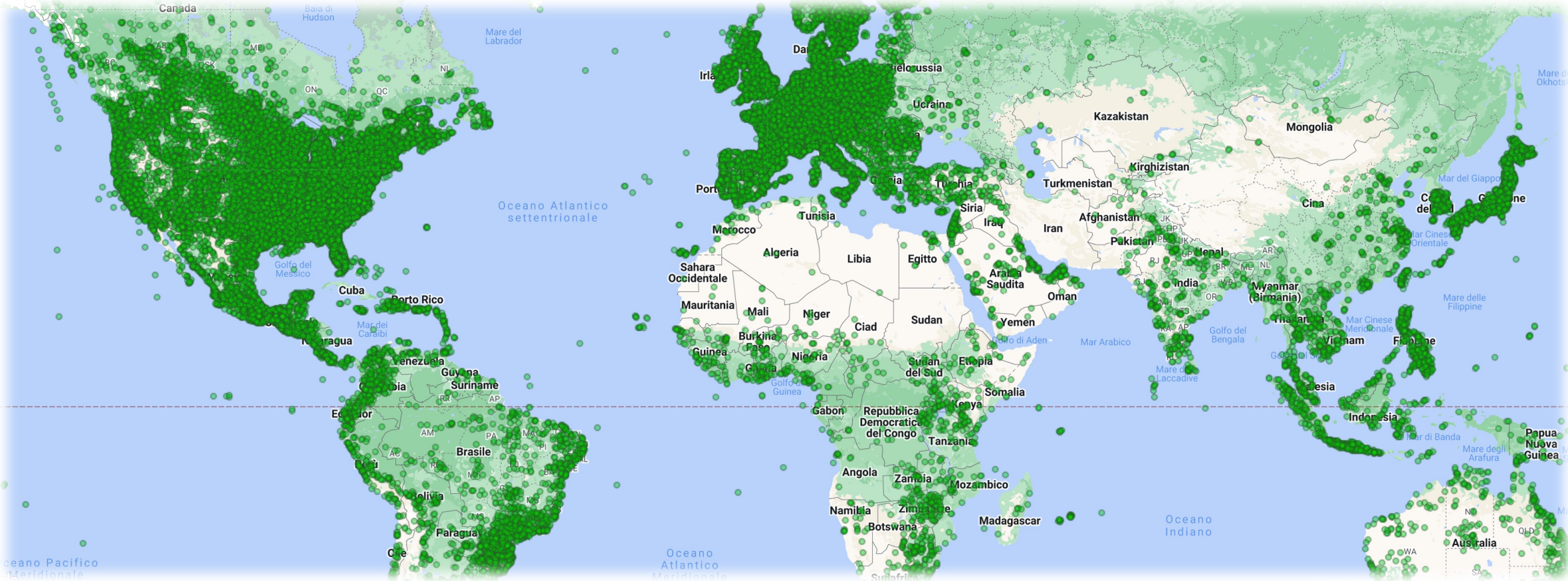


4+ million active networks over 190 countries



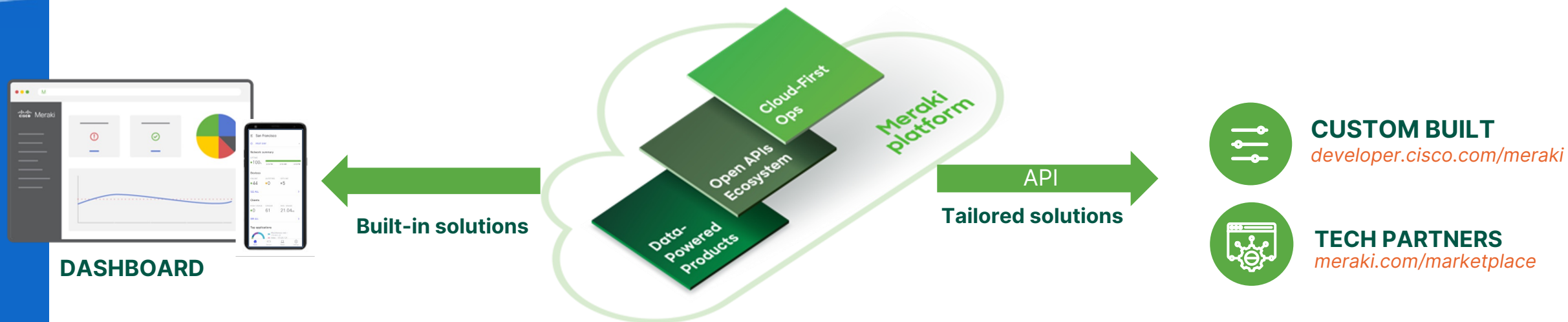
350+ million daily end-users devices

The largest cloud platform in networking, architected for scale and intelligence.



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The platform: a foundation for IT and IoT



