

Using Splunk and OpenTelemetry for Centralized Insights to Achieve Your Sustainability Goals

cisco Live !

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Cisco Webex App

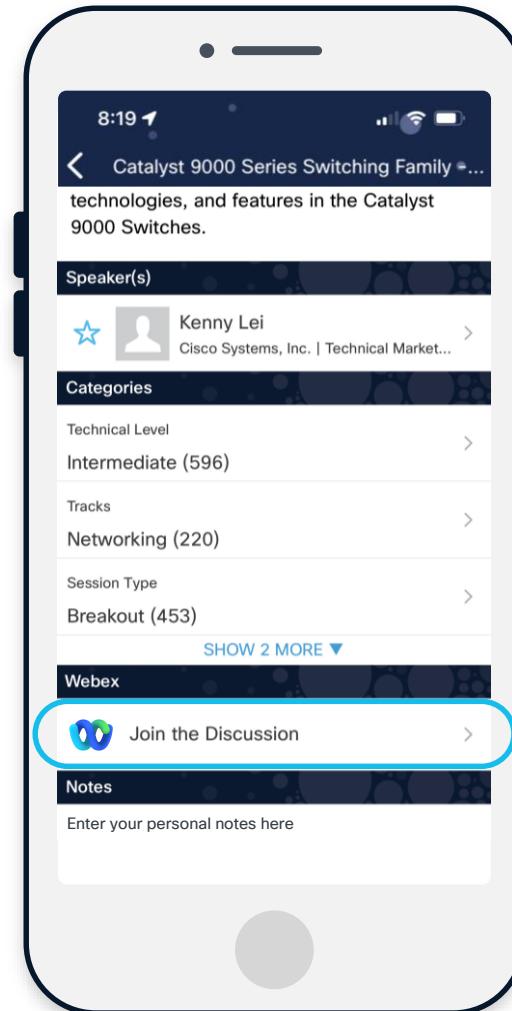
Questions?

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 by the speaker until June 13, 2025.



[https://cislive.ciscoevents.com/
cislivebot/#BRKGRN-1022](https://cislive.ciscoevents.com/cislivebot/#BRKGRN-1022)

- 01 Why sustainability matters
- 02 OpenTelemetry
- 03 Splunk and Cisco Intersight
- 04 Demo
- 05 How Cisco can help

Obtain actionable **sustainability**
insights for your infrastructure
in **under an hour**

Why sustainability matters

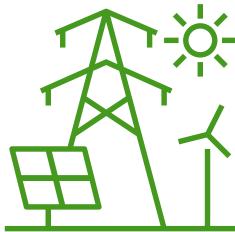
Sustainability in IT matters

4%

Estimated contribution of IT's direct impact on global electricity consumption¹

10x

IT can reduce emissions in areas outside of IT by ten times the energy required to deploy and operate the IT infrastructure²



Make sustainability a part of your management lifecycle

Sources: 1. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4424264, figure est. for 2020

2. SMARTer2030 – ICT Solutions for 21st Century Challenges, GeSI 2015, emissions reduction est. from 2015–2030

Calculating CO₂ equivalent emissions

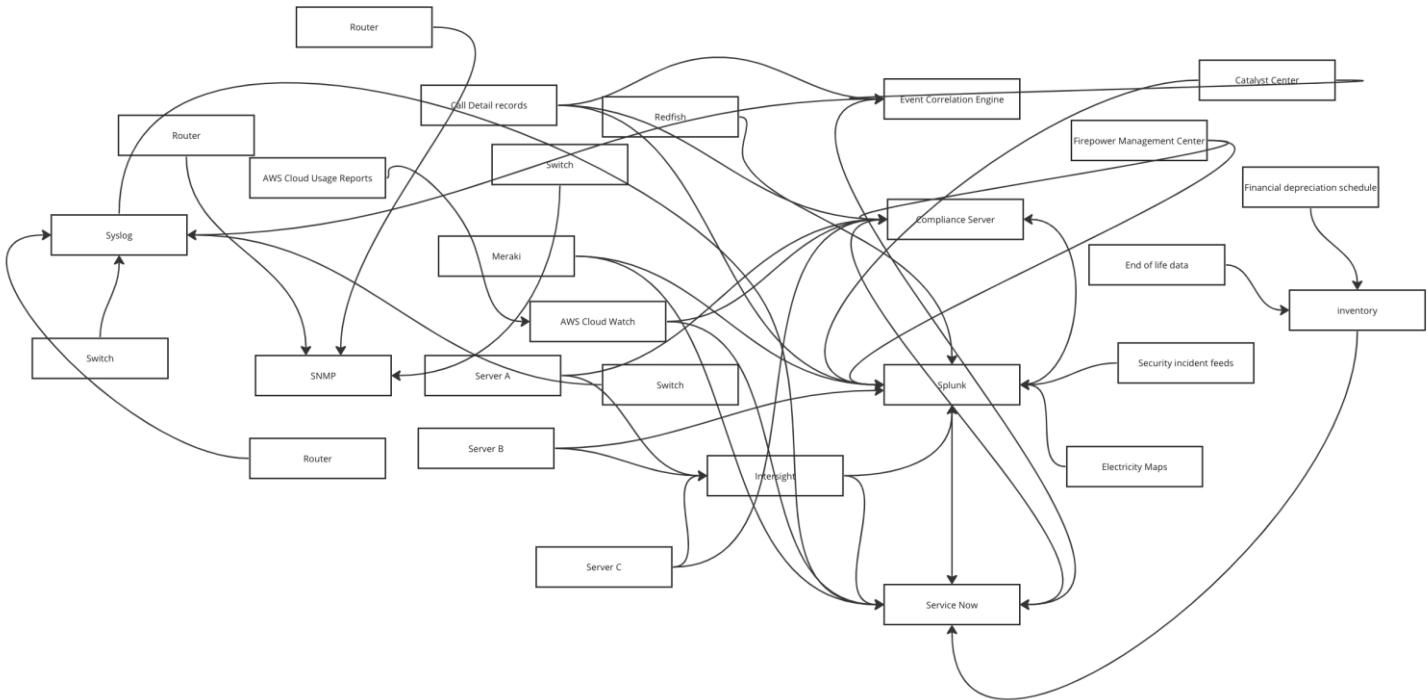
$$\text{Power (kW)} \times \text{Time duration (hours)} = \frac{\text{kWh}}{\text{Energy}}$$

$$\frac{\text{kWh}}{\text{Energy}} \times \frac{\text{CO}_2\text{e (grams)}}{\text{kWh}} = \frac{\text{CO}_2\text{e}}{\text{CO}_2\text{ equivalent emissions}}$$

Carbon intensity

OpenTelemetry and how it can help

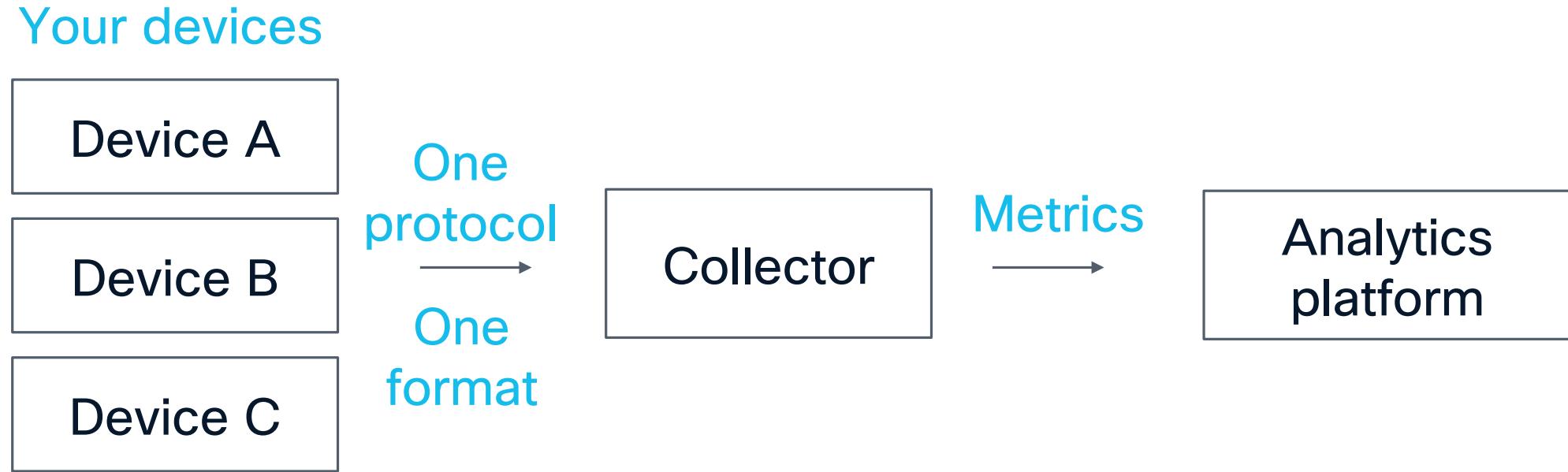
Current telemetry pipeline



Many different...

