Cisco ACI with Ansible Collections

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1. Ansible Project Status
2. Introduction to Collections
3. Building a Collection (TL;DR)
4. Intro to ACI and MSO
5. ACI Collection
6. Demo
7. Q&A
Ansible Project Status

Ansible 2.9
{rpm, deb, pip}

Ansible 2.10 Base
{deb, pip}

Ansible Content
{collections}
Building Ansible 2.10

Ansible Collections

Ansible 2.10 Base
{deb, pip}

Ansible 2.10
{rpm, deb, pip}
Introducing the Ansible Collection

Simplified and consistent content schema

● A standardized way to organize and package Ansible content
● Include roles, modules, module utilities, plugins, documentation
● Semantic versioning
● Portable and flexible delivery
Step 2: Simplify Ansible Distribution Channels

Ansible Galaxy

galaxy.ansible.com

- Community supported
- Extended to leverage Collections framework
- “Latest and greatest”

Ansible Automation Hub

cloud.redhat.com

- Certified, jointly supported by Red Hat and Partner
- Access to advanced analytics
- “Slow and steady”
Step 2: Distribution Example, Cisco ACI

### Ansible Galaxy
- galaxy.ansible.com
- https://galaxy.ansible.com/
  - $namespace/$collection
- https://galaxy.ansible.com/cisco/acis
  - namespace.collection_name.module
cisco.aci.aci_tenant

### Ansible Automation Hub
- cloud.redhat.com
- https://cloud.redhat.com/ansible/automation-hub/
  - $namespace/$collection
- https://cloud.redhat.com/ansible/automation-hub/cisco/acis
  - namespace.collection_name.module
cisco.aci.aci_tenant
Step 3: Let’s Go! (The Developer TL;DR)

1. Init collection: `ansible-galaxy collection init foo.bar`
2. Sanity testing: `ansible-test sanity`
3. Unit tests: `ansible-test units`
4. Integration tests: `ansible-test integration`
5. Build the collection: `ansible-galaxy collection build`
6. Publish the collection: `ansible-galaxy collection publish`
7. Install the collection: `ansible-galaxy collection install foo.bar`
Challenges in building a Multi Cloud Network

• Building an automated and secure interconnect between On Premises and Cloud datacenters with ease of provisioning and monitoring at scale

• Maintain consistent policy, security and analytics for workloads deployed across on-premises and cloud locations

• Requires a single pane of glass to manage policies across on-premise and cloud locations
ACI Architecture

Spines

Leafs

Controllers

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ACI Architecture

Spines

Leafs

Modular Switch

Controllers

APIC

APIC

APIC
ACI Multi-Site Architecture

Cloud Region(s)

On-Premises

Cloud Region(s)
Infrastructure as code – What/Why/How

• Automate the provisioning and management of the technology stack

• Translate manual tasks into reusable, robust, distributable code

• Rely on practices that have been successfully used for years in software development (version control, automated testing, release tagging, continuous delivery, etc.)

• Benefits: much higher delivery speed; significant reliability boost
Add the network to your IT toolsets

<table>
<thead>
<tr>
<th>Integration</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>1. Improve the speed and consistency of your IT service automation by</td>
<td>Application and infrastructure teams gain the flexibility they desire,</td>
</tr>
<tr>
<td>allowing your broader infrastructure teams to use their existing tools</td>
<td>and the network team maintains the control it needs, by leveraging</td>
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<tr>
<td>to address their network requirements</td>
<td>the automation frameworks they are comfortable with</td>
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<tr>
<td>2. Offer consistent network services across any type of cloud,</td>
<td>There is no need to compromise on network requirements based on</td>
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<tr>
<td>virtualization, or container platform</td>
<td>using one platform at the expense of another, letting you implement</td>
</tr>
<tr>
<td>3. Exchange information ITSM tools between sections of the network to</td>
<td>best-of-class solutions within your environment</td>
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<tr>
<td>gain insights into the current state of the infrastructure and the impact</td>
<td>Provides a full management lifecycle of the network, from</td>
</tr>
<tr>
<td>of changes and faults and to ensure governance for remediation and</td>
<td>CMDB consistency to automated ticket creation, based on</td>
</tr>
<tr>
<td>changes in the network</td>
<td>smart network events to add to your single source of truth for</td>
</tr>
<tr>
<td></td>
<td>IT service management</td>
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Cisco Data Center Networking Collections

Available Today

- **Cisco NXOS**
  - 80+ modules in cisco.nxos via network_cli or NXAPI

- **APIC Controller**
  - 65+ modules in cisco.aci via httpapi

- **Multi Site Orchestrator**
  - 30+ modules in cisco.mso via httpapi

Coming Soon

- **Data Center Network Manager**
- **Network Assurance Engine**

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How to start with the ACI Ansible Collections?

• Start simple

• Pick a task you want to automate
  • Interface Configuration (Fabric Access Policies)
  • Cookie-cutter Tenant / VRF / EPG templating
  • EPG to VLAN assignment

• Automate these tasks (individually)

• Build on it (stitch them together)
Let’s do it!
ACI Demo Flow

- Connect to APIC, show that we don’t have interfaces configured
- Configure 1 network interface using a playbook and explain it
- Show in APIC
- Configure 10 network interfaces in ACI by using a simple loop
- Commit the change, re-execute playbook, show again in APIC
- Build the example with the related policy (switch, …)
- Mention ACI Rest
MSO Demo Flow

• Explain the difference between APIC and MSO
• Connect to MSO, show that we don’t have a tenant configured
• Configure a tenant using a playbook and explain it
• Show in MSO
• Configure a complete Schema with the required elements
• Commit the change, re-execute playbook, show again in MSO
• Build the example buy showing a full schema with ANP, …
What to do now?

- ACI Ansible Modules Documentation Guide
  https://docs.ansible.com/ansible/latest/scenario_guides/guide_aci.html

- Cisco DevNet ACI and Ansible Learning Labs
  https://developer.cisco.com/learning/modules/ansible-aci-intro

- Cisco ACI Collection GitHub
  https://github.com/CiscoDevNet/ansible-aci

- Cisco MSO Collection GitHub
  https://github.com/CiscoDevNet/ansible-mso

- ACI Collections on Ansible Galaxy
  https://galaxy.ansible.com/cisco/aci

- MSO Collections on Ansible Galaxy
  https://galaxy.ansible.com/cisco/mso

- Demo Code GitHub
  https://github.com/lhercot/ansible-aci-webinar

- What’s new and exciting on Cisco ACI with Red Hat Ansible Collections
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Q&A

http://www.ansible.com/cisco