DevOps – Configuration Management Tools

Configuration management Tools

Getting Started

- Important element that acts as a center for the DevOps is “Configuration Management”
- Practice of managing and automating all the configurations of the software applications to reduce product time
- Enable deployments and changes in applications for faster, extensible, and scalable performance

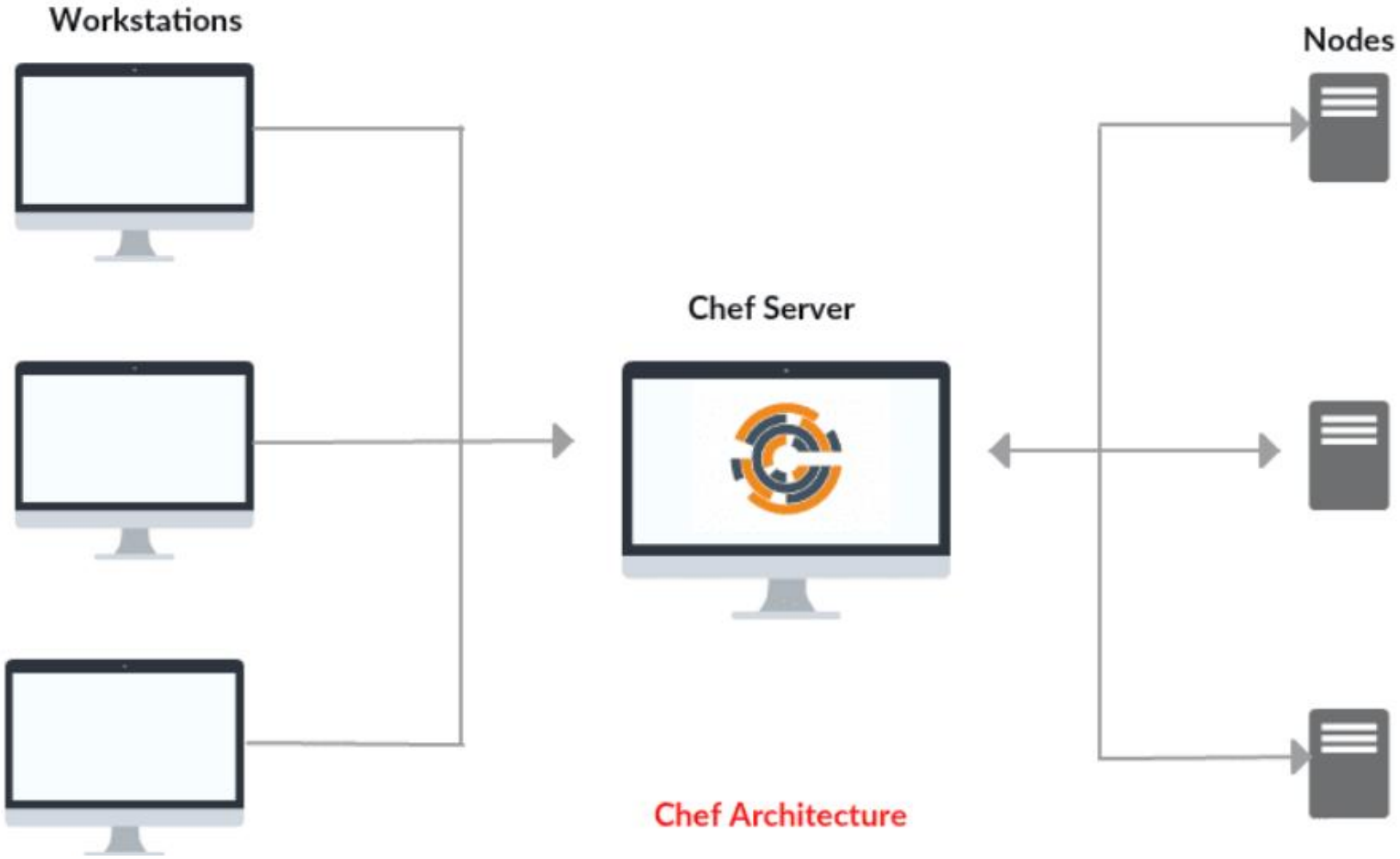
Chef - Getting Started

- Open source technology developed by Opscode
- Uses Ruby encoding to develop basic building blocks like recipe and cookbooks
- Infrastructure automation and helps in reducing manual and repetitive tasks for infrastructure management
- Used to deploy and manage servers and applications in-house and on the cloud

Components

- Chef Workstation (SDK) - Where we write recipe and Cookbook
- Chef Server - Hold Cookbook, roles, Node information and manage Nodes
- Chef Client Node - Manage by Chef Server, each deployment and configuration done by Chef Server

