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#CiscoLiveAPJC



Self-Service Automation for your DC Network

using Ansible, Terraform and ServiceNow

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@LHercot
DEVNET-1892

Cisco Webex App

Questions?

Use Cisco Webex App to chat with the speaker after the session

How

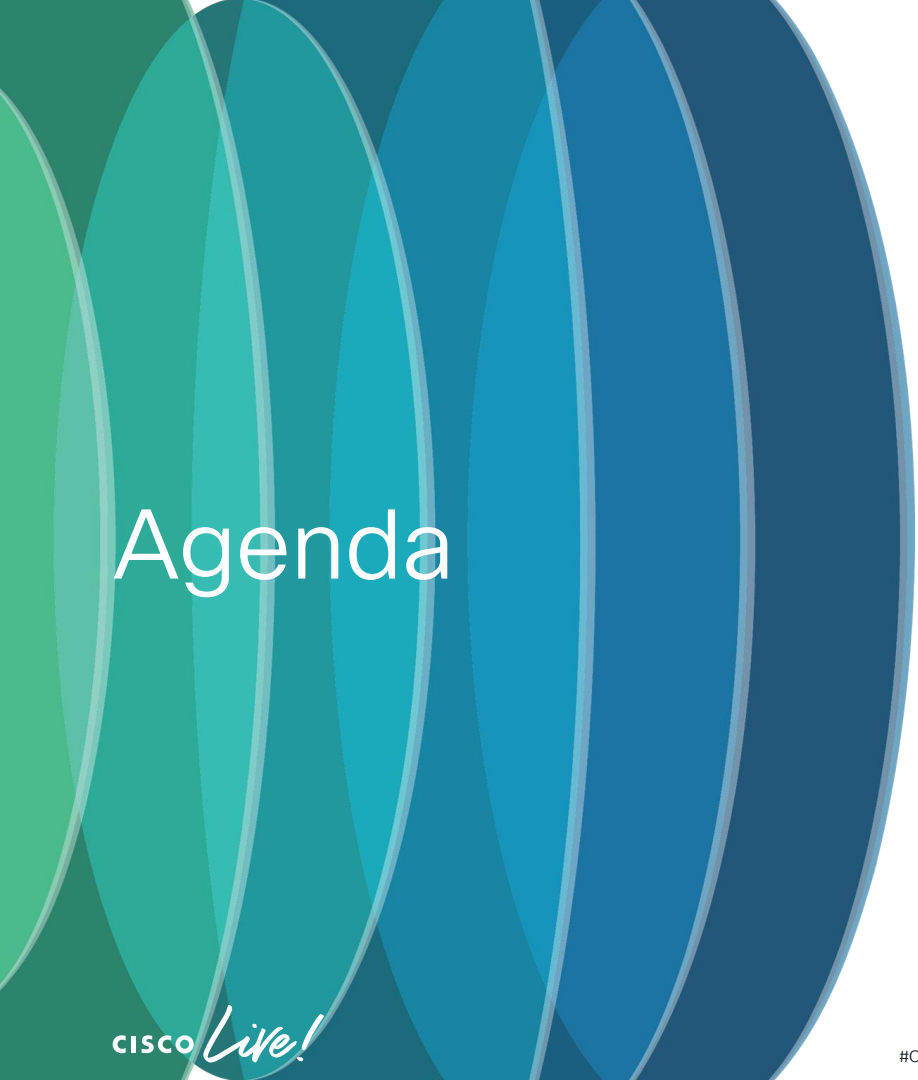
- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

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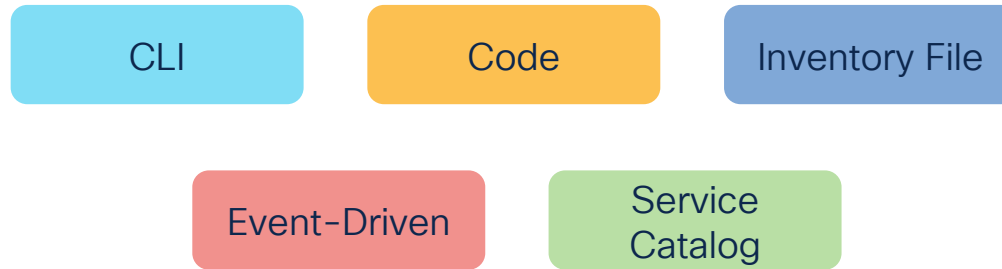


Agenda

- The Engineer Experience
- What/Why/How of ServiceNow?
- Cisco DC Networking Integrations with ServiceNow
- Creating a Service Catalog
- Recap and next steps

