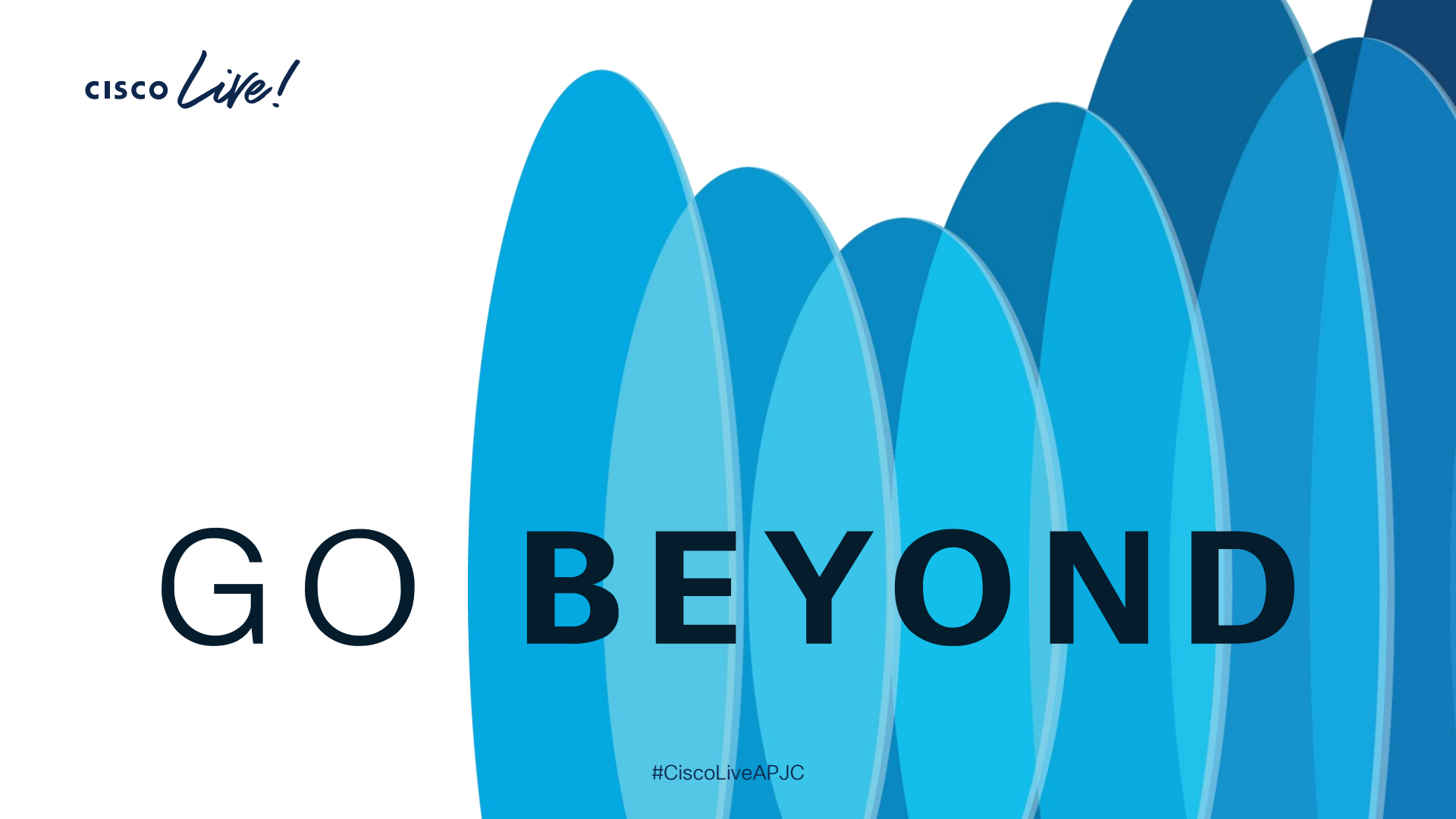
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Self-Service Automation for your DC Network

using Ansible, Terraform and ServiceNow

Lionel Hercot, Technical Marketing Engineer
@LHercot

DEVNET-1892

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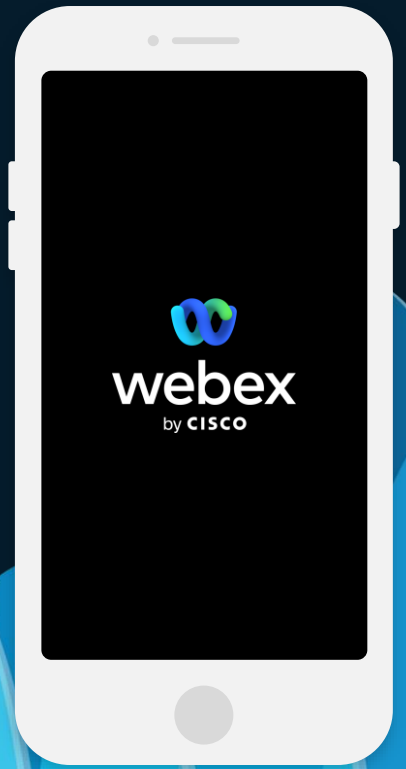

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Agenda

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

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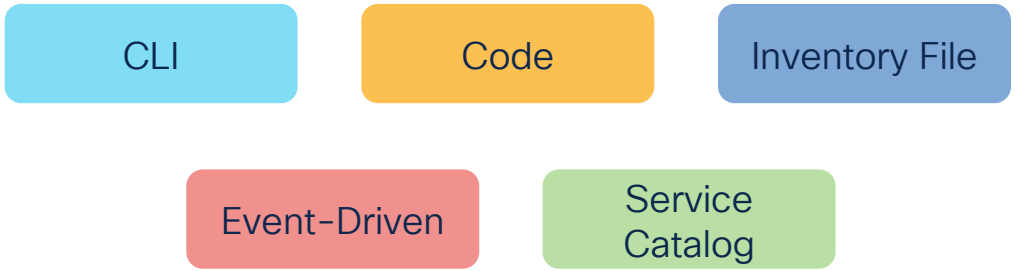
Thinking about the Engineer Experience first

