Welcome to the Network Automation Summit

State of Network Automation

Jason Edelman

Founder, Network to Code

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@jedelman8

Summit Presented by:

>>> network .toCode()

>>> network .toCode()

- Founded in 2014
- Network Automation Solution Provider
- Bridge the gap between DevOps, Software Development, and Networking
- Transform how networks are operated providing services and training
- **2nd Annual Network Automation Summit @ Interop**

>>> network .toCode()

Jason Edelman

Founder & CTO, Network to Code

- Drive strategy and direction on network automation services and solutions
- Work with clients driving network automation initiatives forward.
- Co-author of O'Reilly's Network Programmability and Automation.

Agenda

State of Network Automation

- Rise of Open Source
- Workflows & Data
- Automation First
- Network Automation Architecture
- Program Agenda

Rise of Open Source

source: https://resources.whitesourcesoftware.com/blog-whitesource/5-tips-for-using-open-source-components-more-wisely

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Easy access to software and to start

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Thriving communities, collaboration, and sharing

It's **not always** about costs

Rise of Open Source

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Easy access to software and to start

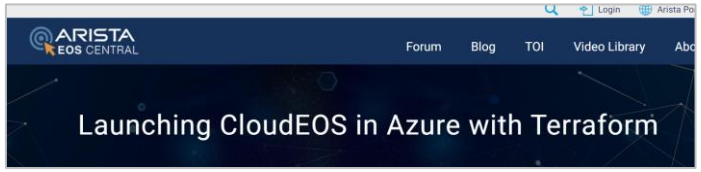
Thriving communities, collaboration, and sharing

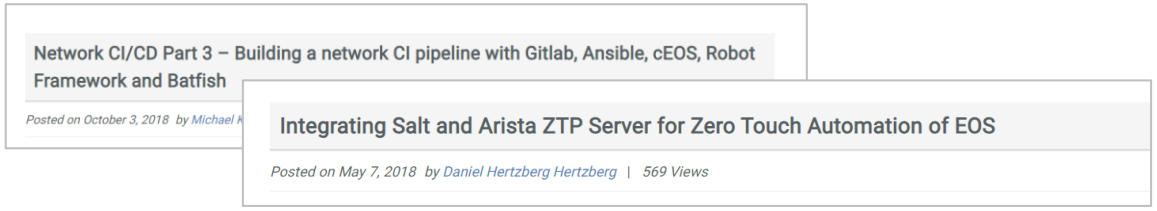
It's **not always** about costs

It is NOT about open source vs. commercial platforms

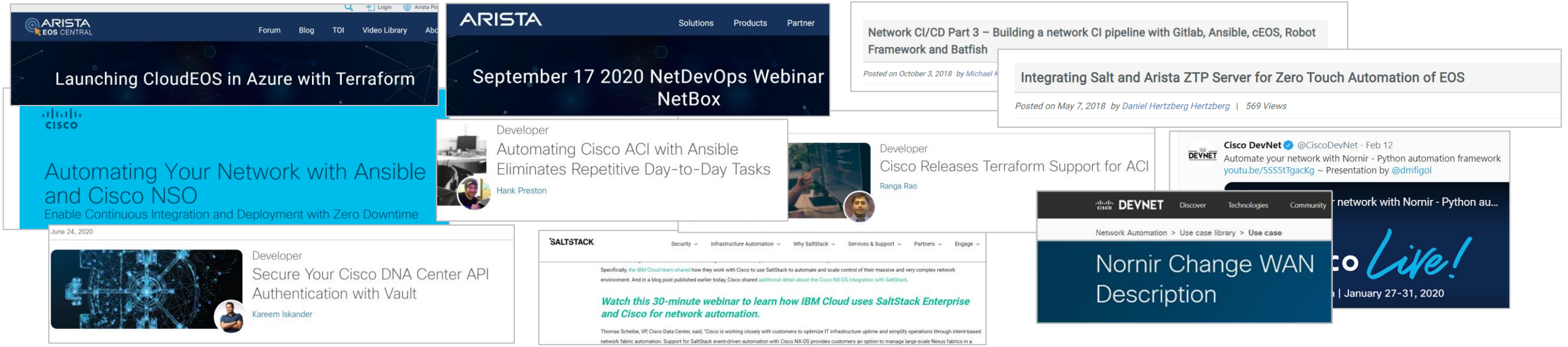
Prove it.

Creating & Integrating Holistic Solutions





Creating & Integrating Holistic Solutions



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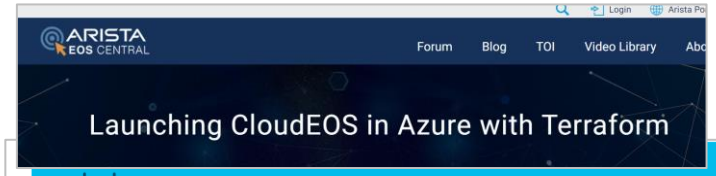

