LEVEL UP SKYLIGHT SUMMIT 2023

Leveling Up Skylight in 2023

What's Next for Skylight?

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Agenda

1 Skylight Moving Forward

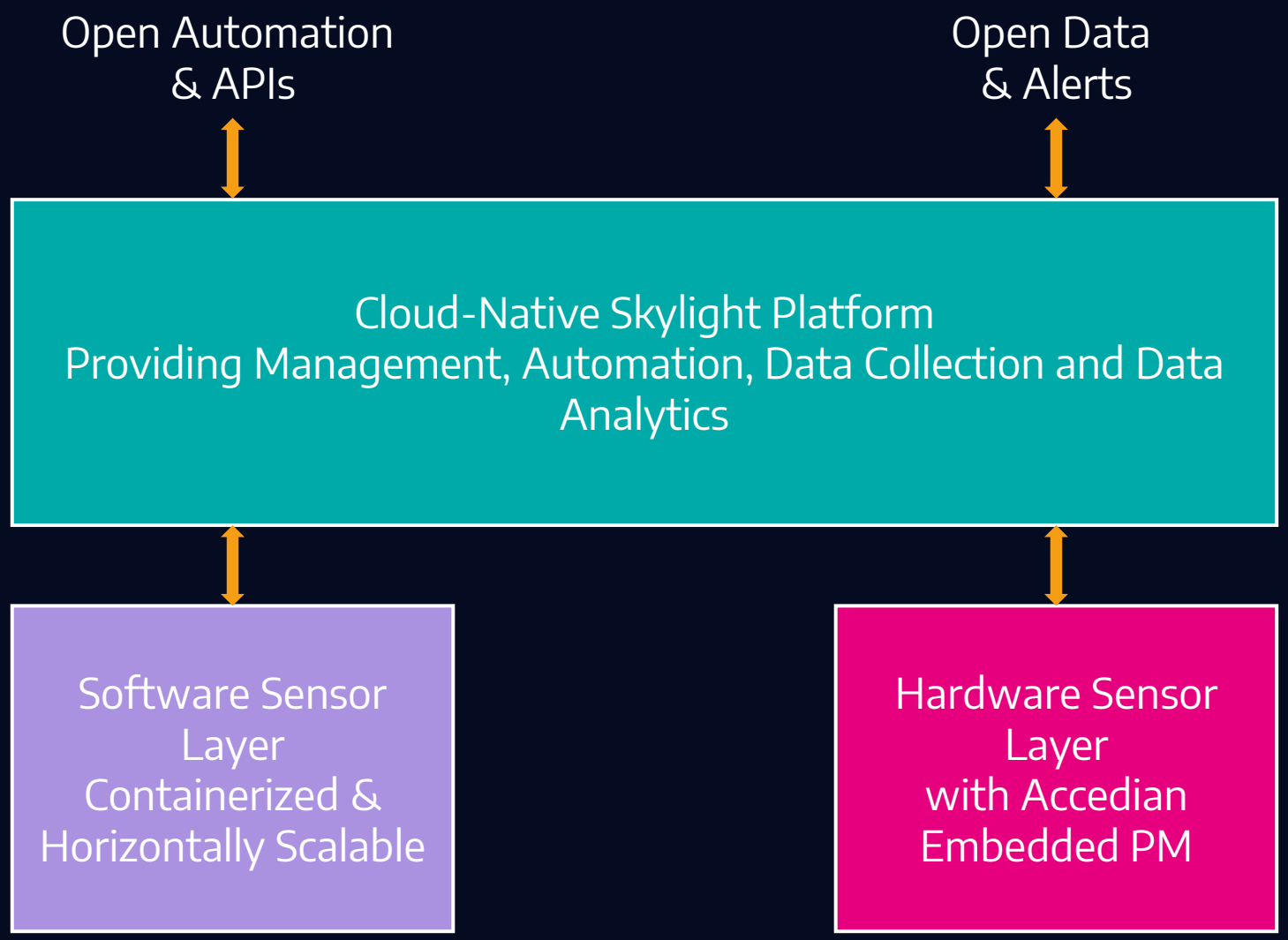
2 Skylight and Cisco

3 Building on Skylight as a Platform

4 Leveling Up Skylight in 2023

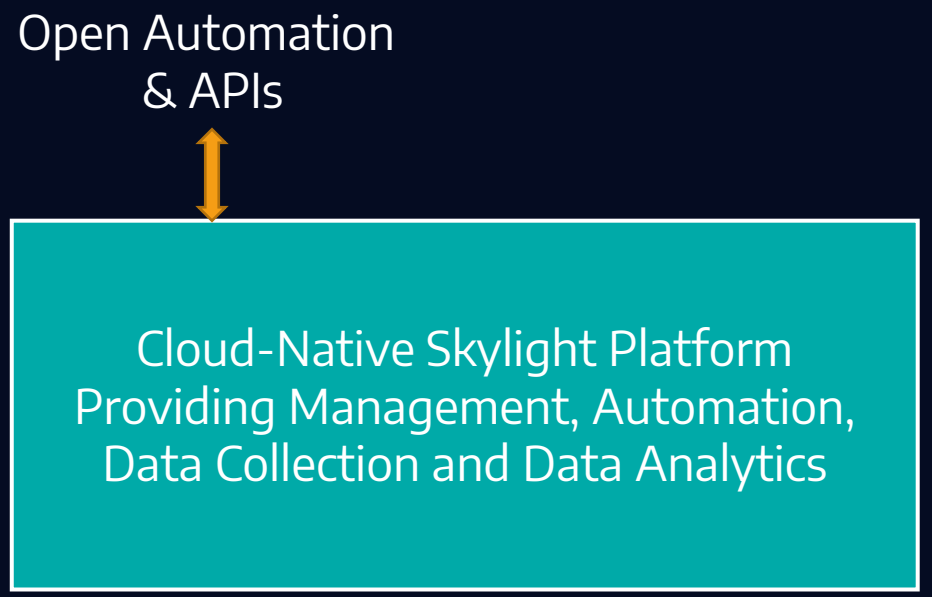
1: Skylight Moving Forward

SKYLIGHT


Open Automation & APIs
Open Data & Alerts
Cloud-Native Skylight Platform Providing Management, Automation, Data Collection and Data Analytics
Software Sensor Layer Containerized & Horizontally Scalable
Hardware Sensor Layer with Accedian Embedded PM

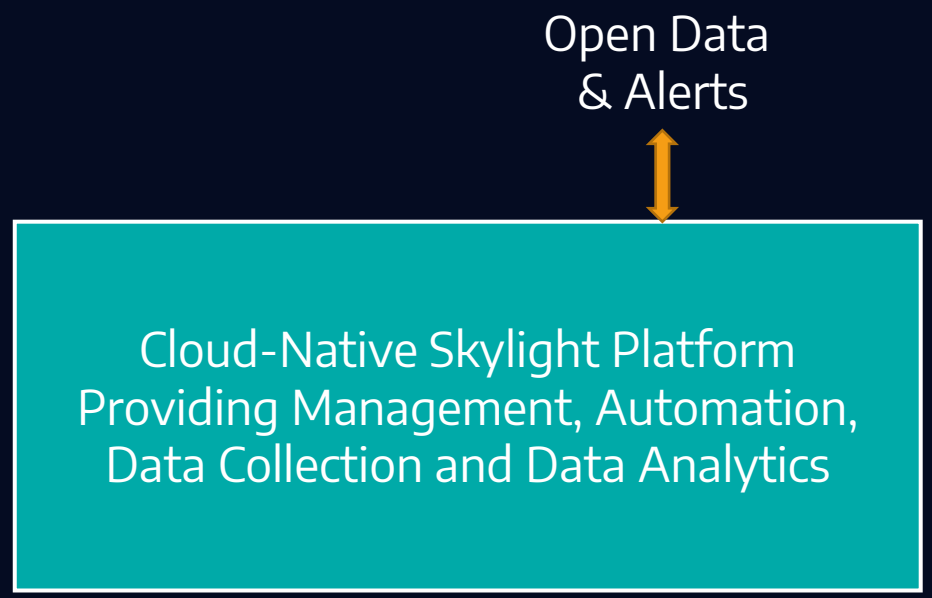
Skylight Platform

- APIs and Automation First
  - New common APIs and Interfaces to make it easier to automate the deployment of Skylight, no matter which sensors you are using
- Unified UI for Management
  - Common login and management user interfaces to allow manual management (small customers, one-off and demos) of Skylight, no matter which sensors you are using



Skylight Analytics

- Predictive and Proactive Performance Analytics
  - Continue to offer more capabilities to provide insight into our data, both to end users and to customers via portal capabilities
- Predictive and Proactive Security Analytics
  - Mature Skylight Interceptor to provide better insight and a more integrated security / performance solution
- Easy Integration of Skylight Intelligence into Other Platforms
  - IPaaS for third party platform integration
  - New APIs to make it even easier to share data and insights from Skylight



