

Closed-Loop Automation using CI/CD Pipelines with the Power of AI

cisco Live !

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Cisco Webex App

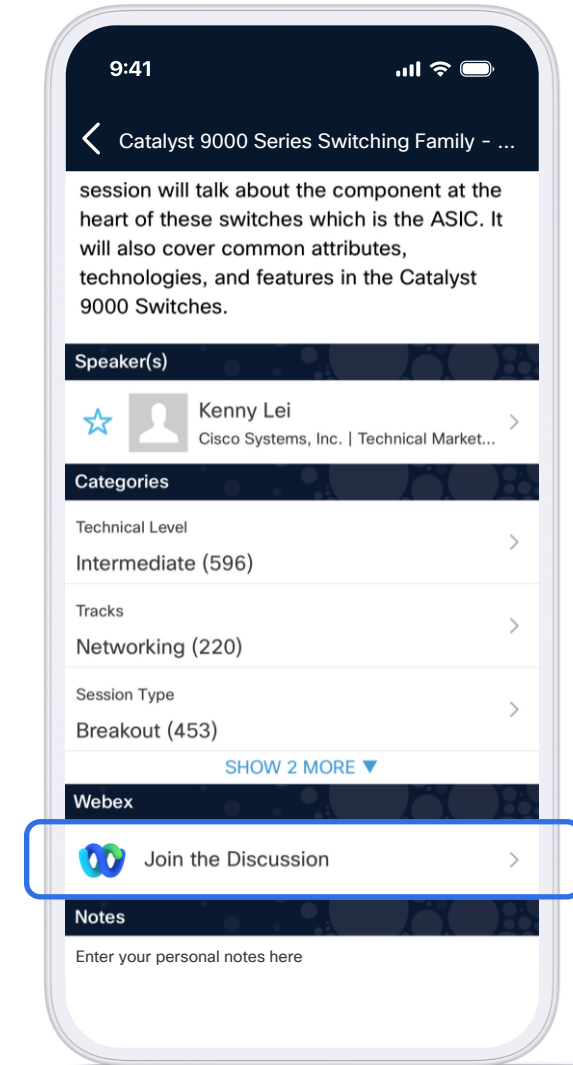
Questions?

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 14 November 2025.