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



- Then look at tools and technologies

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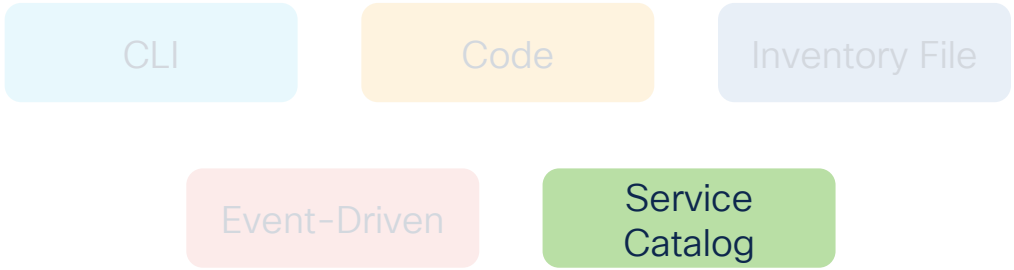

- Then look at tools and technologies

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What is ServiceNow?

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

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ServiceNow Capabilities

Incident Management

Problem Management

Change Management

Configuration Management Database (CMDB)

Service Catalog

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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

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The ServiceNow Architecture

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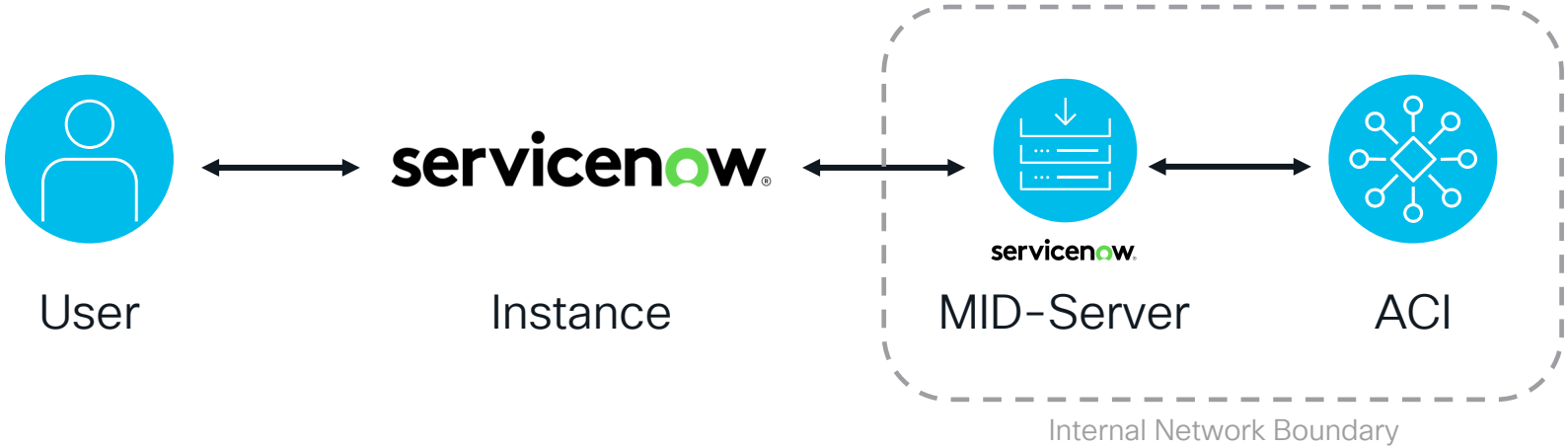
The ServiceNow Architecture



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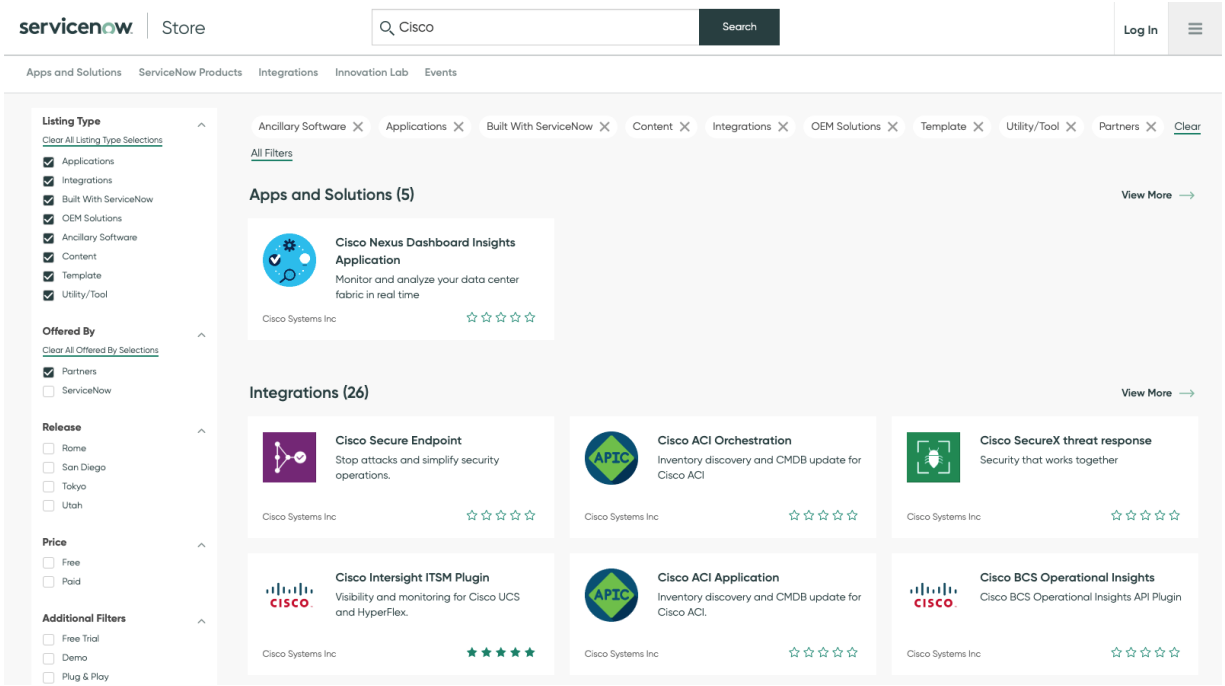
The ServiceNow Store