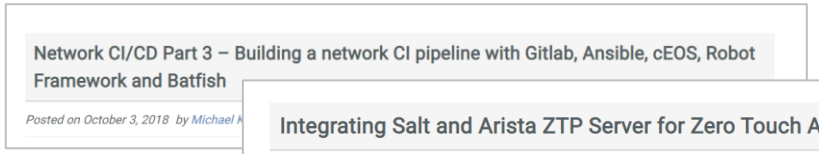

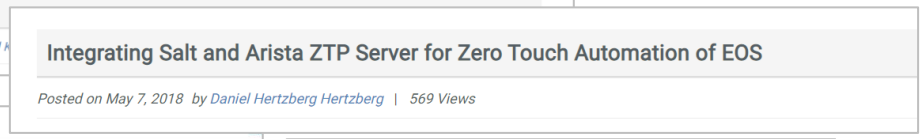

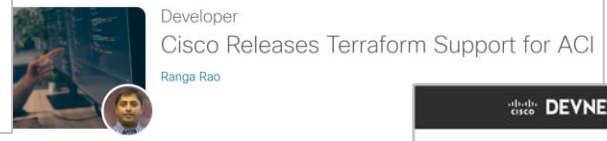

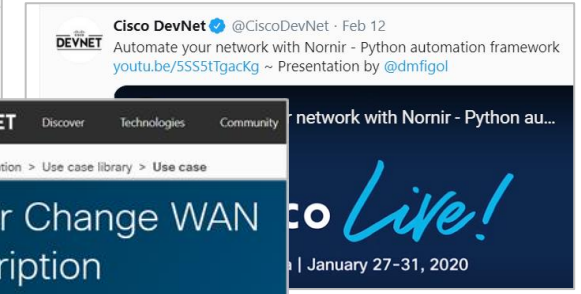

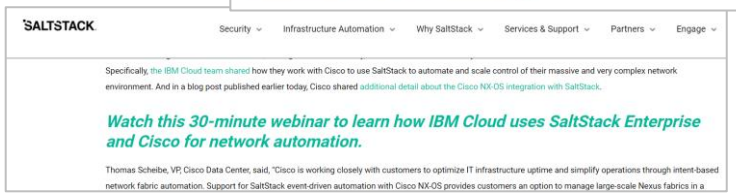

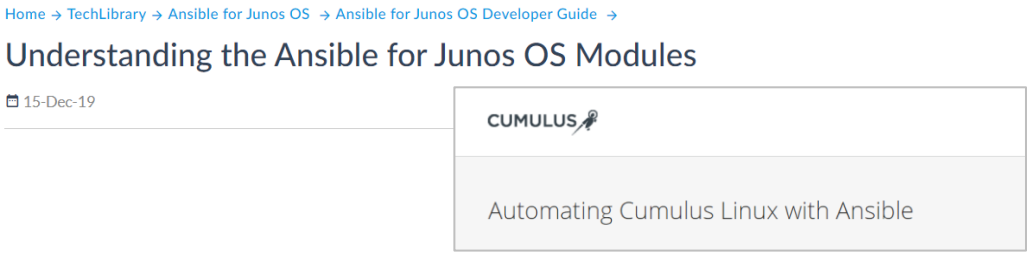

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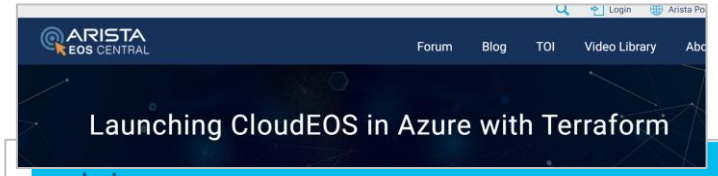
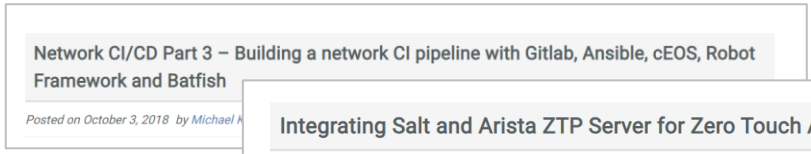
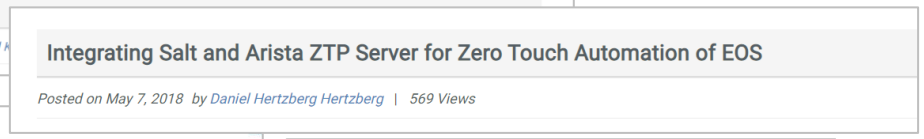
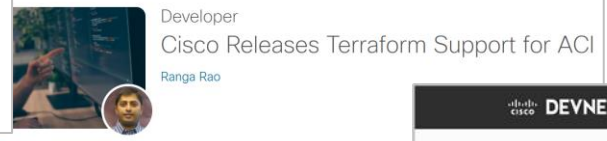
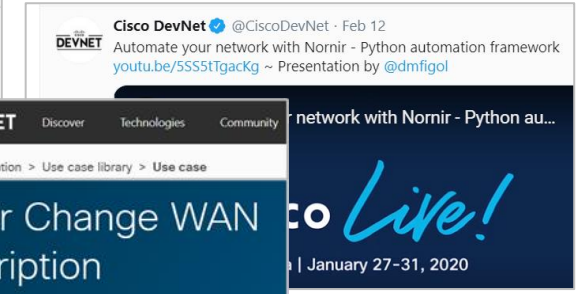
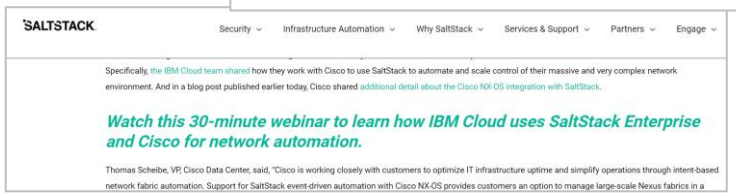




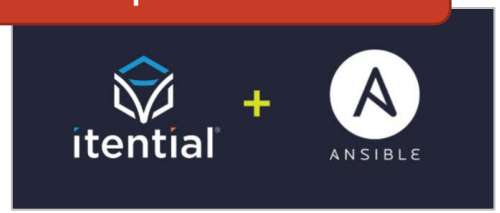








Summit Sponsors!



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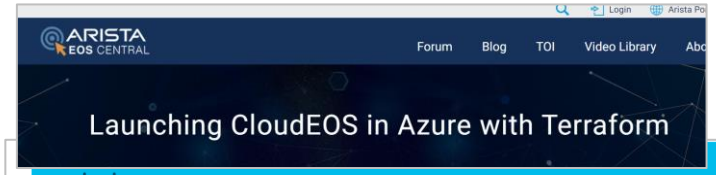

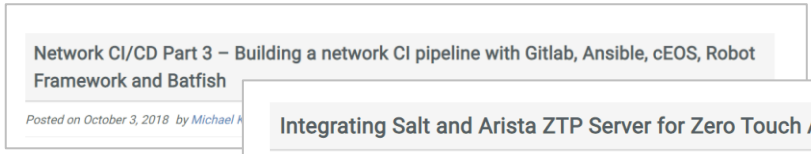

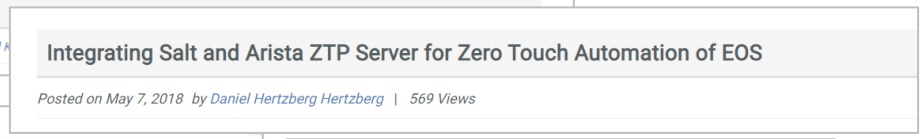

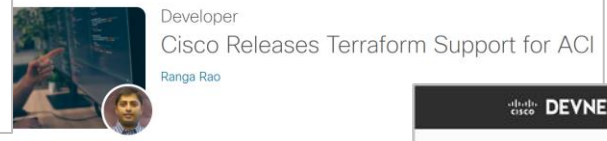

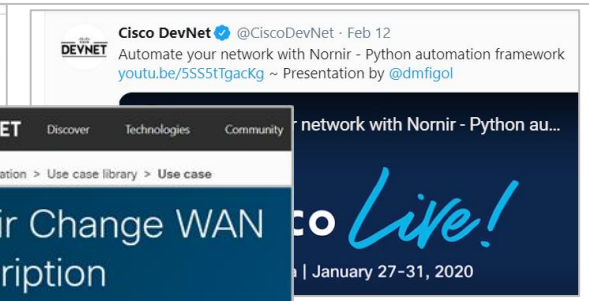

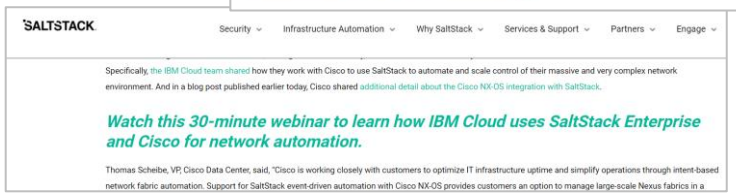

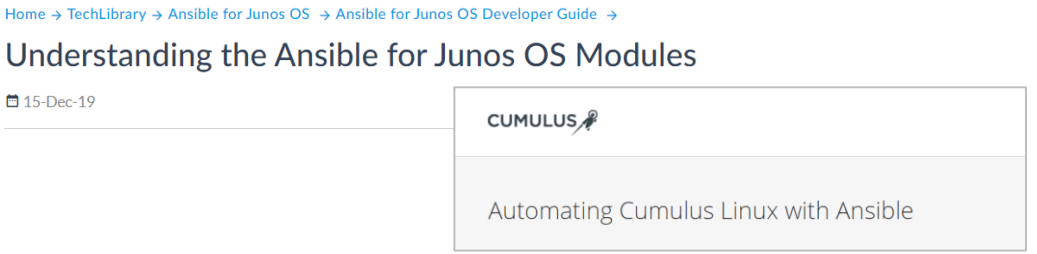

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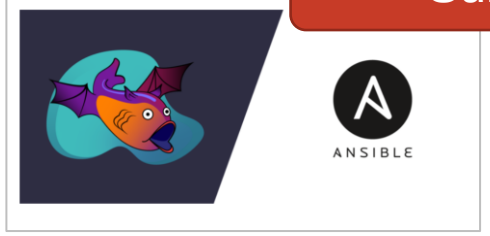

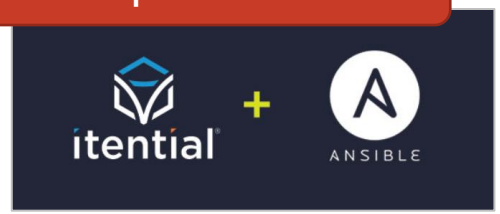

Perhaps Partnerships and Integrations are Key

Img source: https://news.harvard.edu/gazette/story/2020/03/harvard-experts-weigh-in-on-the-fate-of-the-handshake/

Holistic Solutions

Commercial Platforms

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Often product-centric focus

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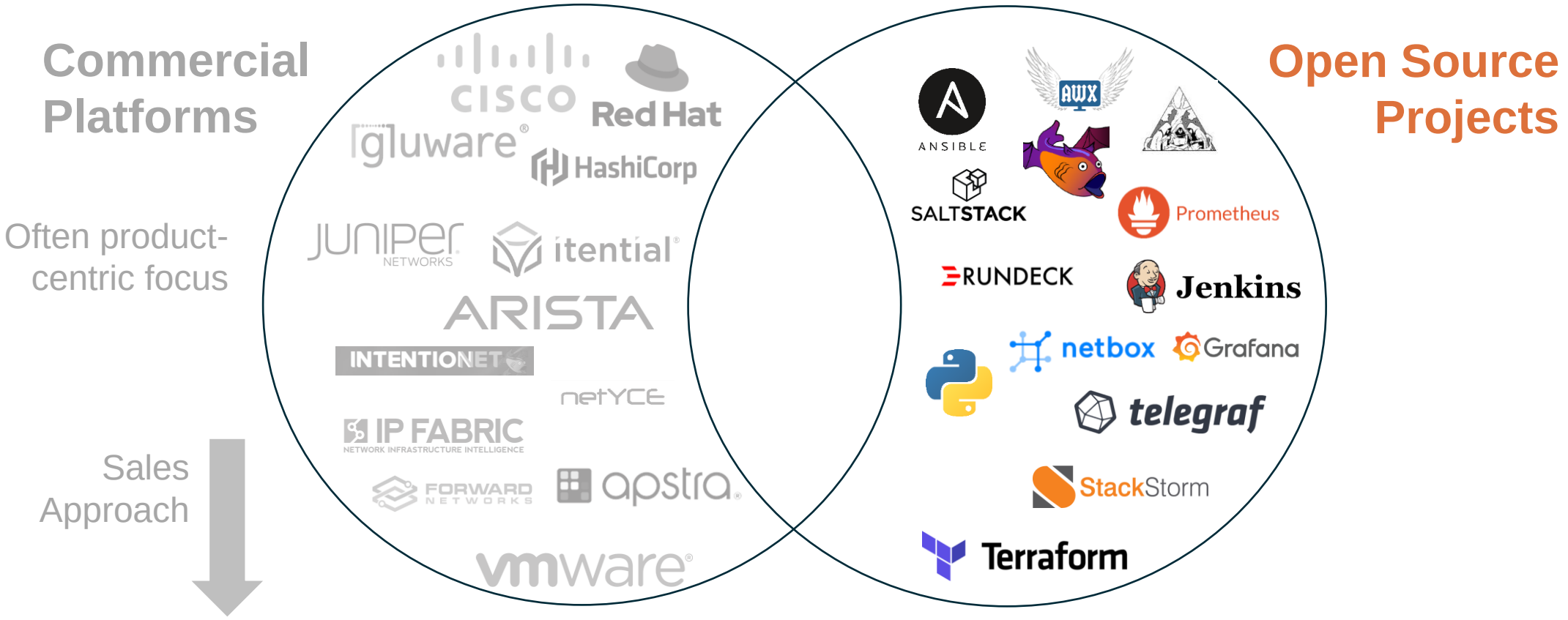
Commercial Platforms