<https://ciscolive.ciscoevents.com/ciscolivebot/#LTRATO-2600>

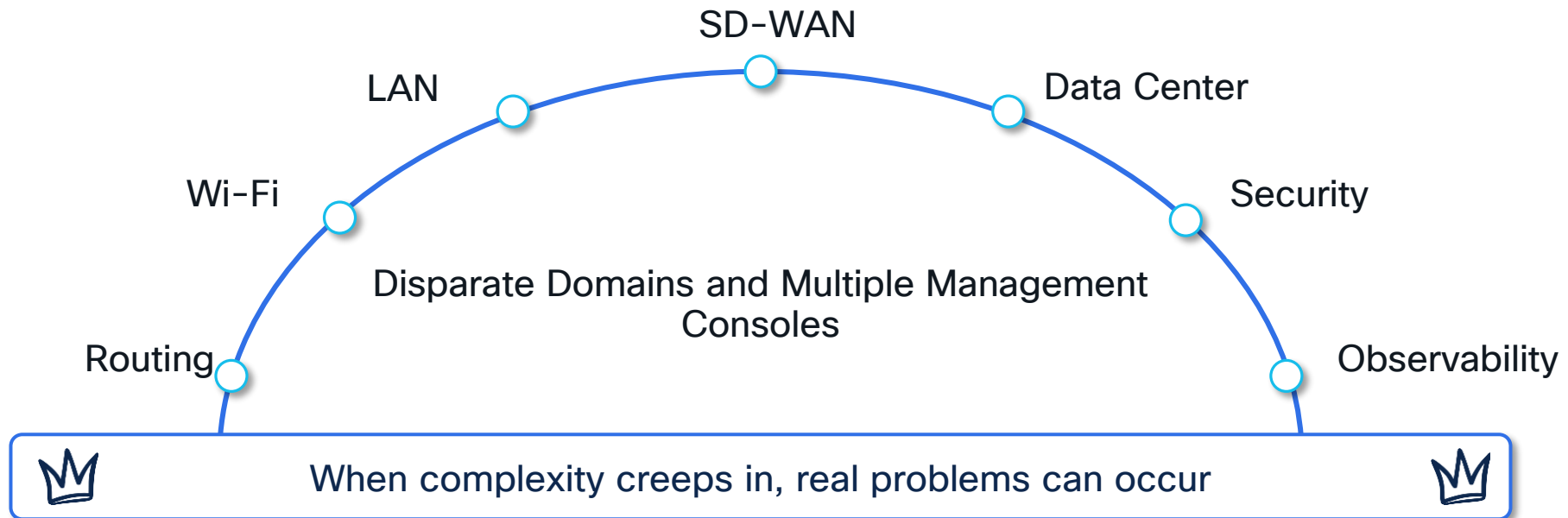
Agenda

- 01 Introduction
- 02 Lab scenarios
- 03 Lab tasks

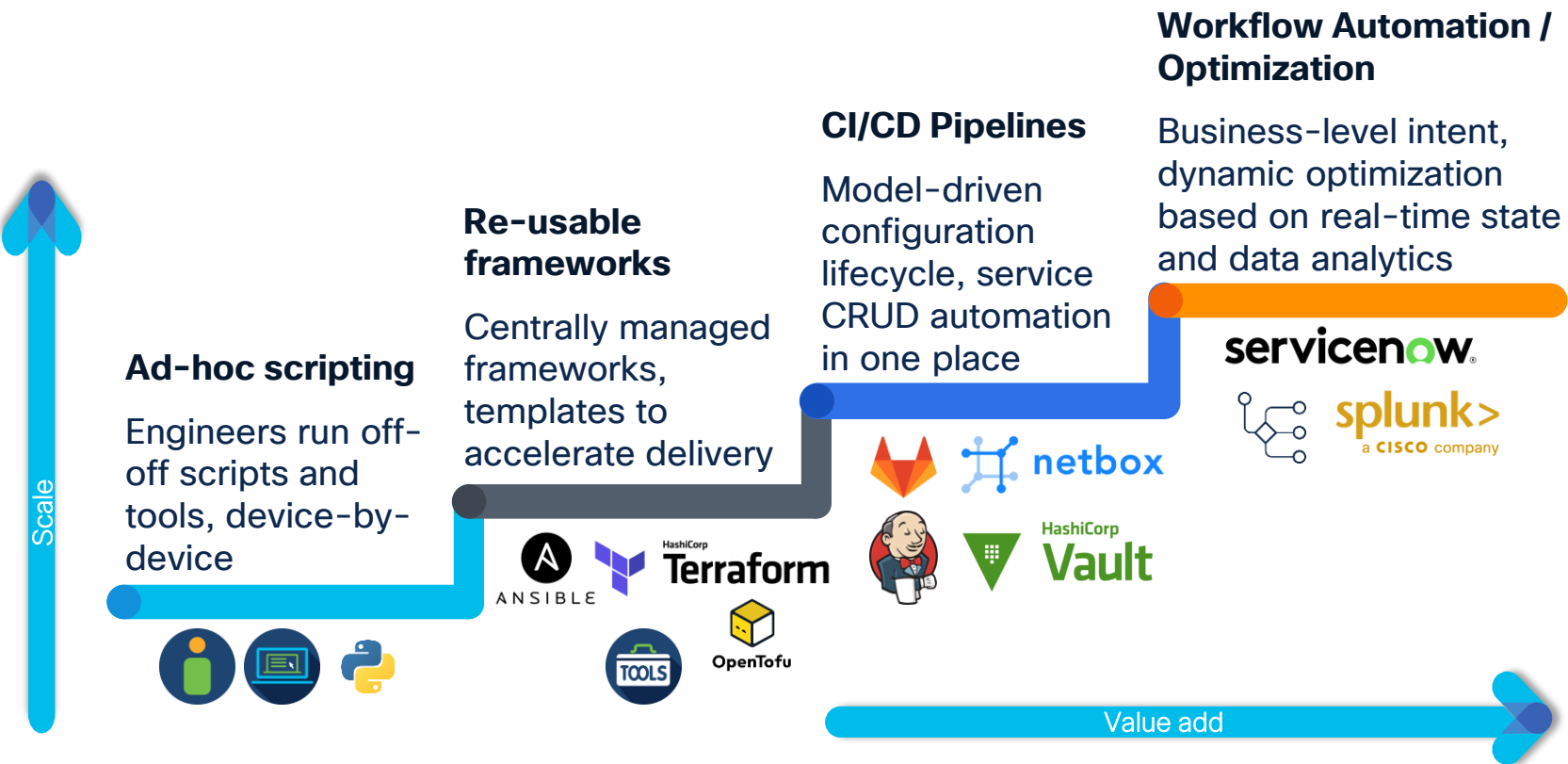
Introduction

Introduction

Networks are more complex now than ever before



Automation approach in steps



BRKOPS-2814: Transforming network operations with Closed-Loop Automation using AI Insights Jörg Schultz & Christopher Beye
LTRATO-2600: Closed-Loop Automation using CI/CD Pipelines with the power of AI Jörg Schultz & Christopher Beye & Flo Pachinger
LTROPS-3773: Three Domains in One Pipeline: Cross-Domain Automation with Catalyst Center, FTD, and NDFC using NetDevOps Approaches Jörg Schultz & Christopher Beye
LTROPS-2977: Cross-Domain Automation with Cisco DNA Center and ACI using CI/CD Pipelines Jörg Schultz & Christopher Beye
BRKEMT-2007: NetDevOps - CI/CD with Cisco DNA Center Templates as Code Jörg Schultz & Oliver Böhmer