Thinking about the Engineer Experience first

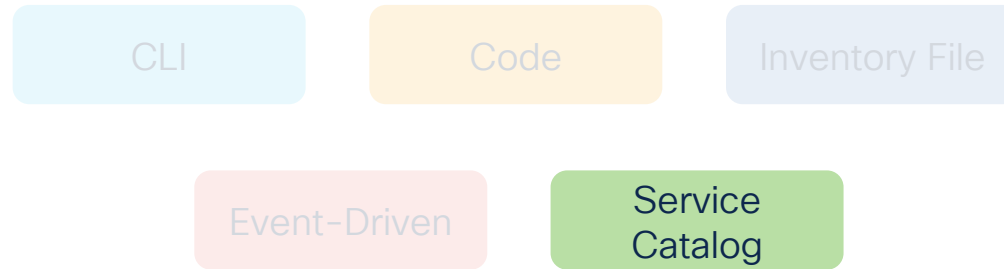
- Pick the Experience before the Tools
- What is the preferred way for you/your Engineers to make changes



- Then look at tools and technologies

Thinking about the Engineer Experience first

- Pick the Experience before the Tools
- What is the preferred way for you/your Engineers to make changes



- Then look at tools and technologies

What is ServiceNow?



- The Now Platform, a PaaS/SaaS platform for:
 - IT Services Management (ITSM)
 - IT Operations Management (ITOM)
 - IT Business Management (ITBM)
- Large Ecosystem of Partners and Integrations
- Build around data and workflows

ServiceNow Capabilities



Incident Management



Problem Management



Change Management



Configuration Management Database (CMDB)



Service Catalog

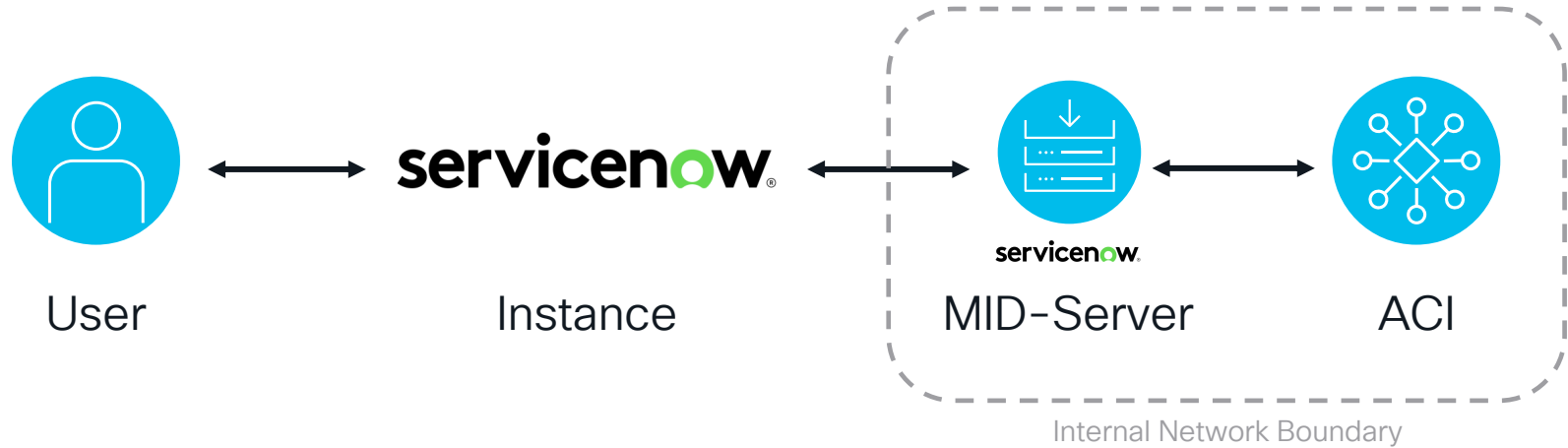
Why ServiceNow and Cisco DC Networking?

- Enhance ServiceNow CMDB data with product specific information
- Automate Incident Management but creating Incidents from network events and alert
- Enrich Incidents with deep insights to speed up recovery
- Reduce MTTR by aggregating information in one location
- Increase IT efficiency by streamlining processes
- Provide a self-service experience

The ServiceNow Architecture



The ServiceNow Architecture



The ServiceNow Store

servicenow

Store

Q Cisco

Search

Log In

Apps and Solutions

ServiceNow Products

Integrations

Innovation Lab

Events

Listing Type

Clear All Listing Type Selections

☒ Applications

☒ Integrations

☒ Built With ServiceNow

☒ OEM Solutions

☒ Ancillary Software

☒ Content

☒ Template

☒ Utility/Tool

Offered By

Clear All Offered By Selections

☒ Partners

☐ ServiceNow

Release

☐ Rome

☐ San Diego

☐ Tokyo

☐ Utah

Price

☐ Free

☐ Paid

Additional Filters

☐ Free Trial

☐ Demo

☐ Plug & Play

Ancillary Software X Applications X Built With ServiceNow X Content X Integrations X OEM Solutions X Template X Utility/Tool X Partners X Clear

All Filters

Apps and Solutions (5)

View More →



Cisco Nexus Dashboard Insights Application

Monitor and analyze your data center fabric in real time

Cisco Systems Inc

☆☆☆☆☆

Integrations (26)

View More →



Cisco Secure Endpoint

Stop attacks and simplify security operations.