Device types
Transport protocols
Data formats
Units

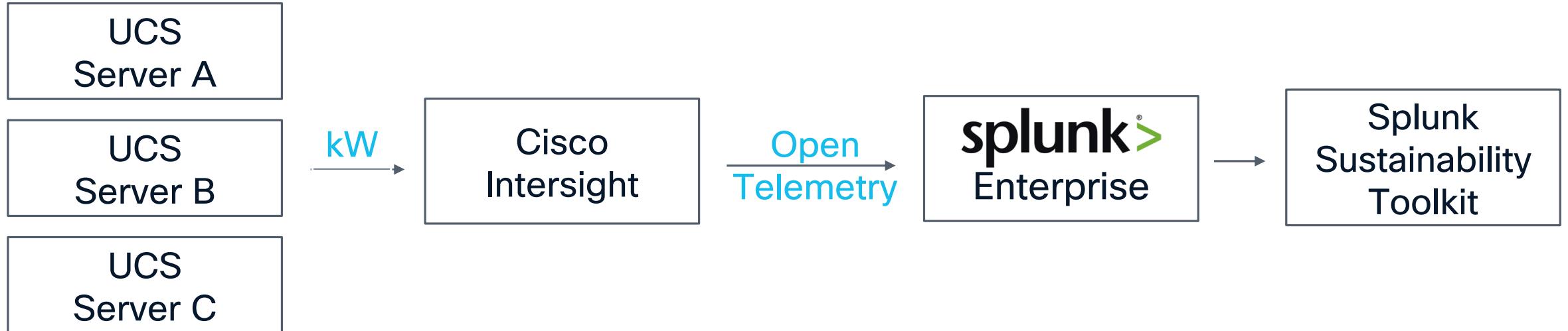
What if your data pipelines looked like this?



OpenTelemetry allows you to focus on actionable insights by

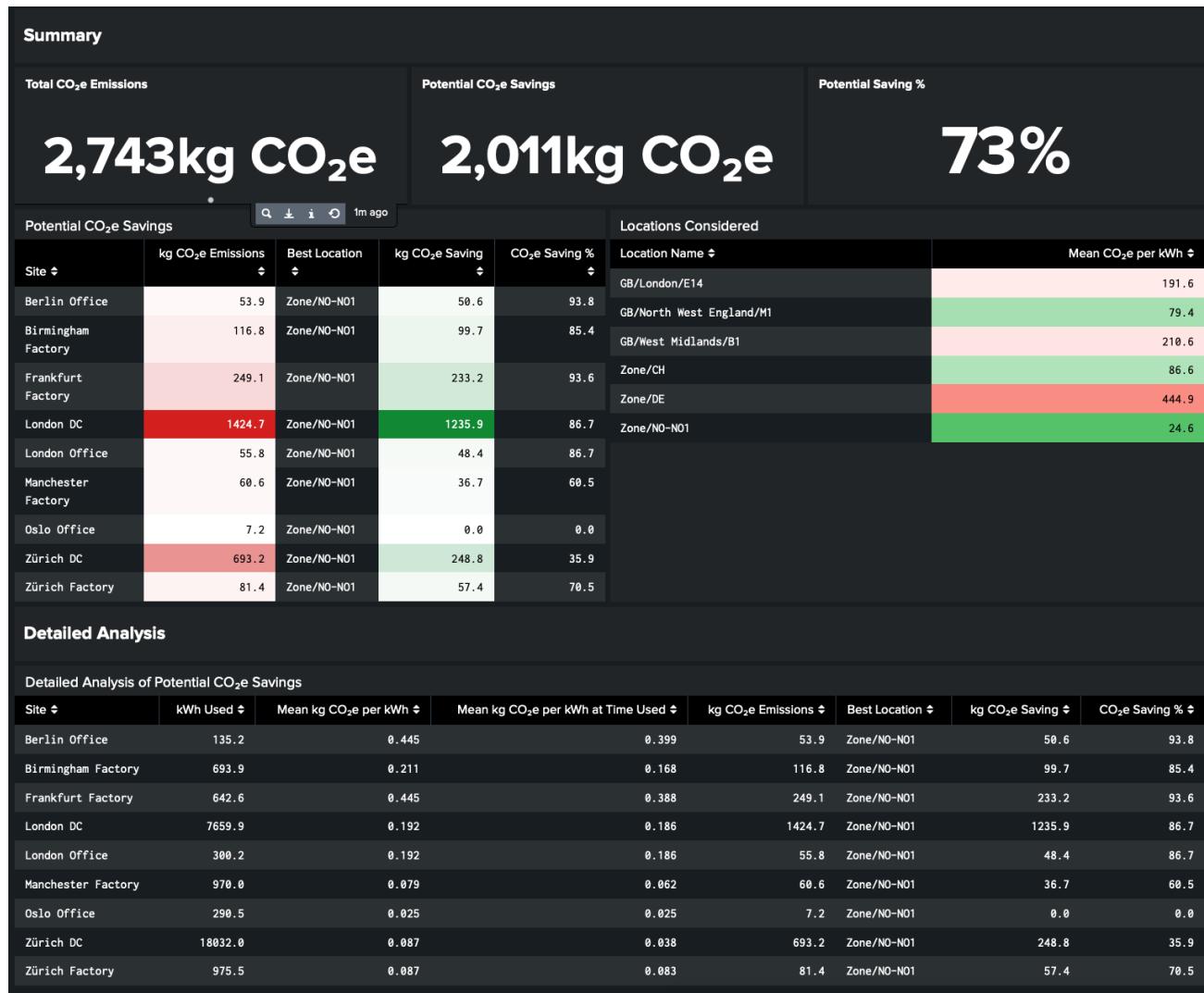
**standardizing
data export, import, and
normalization.**

We will demonstrate

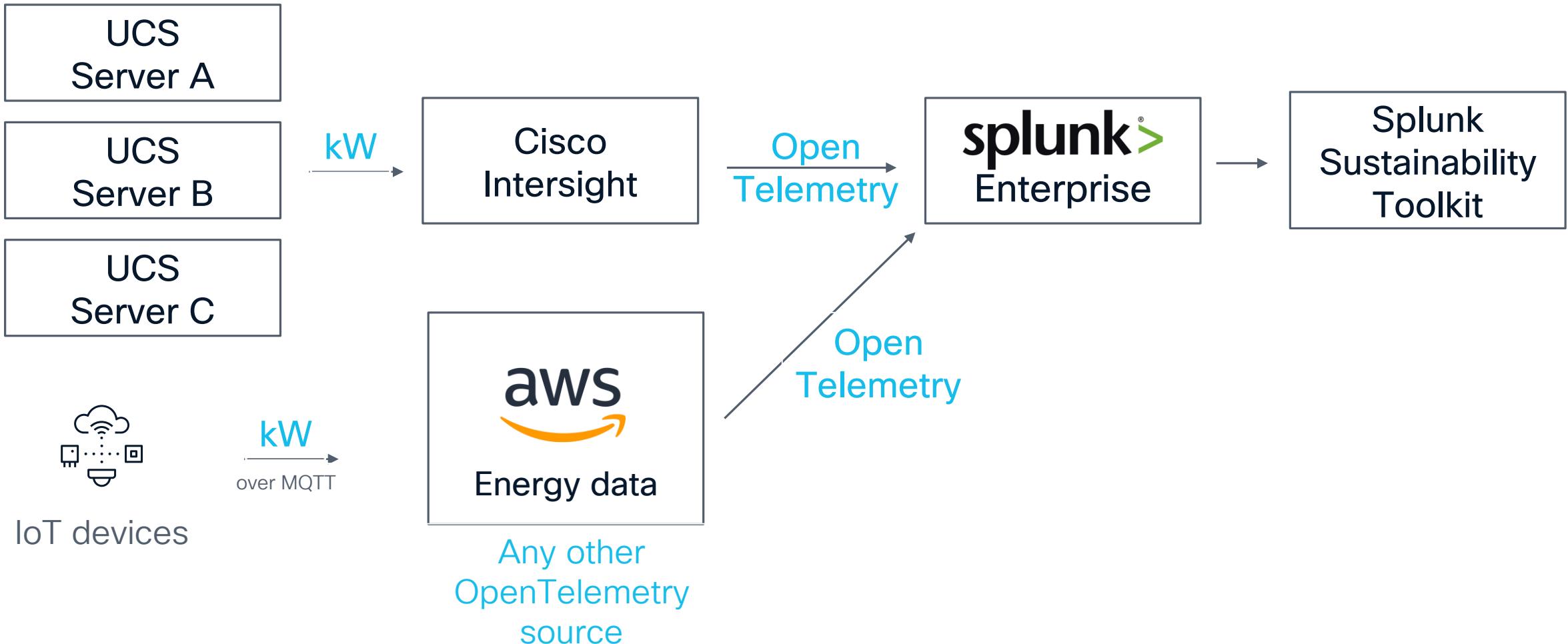


OTLP - OpenTelemetry Protocol
(gRPC over HTTPS)

Splunk Sustainability Toolkit for actionable insights



Don't have Intersight yet?