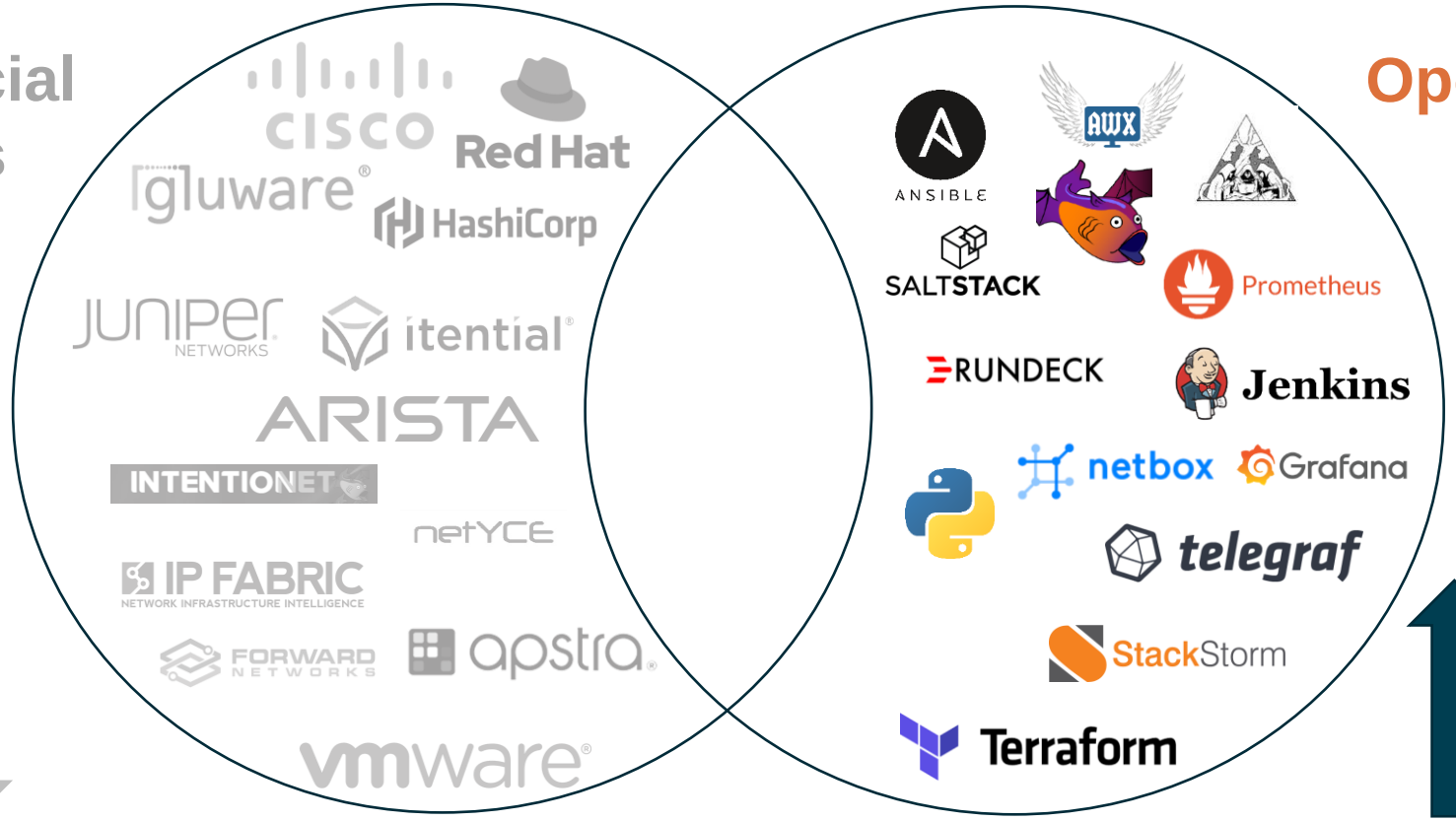
Often product-centric focus

Sales Approach

Holistic Solutions

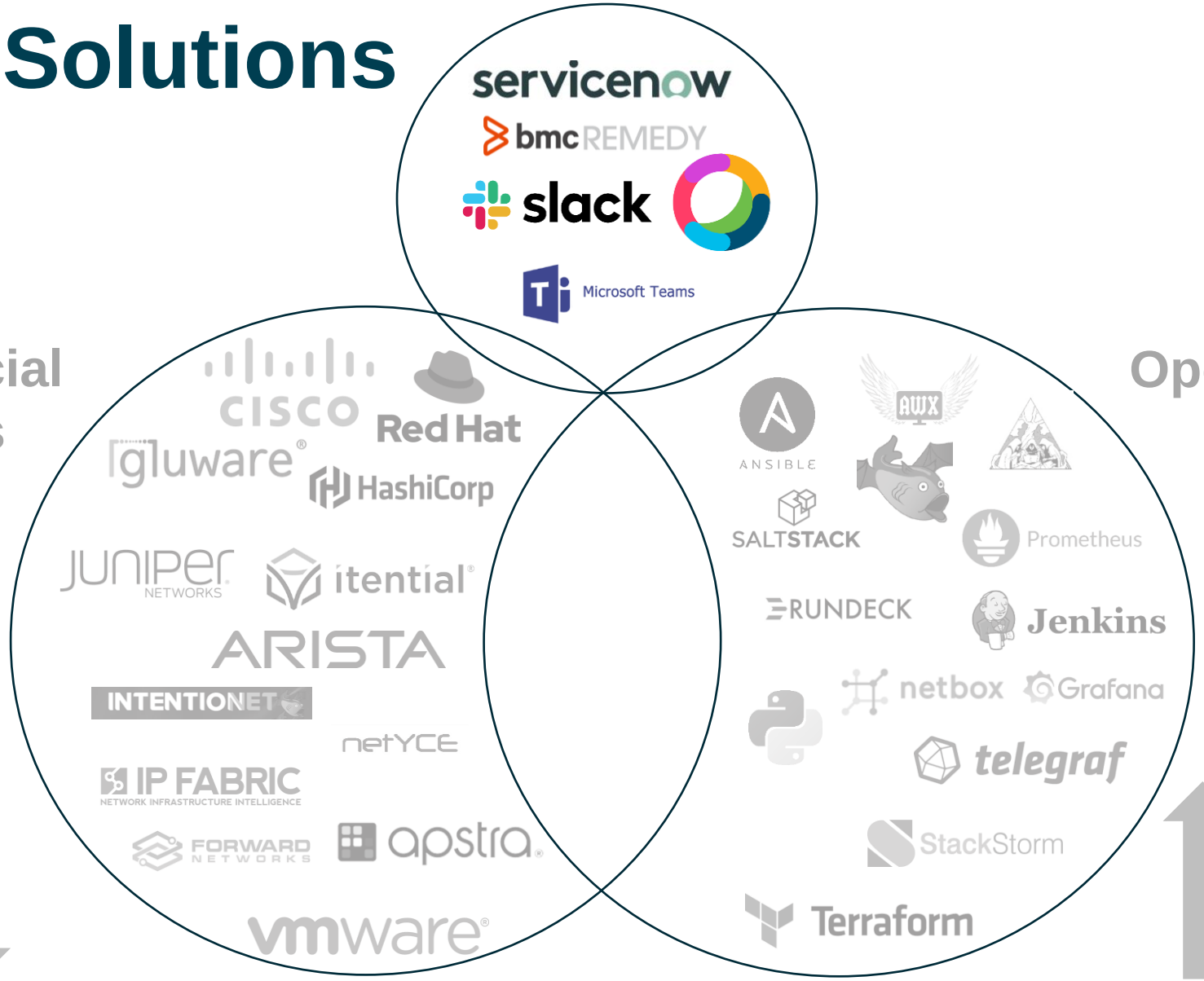


Holistic Solutions



Consider how open source makes money

Holistic Solutions



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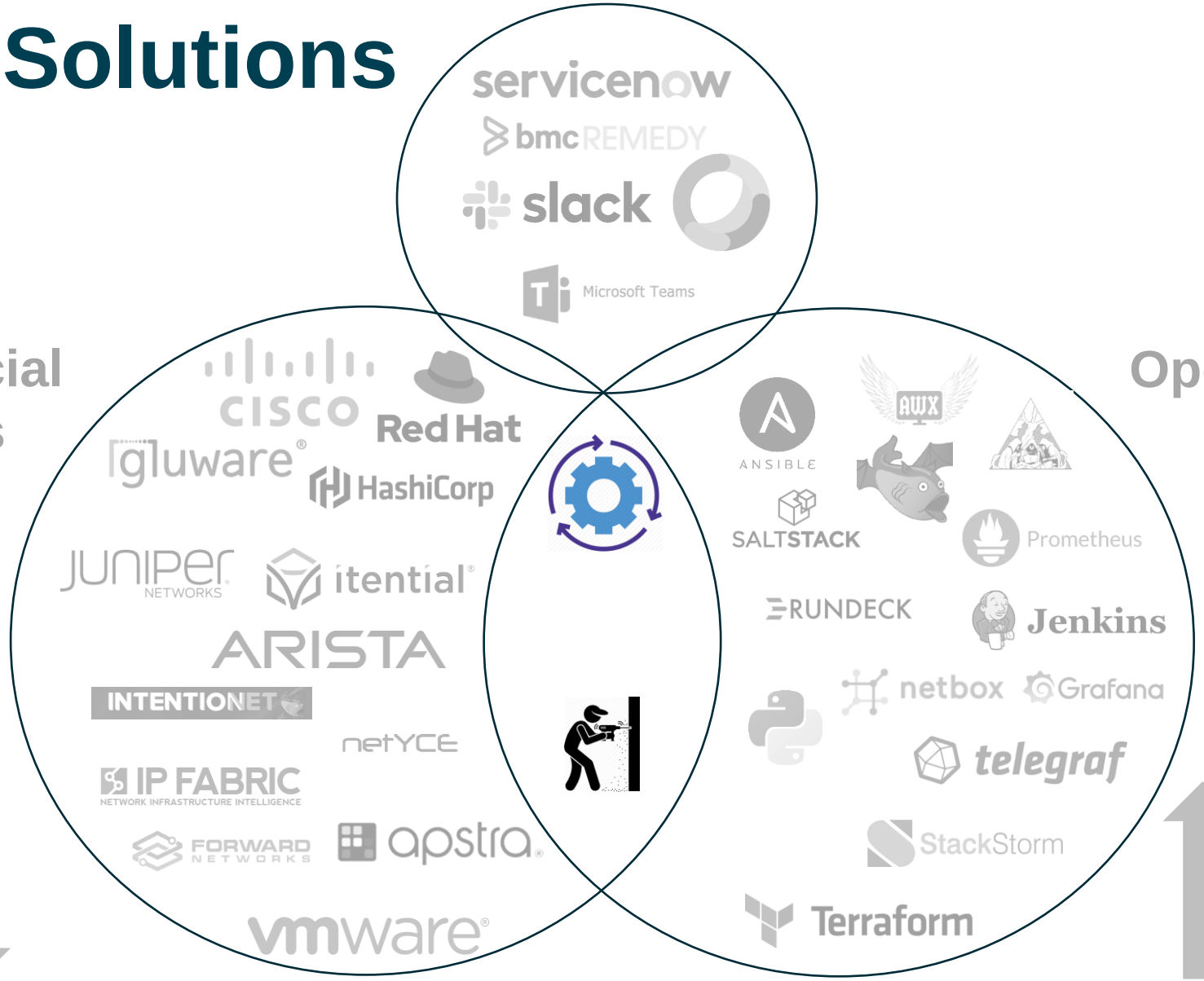

Often product-centric focus

Sales Approach

Operations & Workflow-First focus