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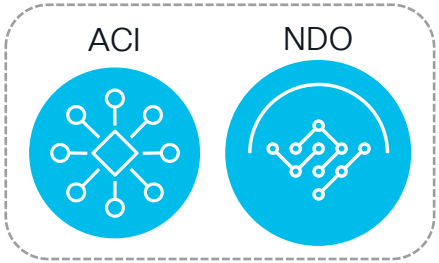
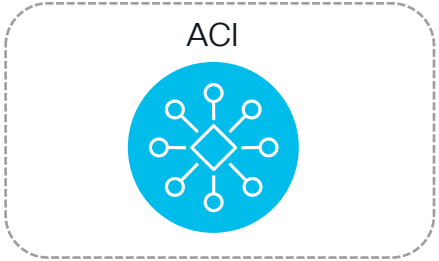
Cisco DC Networking ServiceNow Integrations

Cisco ACI Application



Nexus Dashboard Insights

Cisco ACI Orchestration



Nexus 9K

NXOS

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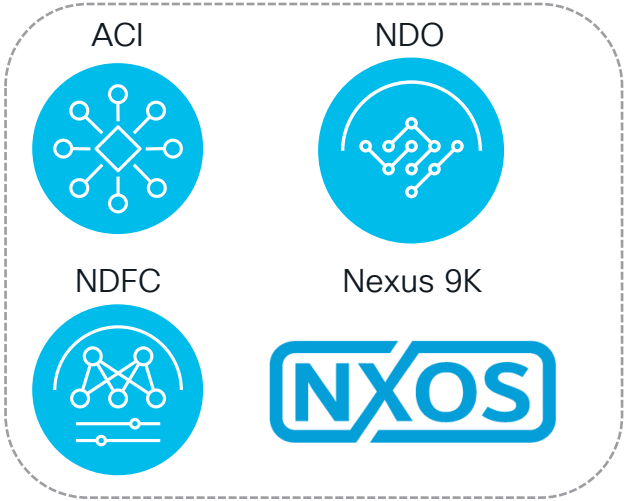
Cisco DC Networking ServiceNow Integrations

Cisco DC Networking Application



Nexus Dashboard Insights

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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:

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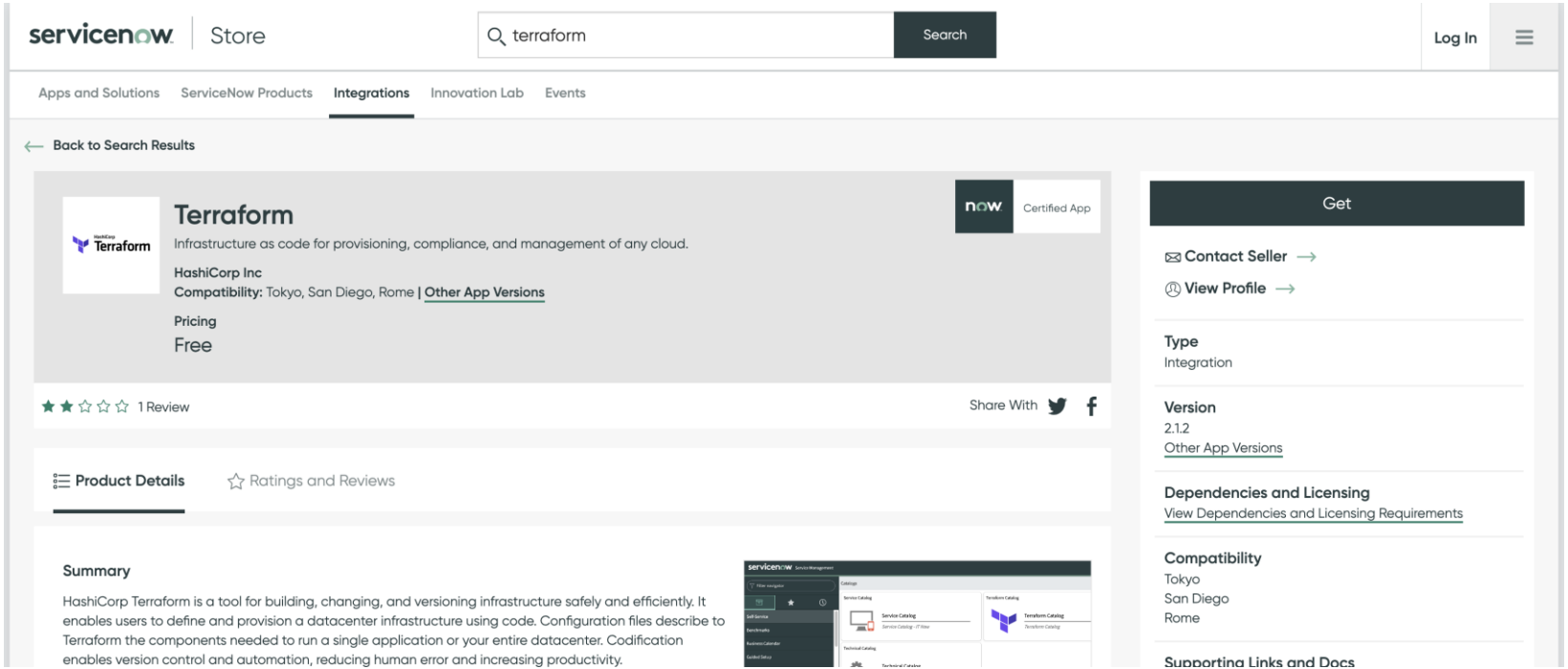
Integrating ServiceNow with Terraform