OpenTelemetry support

See more at <https://opentelemetry.io/ecosystem/vendors/>

Vendors



Observability tools



Cloud platforms



Google Cloud Platform

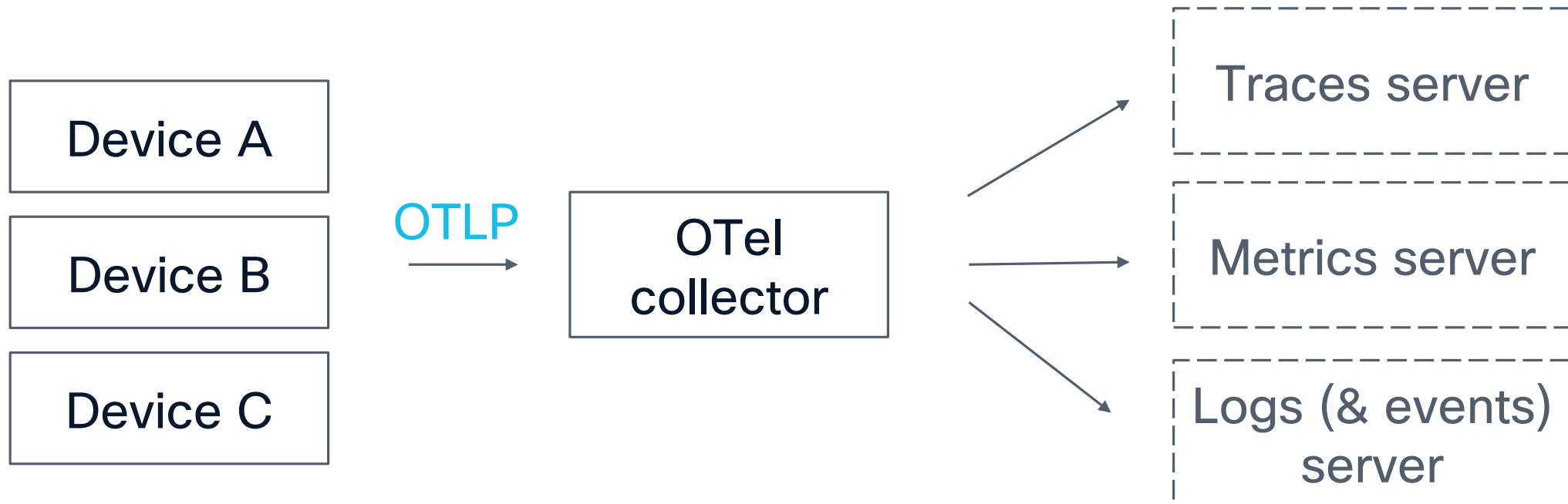
Analytics and network management



Prometheus



OpenTelemetry architecture

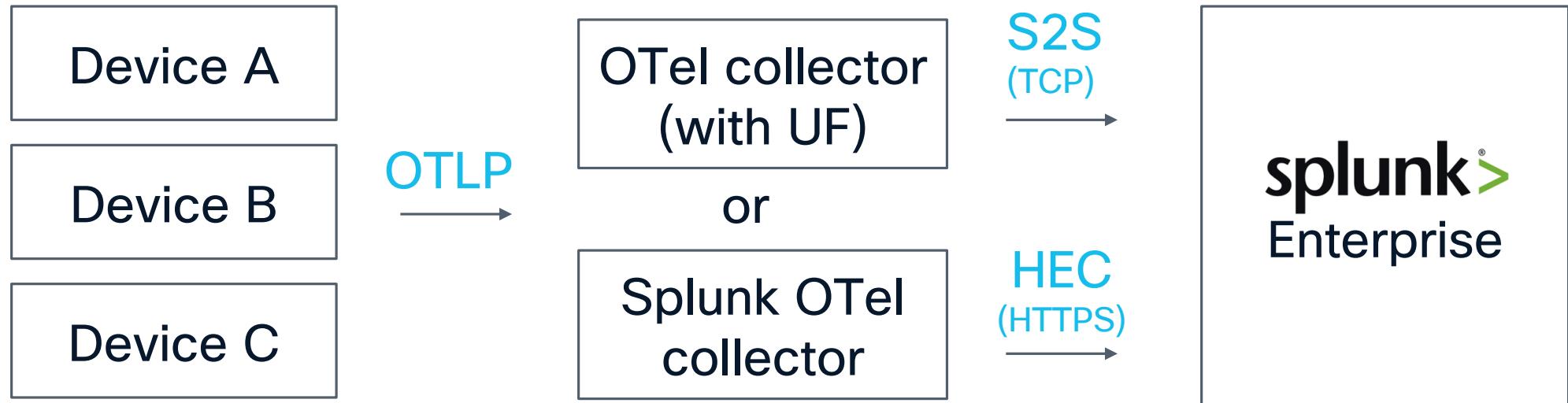


Sustainability outcomes with Splunk and Cisco Intersight

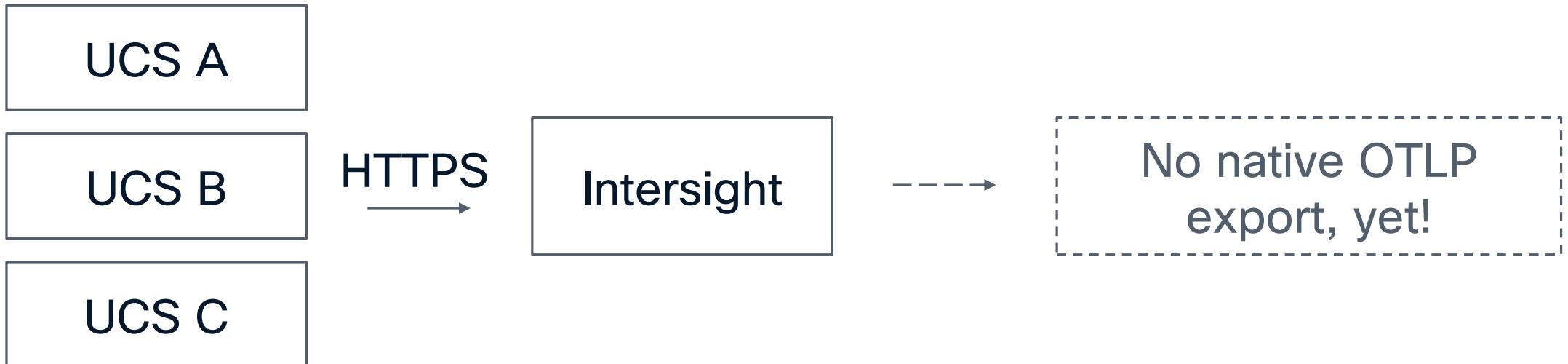
Splunk OTel support



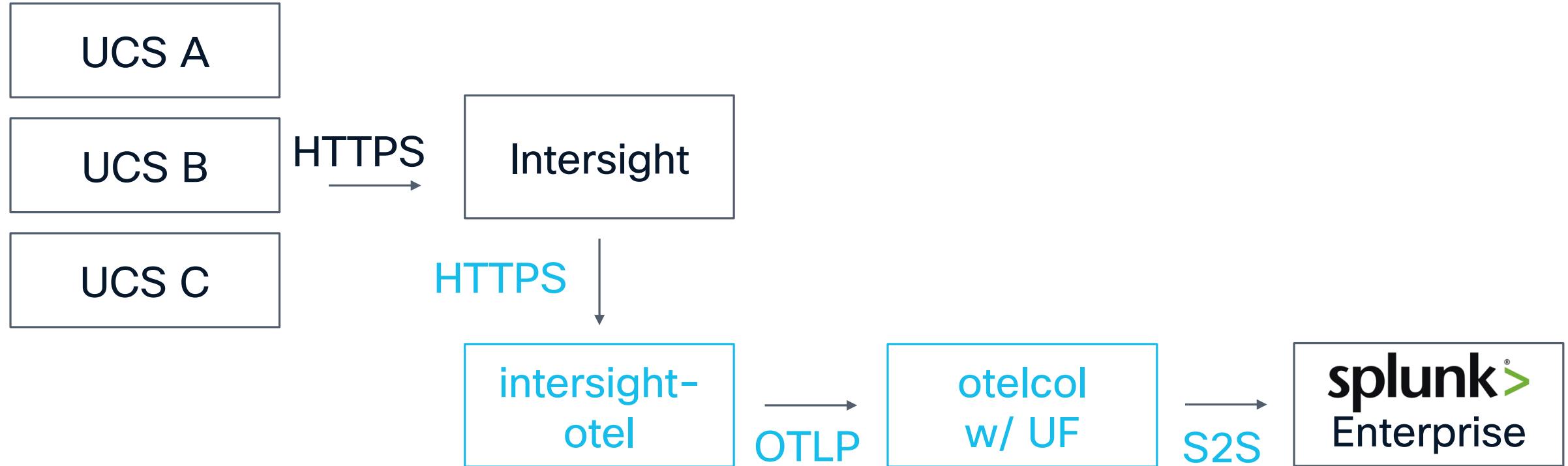
Splunk OTel support



Exporting Intersight with OTLP



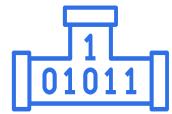
Exporting Intersight with OTLP



Splunk Sustainability Toolkit

accelerates your ability to manage from sustainability insights.

Begin your sustainability journey today



1 Build your data pipeline



2 Setup Splunk Sustainability Toolkit



3 Obtain sustainability insights for your compute infrastructure



Workload activity scheduler



Change workload location

Building your OTel pipeline

Yay, a demo!



View session content on GitHub:
<http://cs.co/cl-splunk-sustainability>



Hands on with the Splunk Sustainability Toolkit

Yay, a demo!



View session content on GitHub:
<http://cs.co/cl-splunk-sustainability>



Cisco sustainability outcomes

Refreshing hardware?



Cisco Product Takeback and Reuse Program

Simple, secure, and sustainable way to return end-of-use gear to Cisco. Equipment pickup is no cost.



Genuine Cisco Certified Remanufactured Products

Extend your budget and get speedy delivery!