Cisco Systems Inc

☆☆☆☆☆



Cisco ACI Orchestration

Inventory discovery and CMDB update for Cisco ACI

Cisco Systems Inc

☆☆☆☆☆



Cisco SecureX threat response

Security that works together

Cisco Systems Inc

☆☆☆☆☆



Cisco Intersight ITSM Plugin

Visibility and monitoring for Cisco UCS and HyperFlex.

Cisco Systems Inc

★★★★★



Cisco ACI Application

Inventory discovery and CMDB update for Cisco ACI.

Cisco Systems Inc

☆☆☆☆☆



Cisco BCS Operational Insights

Cisco BCS Operational Insights API Plugin

Cisco Systems Inc

☆☆☆☆☆

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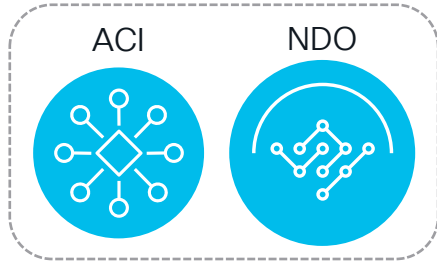
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Cisco DC Networking ServiceNow Integrations

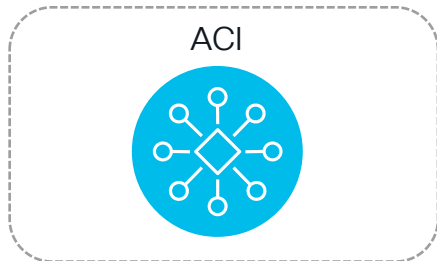
Cisco ACI Application



Nexus Dashboard Insights



Cisco ACI Orchestration



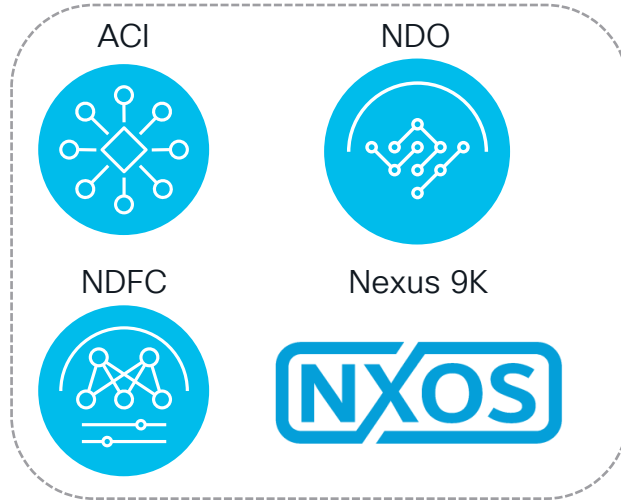
Nexus 9K



Cisco DC Networking ServiceNow Integrations

Cisco DC Networking Application

Nexus Dashboard Insights



Use Case: Service Catalog and Orchestration

- To create a Service Catalog, ServiceNow need a way to modify the configuration of the device it targets
- 3 Ways to make it happens:

servicenow®



HashiCorp

Terraform



ANSIBLE

Use Case: Service Catalog and Orchestration

- To create a Service Catalog, ServiceNow need a way to modify the configuration of the device it targets
- 3 Ways to make it happens:

servicenow®



HashiCorp

Terraform



ANSIBLE

Integrating ServiceNow with Terraform

The screenshot shows the ServiceNow Store interface. At the top, there's a search bar with 'terraform' entered. The main navigation bar includes 'Apps and Solutions', 'ServiceNow Products', 'Integrations' (which is highlighted), 'Innovation Lab', and 'Events'. Below this, a breadcrumb trail shows 'Back to Search Results'. The main content area features a large card for 'Terraform' by HashiCorp Inc. The card includes the Terraform logo, a description 'Infrastructure as code for provisioning, compliance, and management of any cloud.', and a 'Certified App' badge. It also lists compatibility with Tokyo, San Diego, and Rome, and a link to 'Other App Versions'. The pricing is listed as 'Free'. Below the card, there's a section for 'Product Details' and 'Ratings and Reviews' (showing 1 review). To the right of the main card, there's a sidebar with a 'Get' button, links to 'Contact Seller' and 'View Profile', and sections for 'Type' (Integration), 'Version' (2.1.2), 'Dependencies and Licensing' (with a link to 'View Dependencies and Licensing Requirements'), and 'Compatibility' (listing Tokyo, San Diego, and Rome). At the bottom right, there's a 'Supporting Links and Docs' section. An inset image shows the ServiceNow interface with the Terraform integration installed, displaying a 'Service Catalog' and 'Provisioning Catalog'.