Skylight Sensors: Performance Elements

- 1G/10G
  - We will continue to support and sell the GT, GX, LT and LX
- The future is Flex
  - 100G platform now (and continuing to evolve)
  - 25G platform in 2023, 10G platform in 2024 as a cost-reduced 10G option
  - A single software platform – we're investing to make sure Flex can provide the PM capabilities of our original 1G/10G platform with more robust networking capabilities based on the Flex switch platform

Hardware Sensor Layer with Accedian Embedded PM

Skylight Sensors: SFP Compute & Modules

- 1G and 10G SFP and Modules
  - We introduced new 10G SFP variants in 2022
- 25G, 100G and Beyond
  - We're planning on introducing new SFPs (and eventually Modules) for 25G and 100G
  - This will be managed by a new lightweight / containerized and scalable platform that will replace Sensor Control
    - Embed e.g. running as an IOS-XR app on the same router where the SFP is plugged in
    - Scale horizontally by deploying more containers as needed

Hardware Sensor Layer with Accedian Embedded PM

Skylight Sensors: Agents

- More agent types and more protocols, allowing us to extend our synthetic test capabilities into more locations and provide more visibility
  - Added Traceroute, HTTPS/SFTP/DNS - working on more L7 protocols
- More automation and making Skylight Sensor Agents easier to embed
  - Running on Cisco IOS-XR as an XR application, running on SD-WAN whiteboxes, private 5G routers, O-RAN / V-RAN, etc.
- Leverage HW timestamping options
  - Make Sensor Agents the choice for software-based testing from L2 to L7