Accelerate your sustainability journey with Cisco CX

How we can help

Act on your sustainability goals with advice guided by data, aimed at business outcomes, and led by world-class IT experts

Cisco® Services for Sustainability

Plan

Assess your journey, define roadmaps, and plan your goals

Visualize

Monitor your metrics and KPIs with outcomes

Improve

Continuously improve with Insights and Recommendations powered by GenAI

Evolve

Explore sustainability and new network design practices with experts

Powered by

Expertise

AI/ML Insights

Automation

Digital Experiences

Together with our Partners

Available through Cisco Lifecycle Services

Sustainability priority assessment

Step 1

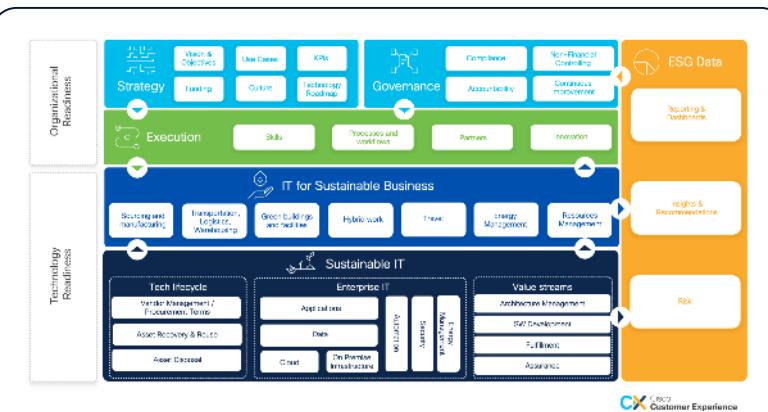
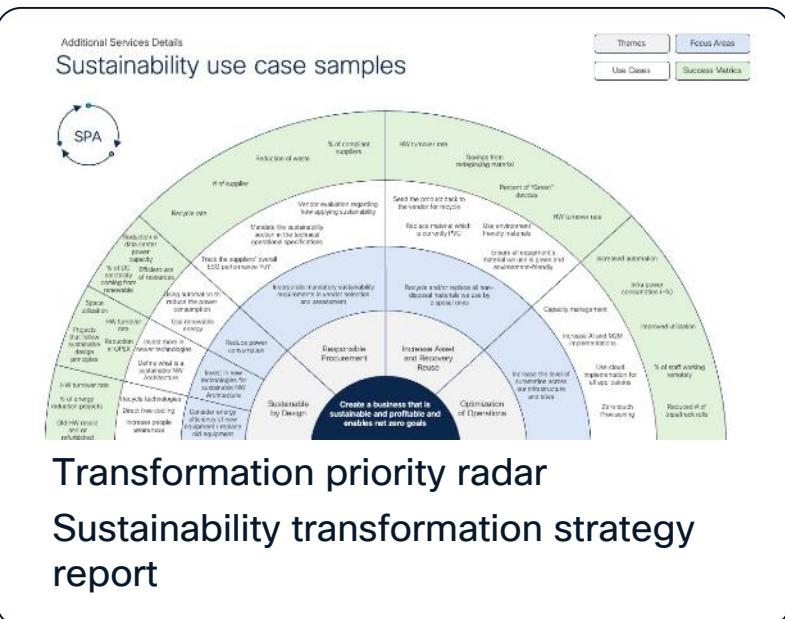
- Project kick off and alignment on approach
- Select focus areas, prioritize and select use cases, define measures of success

Step 2

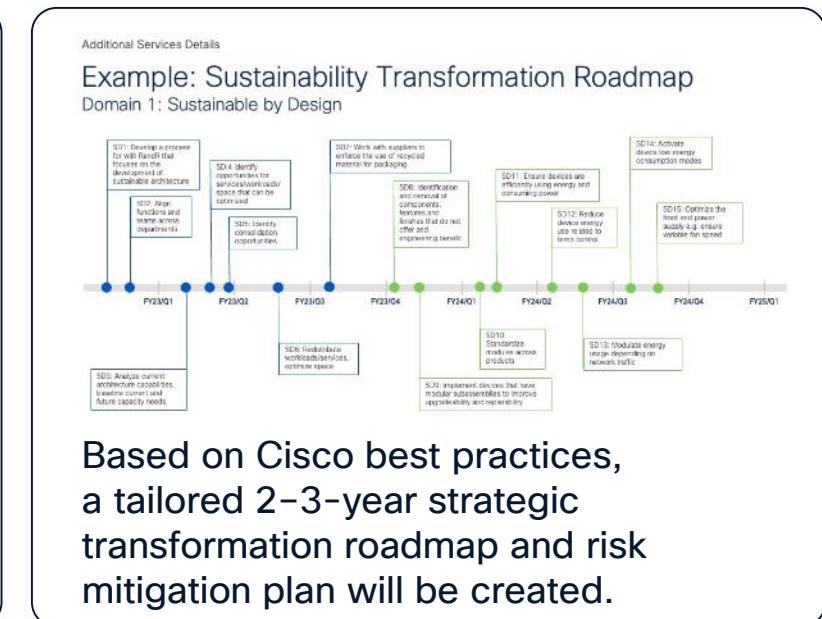
- Maturity assessment workshops
- Current state maturity analysis and target state aspirations

Step 3

- Gap analysis and capabilities requirements
- Transformation roadmap creation*



Based on mature Cisco frameworks and best practices, tailored to individual customer priorities. Learn more at [IDC Spotlight](#)

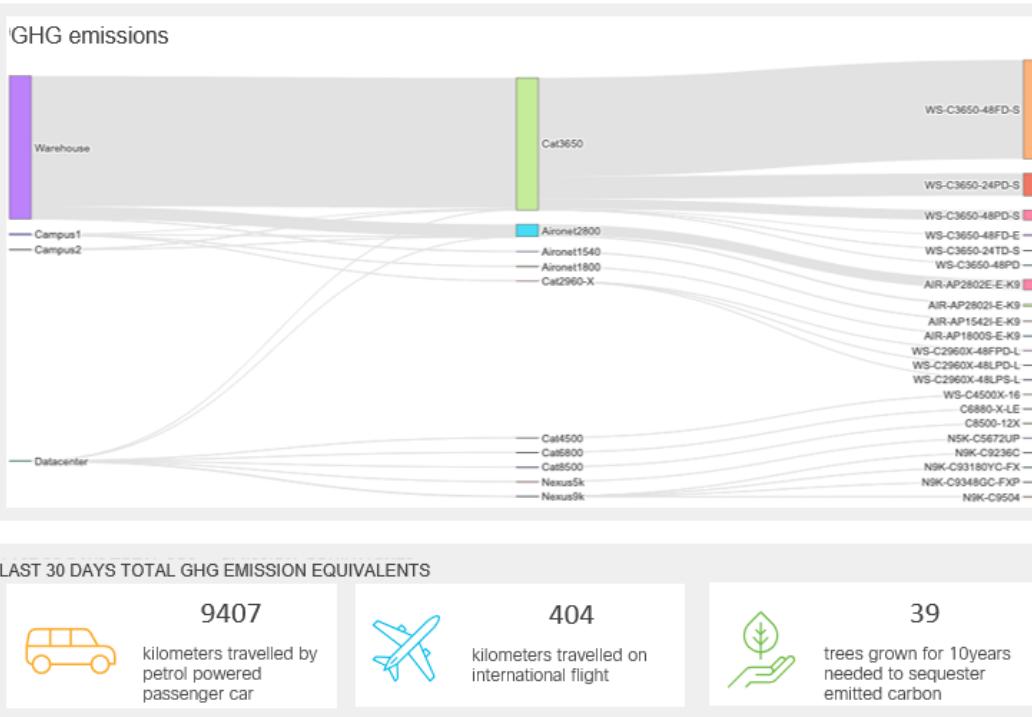
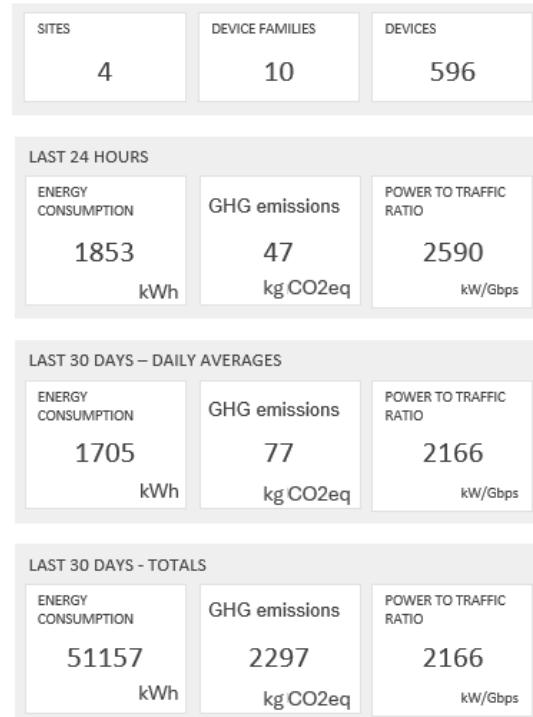


Step 4 : Iterative reviews and final recommendations

*This should be considered a representative timeline. The exact timings will be confirmed during project kick off and are dependent on scope, Cisco resource, and customer stakeholder availability

Metrics Summary

Better understand the efficiency of devices in the network and compare different device families based on their energy consumption.