Chef Overview Diagram



Chef Walkthrough

Ansible – Getting Started

- Ansible is an open source community project sponsored by Red Hat
- IT automation engine
- Used for IT tasks such as configuration management, application deployment, intra service orchestration, and provisioning
- Improve the scalability, consistency, and reliability of your IT environment

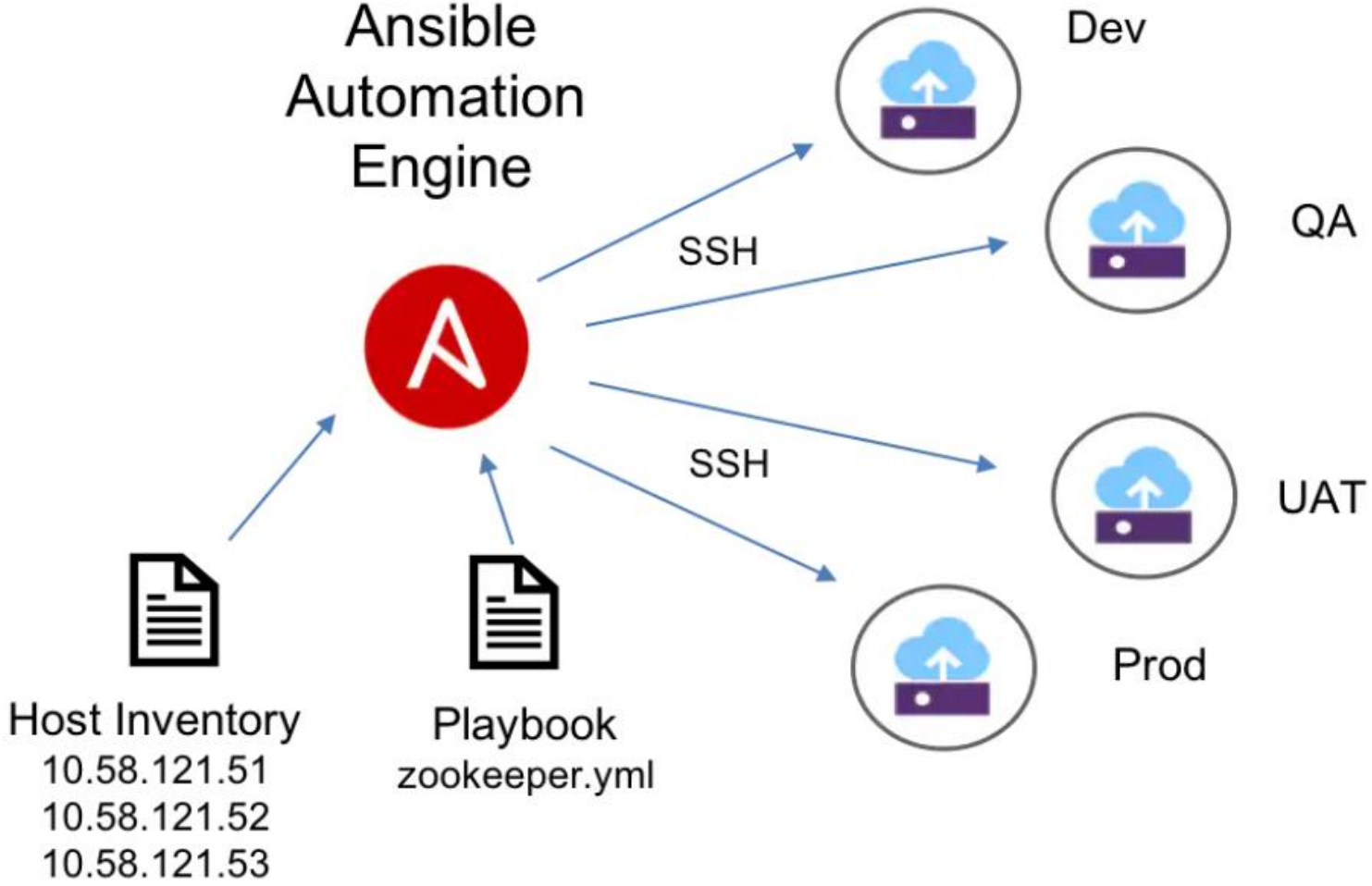
Tasks

- **Provisioning** - Set up the various servers you need in your infrastructure
- **Conf management** - Change the configuration of an application, OS, or device, start and stop services, install or update applications
- **App Deployment** - Automating the deployment of internally developed applications to your production systems
- Ansible does not use agents, but rather connects to hosts using SSH keys