<https://crossdomain-automation.tech/>



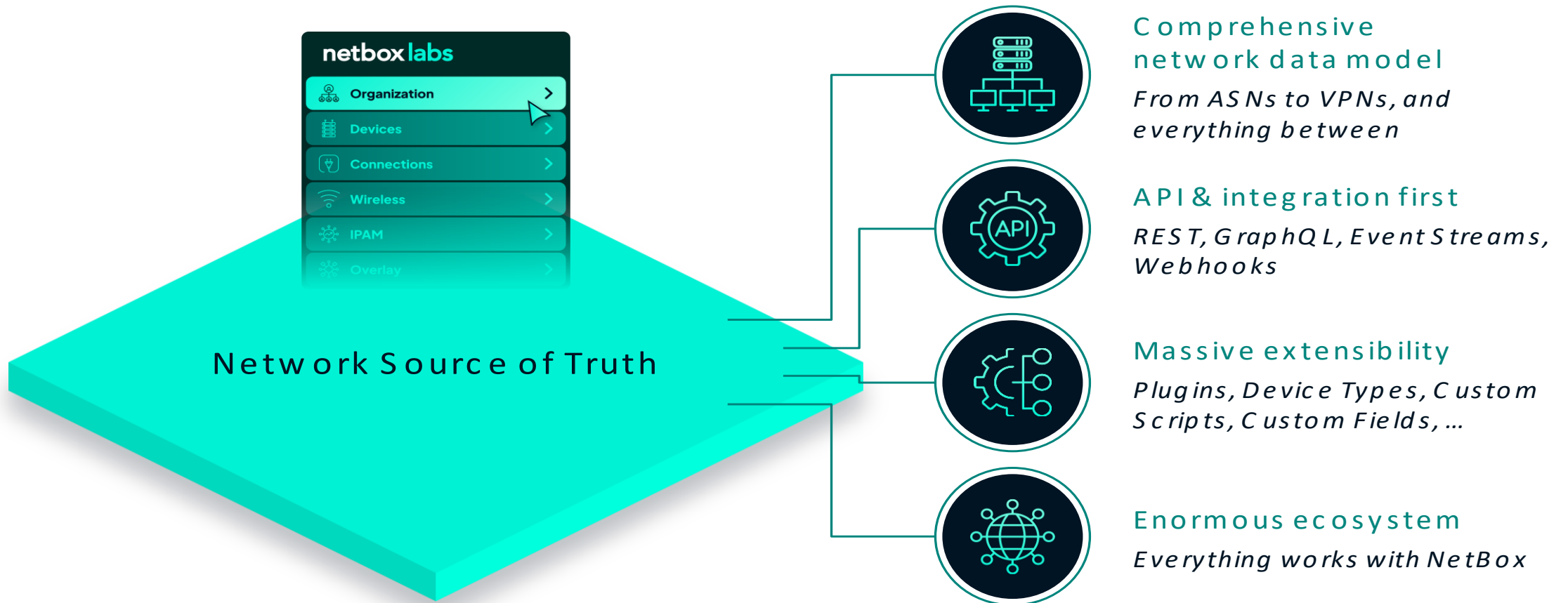
netbox labs

We Make It
Easier to Build
and Manage
Complex
Networks

The screenshot displays the netbox labs interface. On the left is a sidebar menu with icons and labels for Organization, Devices, Connections, Wireless, IPAM, Overlay, Virtualization, Circuits, Power, and Other. The main area shows a dashboard with several sections: Organization (Sites: 25, Tenants: 11, Contacts: 4), Circuits (Providers: 10, Circuits: 31), Power (Power Panels: 5, Power Feeds: 49), IPAM (VRFs: 6, Aggregates: 4, Prefixes: 94, IP Ranges: 5, IP Addresses: 185, VLANs: 63), and Connections (Cables: 4024, Interfaces: 195, Console: 0, Power: 34). A 'Change Log' table is visible at the bottom right. A modal window titled 'Organization' is open, showing a tree view of Sites, Tenants, and Contacts with their respective counts. A mouse cursor is pointing at the 'Sites' entry.

Full Name	Action	Type	Object
Dwight Schrute	Deleted	Console Port	usb
Dwight Schrute	Updated	Device	dmi01-scranton-rtr03
Dwight Schrute	Created	Interface	Cellular0/2/0
Dwight Schrute	Created	Interface	Wlan-GigabitEthernet0/1/8
Dwight Schrute	Created	Interface	GigabitEthernet0/1/8

NetBox is the world's most popular Network Source of Truth (NSoT)

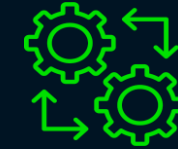


netbox labs

We Make it Easier to Build and Manage Complex Networks

5

The journey to network automation starts with implementing a NSoT



Automate

- *Implement change management starting with NSoT/intent*
- *Generate configs from model data*
- *Drive automations from dynamic inventory*
- *Assurance to identify/resolve operational drift*



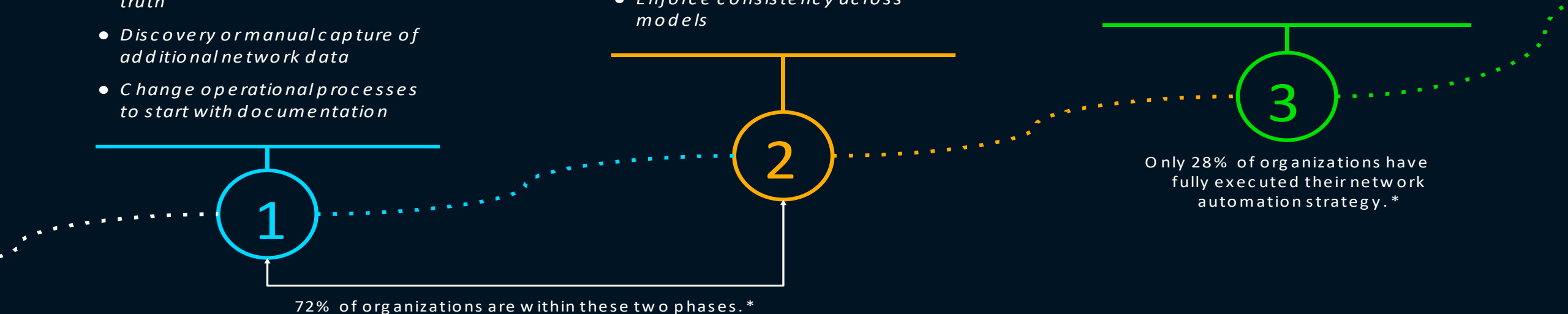
Document

- *Converge legacy sources of truth*
- *Discovery or manual capture of additional network data*
- *Change operational processes to start with documentation*