ACCESS



Wi-Fi



Switching



Mobile device management

WAN



Security and SD-WAN



Cellular gateways

IoT

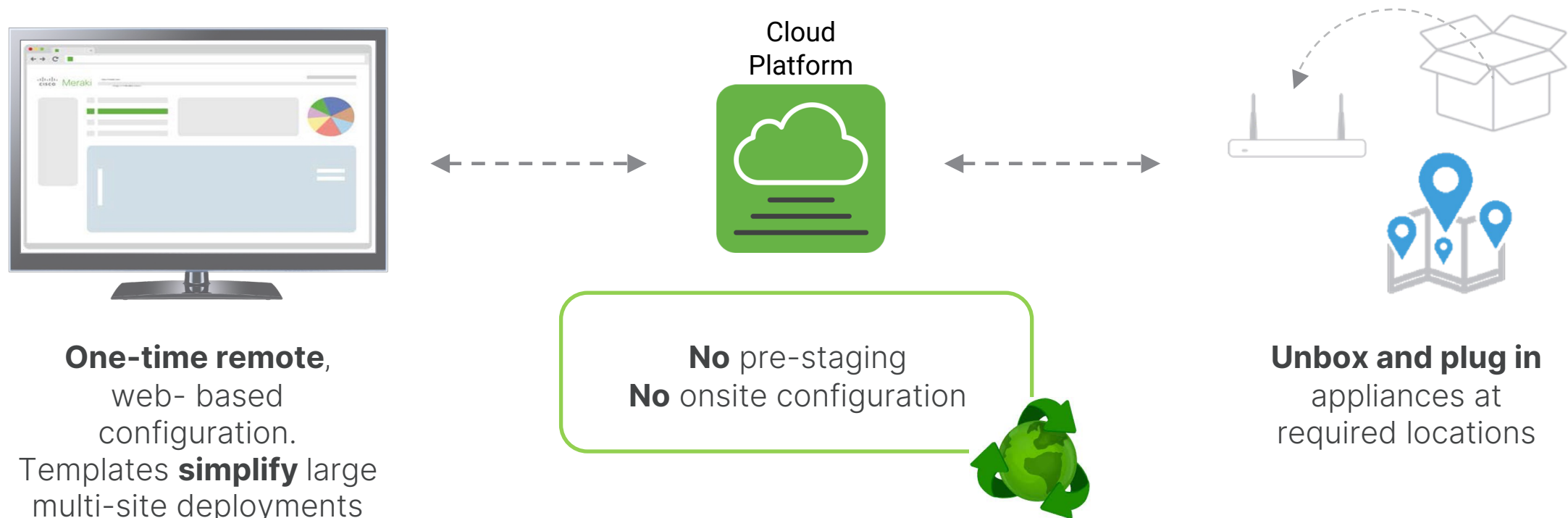


Smart cameras

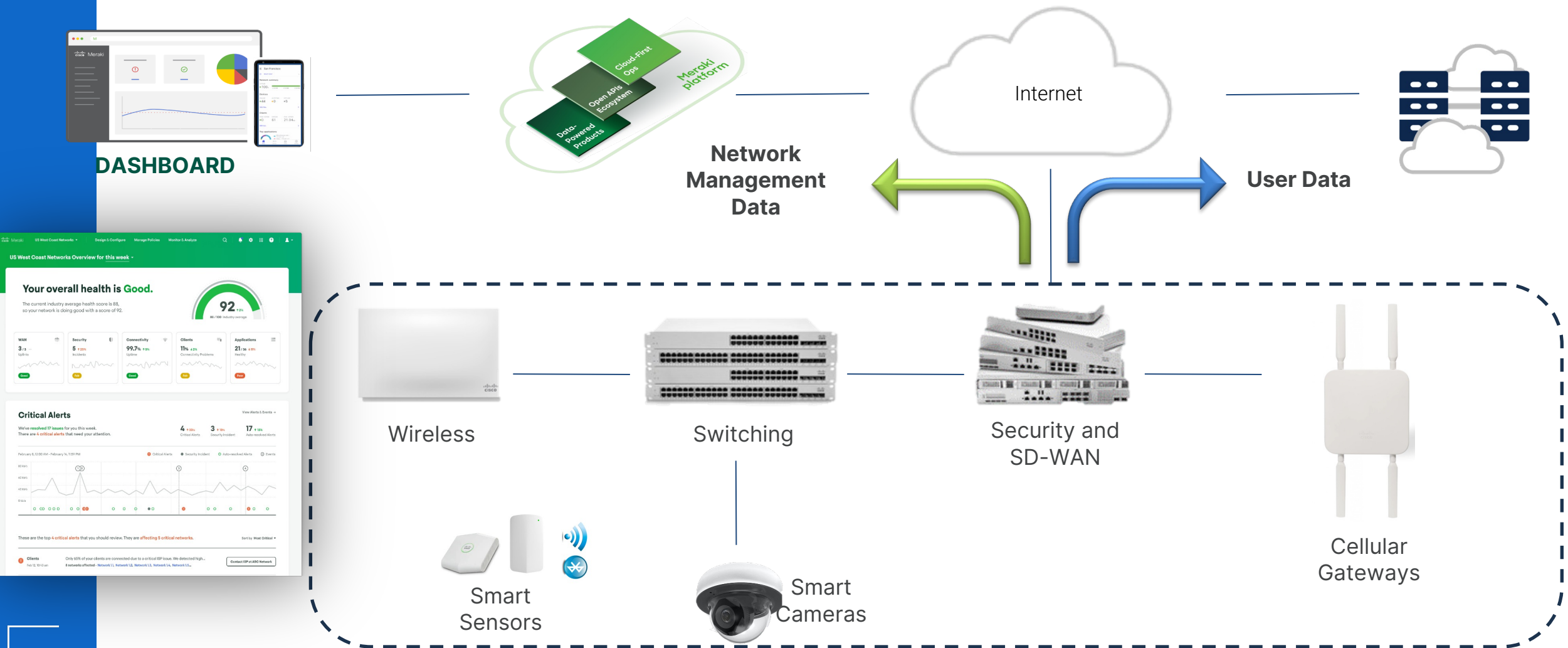


Sensors

True zero-touch provisioning out of the gate



Deployment : One location



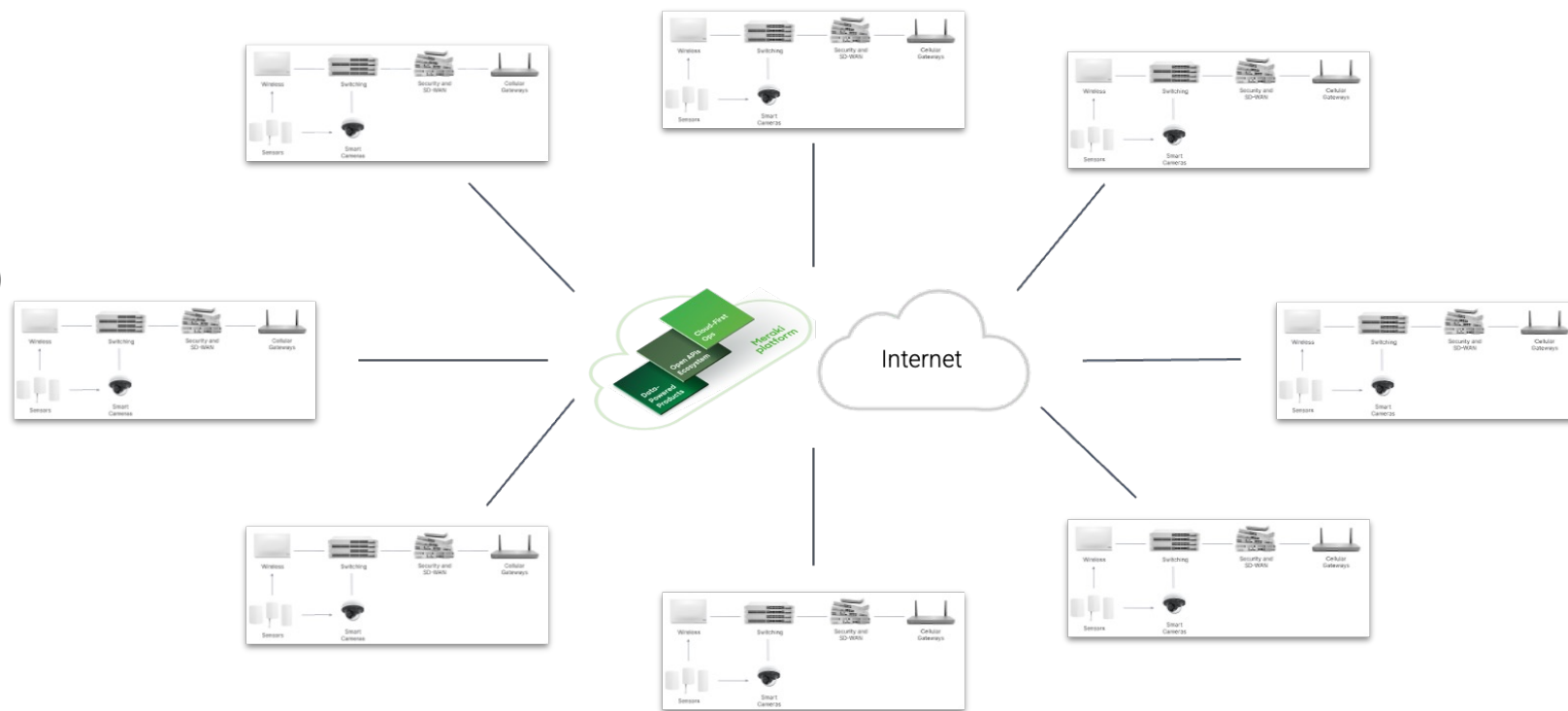
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Deployment **at scale**

Benefits from:

- Centralized Management
- Remote Monitoring (less on-site visits)
- Analytics-driven Insights
- Automatic adjustment of power and device settings (+Firmware and Security updates)





Sustainability outcomes driven by Cisco Cloud Networking

Energy savings

Collect and analyze data to identify opportunities for optimization, energy savings and reduced emissions.

- **Cloud-delivered backend**
- **Temperature/Humidity Monitoring**
- **Automatic adjustment of power and device settings**

Commercial buildings contribute to 6.6% of global CO2e Emissions (ourworldindata.org)

Operational Efficiency

Reduce **travel** by enabling remote network management, simplifying branch office connectivity and real-time monitoring.

- **Cloud-management**
- **Zero Touch deployment**

- Avg. car: ~170g CO2e/km
- National Flight: ~245g CO2e/km
- National rail: ~35g CO2e/km