Outcomes

Identify which devices are more energy-efficient in transmitting traffic

Assist in optimizing your device placement strategies

Average traffic rate and power-to-traffic visualization

Sustainability Insights Engine



Outcomes

Insights into power to traffic rate, including trends and patterns

Insights into energy efficiency of network devices

Facilitate efficient network capacity planning

A unified sustainability dashboard



Outcomes

Visualizations

- Customizable
- Advanced analytics
- Machine Learning: detect outliers, forecast,

Data analytics platform able to handle

- Complex, large scale, vendor agnostic data ingestion
- Real-time,
- High performance at scale
- End-to-end visibility and insights across entire digital footprint

Business impact

- Energy optimizations at scale

Rack space optimization

6 Chassis
6 UCSB-5108-AC2
4 UCSB-PSU-2500ACDV
8 UCSB-B200-M3

1 Fabric Interconnect
1 UCS-FI-6296UP
2 UCS-PSU-6296UP-AC

Old Rack Example

Item	Quantity	Type
Rack unit	37 -	
Processor	96	Intel E5-2650 v2 2.60 GHz/95W 8C/20MB Cache/DDR3 1866MHz
Memory	480	16GB DDR3-1866-MHz RDIMM/PC3-14900/2R/x4/1.5v
Total memory	7680	16GB DDR3-1866-MHz RDIMM/PC3-14900/2R/x4/1.5v

18 server hx
18 HXAF240C-M5SX
36 HX-PSU1-1600W

1 Fabric Interconnect
1 UCS-FI-64108-U
2 UCS-PSU-64108-AC

New Rack Example

Item	Quantity	Type
Rack unit	37 -	
Processor	36	Intel 6248R 3.0GHz/205W 24C/35.75MB DDR4 2933MHz
Memory	144	64GB DDR4-2933-MHz RDIMM/PC4-23400/dual rank/x4/1.2v
Total memory	9216	64GB DDR4-2933-MHz RDIMM/PC4-23400/dual rank/x4/1.2v



**Energy
savings***



**CPU
'equivalent'
increase***

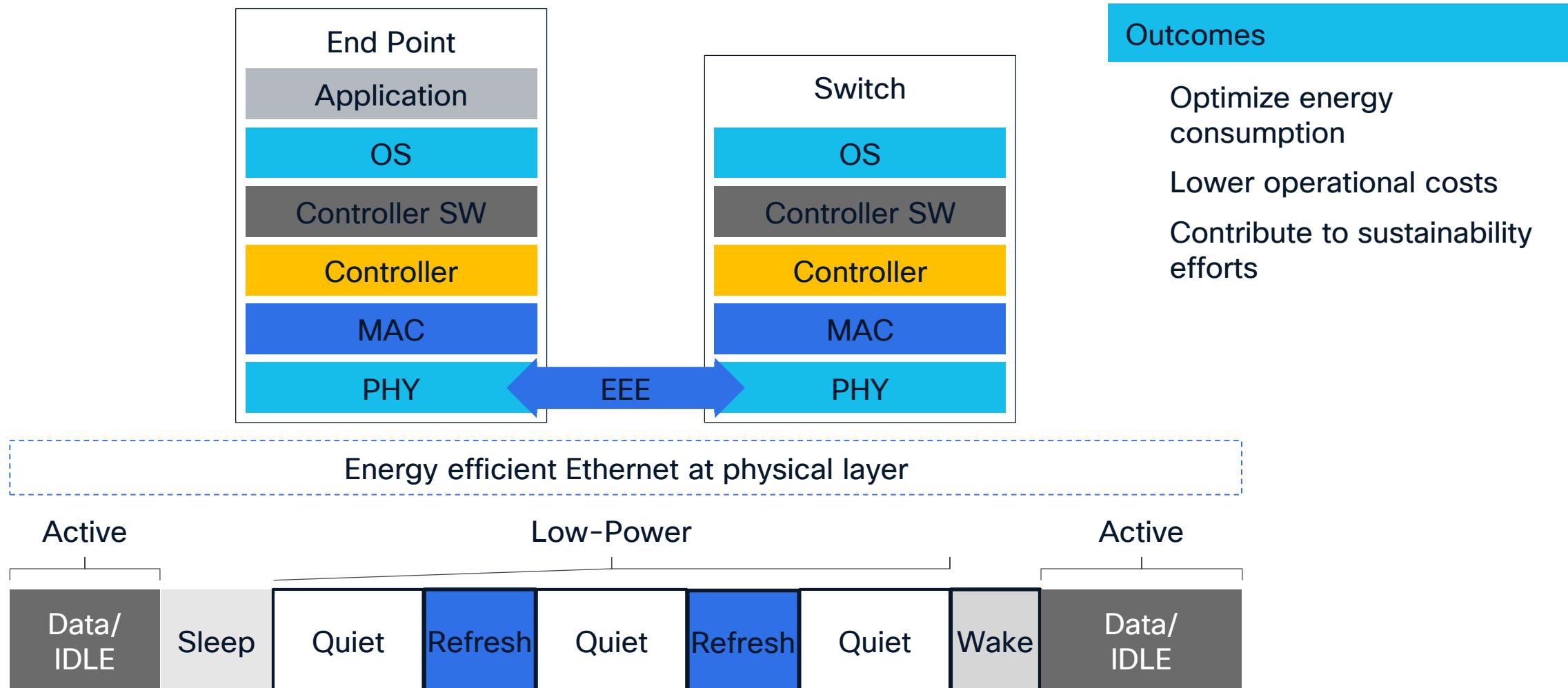
Outcomes

Reduce operational cost by reducing and optimizing the rack space used.

Reduce energy consumption by reducing the space that needs to be climatized.

* Source: Based on Cisco analysis performed as part of a customer DC modernization project

Enable energy efficient features such as 802.3az



Reporting your optimization scorecard

for a campus

Recommendations	Campus network infrastructure								
Aironet (1713) *	Cat2960-L (5)	Cat2960-X (9)	Cat3560-CX (36)	Cat4500 (46)	Cat9120 (741)	Cat9300 (30)	Cat9400 (42)	Cat9500 (6)	
Enable energy efficiency features	✓ For newer models	✓	✓	✓	✓	✓	✓	✓	✓
Disable unused ports		✓	✓	✓	✓	✓	✓	✓	✓
Disable APs based on schedule	✓					✓			
Refresh legacy equipment	✓ Some models in LDOS, others in 2027	✓ SW already EOL	✓ SW already EOL		✓ LDOS Oct. 2025				
Consolidate (increase connected ports)		✓	✓	✓	✓	✓	✓	✓	✓
Custom initiative 1	Digital workplace Meeting room modernization: Replacement of existing Poly devices with modern and energy efficient Cisco Collaboration devices can contribute to further savings on energy consumption and GHG Emissions								
Custom initiative 2	Smart building technology Leverage analytics and automation to integrate information from across IT and OT domains, to enable energy savings for lighting, heating, and cooling								

What's next?



Interact with experts on Webex

<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKGRN-1022>



Talk with energy optimization experts in **Future-proofed Workplaces** and **AI-ready Data Centers** areas of the **Cisco Showcase** at the **World of Solutions**



View session content on GitHub

<http://cs.co/cl-splunk-sustainability>

Complete your session evaluations



Complete a minimum of 4 session surveys and the Overall Event Survey to be entered in a drawing to win 1 of 5 full conference passes to Cisco Live 2026.



Earn 100 points per survey completed and compete on the Cisco Live Challenge leaderboard.

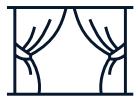


Level up and earn exclusive prizes!



Complete your surveys in the Cisco Live mobile app.

Continue your education



Visit the Cisco Showcase for related demos



Book your one-on-one Meet the Engineer meeting



Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs



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

Cisco Services call to action

Next steps



Explore our demos in the **Cisco Showcase** of the **World of Solutions**.



Attend our Center Stage and PSO sessions. Scan this code to view all our sessions.



Meet with our **CX Subject Matter Experts**. Inquire about availability at the welcome desk in the CX Connections Lounge in the World of Solutions.



Play the **CX Big Wave Sweepstakes** while you're at Cisco Live for a chance to win a gaming & surfing prize package.

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Thank you

CISCO Live !