serviceNow | Store

Q terraform Search

Log In

Apps and Solutions ServiceNow Products **Integrations** Innovation Lab Events

← Back to Search Results

Terraform
Infrastructure as code for provisioning, compliance, and management of any cloud.
HashiCorp Inc
Compatibility: Tokyo, San Diego, Rome | [Other App Versions](#)
Pricing
Free

now Certified App

Get

✉ [Contact Seller](#) →
👤 [View Profile](#) →

Type
Integration

Version
2.1.2
[Other App Versions](#)

Dependencies and Licensing
[View Dependencies and Licensing Requirements](#)

Compatibility
Tokyo
San Diego
Rome

Supporting Links and Docs

★ ★ ☆ ☆ ☆ 1 Review

Share With

Product Details Ratings and Reviews

Summary
HashiCorp Terraform is a tool for building, changing, and versioning infrastructure safely and efficiently. It enables users to define and provision a datacenter infrastructure using code. Configuration files describe to Terraform the components needed to run a single application or your entire datacenter. Codification enables version control and automation, reducing human error and increasing productivity.

serviceNow Service Management
Catalog
Service Catalog
Service Catalog - IP Pool
Provisioning Catalog
Terraform Catalog
Terraform Catalog
Terraform Catalog

What is Terraform?



HashiCorp

Terraform

- Open-source Infrastructure Provisioning Tool
- Commercial support from HashiCorp
- Declarative and idempotent
- Immutable infrastructure concept
- Can manage a wide range of systems:
 - VMs, network devices, cloud instances, etc.
- Agentless, single binary file
- Zero server-side dependencies

Cisco DC Networking Terraform Providers



Networks
Central Cloud

Cloud Managed Network

ACI



CiscoDevNet/aci

Nexus
Dashboard
Orchestrator



CiscoDevNet/mso

Nexus
Dashboard
Fabric
Controller



CiscoDevNet/dcnm

All Cisco providers can be found here: <https://registry.terraform.io/search/providers?namespace=CiscoDevNet>

Integrating ServiceNow with Ansible

The screenshot shows the ServiceNow Store interface. At the top, the 'servicenow' logo is on the left, followed by a 'Store' link. A search bar contains the text 'Ansible' and a 'Search' button. On the right, there are 'Log In' and a menu icon. Below the header, a navigation bar includes 'Apps and Solutions', 'ServiceNow Products', 'Integrations' (which is highlighted), 'Innovation Lab', and 'Events'. A breadcrumb trail shows '← Back to Search Results'. The main content area features a large green banner for 'Ansible Spoke' with the tagline 'Simplify and accelerate how you integrate with Ansible'. It lists 'ServiceNow' compatibility for 'Utah, Tokyo, San Diego, Rome' and provides a link to 'Other App Versions'. Below the banner, it states 'Automatically entitled on customer sub-prod instances without purchase or license'. There are five empty star icons and the text 'No Reviews'. To the right of the stars are social sharing icons for Twitter and Facebook. Below this, there are tabs for 'Product Details' and 'Ratings and Reviews'. The 'Summary' section contains text about automating job scheduling and a note about the integration's availability from March 11, 2021. A small inset window titled 'Search Actions' is visible, showing a list of actions including 'Most Recent', 'Popular', and 'INSTALLED SPOKES' with 'ServiceNow Core' and 'Ansible' listed. To the right of the main content, a sidebar contains a 'Get' button, followed by sections for 'Type' (Integration), 'Version' (2.2.7, with a link to 'Other App Versions'), 'Dependencies and Licensing' (with a link to 'View Dependencies and Licensing Requirements'), 'Subscription Required' (stating it's associated with a for-free subscription, with a link to 'More Info'), 'Compatibility' (listing Utah, Tokyo, San Diego, and Rome), and 'Supporting Links and Docs' (with links to 'ServiceNow Store Terms Of Use' and 'ServiceNow Store App Addendum').