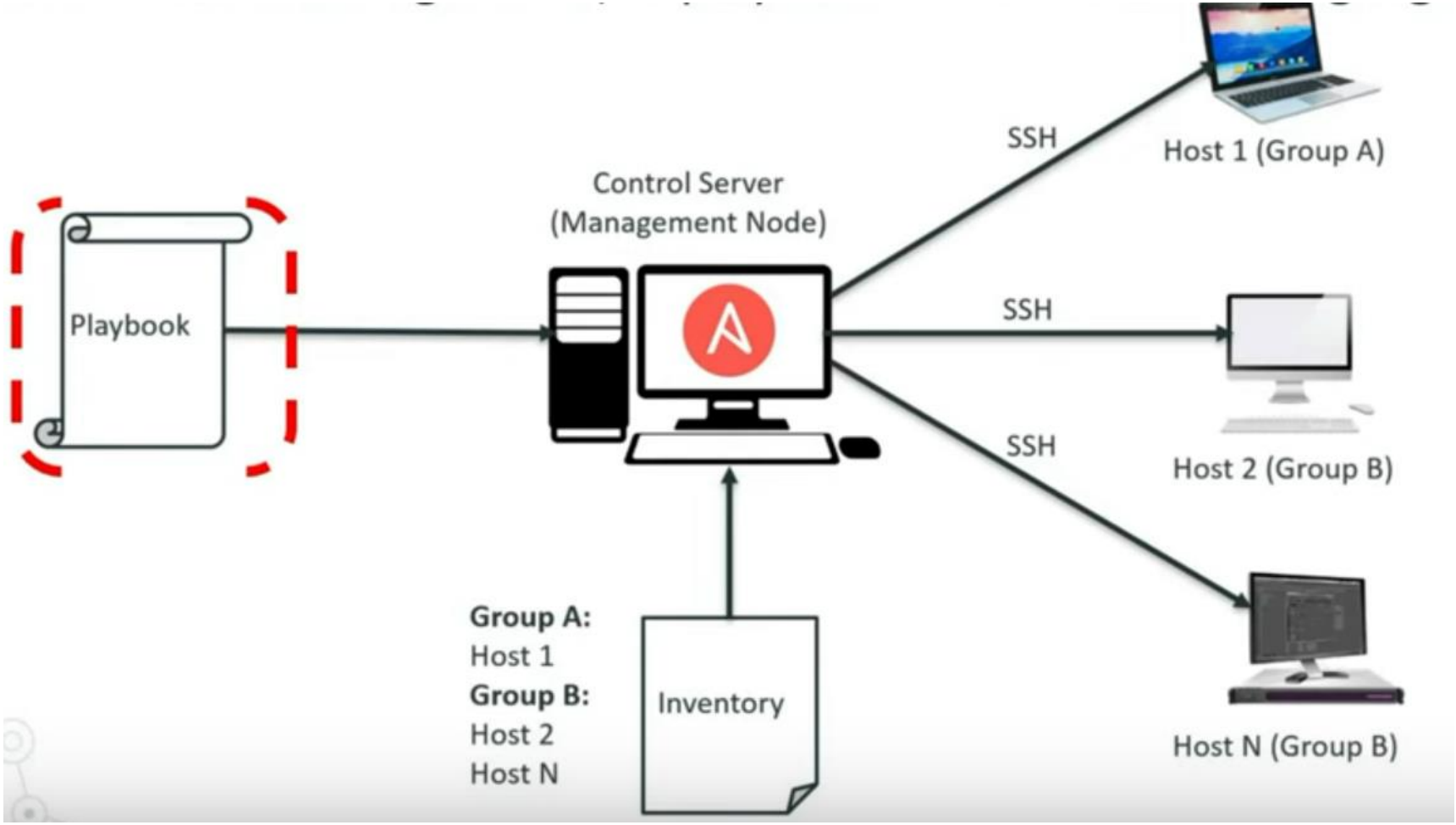
Ansible Terms

- **Controller** – Machine where Ansible is installed, and executes commands on nodes
- **Managed Node** – Machine controlled by controller
- **Task** – Single action or procedure to be executed e.g. create a file
- **Ad-hoc command** – Single task over command line represented by –a
- **Inventory file** – Contains information about the servers you are managing. Default file /etc/ansible/hosts
- **Playbook** – Ordered list of tasks for Automation using YAML
- **Module** – Common set of actions are defined. You can create own module
- **Roles** – Pre-defined playbooks which can be shared and reused
- **Handlers** – Used to trigger status change e.g. restart service after configuration change