DevOps

Sales Approach

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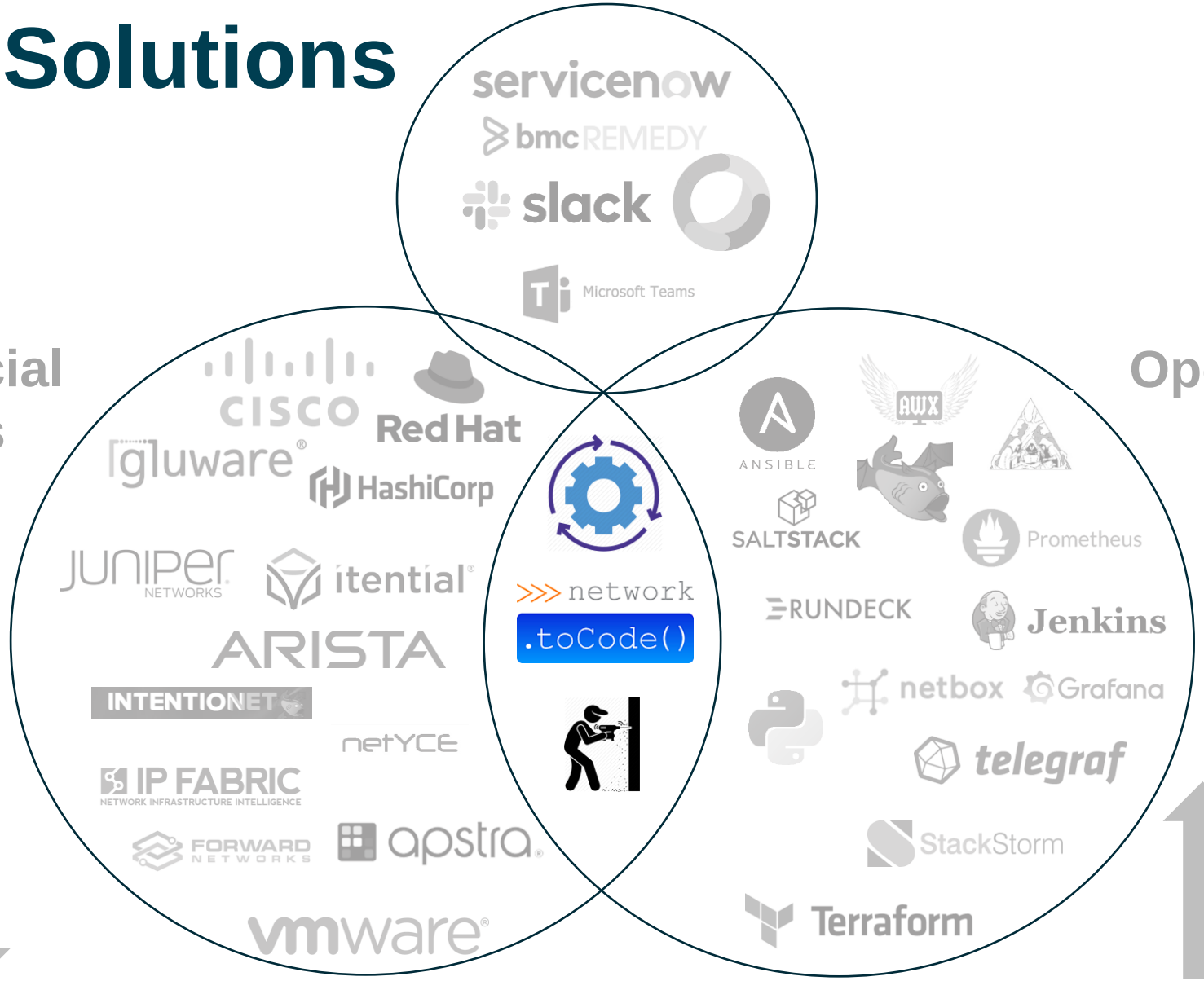

Often product-centric focus

Sales Approach

Operations & Workflow-First focus

DevOps

Sales Approach

Consider how open source makes money

One tool can’t do it all …

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…if you’re thinking about how to solve **workflow challenges**.