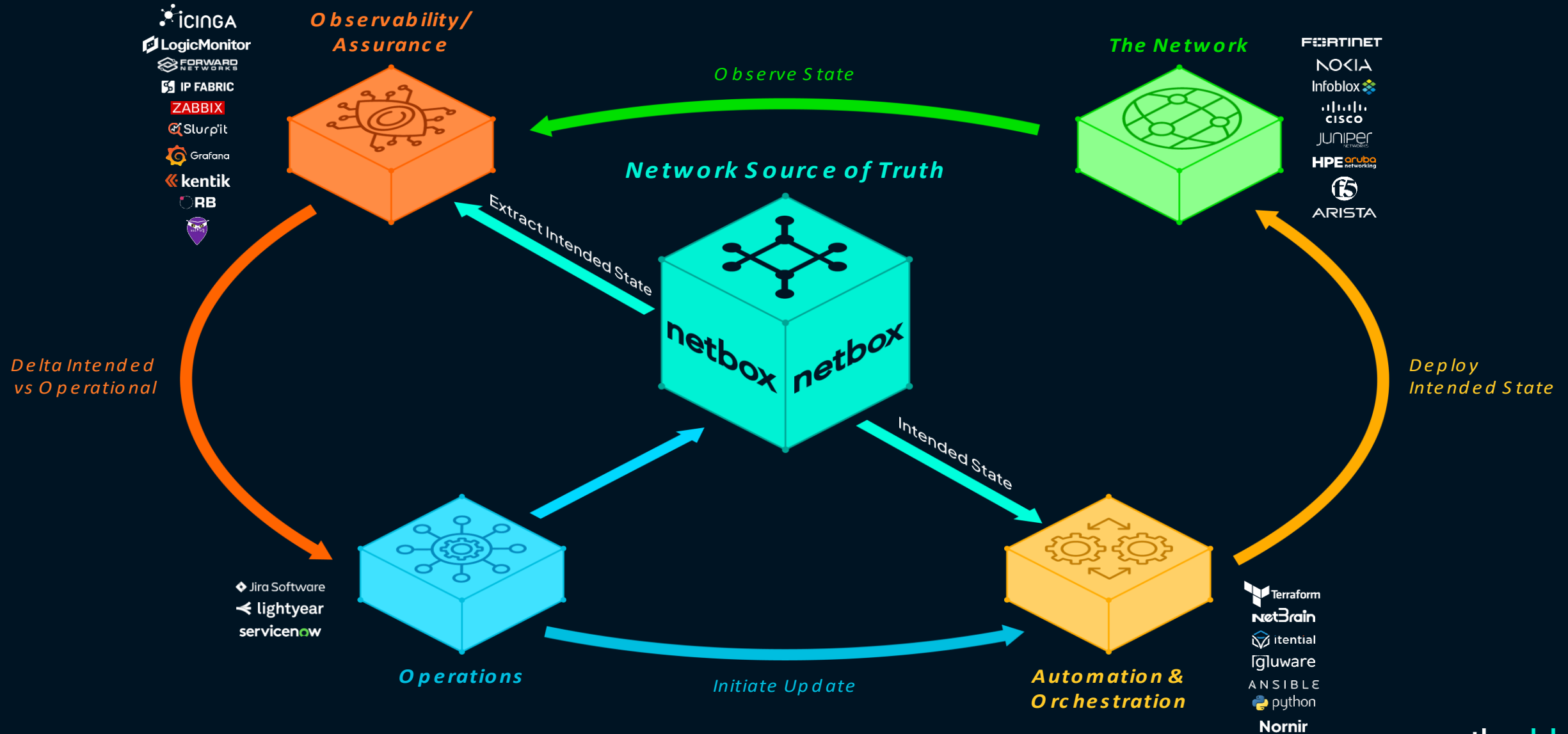


Model

- *Connect network data through cohesive models*
- *Enforce consistency across models*