servicenow | Store

Q Ansible Search

Log In

Apps and Solutions ServiceNow Products **Integrations** Innovation Lab Events

← Back to Search Results

Ansible Spoke
Simplify and accelerate how you integrate with Ansible
ServiceNow
Compatibility: Utah, Tokyo, San Diego, Rome | [Other App Versions](#)
Automatically entitled on customer sub-prod instances without purchase or license

☆☆☆☆ No Reviews

Share With

Product Details ☆ Ratings and Reviews

Summary
Automate job scheduling, job templates, inventory, and user management in your Ansible Tower environment from the ServiceNow instance.
From March 11, 2021 IntegrationHub Standard is not available as a separate package to new customers. Existing IntegrationHub Standard customers' entitlements are not affected. New IntegrationHub customers can purchase IntegrationHub Professional or Enterprise to obtain capabilities previously available in

Q Search Actions

- Most Recent
- Popular
- INSTALLED SPOKES
- ServiceNow Core
- Ansible

Adhoc Command Management
Look up Status From Ad-Hoc ...
Run An Ad-Hoc Command

Get

Type
Integration

Version
2.2.7
[Other App Versions](#)

Dependencies and Licensing
[View Dependencies and Licensing Requirements](#)

Subscription Required
Yes. This app is associated with a for-free subscription.
[More Info](#)

Compatibility
Utah
Tokyo
San Diego
Rome

Supporting Links and Docs
[ServiceNow Store Terms Of Use](#)
[ServiceNow Store App Addendum](#)

What is Ansible?



- Open-source Configuration Management Tool
- Commercial support from RedHat
- Declarative (when possible) and idempotent
- Can manage a wide range of systems:
 - VMs, network devices, cloud instances, etc.
- Agentless
- Python server-side dependencies

Cisco DC Networking Collections



Cisco NXOS



cisco.nxos

ACI



cisco.aci

Nexus
Dashboard



cisco.nd
cisco.mso
cisco.nae

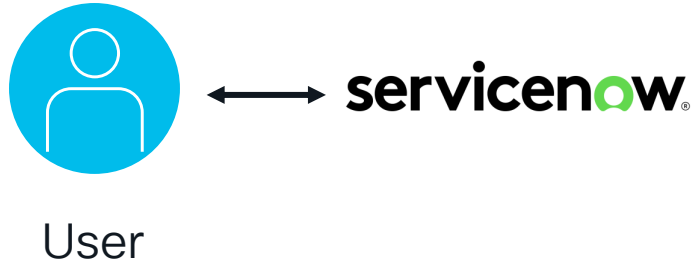
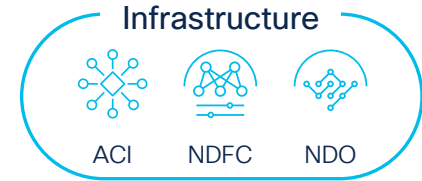
Nexus
Dashboard
Fabric Controller



cisco.dcnm

All Cisco collections can be found here: <https://galaxy.ansible.com/cisco/>

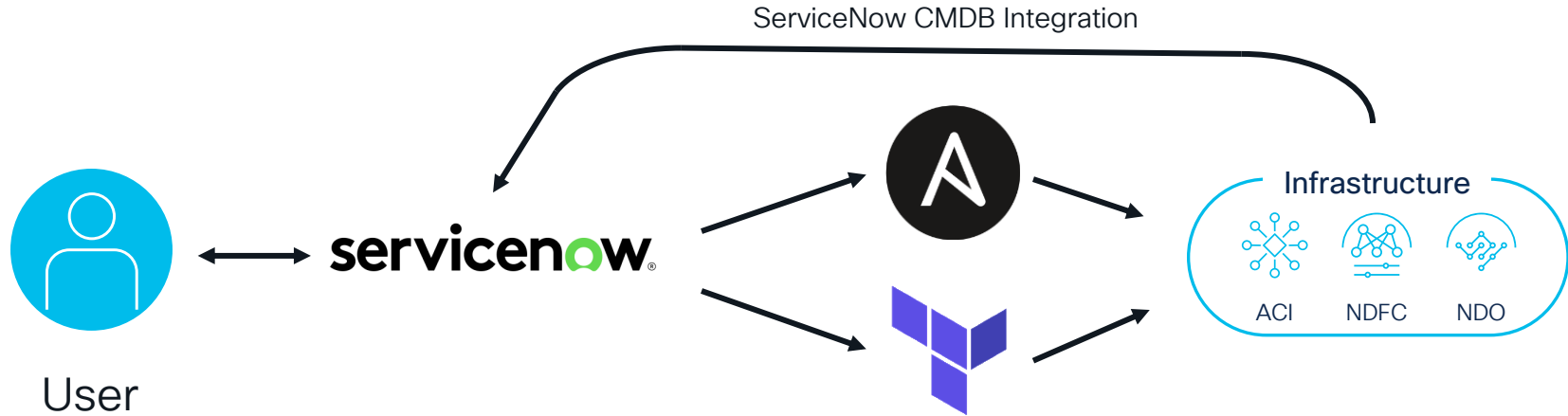
ServiceNow as a Service Catalog for Automation