UK Gov GHG Conversion Factors for Company Reporting 2022

Manage operational waste

Improve business operations and manage/protect assets while accelerating productivity and performance.

- **Loss Prevention**
- **Food and perishable waste reduction**
- **Production quality control**

- Waste (landfill and wastewater): 3.2% of global CO2e Emissions
 - Food loss and waste: 6% of global CO2e Emissions
- (ourworldindata.org)

Measures of success

To improve sustainable outcomes, organizations must Gather information, Act and Present results.



Discover

Collect data and metrics for baseline assessments. Identify opportunities for optimization, such as energy savings.



Act

Apply configurations and implement changes to achieve sustainable outcomes.



Report

Quantify savings and document progress towards sustainability.

At scale across 10s – 1,000s of locations

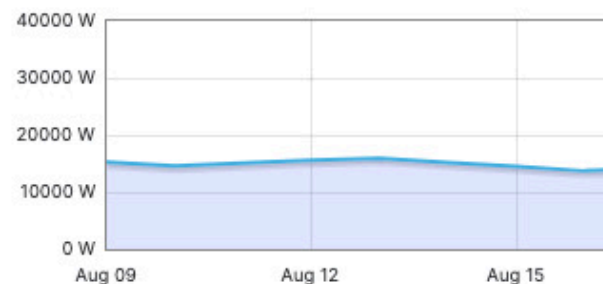


Data also available via API

Understand your PoE power usage

Ethernet Power Details

Power rate over time



- Opportunities for energy savings with Power over Ethernet devices
- Focus on energy usage out of business hours

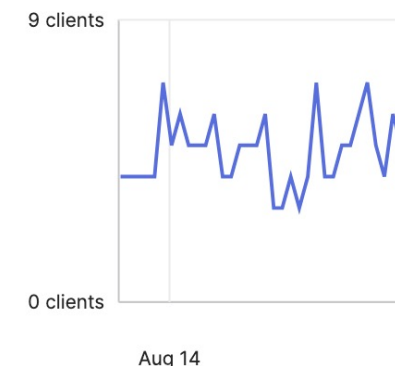
Understand your spaces



- Opportunities for energy savings through HVAC optimization
- Insights into how many people are occupying your spaces