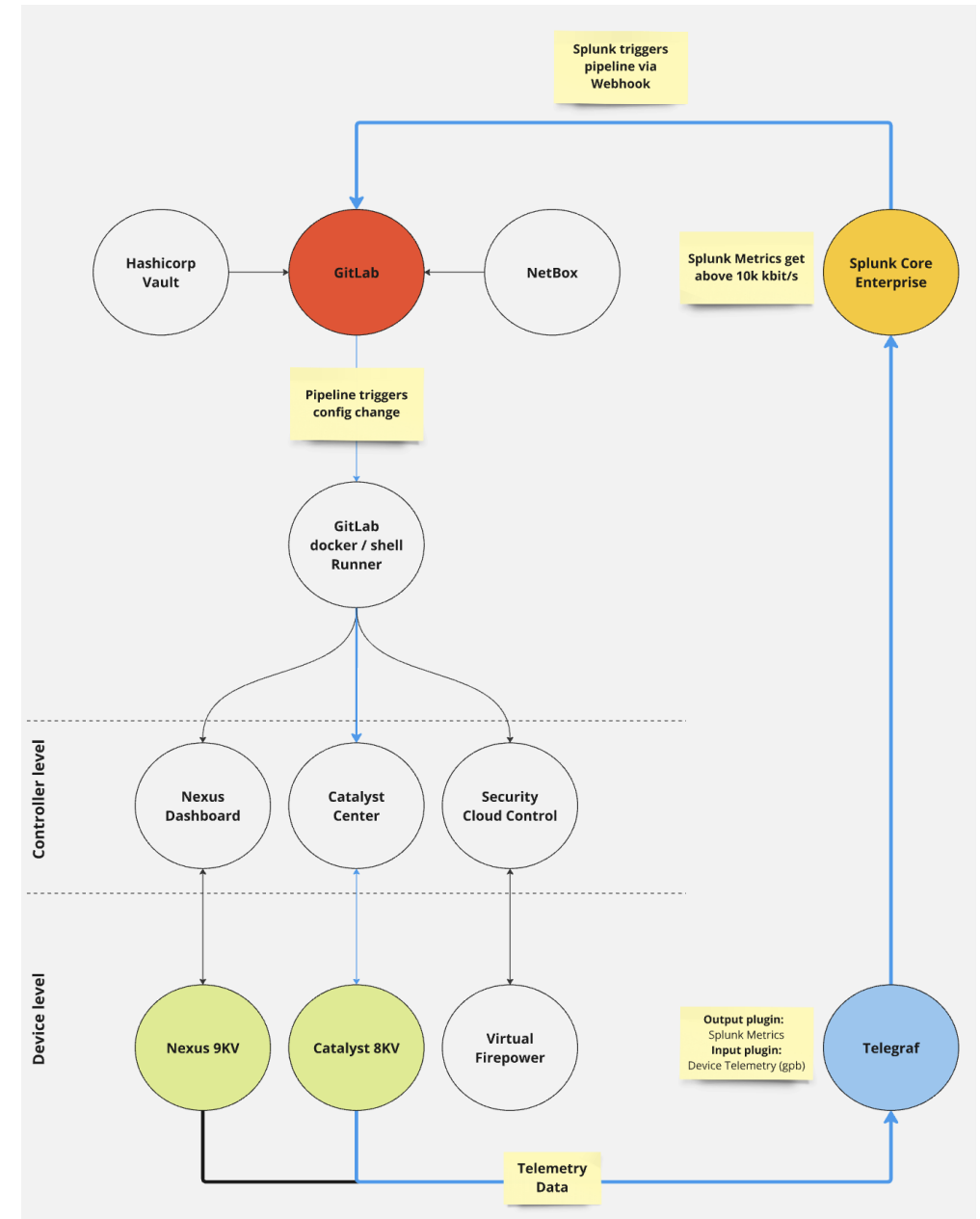
Modern Network Automation Architecture



Scenario 1

Closed loop automation

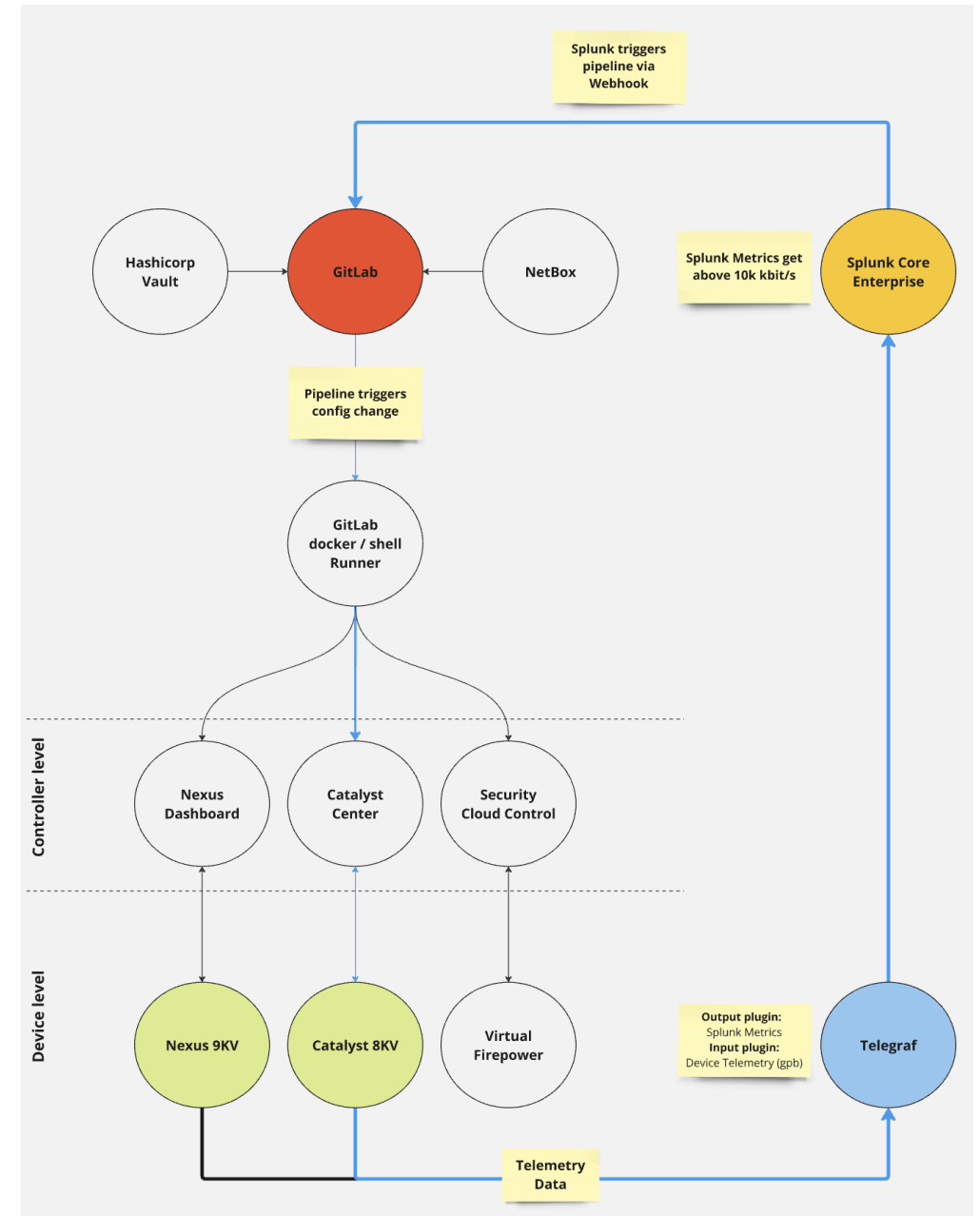
- **Telemetry Collection:** Nexus 9KV and Catalyst 8KV send telemetry data to Telegraf.
- **Trigger Response:** Telegraf forwards data to Splunk for rule-based actions.
- **Automated Response:** Splunk triggers GitLab pipeline via Webhook for config changes.
- **Config Deployment:** GitLab runner applies fixes to controllers, e.g. Catalyst Center.
- **Continuous Feedback:** Ensures stability by automating corrective actions.



Scenario 2

Enhancing IT-Support Tickets with AI

- **Syslog Collection:** Nexus 9KV and Catalyst 8KV send logs to Telegraf.
- **Log Processing:** Telegraf forwards logs to Splunk Connect for Syslog.
- **Data Analysis:** Splunk detects issues and sends alerts to Webhook Service.
- **Automated Actions:** ServiceNow tickets are created with AI-recommended solutions.
- **Proactive Alerts:** Users receive notifications to maintain network health.



Lab guide

<https://crossdomain-automation.tech/>

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Thank you

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