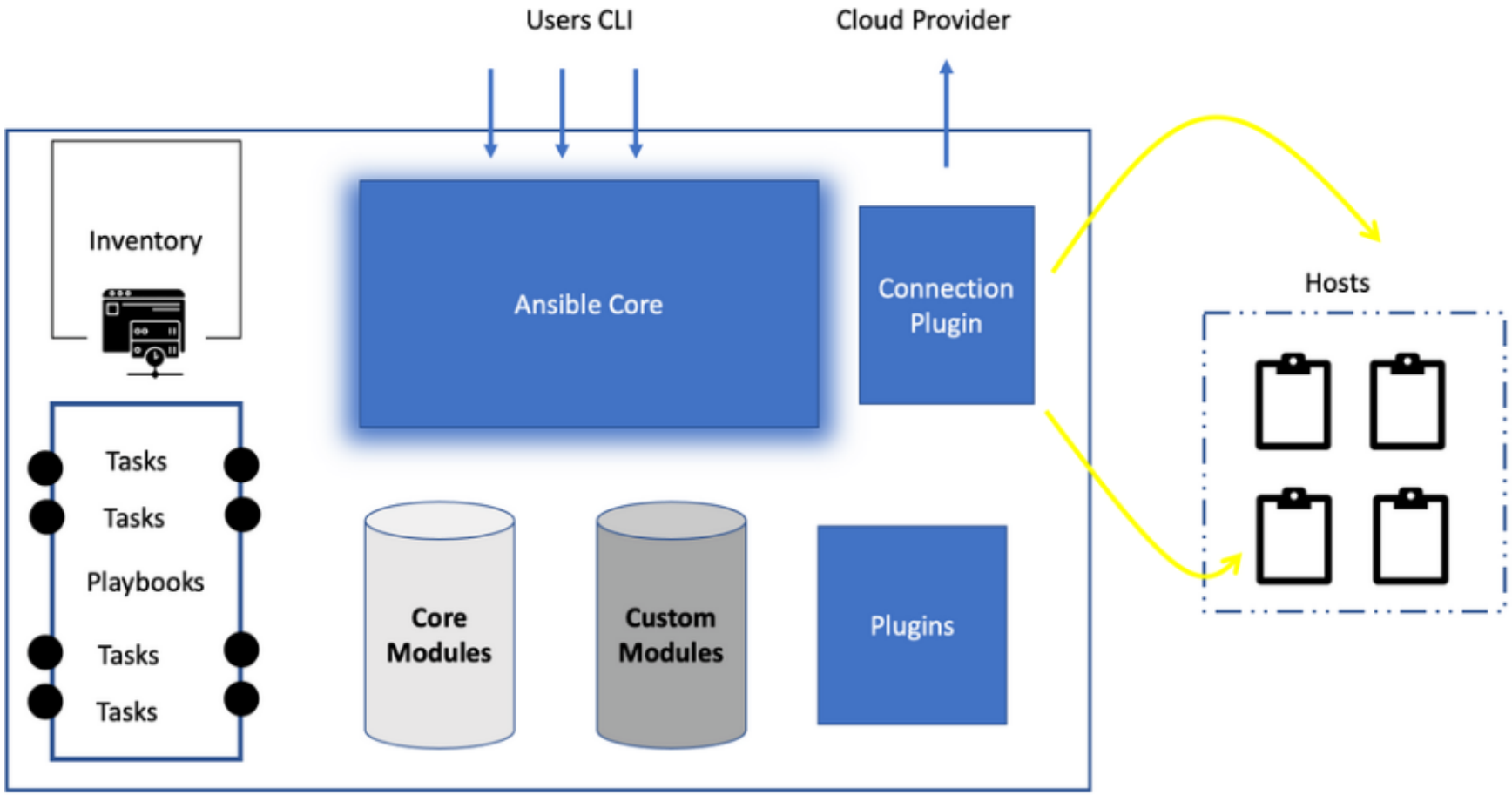
Ansible


Ansible
Automation
Engine
SSH
SSH
Dev
QA
UAT
Prod
Host Inventory
10.58.121.51
10.58.121.52
10.58.121.53
Playbook
zookeeper.yml