Understand your network

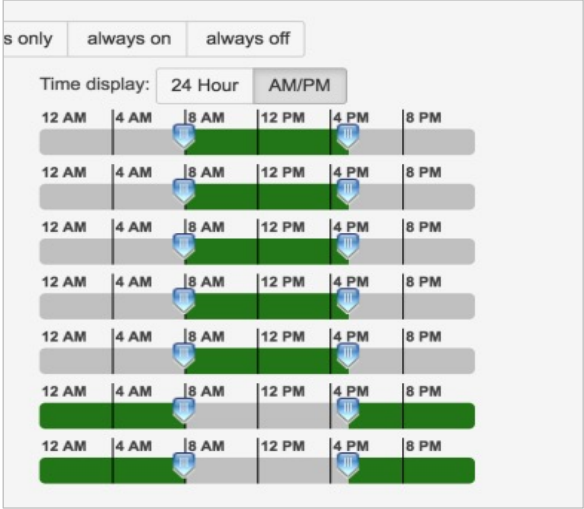
Clients



- Insights into how many clients are using your network / WiFi
- Focus on potential to Switch off inessential services or components during quiet or out of business hours

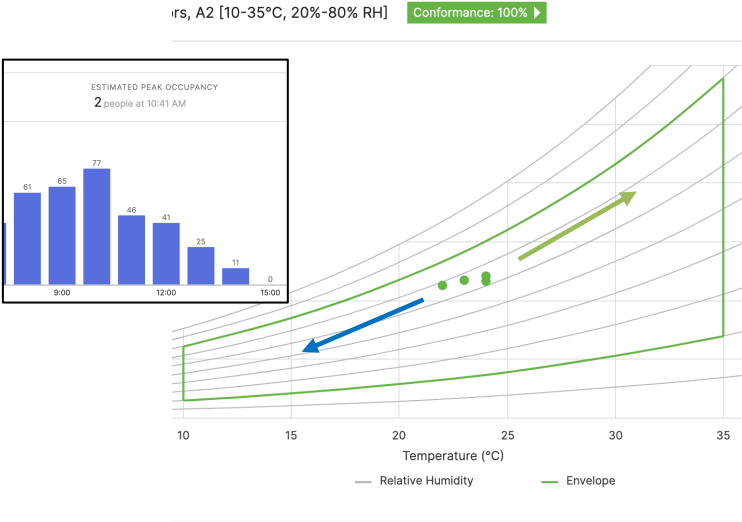


Provides Power over Ethernet when needed



- Apply Port Schedules to deactivate PoE-powered devices
- Power down devices in quiet and out of business hours

Manage Environmental Controls



- Adjust your HVAC to **increase** [decrease] the ambient temperature to optimize for energy savings
- Monitor the temperature change in Dashboard
- Or export the data via API/MQTT for full automation

Deactivate WiFi transmission radio



Dashboard API

```
{  
  "transmission": { "enabled":  
    false }  
}
```

- Achieve Energy Savings when all or some WiFi Access Points are not required
- Out of business hours, in quiet hours, in case of underutilized office space



Ethernet Power Details

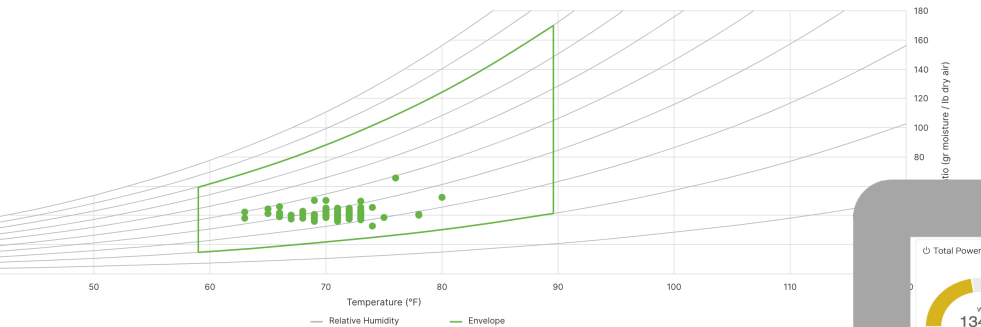
Power rate over time



Current readings ⓘ

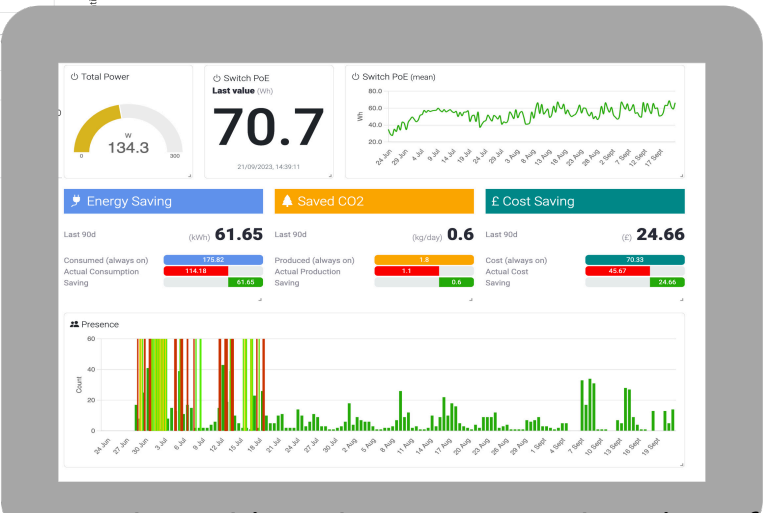
Configured Settings
All temperature and humidity sensors, A1 [59-89.6°F, 20%-80% RH]

Conformance: 100% ▶



Dashboard API

```
"temperature": {  
  "fahrenheit": 77.81,  
  "celsius": 25.45 },  
"humidity": { "relativePercentage": 34 },  
"tvoc": { "concentration": 100 },  
"pm25": { "concentration": 100 },  
"noise": {  
  "ambient": { "level": 45 } },  
"indoorAirQuality": { "score": 89 },  
  
"powerUsageInWh": 55.9
```



Finalize the process and validate the modifications within the Dashboard.