Software Sensor Layer
Containerized & Horizontally Scalable

Skylight Sensors: Capture

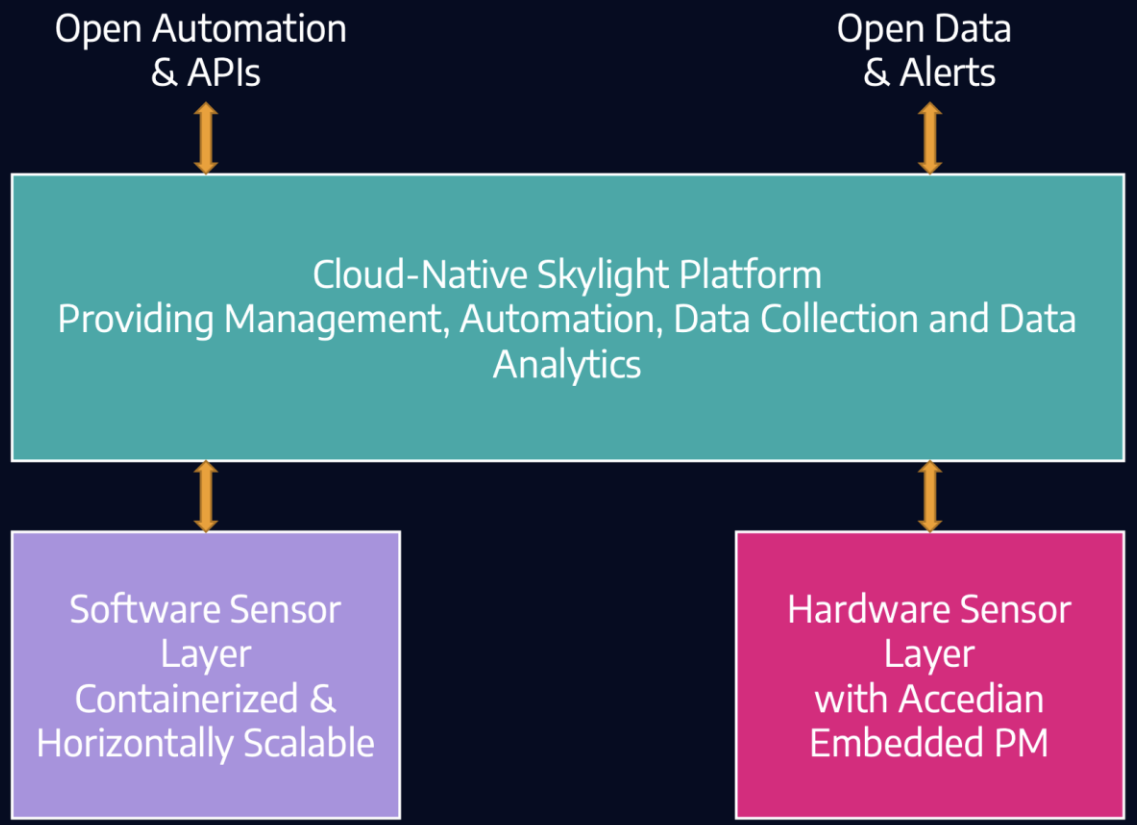
- More protocols from L3 to L7 – e.g. HTTP/2, ARP, FTP, DHCP/BOOTP, LDAP, SOCKS5, IPSEC
- L7 SaaS Application identification out of the box
- More automation and making Skylight Sensor Capture easier to embed
  - API-driven configuration and automation
  - Containerized packaging to more easily deploy sensor capture in more locations, distributing our ability to do real user monitoring on SD-WAN, cloud and K8s, etc.

Software Sensor Layer
Containerized &
Horizontally Scalable

Leverage Everything Skylight Has To Offer

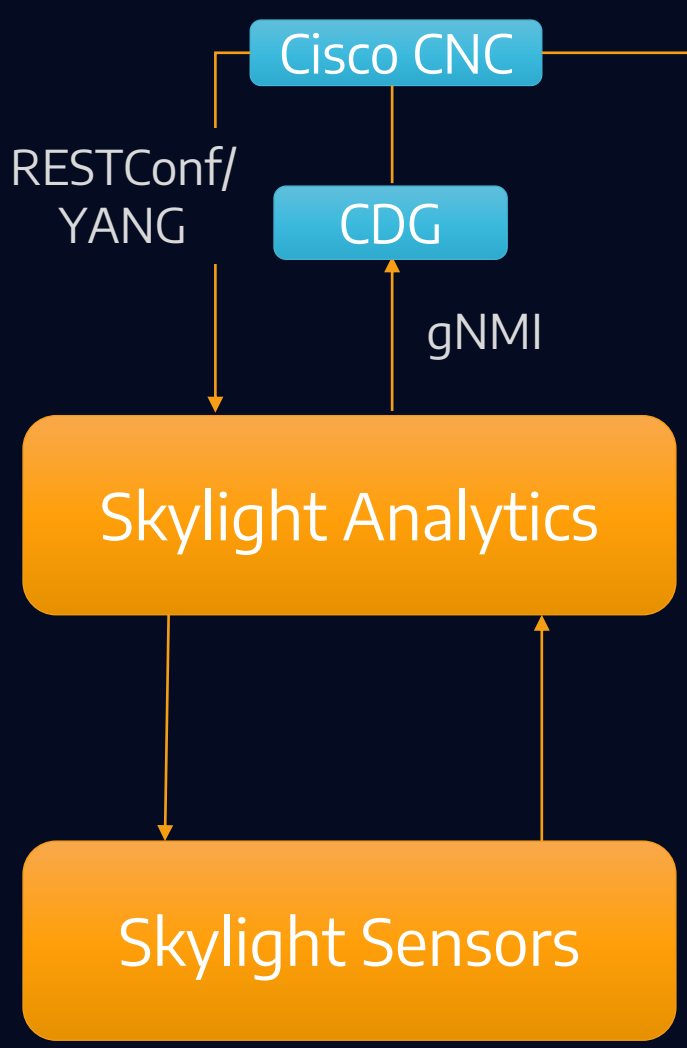
A Complete Service Assurance and Security Visibility Platform