ServiceNow as a Service Catalog for Automation



ServiceNow as a Service Catalog for Automation



ServiceNow as a Service Catalog for Automation

- Step 1: Gathering the inputs from the User
- Step 2: Processing the inputs, approvals and formatting the data
- Step 3: Making the change to the infrastructure

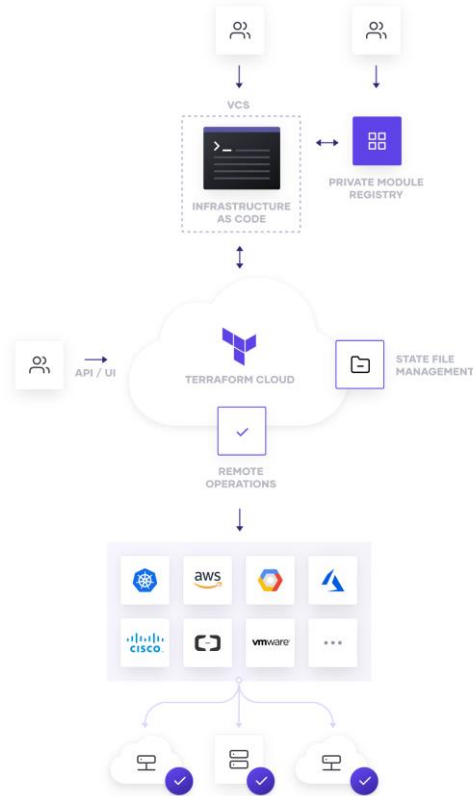
ServiceNow as a Service Catalog for Automation

- Step 1: Gathering the inputs from the User
 - Catalogs, Catalog Items, References and CMDB Integrations
- Step 2: Processing the inputs, approvals and formatting the data
 - Flow Designer, Ansible Spoke and Terraform Integration
- Step 3: Making the change to the infrastructure
 - Terraform Cloud and Ansible Automation Platform (Tower)

Let's see how it works!

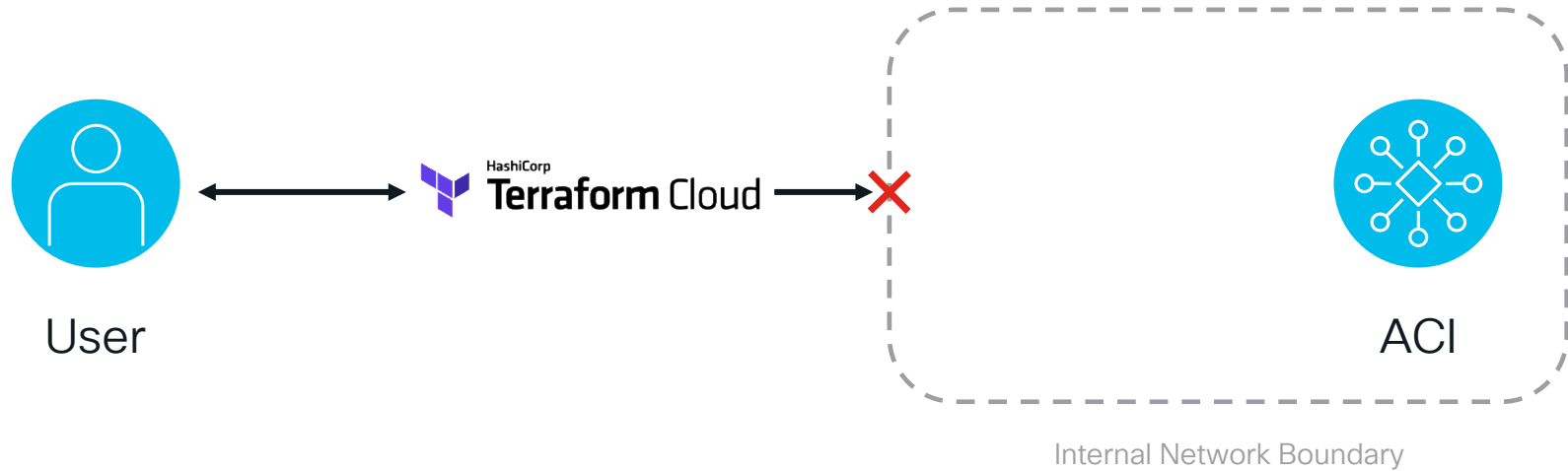


What is Terraform Cloud?