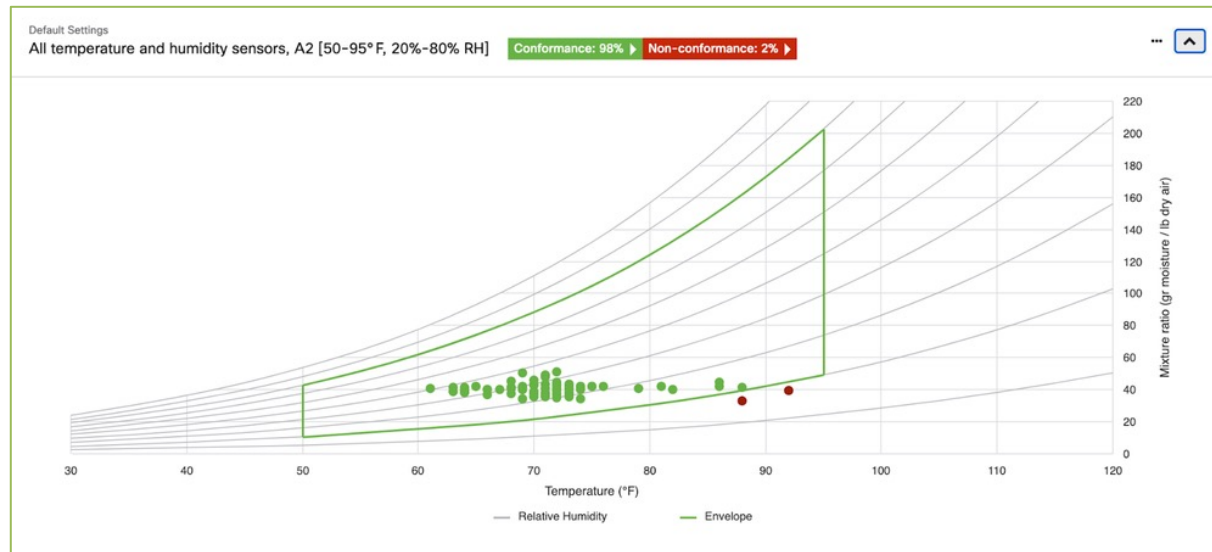
And export the achieved outcome and savings for permanent storage or processing in external systems via API

Energy Savings – Case 1

Collect and analyze data to identify opportunities for optimization, energy savings and reduced emissions.

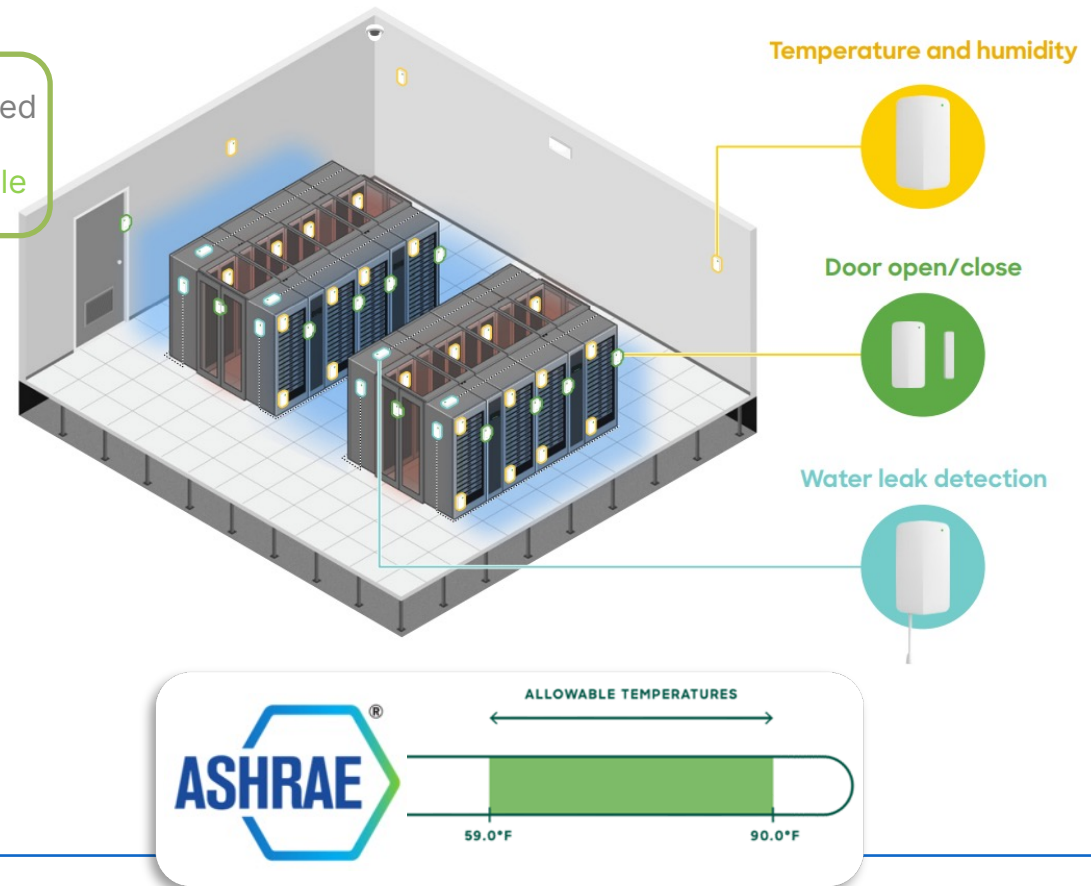
- Cloud-delivered backend (minimize local infrastructure)
- Temperature/Humidity/Noise Level Monitoring

When the ultimate load is uncertain, data center cooling systems are often oversized and operate at inefficient part loads.
With today's best practices (ASHRAE), up to 50% HVAC energy savings are possible