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What is 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

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Cisco DC Networking Terraform Providers

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

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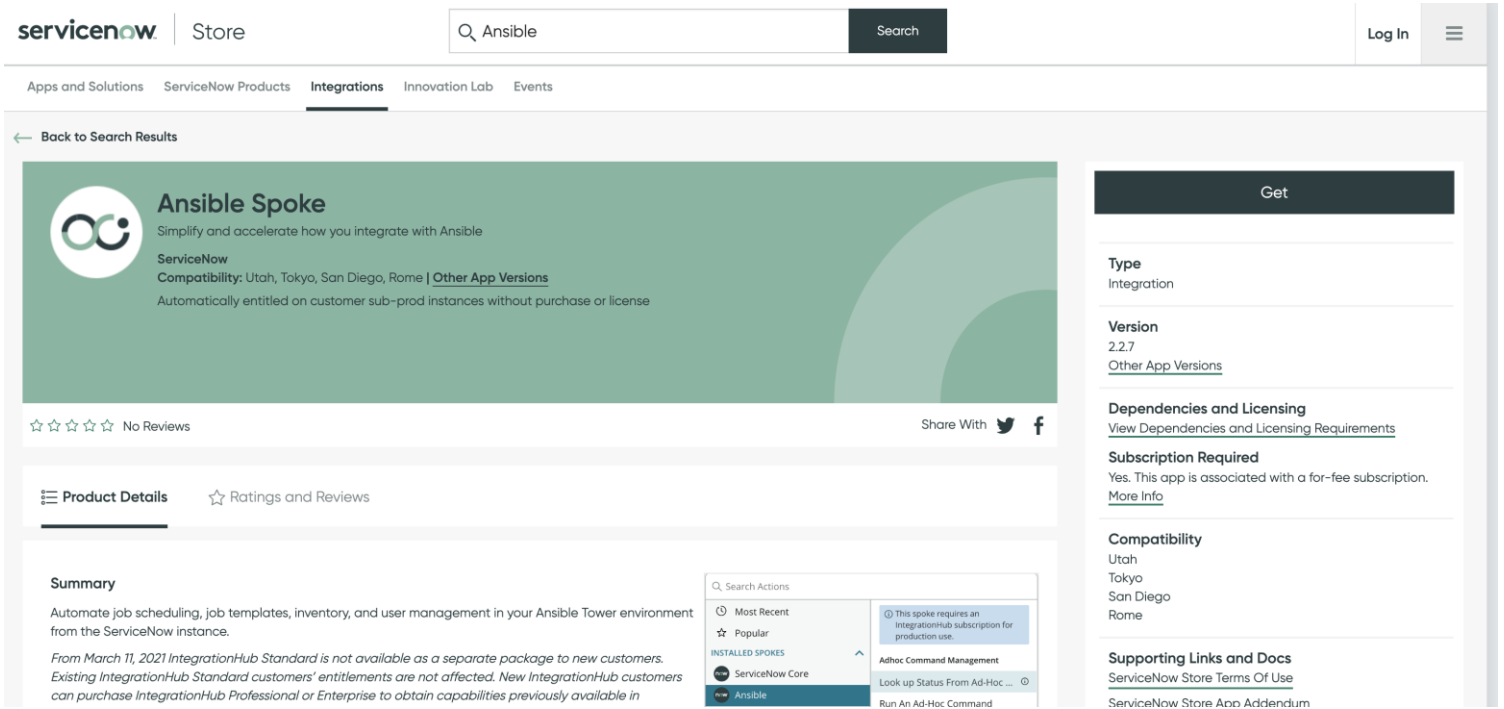
Integrating ServiceNow with Ansible



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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

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Cisco DC Networking Collections

Cisco NXOS	ACI	Nexus Dashboard	Nexus Dashboard Fabric Controller
cisco.nxos	cisco.aci	cisco.nd cisco.mso cisco.nae	cisco.dcnm