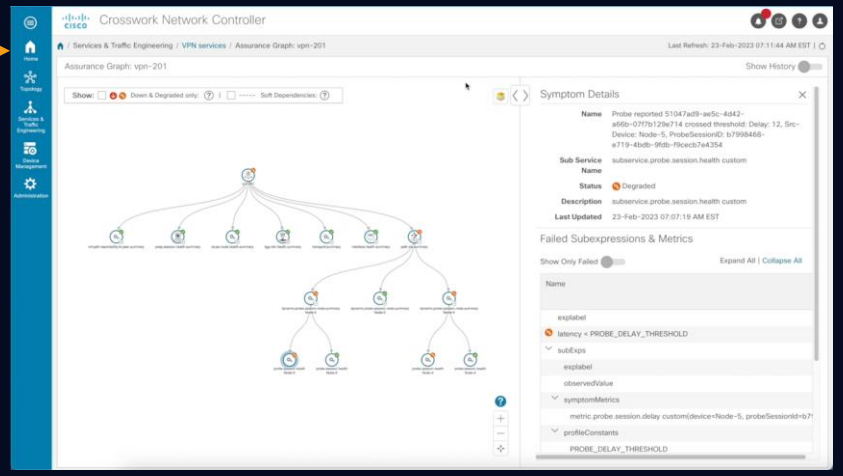
- A full suite of Skylight sensors for active testing from L2 to L7
  - We continue to invest in more protocols, from TWAMP to TCP to HTTPS/DNS
- Skylight capture sensor for real user monitoring from L2 to L7
  - We continue to add support for new protocols to improve real user visibility
- Easily add external sources of performance data to Skylight out of the box with support for open standards for data ingestion
  - Support for hundreds of different data sources via configuration



2: Skylight and Cisco

Skylight Integration with Cisco CNC

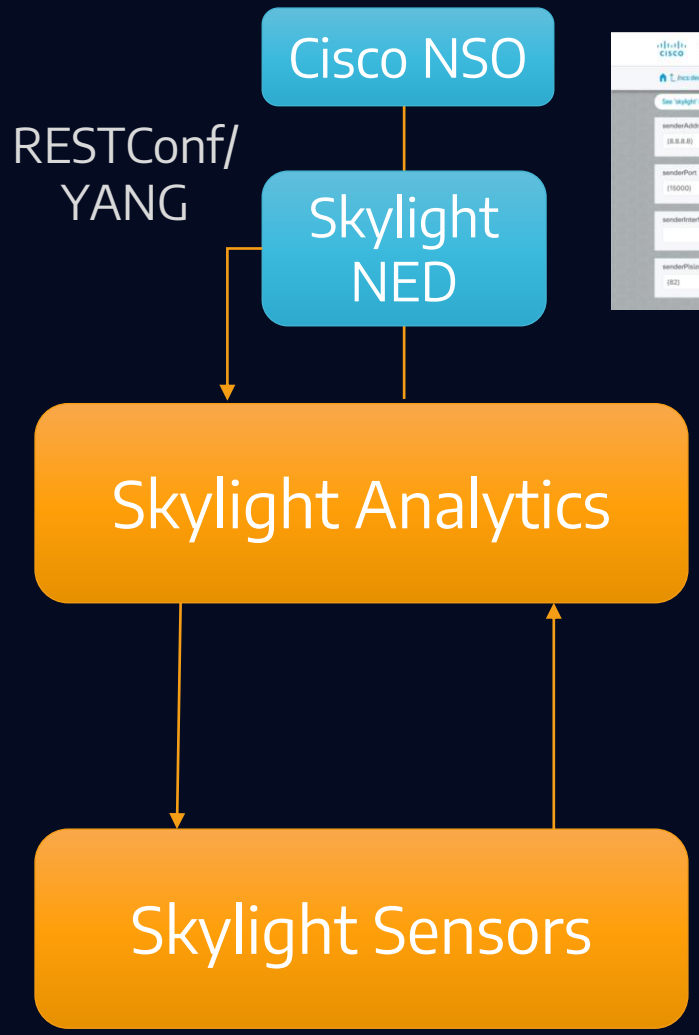


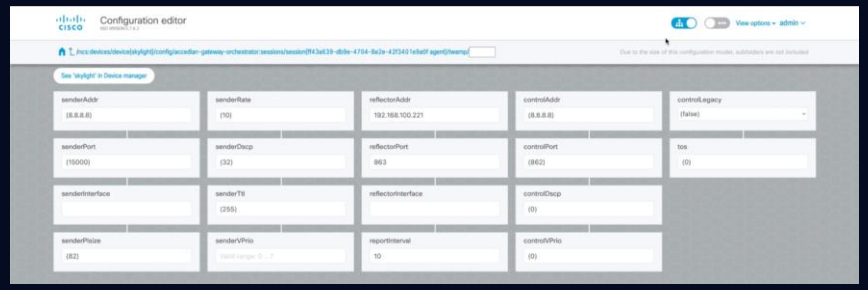


- What
  - Integration with Crosswork Network Controller (Cisco IP Network Controller) Service Health
- Why
  - Automate provisioning of assurance with an L3 VPN
  - Provide Skylight L3 PM data inside of CNC
- How
  - RESTConf APIs, gNMI streaming
- When
  - POC Now, 23.08 / Q4 2023 with CNC