Workflows & Data

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Cloud-first

Workflows & Data

Cloud-first

Cloud doesn't solve workflow challenges (or on-prem networks)

Workflows & Data

Cloud-first → Automation-first

Cloud doesn't solve workflow challenges (or on-prem networks)

Workflows & Data

Cloud-first

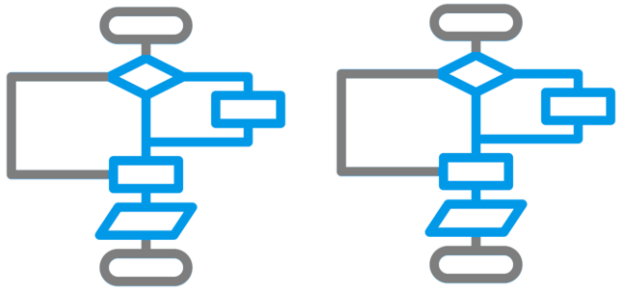
Automation-first

Cloud doesn't solve workflow challenges (or on-prem networks)

Any system, any network, anywhere managed with an automation-first approach

Workflows & Data

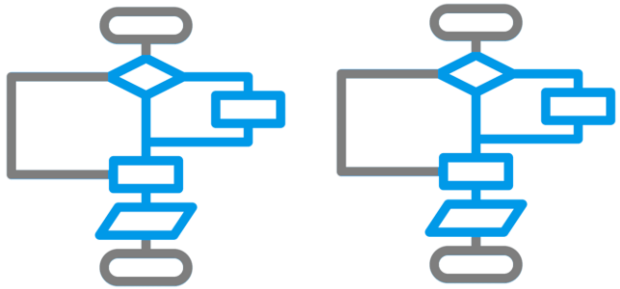
Network Workflows



- Assign IP Address to interface
- Assign VLAN to Layer 2 switchport
- Bounce a switchport
- Verify RF for WiFi clients
- Verify configuration
- Turn up new BGP peer
- Determine location of an IP/MAC

Workflows & Data

Network Workflows



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- Open Change Request
- Obtain data required for change
- Generate change commands
- Generate rollback plan
- Backup configuration
- Issue pre-deployment verification checks
- Issue pre-change commands
- Generate diff before the change
- Verify existing vs. expected state
- Make change (and hope?)
- Issue post-change commands
- Update Change Ticket
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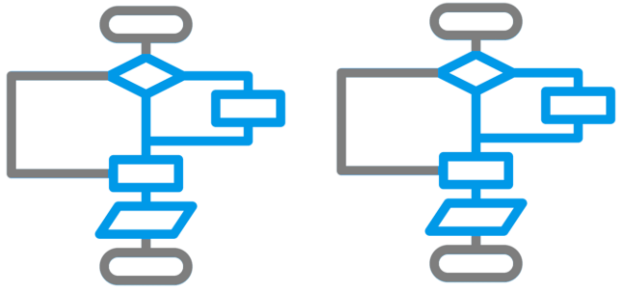
Workflows & Data

Network Workflows



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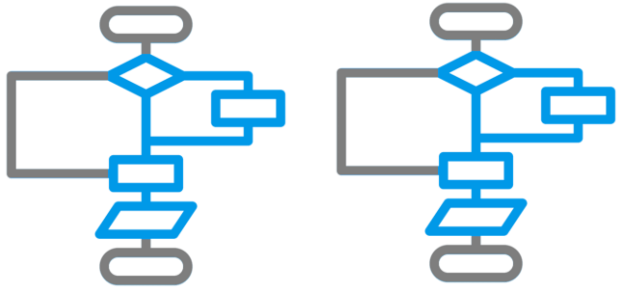
- *How did you know **which IP address** to assign?*
- *How did you know which **ASN**?*
- *Which **VLAN ID**? Are you enforcing VLAN naming standards? How about interface descriptions?*
- ***Which commands** should be ran pre/post?*
- *How do you know what's **expected**?*
- *Where is that **data** stored?*
- *How do you know **how many neighbors** should be on the interface?*
- *Did you perform any **configuration analysis** before deploying?*

Workflows & Data

Network Workflows



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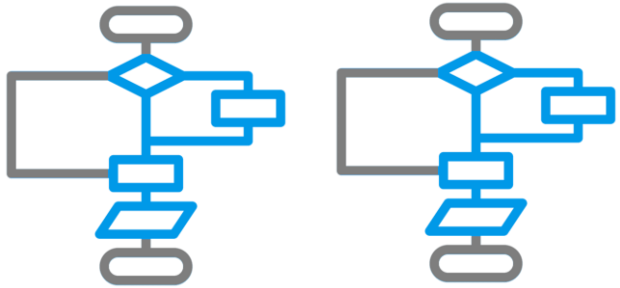

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Keys to Success

- Open Change Request
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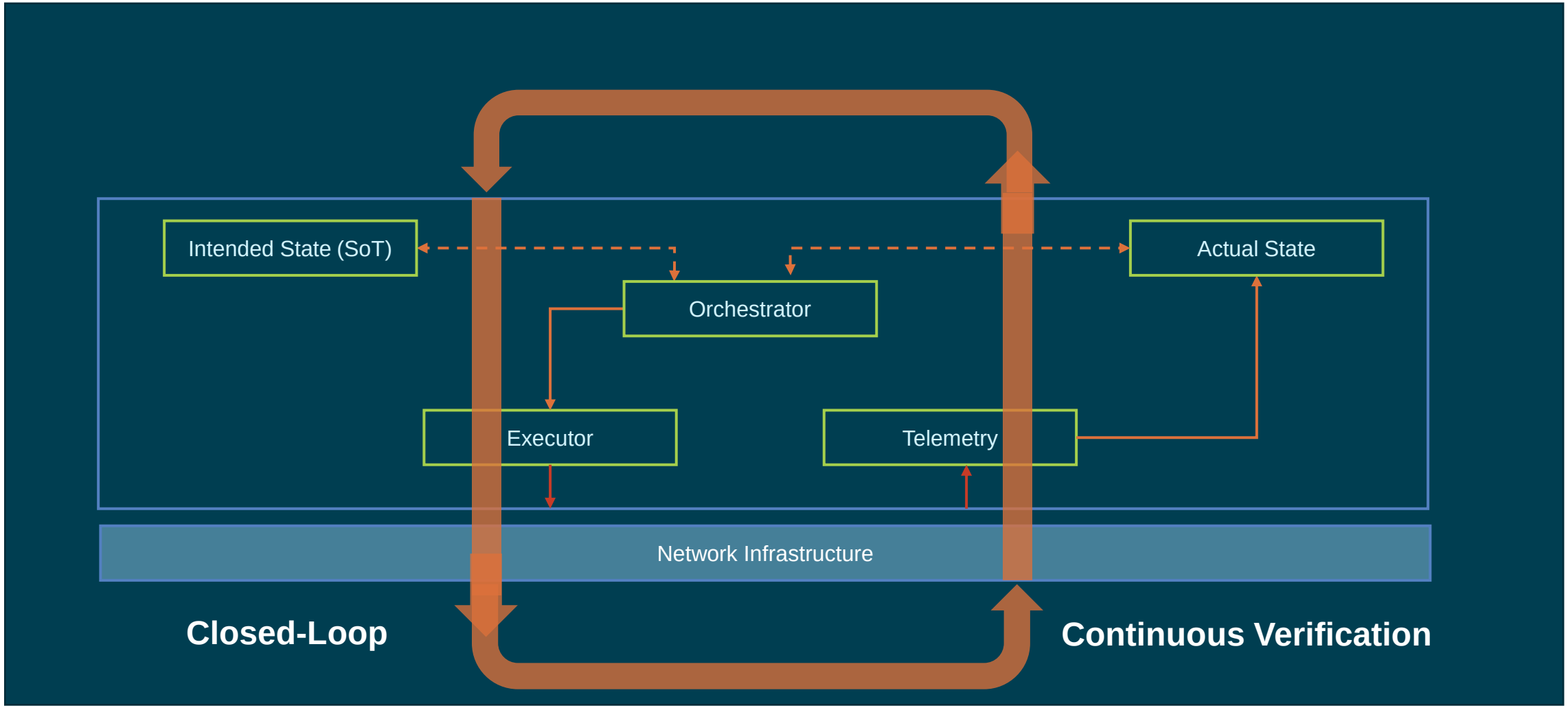
Network Automation Architecture