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

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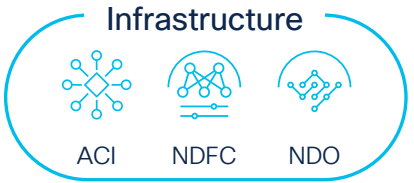
ServiceNow as a Service Catalog for Automation

servicenow

User



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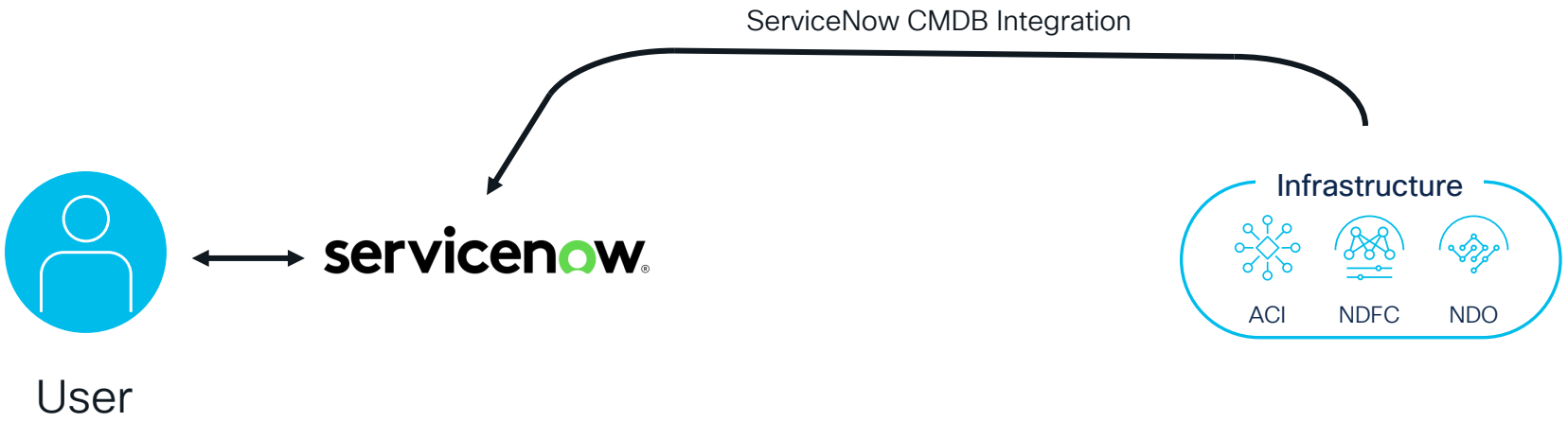
ServiceNow as a Service Catalog for Automation



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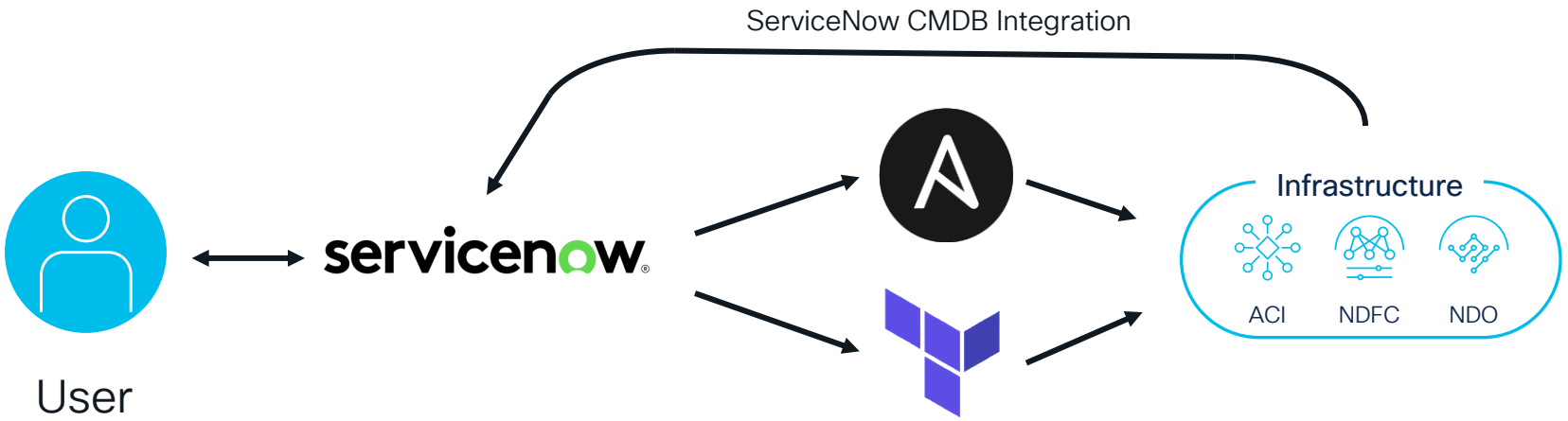
ServiceNow as a Service Catalog for Automation



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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

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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)

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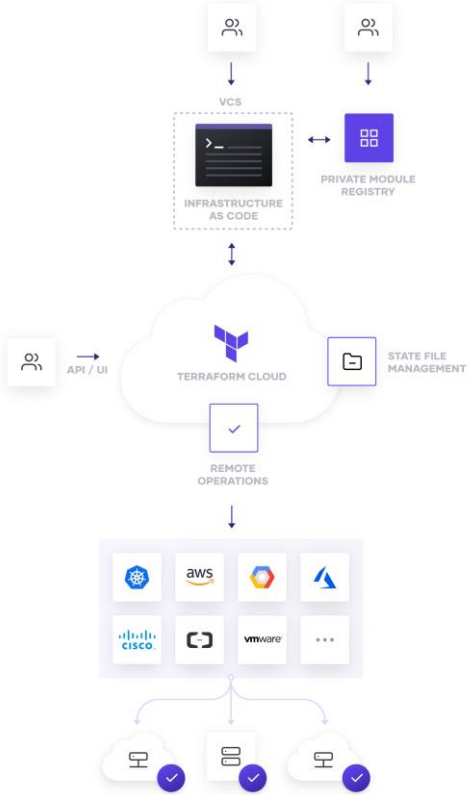
Let’s see how it works!