Meraki Sensors Psychrometric Reading Chart

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Energy Savings – Case 1

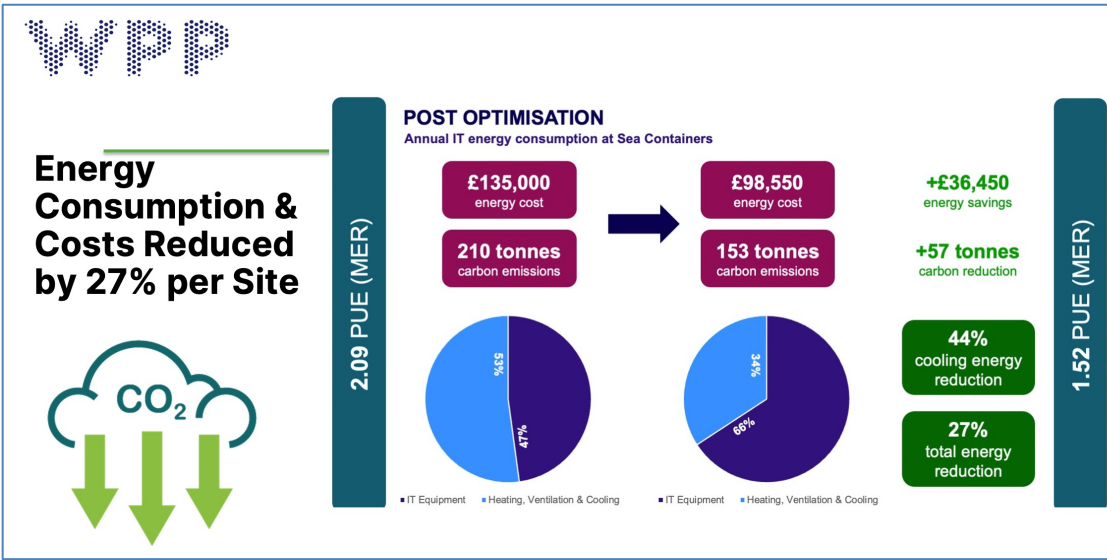
WPP

The world's largest marketing and communications services company



Goals:

- Use IT transformation to support dynamic workplace culture for 109,000 employees worldwide
- Support goal of net zero scope 1 & 2 emissions by 2025, and scope 3 emissions by 2030
- Enable dynamic management of space and resources
- Cloud Management has been instrumental in support sustainability with smart facilities management, reducing energy spend and carbon emissions across
- 44% reduction in cooling energy (27% drop in total energy consumption) for its data centre, thanks to closer monitoring



Cloud Networking

Monitor and Automate Energy Savings with Environmental Sensors

Total Economic Impact™ Study commissioned to Forrester Consulting:

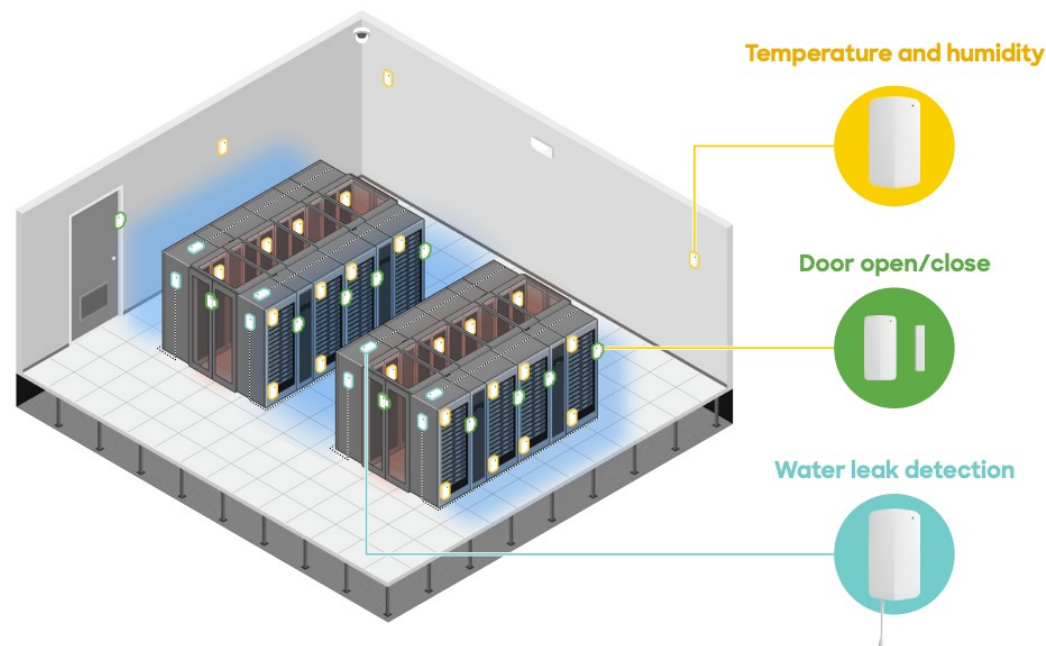
- Surveyed 60 decision-makers with experience using IoT sensors and Cisco Cloud IoT sensors.
- Results have been aggregated into a single composite organization:

Key assumptions

- \$300 million in revenues
- 1,500 employees
- 4 corporate campuses
- 60 locations worldwide
- 4 distribution warehouses
- 2 data centers
- 50 regional sales and support offices

Quantified Benefits

- Reduced loss of business assets by 35%
- Reduced unplanned downtime by 43%
- Energy Savings Range: 17% - 27%



Energy Savings – Case 2

Collect and analyze data to identify opportunities for optimization, energy savings and reduced emissions.