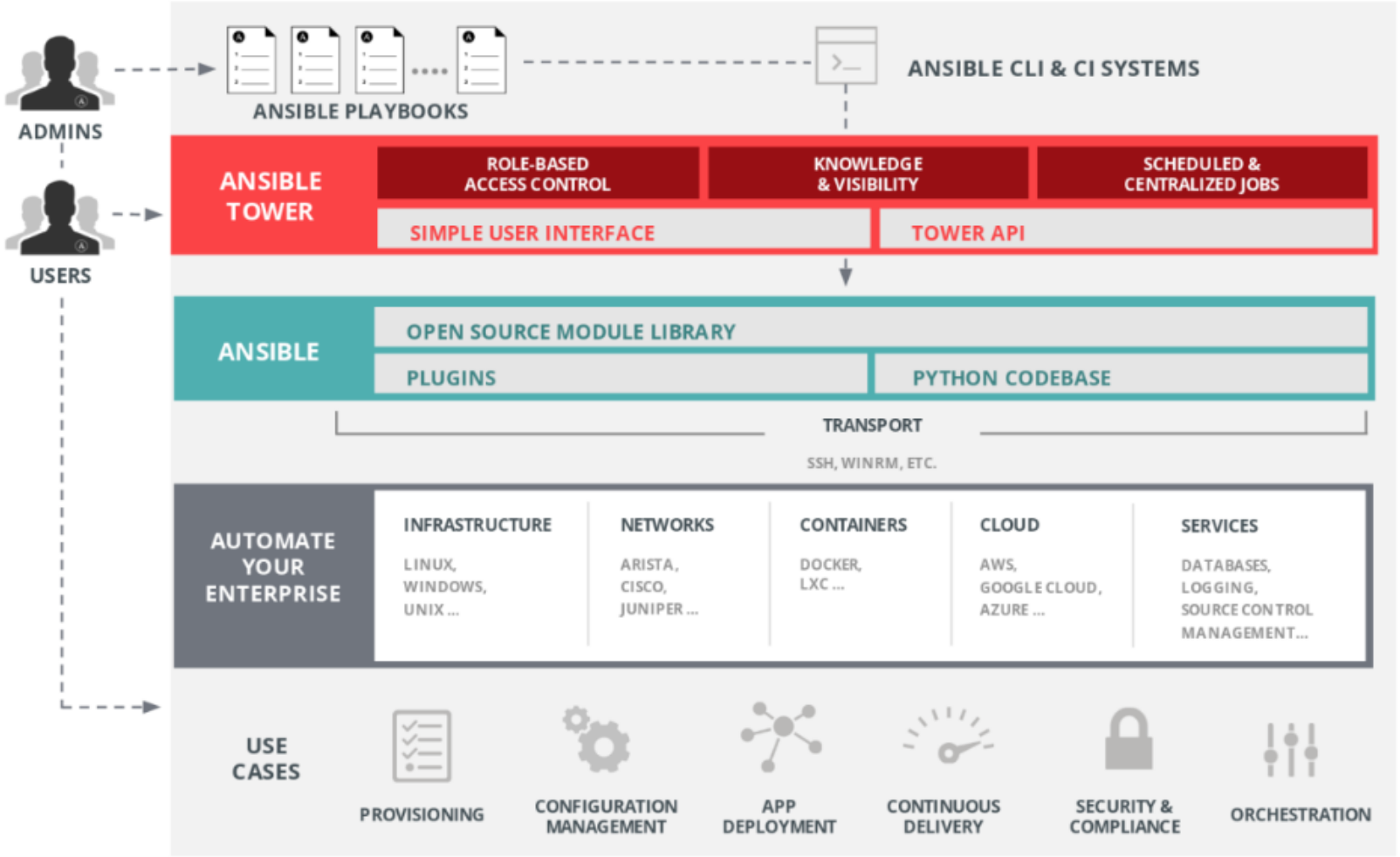
Ansible


Playbook
Control Server
(Management Node)
SSH
SSH
SSH
Host 1 (Group A)
Host 2 (Group B)
Host N (Group B)
Group A:
Host 1
Group B:
Host 2
Host N
Inventory

Ansible


Users CLI
Cloud Provider
Inventory
Ansible Core
Connection Plugin
Hosts
Tasks
Tasks
Playbooks
Tasks
Tasks
Core Modules
Custom Modules
Plugins

Ansible Tower



Red Hat Ansible Automation Platform

Network | Lines of business | Security | Operations | Infrastructure | Developers

Engage — **Ansible Hosted Services:** Engage users with an automation focused experience

Scale — **Ansible Tower:** Operate & control at scale

Create — **Ansible Engine:** Universal language of automation

Fueled by an open source community

Ansible Walkthrough

Difference Between Chef and Ansible

- **Chef**
  - Older
  - Better documentation, better support
  - Difficult to setup
  - Learning curve – Ruby
  - Agent – chef client need to install on nodes
  - Cookbooks for automation job

- **Ansible**
  - Simple
  - OpenSource
  - Secure – Uses ssh
  - Easy setup
  - YAML
  - Reliable
  - Agentless
  - Costly
  - Playbooks for automation job