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)

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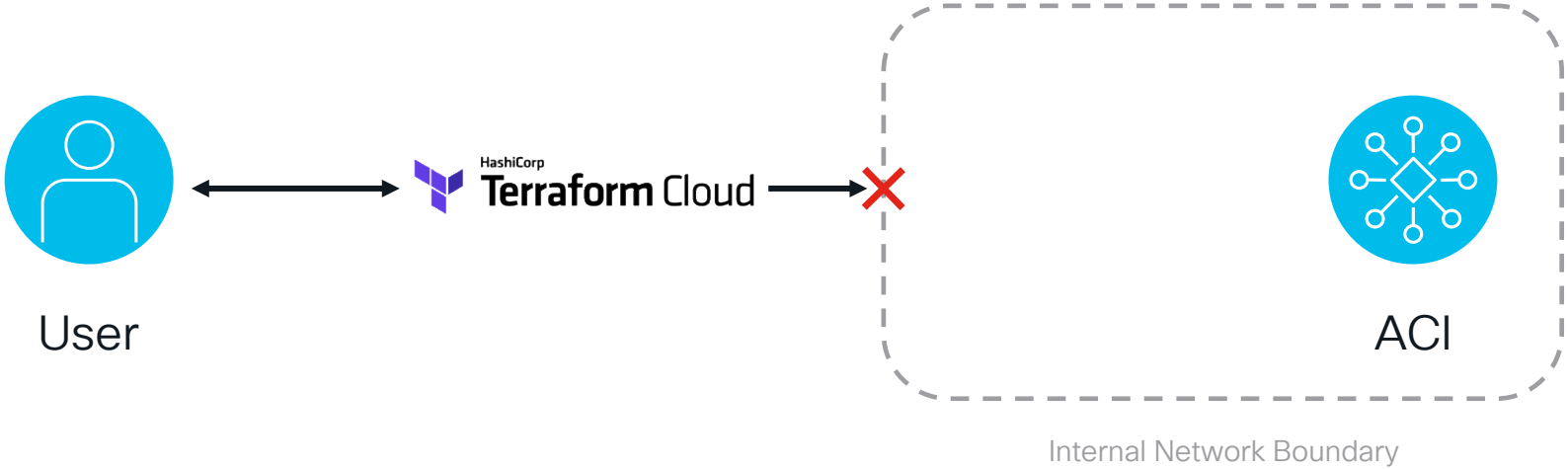
Why do you need a Terraform Cloud Agent?



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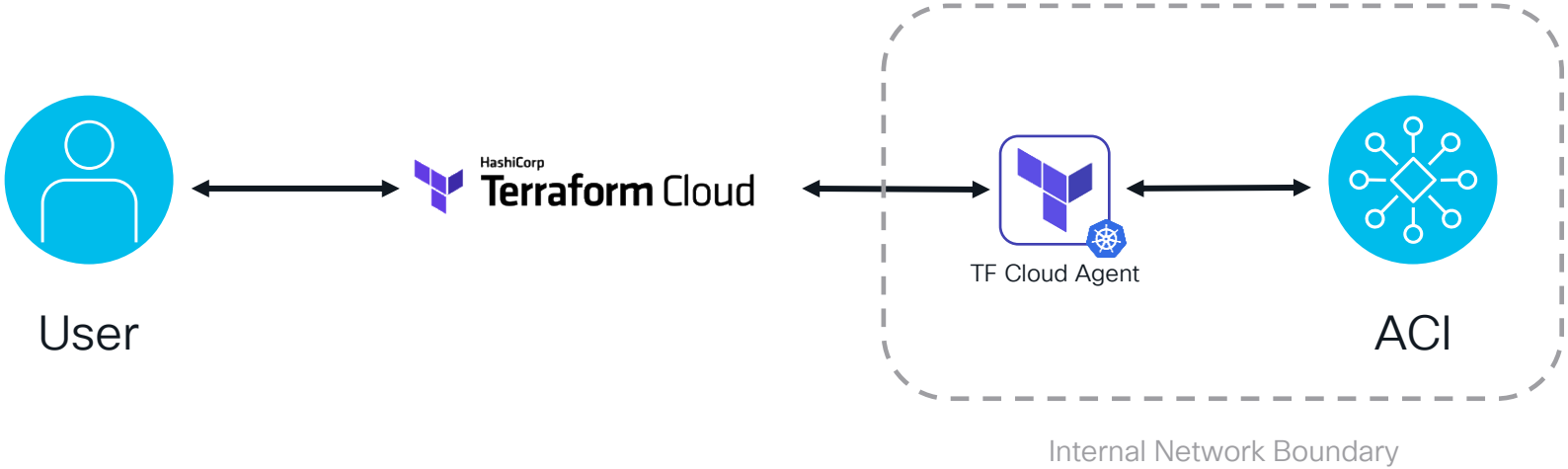