Cisco Dependency:
Crosswork Network Controller Customer

Skylight Integration with Cisco NSO

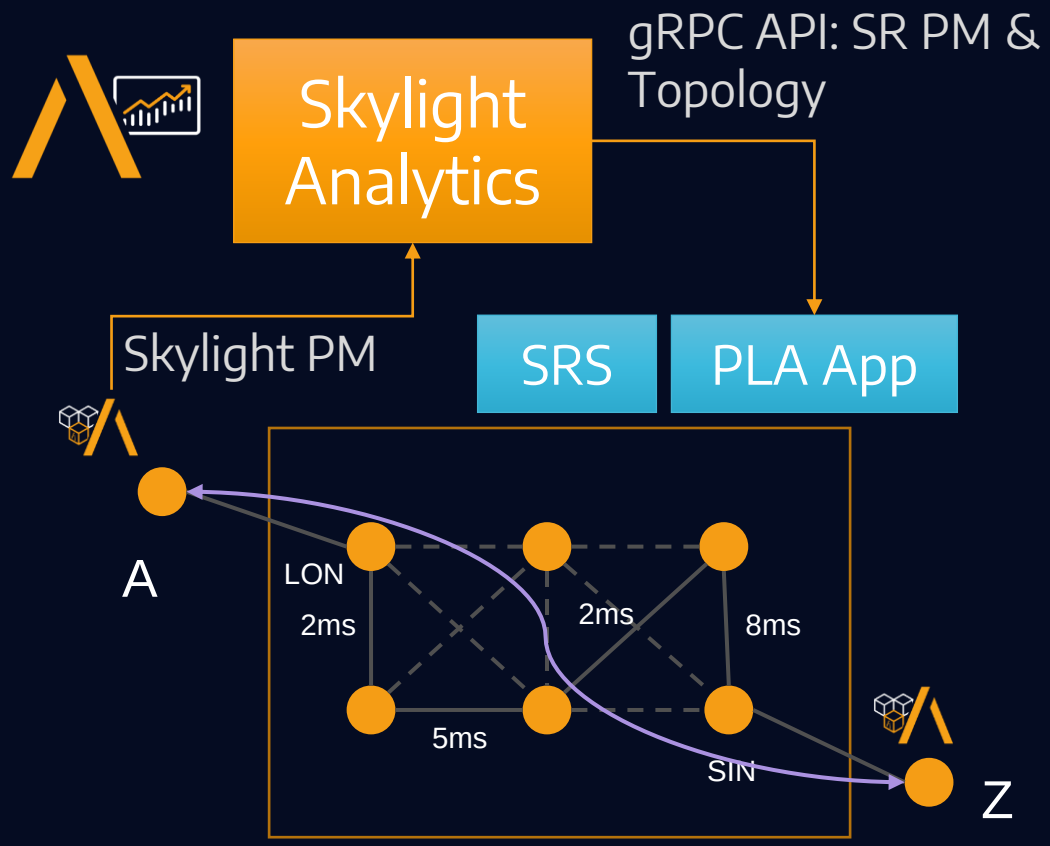




- What
  - Integration with Crosswork Network Services Orchestrator (NSO)
- Why
  - Integrate Skylight assurance provisioning into multi-vendor automated provisioning workflows in NSO
  - Send assurance alerts to NSO for closed loop automation
- How
  - RESTConf APIs
- When
  - POC Now, Planned 23.11