- Cloud-delivered backend (minimize local infrastructure)
- Automatic Power and device settings adjustment

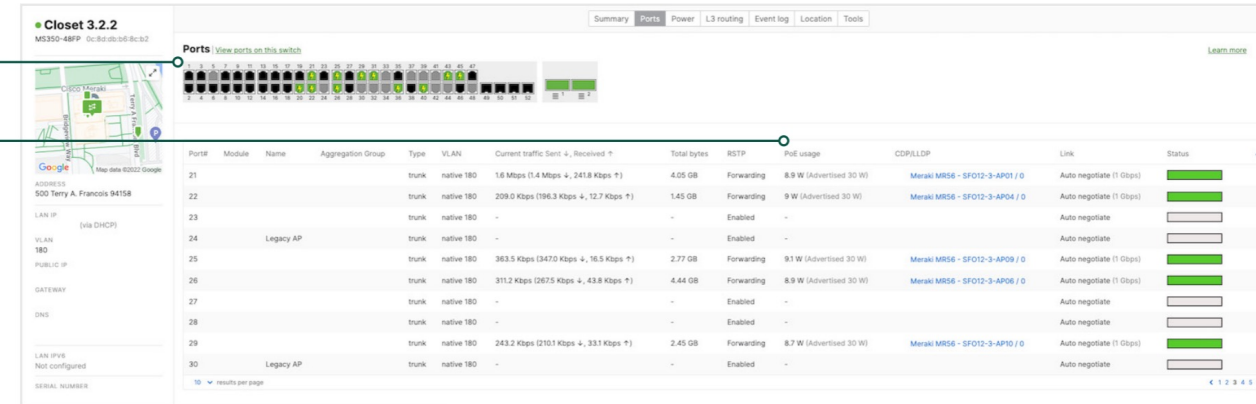
Did you know?

Powering off 1,000 PoE devices (10W) for 12 hours per day can lead to 50% energy savings or ~43,800 kWh energy / ~\$7,095 cost (\$0.162 per kWh) / ~16.5 metric tonnes CO2 emissions* in savings per year.

* Meraki Switching Sustainability Whitepaper

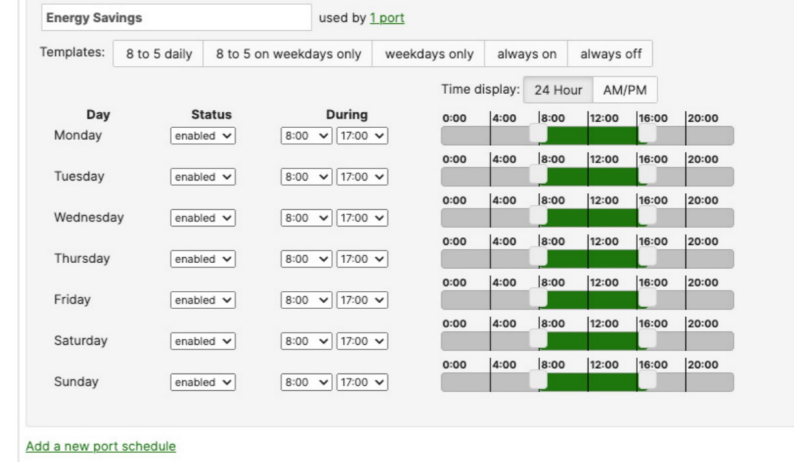
Active PoE ports

Per-port live PoE statistics



Port schedules

Local time zone: America - Los Angeles (You can set this on [General](#))



Wrexham County Borough Council Case Study
Rethinking IT infrastructure to reduce cost and carbon emissions across 70 schools/20000 students :

- +1100 Wireless Access Points across 250 LAN Switches centrally managed from a central location (through API)
- School network now start-up 7:30am and switch off at 8:30pm
- Energy Savings: 52% reduction in overnight Wi-Fi electricity use, CO2 expected to decrease by ten metric tons, potential savings of up to £22,000 for fiscal year 2023/2024, based on the current unit cost of electricity.

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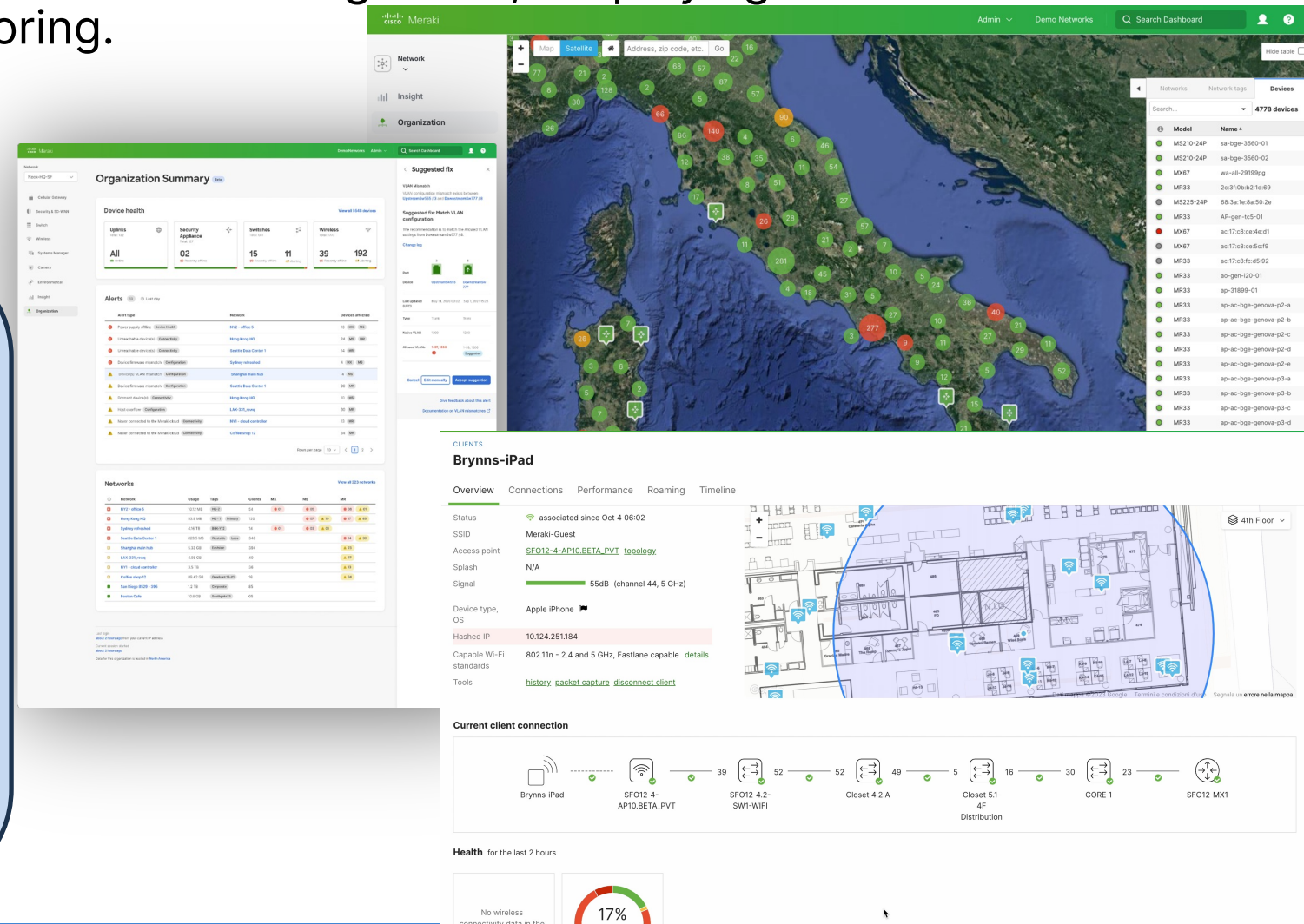
Infrastrutture Cloud Networking a supporto della sostenibilità