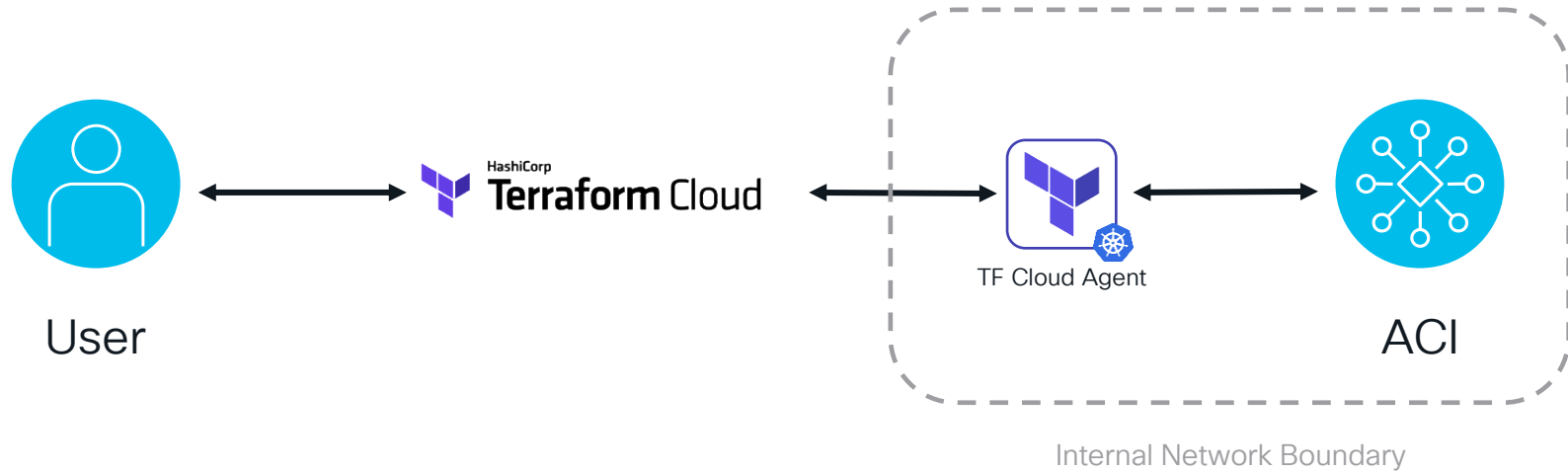


- HashiCorp Infrastructure as Code Cloud Service
- Can trigger plan, apply and destroy any Terraform plan.
- Can be triggered by a source control hook
 - A commit / PR to a repository can be used as a hook
- Provides Enterprise level features:
 - State File Management and Sharing
 - Private Module Registry
 - Config Compliance Checks (Sentinel)

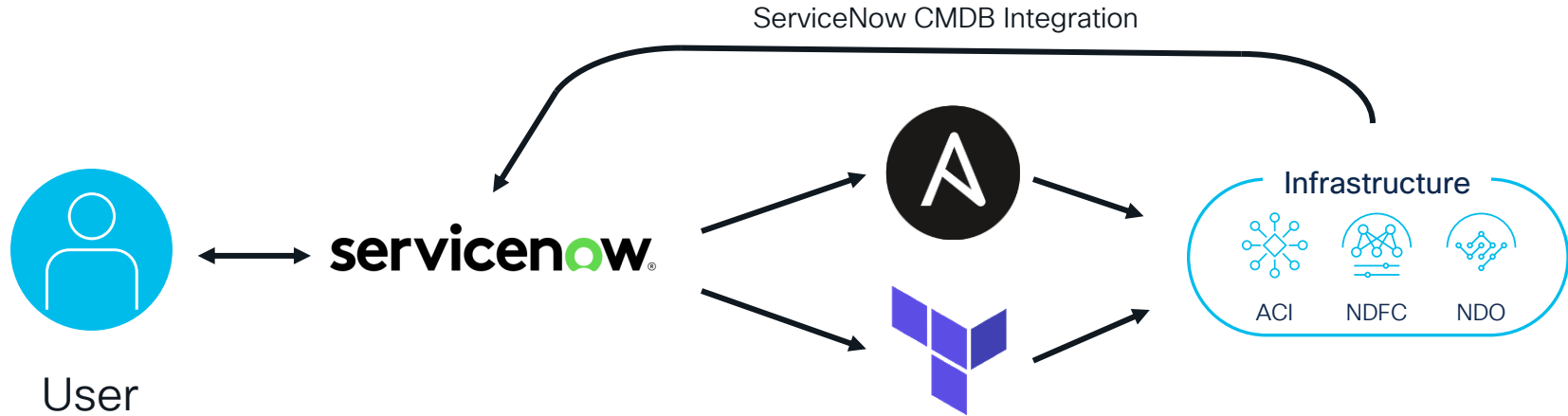
Why do you need a Terraform Cloud Agent?