Cisco Dependency:
NSO Customer,
Skylight NED

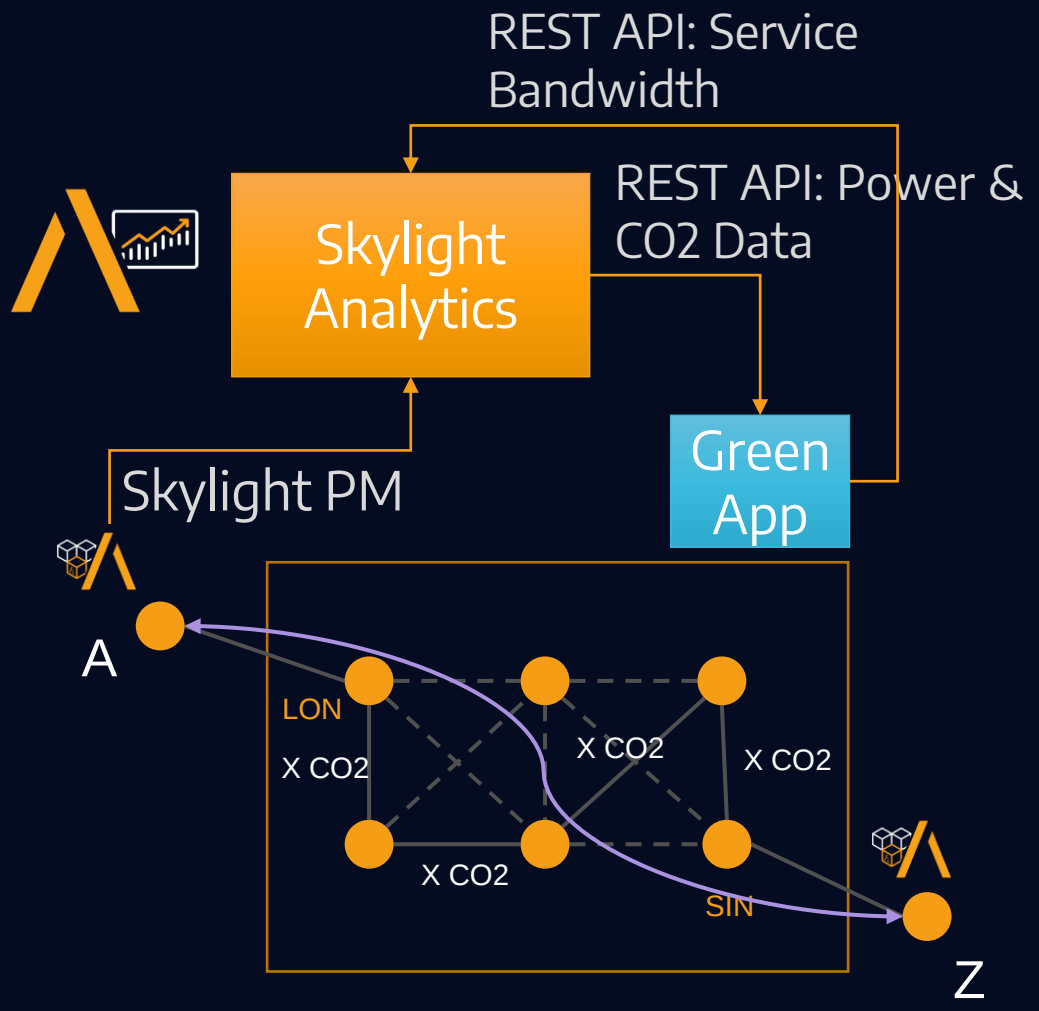
Skylight SRS Apps/PLA Integration



Cisco Dependency: Cisco SR/Routing Customer

- What
  - Integration with Cisco Segment Routing Services (SRS) for SR-PM and SR Path Data
- Why
  - Provide a single pane of glass with both end-to-end service visibility and hop-by-hop segment routing performance visibility correlated together
- How
  - gRPC API to Cisco PLA application for SRv6 PM & topology, integration with other SRS applications
- When
  - POC Now, Planned 23.11 for PLA, further enhancements TBD

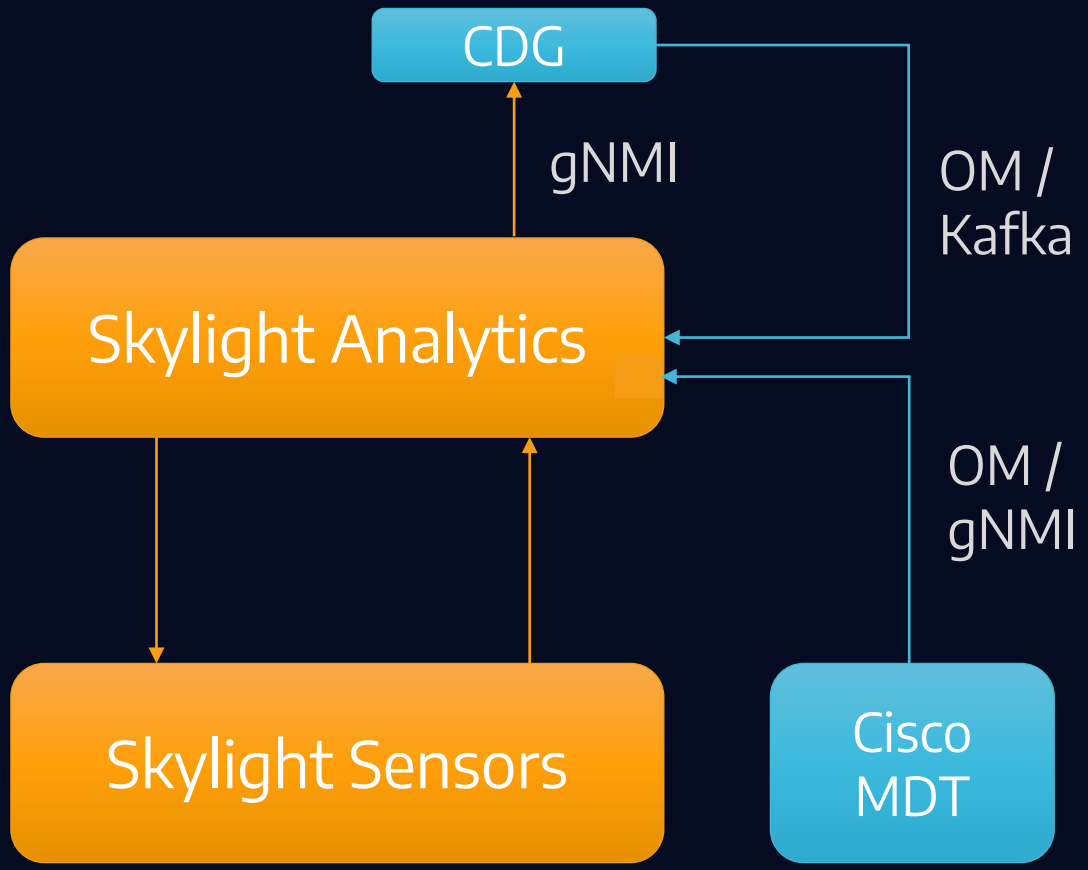
Skylight with Cisco Green VPN



- What
  - Integration with Cisco Green App to extract power/ carbon usage on a per-service basis
- Why
  - Provide customers with a power/carbon KPI on a per service basis, correlated with our other performance KPIs
- How
  - REST API to Cisco Green App for Power & CO2 data on a per-service basis
- When
  - Prototyping now, TBD for availability