Operational Efficiency

Reduce travel by enabling remote network management, simplifying branch office connectivity and real-time monitoring.

- Cloud Management at scale
- Zero-Touch Deployment

- Big EMEA Enterprise – Optical Chains:
 - 1400 Stores
 - Time to deploy a store decreased from 10 weeks to 24h (99,8% decrease)
 - Time spent troubleshooting reduced by 90%.
 - 10,000km of on-site travel avoided per year, saving 4 tons of CO2.
- Most of interviewed customers report a travel reduction of at least +60% to a max of 80%, for initial setup and daily network operations.



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Infrastrutture Cloud Networking a supporto della sostenibilità

Manage Operation Waste

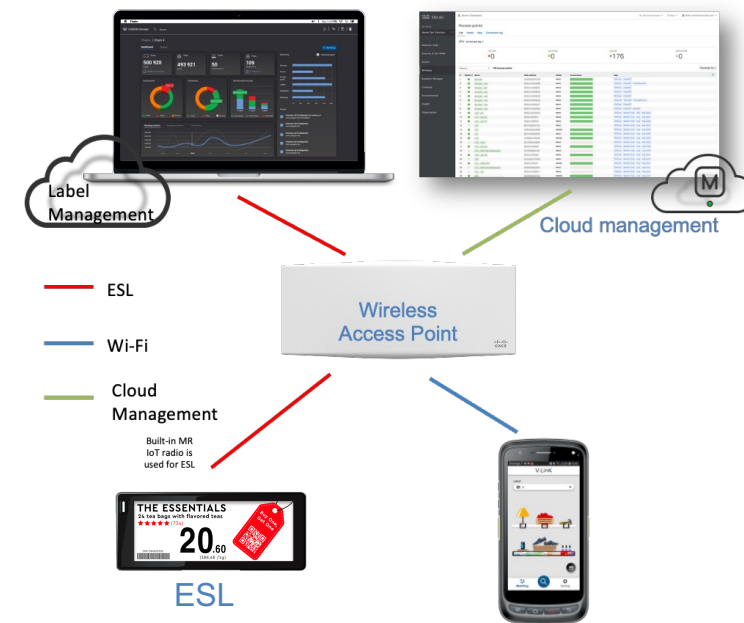
Improve business operations and manage/protect assets while accelerating productivity and performance.

- **Food and perishable waste reduction**
- **Production quality control**

- Of the 5 billion metric tons of food produced every year, 40% is wasted
- **Retail is responsible for 20% of this waste**
- **SPAR Group – Amsterdam**
 - Pricing & promotion automation
 - Real-time on shelf availability monitoring
 - **Food waste reduction by -40%**



Electronic shelf labels (ESLs) are digital displays of various sizes and shapes that are used by retailers to display product pricing.



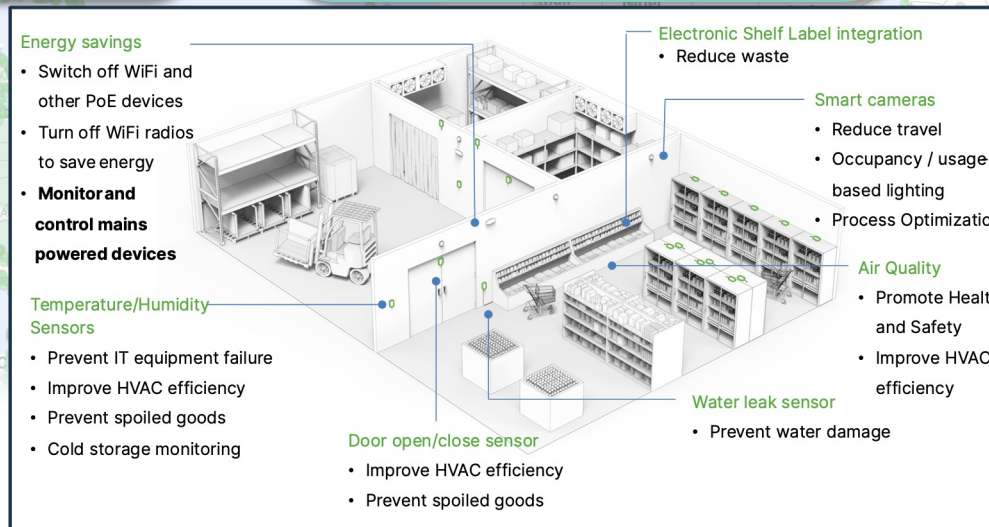


"We do not inherit the Earth from our ancestors, we borrow it from our children"

Energy savings

Operational Efficiency

Manage operational waste



Sustainability meets Simplicity



Resources & References

- [Cisco Meraki Cloud Management Overview](#)
- [Cloud Management and Sustainability](#)
- [Smart Workspaces](#)
- [Smart Spaces Whitepaper](#)
- [Workplace Transformation delivers Sustainable vision at **WPP**](#)
- [Total Economic Impact Study](#)
- [Wrexham County Borough Council Case Study](#)



Grazie!