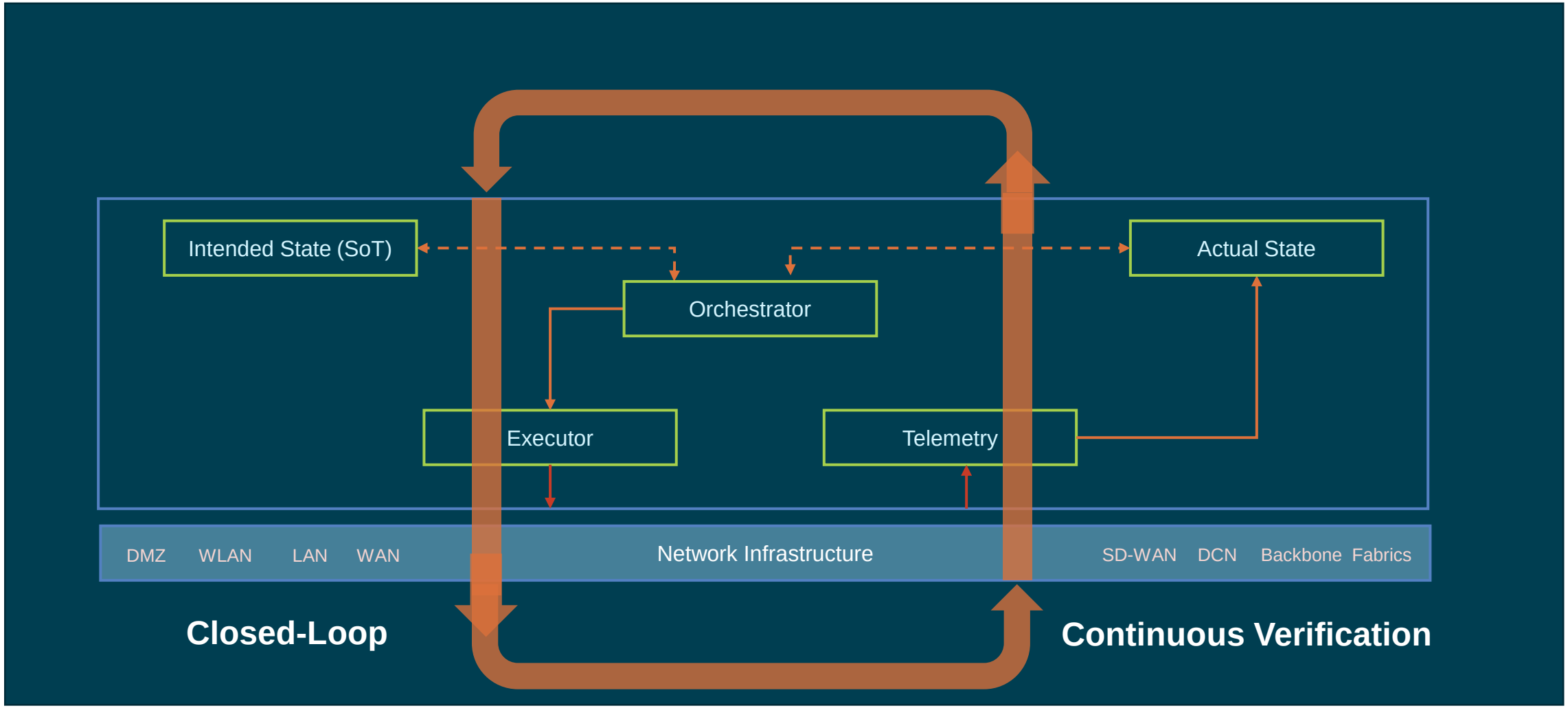
- Know (and document) workflows and data sources.
- Architecture must be considered.
- If not, you'll end up with tool-sprawl – with pockets of tools managing pockets of networks.
- It doesn't matter if you buy or download (commercial or open source)
  - PLAN, PLAN, PLAN – and iterate in between.

Platform. Architecture.