Cisco Dependency:
Cisco Green VPN App

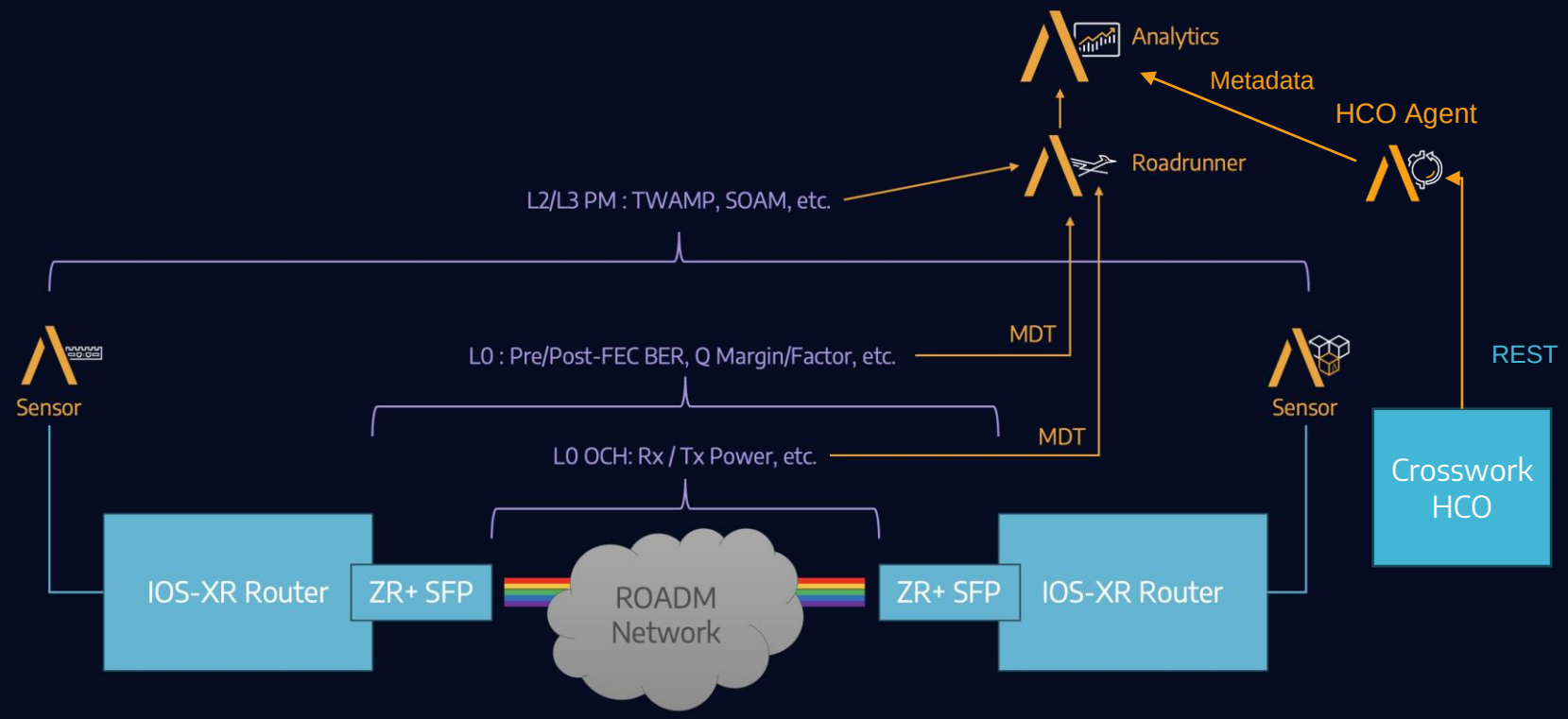
Skylight with Cisco Telemetry



Cisco Dependency: CDG and/or MDT from Cisco IOS Routers

- What
  - Integration with Cisco Model-Driven Telemetry (MDT) and Crosswork Data Gateway (CDG)
- Why
  - Today this requires PS development and using open-source tools; we want to make this simpler and faster to implement to allow Skylight to be easier to deploy when ingesting various Cisco data sources
- How
  - Pre-build mediation into OpenMetrics for common Cisco data sources (MDT, CDG)
- When
  - Available today, improvements planned 23.11

Skylight RON/HCO Integration



Ping me to get this one!

Cisco Dependency:
RON, HCO/HCH

- What
  - Integration with Cisco Routed Optical Networking (RON) and Crosswork Hierarchical Controller (HCO / CHC)
- Why
  - Single pane of glass for L0-L3 performance assurance, and path diversity assurance
- How
  - Integrate RON data via MDT, HCO via APIs
- When
  - Prototyping now, TBD
  - Cisco / Vodafone MWC 2024

Skylight Agents on IOS

- What
  - Formal support of agents on IOS-XR / IOS-XE in the third-party application (TPA) runtime
  - (Future) Skylight agents as IOS native applications
- Why
  - Allow Skylight sensor agents to be deployed anywhere there is a Cisco router
  - Be able to have our agents deployed on any Cisco router, and have this be formally be supported by Cisco
- How
  - Cisco app manager for TPA
- When
  - Prototype now, Cisco certification TBD

