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CISCO

Cisco and Ansible Solutions

Accelerate DevOps with Cisco UCS and Ansible

Cisco UCS Manager and Ansible provide a software-defined approach to the management of the entire hardware and software stack. All Cisco Unified Computing System™ (Cisco UCS®) and Cisco HyperFlex™ systems are fully programmable infrastructure. The unified API enables you to treat the physical infrastructure as code. Instead of using multiple scripts to automate physical infrastructure. With the integration of Cisco UCS Manager with Ansible, IT administrators and DevOps teams can orchestrate all the steps needed to set up a physical infrastructure.

The unified API also provides a consistent interface for discovering, inventorying, configuring, provisioning, updating, and diagnosing the infrastructure resources, eliminating the need for multiple, time-consuming, low-level programming interfaces.

Benefits

- Use Ansible to deploy your Cisco Unified Computing System™ (Cisco UCS®) servers, storage, fabric, hyperconverged infrastructure, and converged infrastructure.

- Achieve faster build times, because your entire application stacks can be provisioned automatically, from bare metal through applications, in minutes.

- Automate policy, resource pool, and resource profile configuration and ongoing management.

# Ansible works with Cisco UCS and Cisco HyperFlex Systems

Through the integration of Cisco UCS Manager with Ansible, you can provision all your Cisco UCS servers and the related storage and fabric resources, Cisco HyperFlex hyperconverged infrastructure, and Cisco converged infrastructure. This provisioning includes Cisco UCS B-Series Blade Servers, C-Series Rack Servers, and S-Series Storage Servers and all models of Cisco HyperFlex Systems.

Cisco UCS Manager allows you to create reusable profiles that consist of policies established by subject-matter experts. A service profile is a software definition of a server and its LAN and SAN. Service profiles allow you to define infrastructure configurations and settings across servers, storage, and networking resources. The service profiles and policies created in Cisco UCS Manager allow you to create logical infrastructure from available resource pools.

Benefits of Ansible and Cisco UCS

Ansible allows users to define the desired state and settings for infrastructure without worrying about the specific programming steps needed to reach that state. You can simply describe what you want the infrastructure to look like, and Ansible will determine how to implement your wishes. And Ansible then maintains the desired state, handling all the time-consuming work of checking the current configuration and making changes when needed. This feature provides a big advantage over traditional scripting, in which the programmer must handle the process of maintaining the system in a certain state.

Figure 1. Ansible uses playbooks to automate and orchestrate IT environments
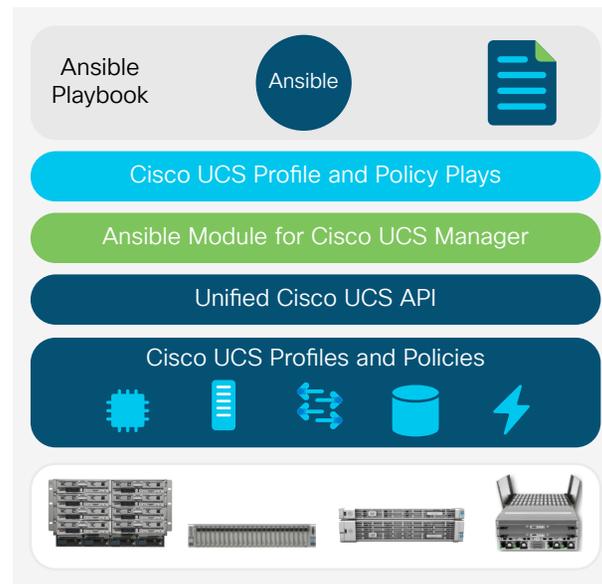
How Ansible works

Ansible also provides an excellent framework for organizing the data used in infrastructure configuration management. The endpoints managed and the roles for which those endpoints should be configured are specified in a straightforward and human readable markup language: YAML.

Ansible automates and orchestrates IT environments through playbooks (see Figure 1). Playbooks provide a YAML definition of a series of operations, or plays, that define automation across a set of hosts. Each 'play' consists of multiple tasks, which can target one, many, or all of the hosts in the inventory. Each task is a call to an Ansible module. A module is a piece of code for performing a specific task.

Ansible is an agentless tool that runs in a 'push' model, so it doesn't require a software agent to be installed on the target node (a server or switch) to automate the device. The module for the Cisco UCS servers is built on the Cisco UCS Manager Python Software Development Kit (SDK) from Cisco, which provides programmatic interfaces to any Cisco UCS infrastructure component. Ansible's role-based data organization and simple YAML definition files allow you to efficiently build out large-scale deployments without constantly reorganizing the data used in configuring the infrastructure.