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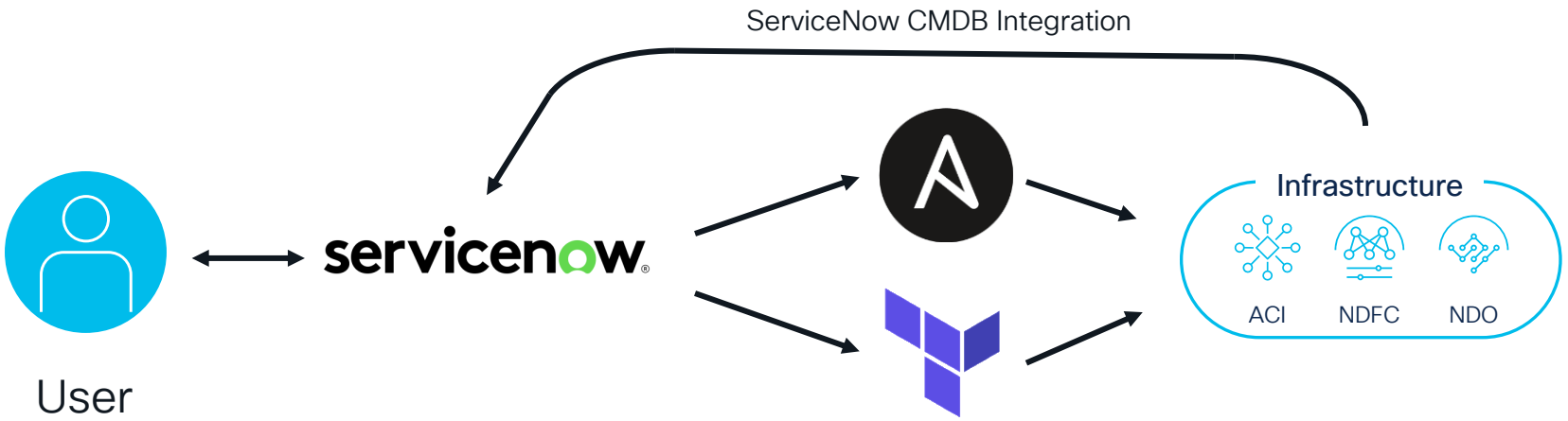
ServiceNow as a Service Catalog for Automation



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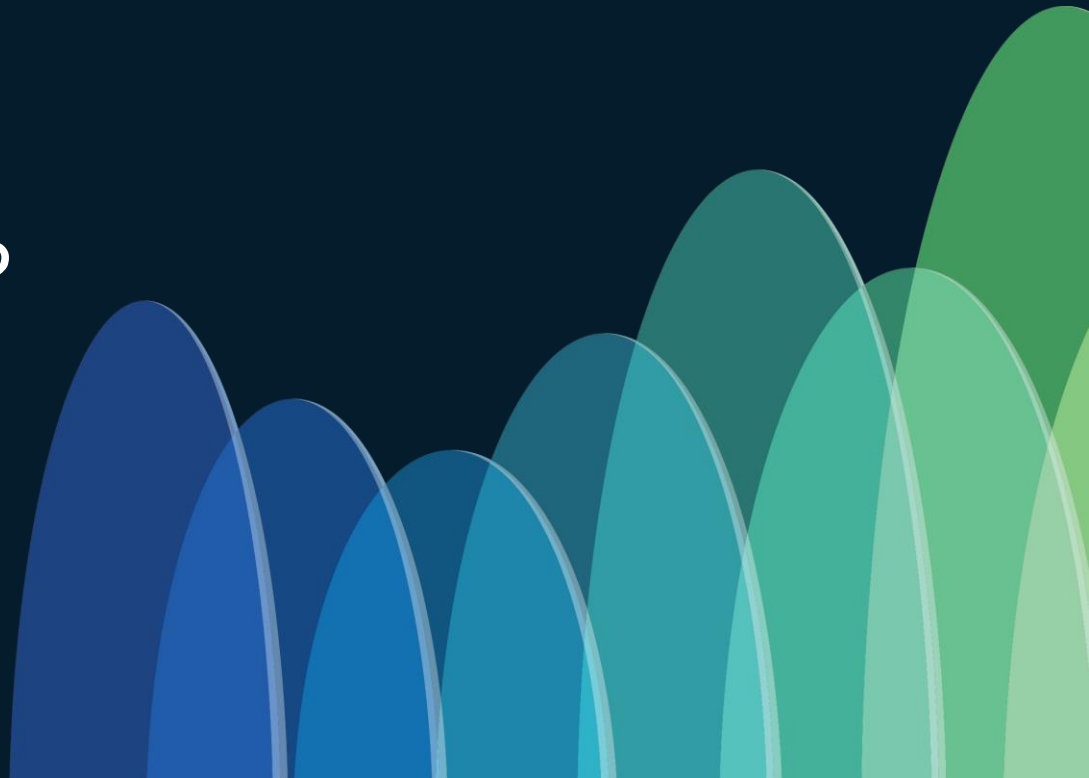
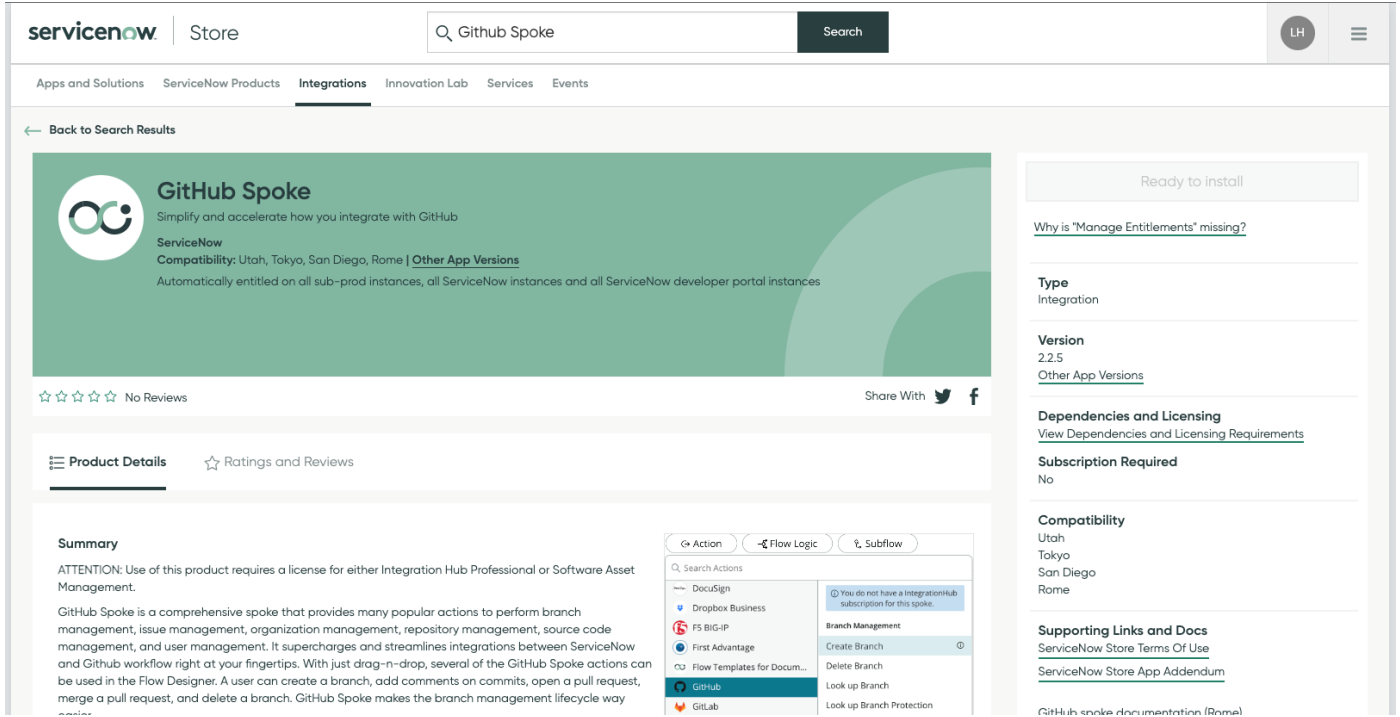
What about CI/CD pipelines?