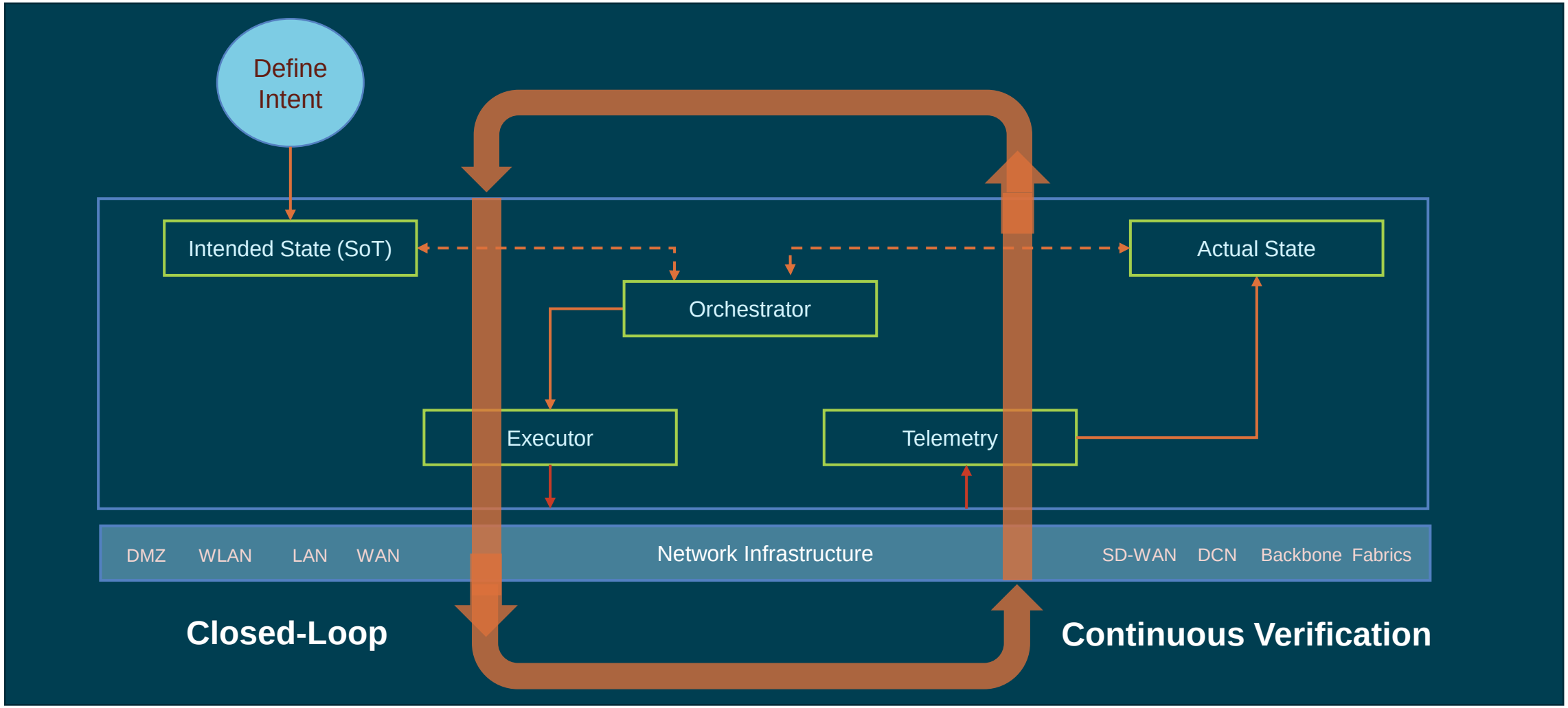
Network Automation Architecture



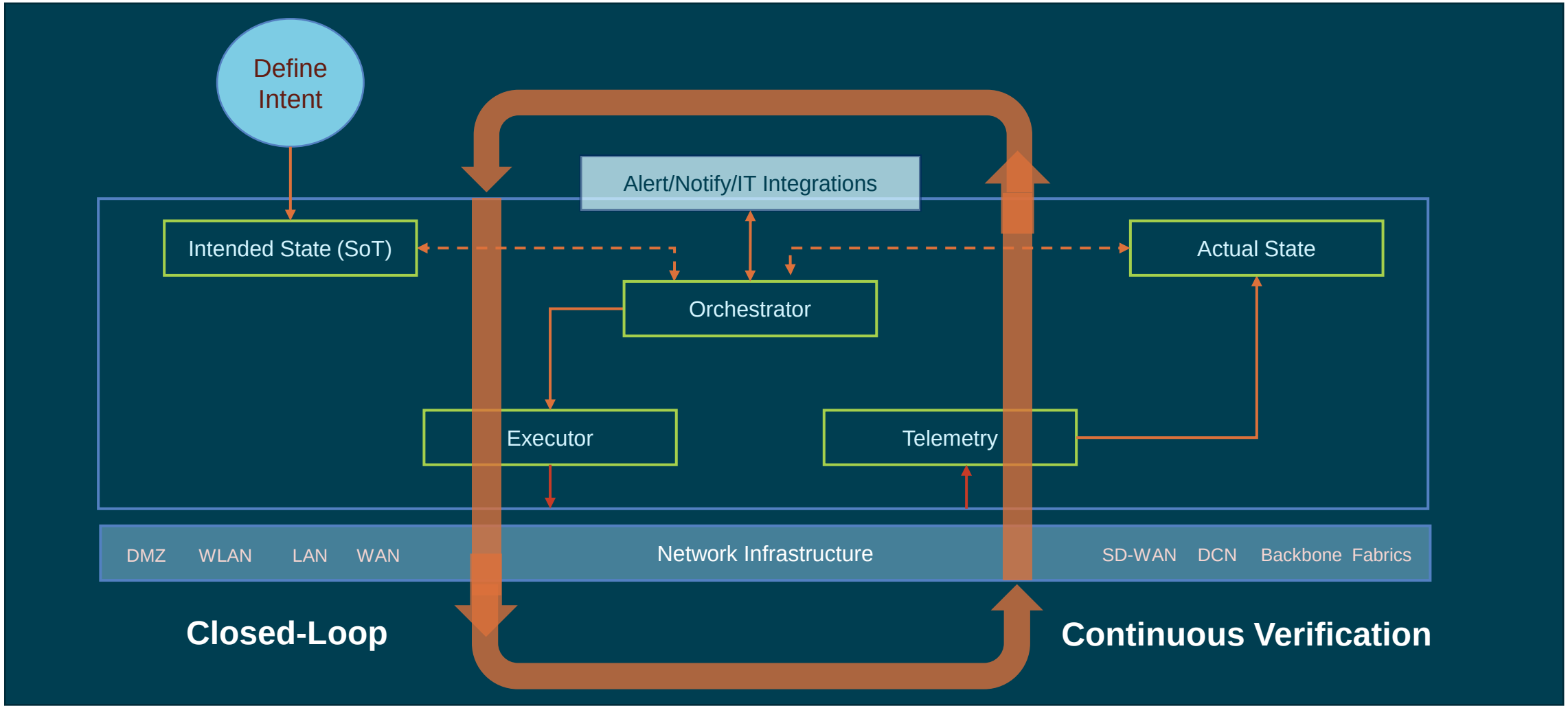
Network Automation Architecture



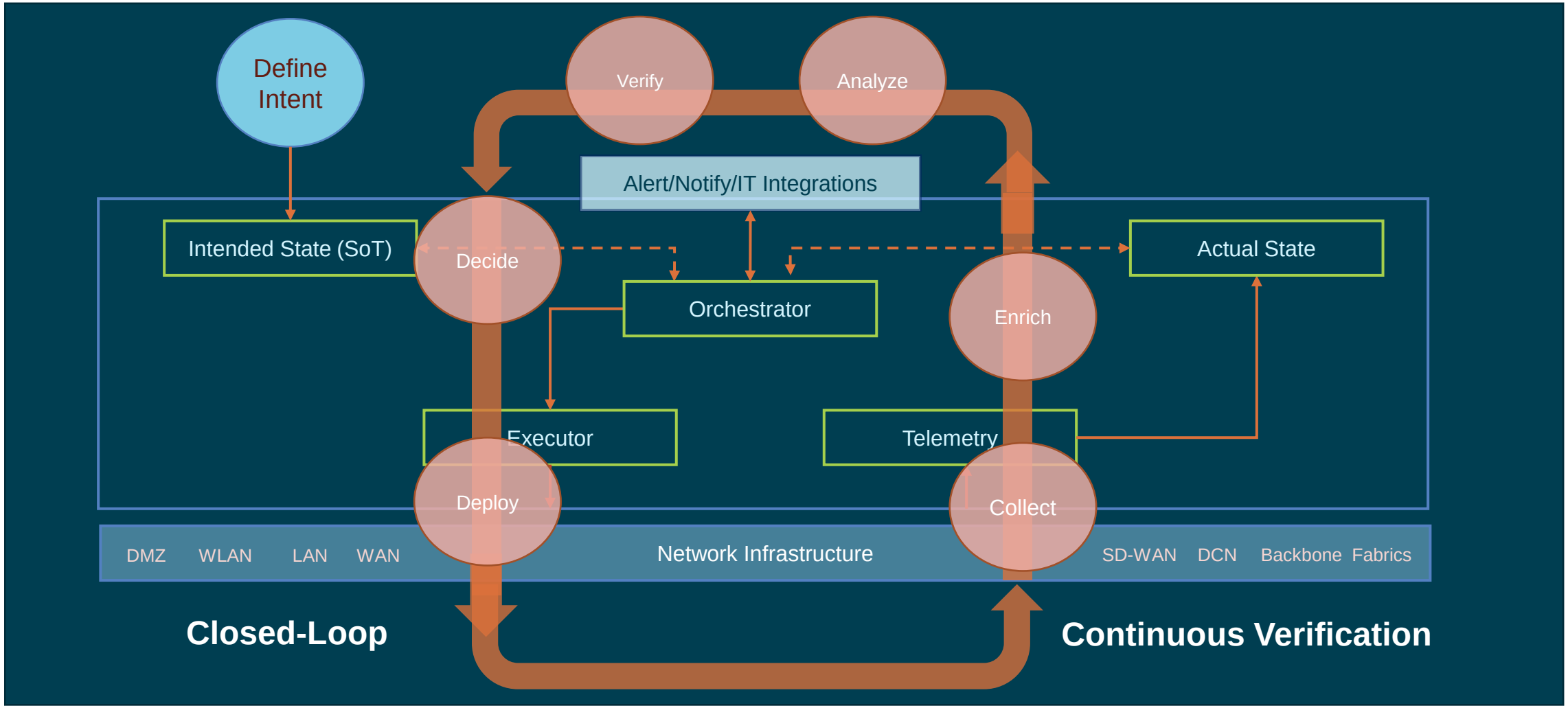
Network Automation Architecture



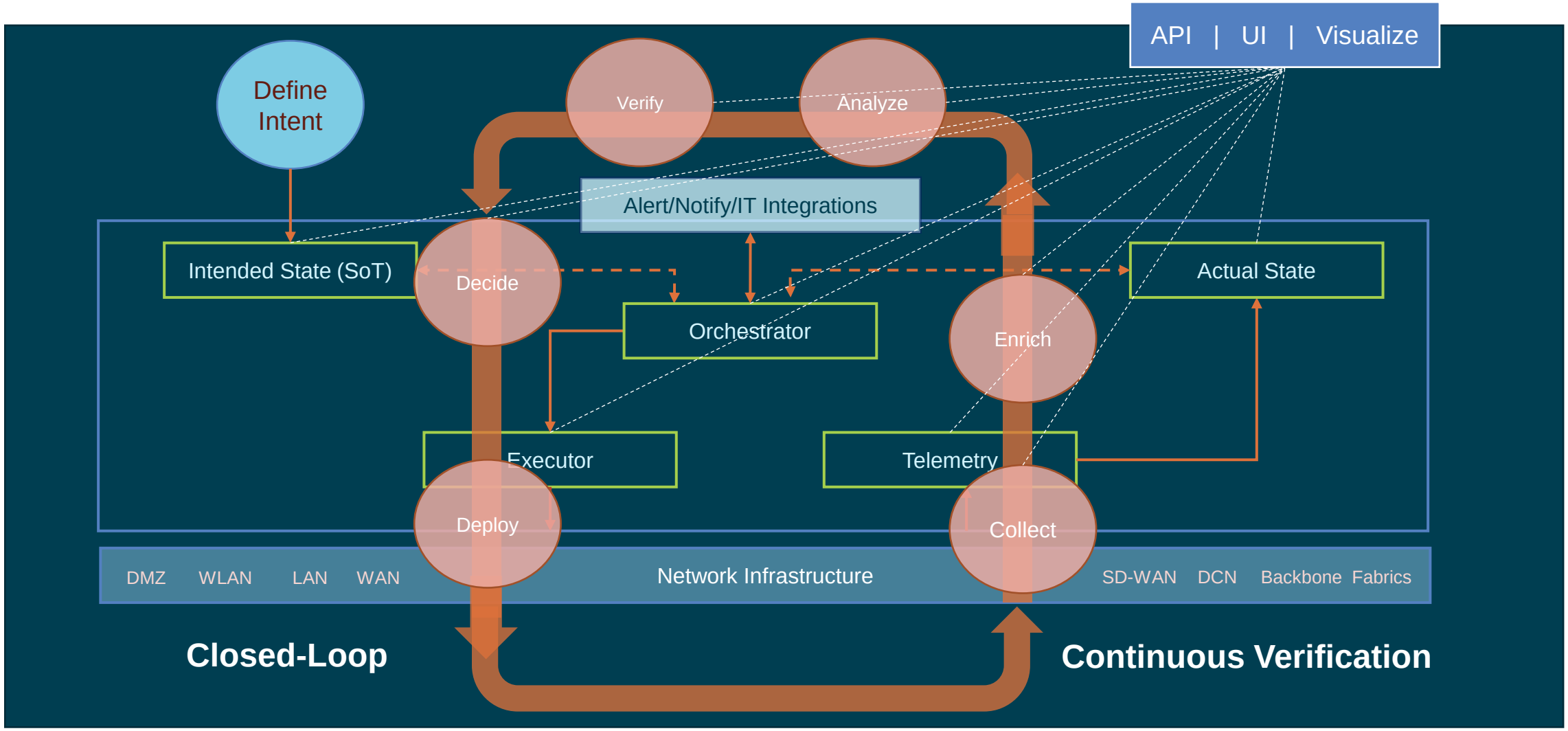
Network Automation Architecture



Network Automation Architecture



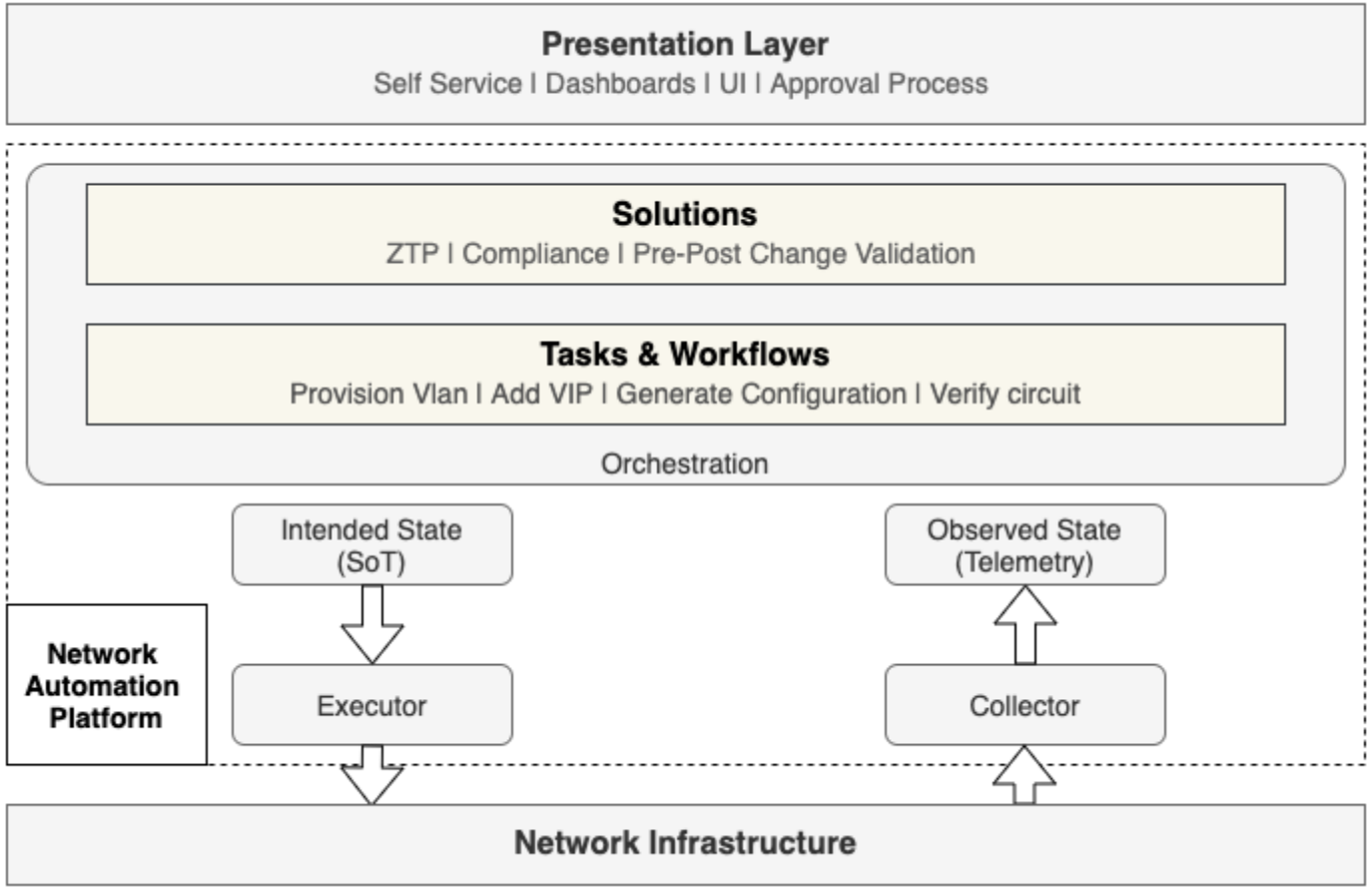
Network Automation Architecture



Network Automation Architecture (cont'd)

Business Value
IT & Business Outcomes

Foundation and Functional
Building Blocks



Closing

- Understand and document workflows
- Understand the data and data sources that drive the network
- Adapt to an automation-first approach
- Platform over power tools
- Understand time to value

Workflows.

Data.

Automation-first.

Platform.

Architecture.

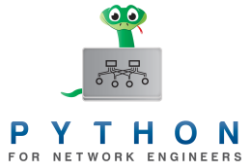
Network Automation is a Journey.

Program Overview

Day 1 Program

Opening Sessions

9:00am - 9:40am	Welcome & State of Network Automation	Jason Edelman
9:40am -10:10am	Riot Direct Network - Our infrastructure as Code Journey	Jaime Botello
10:10am -10:40am	Network Automation Architecture: Platform vs Power Tools	Damien Garros
10:40am -10:55am	Why Ansible vs. Salt vs. Nornir is the Wrong Question to be Asking	Ken Celenza
10:55am - 11:30am	Break	



Track 1

11:30am - 12:00pm	Network Automation Tools & Technology	Cristian Sirbu
12:00pm - 12:30pm	Introduction to Ansible for Network Automation	Hector Isaza
12:30pm - 1:00pm	Introduction to Python Network Libraries (Netmiko, NAPALM, Nornir, and More)	Kirk Byers
1:00pm - 1:30pm	Understanding CI/CD in Networking Context	Josh VanDeraa
1:30pm - 2:00pm	Introduction to Source of Truth & NetBox	Jeremy Stretch

Track 2

11:30am - 12:00pm	Deep Dive on Ansible Collections for Network Automation	Ganesh B. Nalawade
12:00pm - 12:30pm	Nornir: Solve Big Problems Fast	Brett Lykins
12:30pm - 1:00pm	Network as Code	Federico Olivieri
1:00pm - 1:30pm	Test Automation in a Networking World	Nick Keating and Chi Sherriff
1:30pm - 2:00pm	Network Data Analysis With Elastic Stack	Eric Chou

Day 1 Program Closing

2:00pm - 2:30pm Network Automation Game Show

Hank Preston