Offline demo

Starting OpenTelemetry collector (otelcol)

```
(base) sholl@SHOLL-M-T0L6 CLUS24-otel-sustainability % ./otelcol --config=cfg/otelcol.yaml
2024-06-01T12:58:25.763-0400    info    service@v0.98.0/telemetry.go:55 Setting up own telemetry...
2024-06-01T12:58:25.764-0400    info    service@v0.98.0/telemetry.go:97 Serving metrics {"address": ":8888", "level": "Basic"}
2024-06-01T12:58:25.767-0400    info    service@v0.98.0/service.go:143 Starting otelcol... {"Version": "0.98.0", "NumCPU": 12}
2024-06-01T12:58:25.767-0400    info    extensions/extensions.go:34 Starting extensions...
2024-06-01T12:58:25.767-0400    info    extensions/extensions.go:37 Extension is starting... {"kind": "extension", "name": "zpages"}
2024-06-01T12:58:25.767-0400    info    zpagesextension@v0.98.0/zpagesextension.go:53 Registered zPages span processor on tracer provider {"kind": "extension", "name": "zpages"}
2024-06-01T12:58:25.767-0400    info    zpagesextension@v0.98.0/zpagesextension.go:63 Registered Host's zPages {"kind": "extension", "name": "zpages"}
2024-06-01T12:58:25.768-0400    info    zpagesextension@v0.98.0/zpagesextension.go:75 Starting zPages extension {"kind": "extension", "name": "zpages", "config": {"TCPAddr": {"Endpoint": "localhost:55679", "DialerConfig": {"Timeout": 0}}}}
2024-06-01T12:58:25.768-0400    info    extensions/extensions.go:52 Extension started. {"kind": "extension", "name": "zpages"}
2024-06-01T12:58:25.768-0400    info    extensions/extensions.go:37 Extension is starting... {"kind": "extension", "name": "pprof"}
2024-06-01T12:58:25.769-0400    info    pprofextension@v0.98.0/pprofextension.go:60 Starting net/http/pprof server {"kind": "extension", "name": "pprof", "config": {"TCPAddr": {"Endpoint": "localhost:1777", "DialerConfig": {"Timeout": 0}}, "BlockProfileFraction": 0, "MutexProfileFraction": 0, "SaveToFile": ""}}
2024-06-01T12:58:25.769-0400    info    extensions/extensions.go:52 Extension started. {"kind": "extension", "name": "pprof"}
2024-06-01T12:58:25.769-0400    info    extensions/extensions.go:37 Extension is starting... {"kind": "extension", "name": "health_check"}
2024-06-01T12:58:25.769-0400    info    healthcheckextension@v0.98.0/healthcheckextension.go:35 Starting health check extension {"kind": "extension", "name": "health_check", "config": {"Endpoint": "0.0.0.0:13133", "TLSSetting": null, "CORS": null, "Auth": null, "MaxRequestBodySize": 0, "IncludeMetadata": false, "ResponseHeaders": null, "Path": "/", "ResponseBody": null, "CheckCollectorPipeline": {"Enabled": false, "Interval": "5m", "ExporterFailureThreshold": 5}}}
2024-06-01T12:58:25.769-0400    warn    internal@v0.98.0/warning.go:42 Using the 0.0.0.0 address exposes this server to every network interface, which may facilitate Denial of Service attacks. Enable the feature gate to change the default and remove this warning. {"kind": "extension", "name": "health_check", "documentation": "https://github.com/open-telemetry/opentelemetry-collector/blob/main/docs/security-best-practices.md#safeguards-against-denial-of-service-attacks", "feature_gate_ID": "component.UseLocalHostAsDefaultHost"}
2024-06-01T12:58:25.769-0400    info    extensions/extensions.go:52 Extension started. {"kind": "extension", "name": "health_check"}
2024-06-01T12:58:25.772-0400    warn    internal@v0.98.0/warning.go:42 Using the 0.0.0.0 address exposes this server to every network interface, which may facilitate Denial of Service attacks. Enable the feature gate to change the default and remove this warning. {"kind": "receiver", "name": "otlp", "data_type": "traces", "documentation": "https://github.com/open-telemetry/opentelemetry-collector/blob/main/docs/security-best-practices.md#safeguards-against-denial-of-service-attacks", "feature_gate_ID": "component.UseLocalHostAsDefaultHost"}
2024-06-01T12:58:25.773-0400    info    otlpreceiver@v0.98.0/otlp.go:102 Starting GRPC server {"kind": "receiver", "name": "otlp", "data_type": "traces", "end_point": "0.0.0.0:4317"}
2024-06-01T12:58:25.773-0400    warn    internal@v0.98.0/warning.go:42 Using the 0.0.0.0 address exposes this server to every network interface, which may facilitate Denial of Service attacks. Enable the feature gate to change the default and remove this warning. {"kind": "receiver", "name": "otlp", "data_type": "traces", "documentation": "https://github.com/open-telemetry/opentelemetry-collector/blob/main/docs/security-best-practices.md#safeguards-against-denial-of-service-attacks", "feature_gate_ID": "component.UseLocalHostAsDefaultHost"}
2024-06-01T12:58:25.773-0400    info    otlpreceiver@v0.98.0/otlp.go:152 Starting HTTP server {"kind": "receiver", "name": "otlp", "data_type": "traces", "end_point": "0.0.0.0:4318"}
2024-06-01T12:58:25.774-0400    info    healthcheck/handler.go:132 Health Check state change {"kind": "extension", "name": "health_check", "status": "ready"}
2024-06-01T12:58:25.774-0400    info    service@v0.98.0/service.go:169 Everything is ready. Begin running and processing data.
2024-06-01T12:58:25.774-0400    warn    localhostgate/featuregate.go:63 The default endpoints for all servers in components will change to use localhost instead of 0.0.0 in a future version. Use the feature gate to preview the new default. {"feature_gate_ID": "component.UseLocalHostAsDefaultHost"}
```

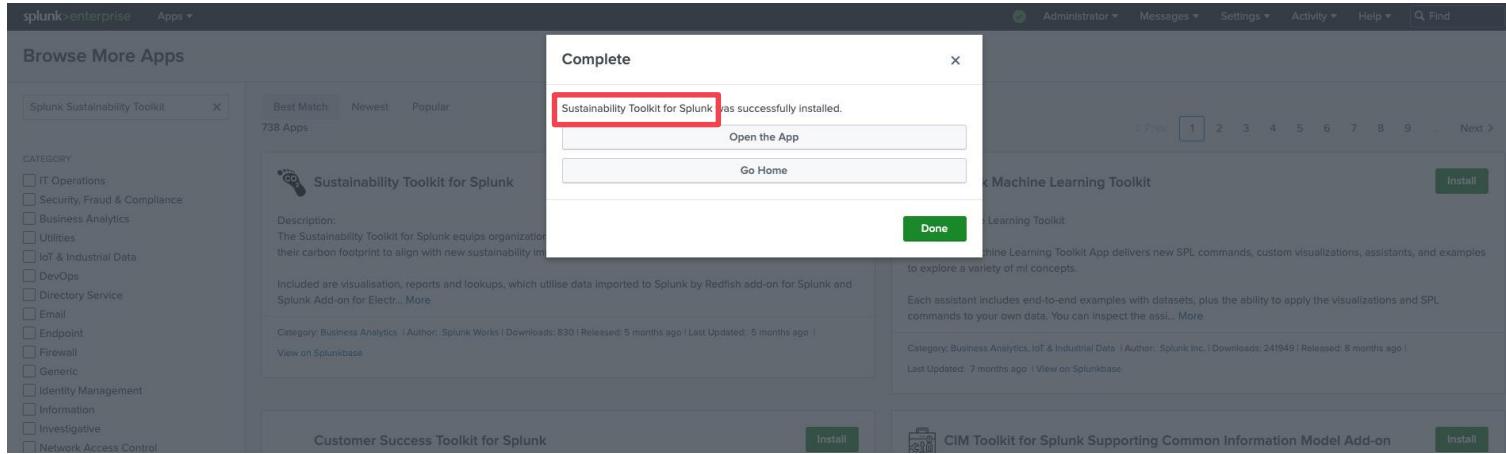
Config writes to file data/otel-export.jsonl, which can be modified as desired.

Starting intersight_otel

You will need to edit the config:

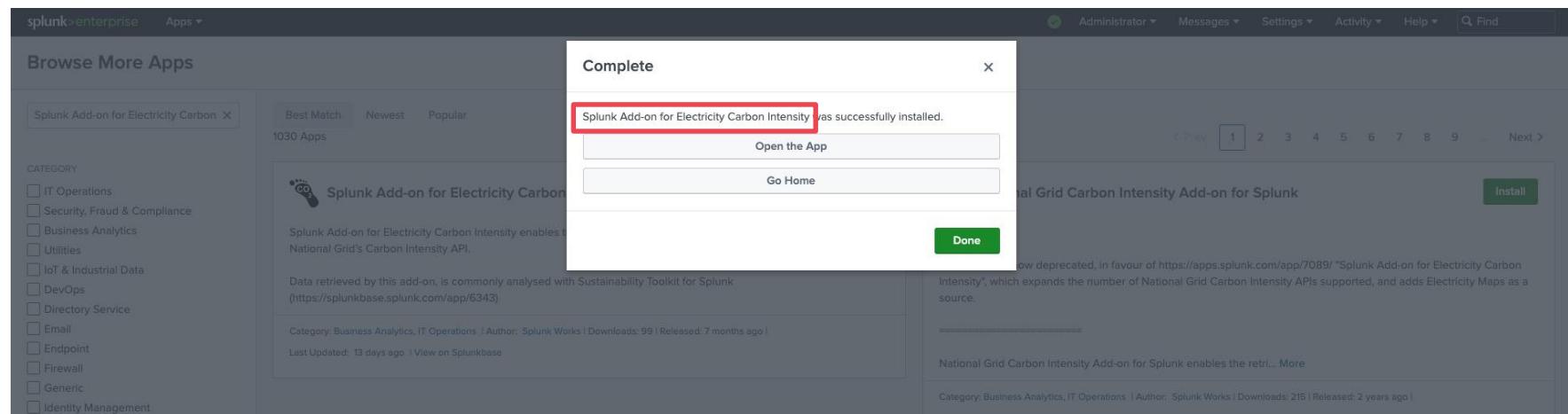
- To have your Intersight API information
 - To edit the destination for OTLP data to send to. Sample config assumes otelcol is running on the same box and default port.