Cisco Dependency:
IOS-XR/XE with TPA

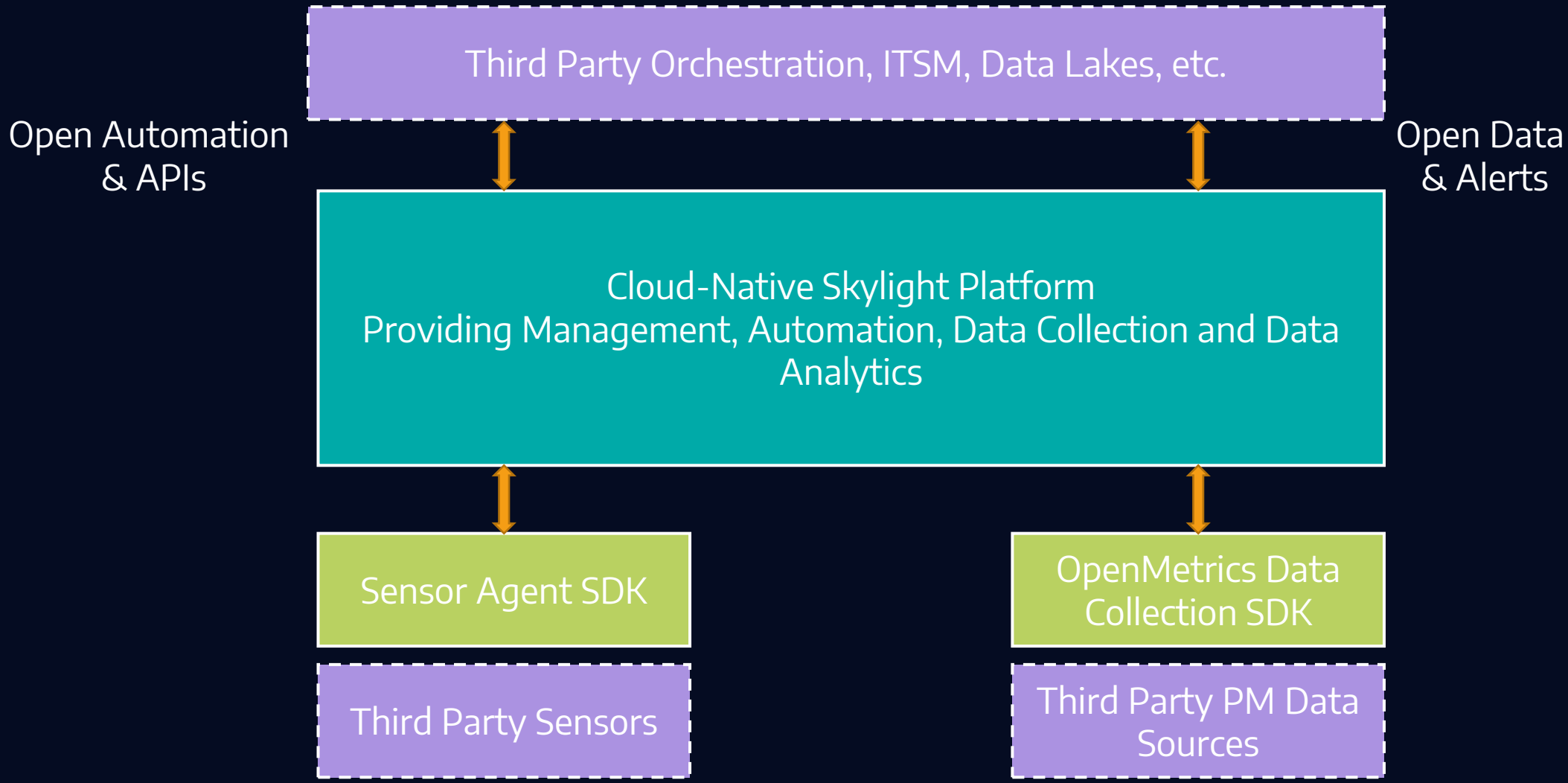
Skylight SFPs on IOS

- What
  - Formal support for our SFP compute in Cisco IOS routers
- Why
  - Insert an SFP anywhere there is a Cisco router, for accurate and granular performance visibility
  - So our SFPs are certified / supported by Cisco
- How
  - Certification testing
- When
  - Works now (over 15k deployed in the field today), Cisco certification TBD

Cisco Dependency:
IOS Devices with SFPs

3: Building on Skylight as a Platform

Skylight Platform: A Foundation For Developers



Skylight Platform: A Foundation for Developers

- Northbound APIs – Sensor Automation
  - REST APIs & RESTConf APIs
- Northbound APIs & Data Bus – Data and Event Extraction
  - REST APIs & RESTConf APIs, gNMI & Kafka Bus
  - IPaaS for application integration
- Southbound APIs – Third Party Sensor Integration
  - SDK for managing other probes / sensors
- Southbound APIs – OpenMetrics / Prometheus
  - Add third party data sources

4: Leveling Up Skylight in 2023

...Leveled Up for 2023

HW Sensors

New performance element platform that provides assurance demarcation at 10G, 25G, 100G. New SFP compute platform to address 25G and beyond.

SW Sensors

Software sensors that can be fully automated and embedded into a wide variety of platforms, with the ability to do synthetic and real user monitoring from L2 to L7.

Automation

A single set of orchestration and automation APIs, combined with open interfaces for data ingestion and sensor integration make Skylight a complete platform to develop upon.

Analytics

Deep performance insight from Skylight sensor data, with best-in-class portal and troubleshooting user interfaces. Open APIs and interfaces to share this knowledge with rest of automation stack.

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Thank You!

You know where to find me!

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