Integrating ServiceNow with GitHub



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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

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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 Worfklows 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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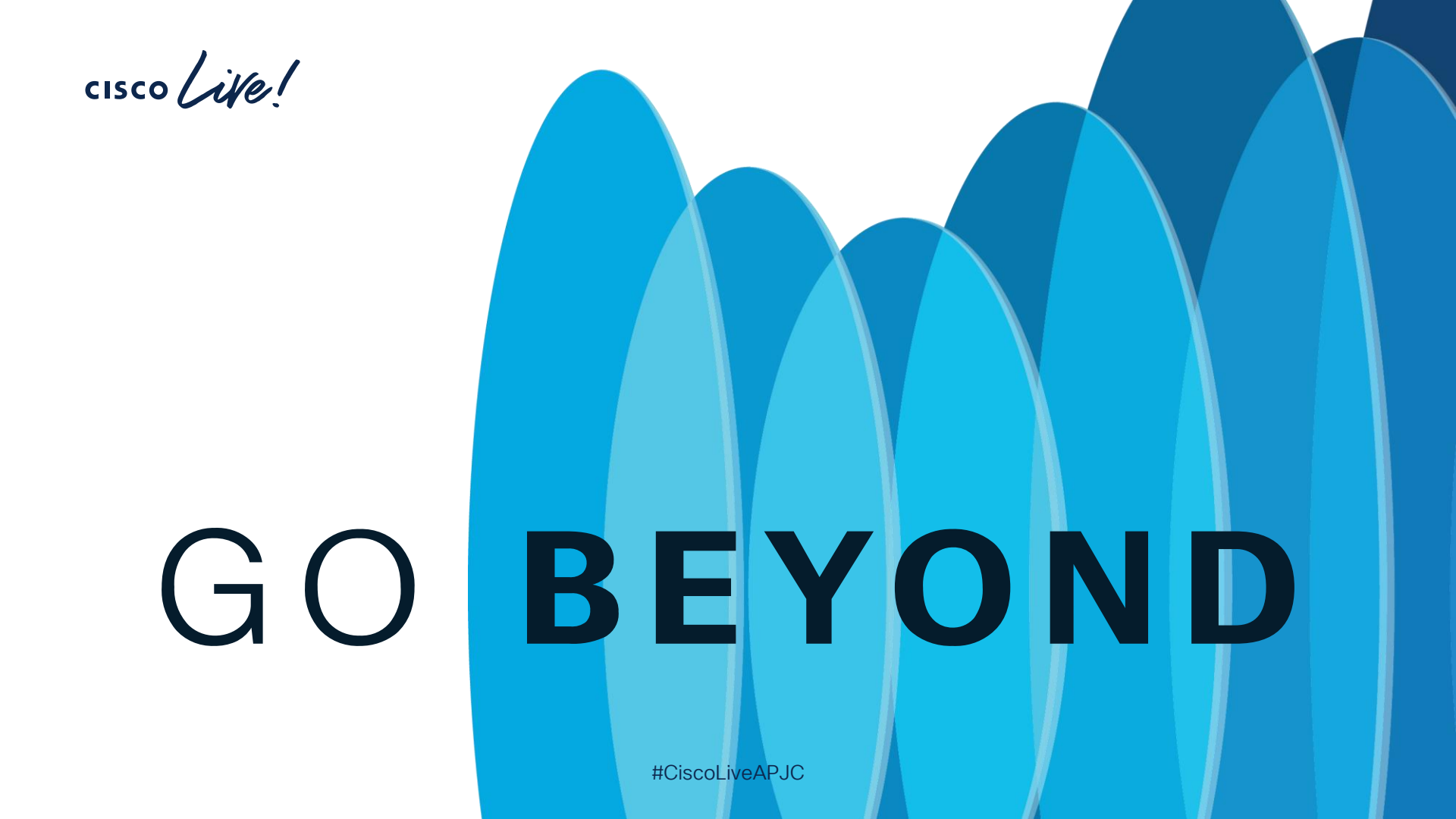
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