Install Splunk apps

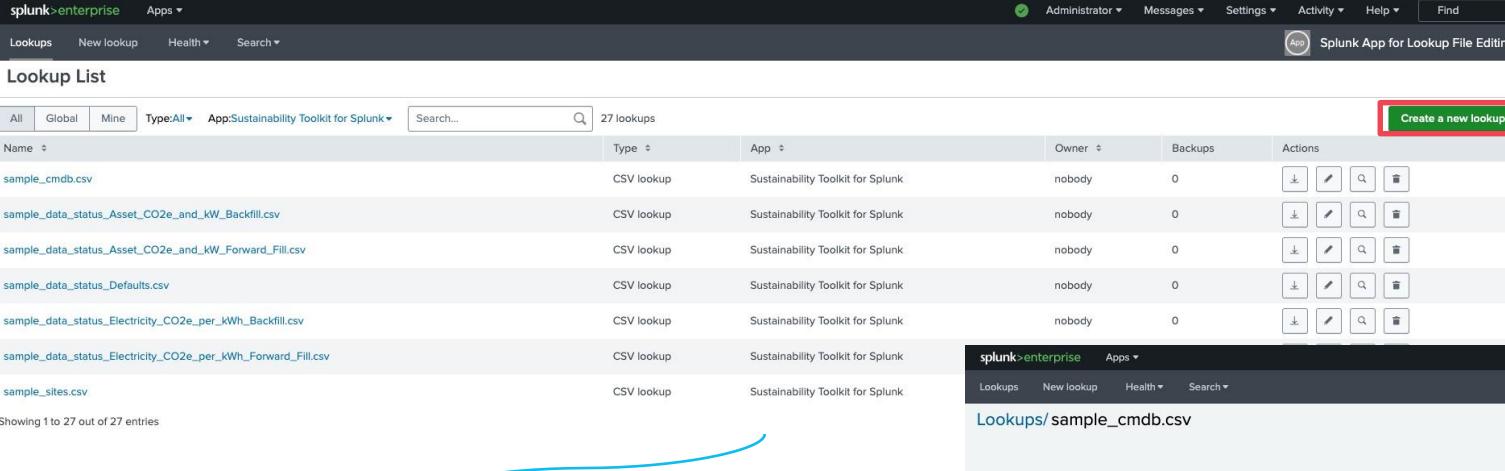


Sustainability Toolkit ships with canned dashboards to visually represent sustainability metrics & outcomes

Splunk Add-on for Electricity Carbon Intensity will bring in electricitymaps.com data into Splunk



Create lookups for CMDB & sites



The screenshot shows the Splunk interface with the 'enterprise' app selected. The top navigation bar includes 'splunk>enterprise', 'Apps', 'Lookups', 'New lookup', 'Health', 'Search', and 'Administrator'. The main area is titled 'Lookup List' and shows a table of 27 lookups. The table columns are 'Name', 'Type', 'App', 'Owner', 'Backups', and 'Actions'. The 'Actions' column contains icons for edit, delete, search, and refresh. A red button in the top right corner says 'Create a new lookup'. Below the table, it says 'Showing 1 to 27 out of 27 entries'. A blue arrow points from the 'Actions' column of the first row to a larger 'Import File' dialog box. This dialog box has a title 'Import File' and instructions: 'Import the contents of a CSV file into this lookup file.' It includes a note: 'Note: The CSV file needs to have all of the columns that are defined in this lookup. Extra columns are allowed and will be ignored.' There is a dashed box for 'Drop your file here or [Upload file](#)' which contains 'sample_cmdb.csv'. Below it says 'Supports csv file types'. A tip at the bottom says 'Tip: You can drag and drop a CSV file onto the editor'. At the bottom are 'Cancel' and 'Import' buttons. To the right of the dialog, there's a 'Backup' button and a table preview showing 20 rows of data from the 'sample_cmdb.csv' file.

Name	Type	App	Owner	Backups	Actions
sample_cmdb.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_data_status_Asset_CO2e_and_kw_Backfill.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_data_status_Asset_CO2e_and_kw_Foreward_Fill.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_data_status_Defaults.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_data_status_Electricity_CO2e_per_kWh_Backfill.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_data_status_Electricity_CO2e_per_kWh_Foreward_Fill.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	
sample_sites.csv	CSV lookup	Sustainability Toolkit for Splunk	nobody	0	

Showing 1 to 27 out of 27 entries

Import File

Import the contents of a CSV file into this lookup file.

Note: The CSV file needs to have all of the columns that are defined in this lookup. Extra columns are allowed and will be ignored.

Drop your file here or [Upload file](#).

Supports csv file types

sample_cmdb.csv

Tip: You can drag and drop a CSV file onto the editor

Cancel Import

splunk>enterprise Apps

Lookups New lookup Health Search

Lookups/sample_cmdb.csv

Select the table to see editing options. To add a new column, select tab.

Asset IP	Site	Country
1 AI_labuser1 Fi-A	Zürich DC	Switzerland
2 AI_labuser1 Fi-B	Zürich DC	Switzerland
3 AI_labuser1-1	Zürich DC	Switzerland
4 AI_labuser1-2	Zürich DC	Switzerland
5 AI_labuser2 Fi-A	Zürich DC	Switzerland
6 AI_labuser2 Fi-B	Zürich DC	Switzerland
7 AI_labuser2-1	Zürich DC	Switzerland
8 AI_labuser2-2	Zürich DC	Switzerland
9 AI_labuser2-3	Frankfurt Factory	Germany
10 192.168.0.1	Zürich Factory	Switzerland
11 192.168.0.2	Zürich Factory	Switzerland
12 192.168.0.3	Zürich Factory	Switzerland
13 192.168.1.1	Zürich DC	Switzerland
14 192.168.1.2	Zürich DC	Switzerland
15 192.168.1.3	Zürich DC	Switzerland
16 192.168.1.4	Zürich DC	Switzerland
17 192.168.1.5	Zürich DC	Switzerland
18 192.168.1.6	Zürich DC	Switzerland
19 192.168.1.7	Zürich DC	Switzerland
20 192.168.1.8	Zürich DC	Switzerland

Showing page 1 of 11 entries

Create asset & site inventory within Splunk to cross-reference with OpenTelemetry data

splunk>enterprise Apps ▾

Administrator ▾ Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

Lookups New lookup Health ▾ Search ▾

Splunk App for Lookup File Editing

Lookups/sample_cmdb.csv

Backup limit: none Edit limit Manage Backups Revert to previous version ▾

Select the table to see editing options. To add a new column, select tab.

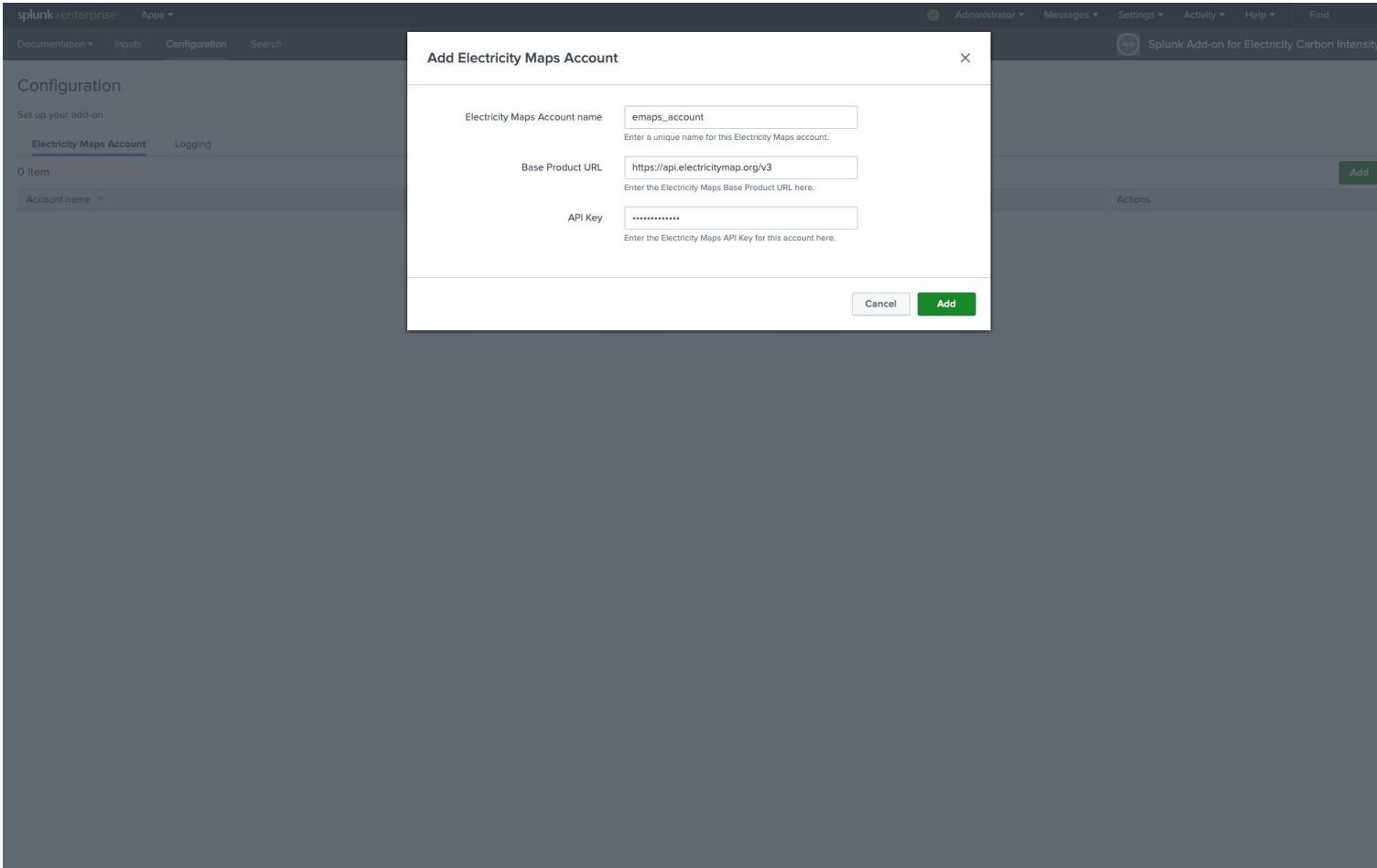
	Asset IP	Site	Country	Location	Application	Embodyed CO2e	Years Lifetime
1	A1_Jabuser1 Fi-A	Zürich DC	Switzerland		UCSX-210C-M6		
2	A1_Jabuser1 Fi-B	Zürich DC	Switzerland		UCSX-210C-M6		
3	A1_Jabuser1-1	Zürich DC	Switzerland		UCSX-210C-M6		
4	A1_Jabuser1-1-2	Zürich DC	Switzerland		UCSX-210C-M6		
5	A1_Jabuser2 Fi-A	Zürich DC	Switzerland		UCSX-210C-M6		
6	A1_Jabuser2 Fi-B	Zürich DC	Switzerland		UCSX-210C-M6		
7	A1_Jabuser2-1-1	Zürich DC	Switzerland		UCSX-210C-M6		
8	A1_Jabuser2-1-2	Zürich DC	Switzerland		UCSX-210C-M6		
9	A1_Jabuser2-1-3	Frankfurt Factory	Germany		UCSX-210C-M7		
10	192.168.0.1	Zürich Factory	Switzerland		Mixer		
11	192.168.0.2	Zürich Factory	Switzerland		Mixer		
12	192.168.0.3	Zürich Factory	Switzerland		Oven		
13	192.168.11	Zürich DC	Switzerland		Microsoft Exchange	6255.6	4
14	192.168.12	Zürich DC	Switzerland		Microsoft Exchange	6255.6	4
15	192.168.13	Zürich DC	Switzerland		Microsoft Exchange	6255.6	4
16	192.168.14	Zürich DC	Switzerland		Microsoft Active Directory	6255.6	4
17	192.168.15	Zürich DC	Switzerland		Microsoft Active Directory	6255.6	4
18	192.168.16	Zürich DC	Switzerland		Estreamer	6255.6	4
19	192.168.17	Zürich DC	Switzerland		Estreamer	6255.6	4
20	192.168.18	Zürich DC	Switzerland		File Server	6255.6	4