Why do you need a Terraform Cloud Agent?



ServiceNow as a Service Catalog for Automation



What about CI/CD pipelines?

Integrating ServiceNow with GitHub

The screenshot shows the ServiceNow Store interface for the 'GitHub Spoke' integration. The top navigation bar includes the ServiceNow logo, a search bar with 'Github Spoke' entered, and a user profile icon labeled 'LH'. Below the navigation bar, the 'Integrations' tab is selected. The main content area features a large green banner for 'GitHub Spoke' with the description 'Simplify and accelerate how you integrate with GitHub'. It lists compatibility for Utah, Tokyo, San Diego, and Rome, and mentions automatic entitlement on sub-prod instances and developer portal instances. There are no reviews displayed. To the right, a sidebar provides details: 'Ready to install', a link to 'Why is "Manage Entitlements" missing?', 'Type: Integration', 'Version: 2.2.5', 'Dependencies and Licensing' (with a link to 'View Dependencies and Licensing Requirements'), 'Subscription Required: No', 'Compatibility' (listing Utah, Tokyo, San Diego, and Rome), and 'Supporting Links and Docs' (with links to 'ServiceNow Store Terms Of Use' and 'ServiceNow Store App Addendum'). At the bottom, a 'Summary' section contains an attention notice about licensing and a description of the spoke's capabilities. A small inset window shows a 'Search Actions' dialog with 'GitHub' selected.

servicenow | Store

Q Github Spoke Search

Apps and Solutions ServiceNow Products **Integrations** Innovation Lab Services Events

← Back to Search Results

GitHub Spoke
Simplify and accelerate how you integrate with GitHub
ServiceNow
Compatibility: Utah, Tokyo, San Diego, Rome | [Other App Versions](#)
Automatically entitled on all sub-prod instances, all ServiceNow instances and all ServiceNow developer portal instances

☆☆☆☆ No Reviews

Share With

Product Details ☆ Ratings and Reviews

Summary

ATTENTION: Use of this product requires a license for either Integration Hub Professional or Software Asset Management.

GitHub Spoke is a comprehensive spoke that provides many popular actions to perform branch management, issue management, organization management, repository management, source code management, and user management. It supercharges and streamlines integrations between ServiceNow and GitHub workflow right at your fingertips. With just drag-n-drop, several of the GitHub Spoke actions can be used in the Flow Designer. A user can create a branch, add comments on commits, open a pull request, merge a pull request, and delete a branch. GitHub Spoke makes the branch management lifecycle way easier.

Ready to install

[Why is "Manage Entitlements" missing?](#)

Type
Integration

Version
2.2.5
[Other App Versions](#)

Dependencies and Licensing
[View Dependencies and Licensing Requirements](#)

Subscription Required
No

Compatibility
Utah
Tokyo
San Diego
Rome

Supporting Links and Docs
[ServiceNow Store Terms Of Use](#)
[ServiceNow Store App Addendum](#)
[GitHub spoke documentation \(Rome\)](#)

Action **Flow Logic** **Subflow**

Q Search Actions

- DocuSign
- Dropbox Business
- F5 BIG-IP
- First Advantage
- Flow Templates for Docum...
- GitHub**
- GitHub

Branch Management

- Create Branch
- Delete Branch
- Look up Branch
- Look up Branch Protection

You do not have a IntegrationHub subscription for this spoke.

Key Takeaways

- Cisco DC Networking has a deep integration with ServiceNow
- The new DC Networking Inventory Integration will bring a lot of new features and capabilities
- ACI, NDFC, NDO, N9K, NDI, they can all be integrated with ServiceNow

References

- BRKDCN-2969: Managing your data center network with ServiceNow
- BRKOPS-2032: 3 Cisco DNA Center and ITSM Workflows
- BRKSEC-2122: Leveraging Cisco's XDR solution with IT Service Management (ITSM) and SIEM Systems for Incident Investigation -
- BRKOPS-2471: Custom Workflows for the Cisco DNA Center integration with ServiceNow
- ServiceNow Store: <https://store.servicenow.com/>
- dCloud: <https://dcloud2-lon.cisco.com/content/instantdemo/cisco-nexus-dashboard-insights-for-aci-v3-1>

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- Book your one-on-one Meet the Expert 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



Thank you

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