Monday, October 5, 2020 12:00 PM to 1:55 PM

Streaming will start Monday, October 5, 2020 11:50 AM

Training

Game Show @ 2pm PT W/ Hank Preston - Zoom Room Passcode: 301836

THIS IS A ZOOM SESSION!!

Day 2 Program

Opening Sessions

9:00am - 9:30am	Engaging People & Process Around Enterprise Adoption for Network Automation	Bryan Culver
9:30am -10:00am	Can Big Data and Machine Learning Really Improve Network Operations?	Srividya Iyer
10:00am -10:30am	How We Built an Automated Data Center Network in Less Than 6 Months	Hank Preston

Caniv Tech Inc

DEVNET

>>> network .toCode()

DigitalOcean

DOLTHUB

Indigo Wire Networks

Track 1

10:30am - 11:00am	ChatOps for Network Automation	Tim Schreyack
11:00 am - 11:30am	Automating Networks Using Salt w/o Running Proxy Minions	Mircea Ulinic
11:30am - 12:00pm	Testing Your Python Code	Dr. Xenia Mountrouidou
12:30pm - 1:00pm	Getting Started With pyATs	Claudia de Luna
1:00pm - 1:30pm	Introduction to Batfish for Automated Network Testing & Verification	Mikhail Yohman

Track 2

10:30am - 11:00am	Extract the Source of Truth (SoT) From Your Network With the Network Importer	Damien Garros
11:00am - 11:30am	Molecule for Testing Network Automation Ansible Projects	David Flores
11:30am - 12:00pm	NetBox Custom Scripts & Plugins	John Anderson
12:30pm - 1:00pm	Next-Generation Network as Code	Ken Celenza & Timothy Sehn
1:00pm - 1:30pm	Validating Network High Availability With Batfish	Rick Donato

Day 2 Program Closing

1:30pm - 2:00pm **Panel - Open Source vs. Commercial Tools**

Moderator Terry Slattery — NetCraftsmen

Panelists Samir Parikh — INTENTIONET; Michael Haugh — gluware; Brad Thornton — Red Hat, Ansible; Daren Fulwell — IP FABRIC NETWORK INFRASTRUCTURE INTELLIGENCE

2:00pm - 2:30pm **Panel - Enterprise Transformation With Network Automation**

Moderator Troy Whitney — >>> network .toCode()

Panelists Aryo Kresnadi — FedEx; Jay Moran — fiserv.; Matt Elphick — MARSH & McLENNAN COMPANIES

Thank You!

- Diana – Head of Marketing at Network to Code!
- Lenny, Meghan, Jess – Interop Team!
- All the speakers!
- All the sponsors!

- AND ALL ATTENDEES!!!
- (PLEASE MESSAGE ME, WOULD LOVE TO CHAT)

- Reminder: show agenda

Thank you.