Showing page 1 of 11 entries

1 2 3 4 5 6 7 8 9 10 >

Save lookup

Configure electricity maps API account



Create new index for OpenTelemetry data

The screenshot shows the Splunk Enterprise interface for managing indexes. On the left, a list of existing indexes is displayed, including '_audit', '_configtracker', '_dsappevent', '_dsclient', '_dphonehome', '_internal', '_introspection', '_metrics', '_metrics_rollup', '_telemetry', '_thefishbucket', 'electricity_carbon_intensity', 'history', 'main', 'splunklogger', and 'summary'. The main area is a 'New Index' dialog for creating a new index named 'otel'. The 'General Settings' section includes fields for Index Name (otel), Index Data Type (Events selected), Home Path (optional), Cold Path (optional), Thawed Path (optional), Data Integrity Check (Enable selected), Max Size of Entire Index (500 GB), Max Size of Hot/Warm/Cold Bucket (auto GB), Frozen Path (optional), App (Sustainability Toolkit for Splunk), and Storage Optimization (Tsidx Retention Policy). The 'Storage Optimization' section includes 'Enable Reduction' and a warning about its implications. The right side of the interface shows a list of all indexes with their respective Home Path, Frozen Path, and Status.

Home Path	Frozen Path	Status
\$SPLUNK_DB/audit/db	N/A	✓ Enabled
\$SPLUNK_DB/_configtracker/db	N/A	✓ Enabled
\$SPLUNK_DB/_dsappevent/db	N/A	✓ Enabled
\$SPLUNK_DB/_dsclient/db	N/A	✓ Enabled
\$SPLUNK_DB/_dphonehome/db	N/A	✓ Enabled
\$SPLUNK_DB/_internal/db	N/A	✓ Enabled
\$SPLUNK_DB/_introspection/db	N/A	✓ Enabled
\$SPLUNK_DB/_metrics/db	N/A	✓ Enabled
\$SPLUNK_DB/_metrics_rollup/db	N/A	✓ Enabled
\$SPLUNK_DB/_telemetry/db	N/A	✓ Enabled
\$SPLUNK_DB/_thefishbucket/db	N/A	✓ Enabled
\$SPLUNK_DB/electricity_carbon_intensity/db	N/A	✓ Enabled
\$SPLUNK_DB/historydb/db	N/A	✓ Enabled
\$SPLUNK_DB/defaultdb/db	N/A	✓ Enabled
\$SPLUNK_DB/splunklogger/db	N/A	✗ Disabled
\$SPLUNK_DB/summarydb/db	N/A	✓ Enabled

Upload data to index (demo only)

What data do you want to send to the Splunk platform?

Follow guides for onboarding popular data sources

- Cloud computing (10 data sources)
- Networking (2 data sources)
- Operating System (1 data source)
- Security (3 data sources)

4 data sources in total

Or get data in with the following methods

- Upload files from my computer (Local log files, Local structured files (e.g. CSV), Tutorial for adding data)
- Monitor files and ports on this Splunk platform instance (HTTP - WMI - TCP/UDP - Scripts, Modular inputs for external data sources)
- Forward data from a Splunk forwarder (Files - TCP/UDP - Scripts)

Example shows manually uploading a file with lab data. In production, you may want to setup “Monitor” or “Forward” to ingest data.

Add Data Select Source Set Source Type Input Settings Review Done < Back Next >

✓ File has been uploaded successfully.
Configure your inputs by going to Settings > Data Inputs

Start Searching Search your data now or see examples and tutorials. [Learn more](#)

Extract Fields Create search-time field extractions. [Learn more about fields](#).

Add More Data Add more data inputs now or see examples and tutorials. [Learn more](#)

Download Apps Apps help you do more with your data. [Learn more](#).

Build Dashboards Visualize your searches. [Learn more](#).

Set Source Type This page lets you see how the Splunk platform sees your data before indexing. If the events look correct and have the right timestamps, click “Next” to proceed. If not, use the options below to define proper event breaks and timestamps. If you cannot find an appropriate source type for your data, create a new one by clicking “Save As”.

Source: `otelcol-export.jsonl` View Event Summary

Event Breaks Define event boundaries for incoming data. Save As

Event-breaking policy: Auto, Every line, Regex

Timestamp

Advanced

Time	Event
1 5/29/24 3:15:26.000 PM	{ [-] resourceMetrics: [[+]
]
)
	Show as raw text
	timestamp = none
2 5/29/24 3:15:26.000 PM	{ [-] resourceMetrics: [[+]
]
)
	Show as raw text
	timestamp = none
3 5/29/24 3:15:26.000 PM	{ [-] resourceMetrics: [[+]
]
)
	Show as raw text
	timestamp = none

Run otel-sst-quickstart.py

```
python3 otel-sst-quickstart.py
Enter your splunk IP or hostname: 10.122.139.24
Enter your Splunk management port (usually 8089): 8089
Enter your Splunk username: admin
Enter your Splunk password:
Info: Authenticated successfully to Splunk.
App 'Sustainability_Toolkit' is installed.
App 'TA-electricity-carbon-intensity' is installed.
Info: Authenticated successfully to Splunk.
The index 'otel' already exists.
The index 'electricity_carbon_intensity' already exists.
The index 'sustainability_toolkit_summary_asset_metrics' already exists.
The index 'sustainability_toolkit_summary_electricity_metrics' already exists.
Switching to the carbon intensity app context.
Info: Authenticated successfully to Splunk.

***ACTION REQUIRED***
Please navigate to this URL, click Add, and provision your electricitymaps API account, then return back here:
http(s)://10.122.139.24:8000/en-US/app/TA-electricity-carbon-intensity/configuration

Use the following information:
Electricity Maps Account name: electricitymaps
Base Product URL: https://api.electricitymap.org/v3
API Key: [your API key]

Once you complete this step return to this window and hit enter to proceed with the automation:
Do you already know the name of your electricitymaps zones? If not, we can show you the options here by saying no (y/n):y
Enter the electricitymaps zones you want to collect data from, in a comma separated format. See above for the full list of zones (e.g. CH,DE,US-CAR-DUK,US-CAL-LDWP)
Configuration parameters updated successfully for inputs.
Switching back to the Sustainability Toolkit app context
Info: Authenticated successfully to Splunk.
Search macro power-otel has been created.
Search macro power-asset-location-old has been created.
Search macro power-asset-location has been created.
Search macro electricity-carbon-intensity-for-assets-old has been created.
Search macro electricity-carbon-intensity-for-assets has been created.
Saved search 'Summarize Asset CO2e & kW V1.0' updated successfully.
Saved search 'Summarize Electricity CO2e/kWh V1.0' updated successfully.
```

Script adjusts Sustainability Toolkit Search Macros & Saved Searches to work with OpenTelemetry Data.

Sustainability Toolkit with OpenTelemetry data

