

ANSIBLE

1. What is Ansible ?
2. Benefits of Ansible
3. What Ansible can do ?
4. Architecture of Ansible
5. Ansible Tower

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◆ What is Ansible ?

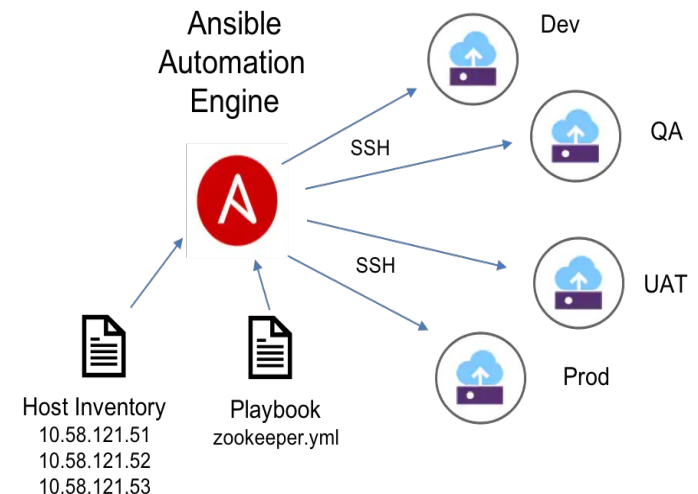
Ansible = Automation IT

Ansible is an open source automation platform. In simple words, it's an automation engine that is simple yet very powerful.

Ansible can help you with configuration management, application deployment, task automation.

◆ Use cases:-

1. Provisioning environments
2. Configuring servers
3. Security Patches
4. Application deployment
5. Firewall configurations



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Benefits of Ansible

- ◆ Free (Ansible is an open-source tool.)
- ◆ Very simple to set up and use (No special coding skills are necessary to use Ansible's playbooks.)
- ◆ Powerful (Ansible lets you model even highly complex IT workflows)
- ◆ Flexible (Customize it based on your needs)
- ◆ Agentless (No need to install any software)
- ◆ Efficient (Because you don't need to install any extra software, there's more room for application resources on your server)
- ◆ SSH (Very simple password-less network authentication protocol which is secure. So, your responsibility is to copy this key to the client)

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What Ansible can do ?

- ◆ Configuration Management

Configuration management refers to the task or process, in which we track and control changes to a managed systems, keeping integrity in place

- ◆ Example :-

If you want to install an updated version of a specific type of software on all the machines in your enterprise, all you have to do is write out all the IP addresses of the nodes (also called remote hosts) and write an Ansible playbook to install it on all the nodes, then run the playbook from your control machine.

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What Ansible can do ?

- ◆ **Orchestration**

As name suggest, it means bringing different components together as whole one component and making sure they interact with each other as ONE.

Ansible uses automated workflows, provisioning, and more to make orchestrating tasks easy.

- ◆ **Example :- Deployment of new WEBISTE**

1. Pre-Task:- Will here to disable on-going traffic_to load balancer and web server into maintenance mode and deploy the new website

2. Post-Task:- Enable traffic to this web node again, by taking it out of maintenance mode

- ◆ **These tasks can be written in Ansible playbooks and hence it helps to orchestrate the environment.**

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What Ansible can do ?

- ◆ Application Deployment

Ansible makes DevOps process easier by automating the deployment of internally developed applications to your environment systems. To do this all you need to write an playbook which will list the tasks and Ansible will figure out how to get your systems to the state you want them to be in .In other words, you won't have to configure the applications on every machine manually.

- ◆ How Ansible communicates with systems

Ansible uses SSH to communicate with the remote hosts and run all the commands (tasks).

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What Ansible can do ?

- ◆ Provisioning

With Ansible you can provision cloud platforms, virtualized hosts, network devices, and bare-metal servers.

- ◆ Security and Compliance

If you configure the security details on the control machine and run the associated playbook, all the remote hosts will automatically be updated with those details. That means you won't need to monitor each machine for security compliance continually manually.

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◆ Architecture of Ansible

1. Management Node :- Ansible Management Node is our Master Node where all magic happens.

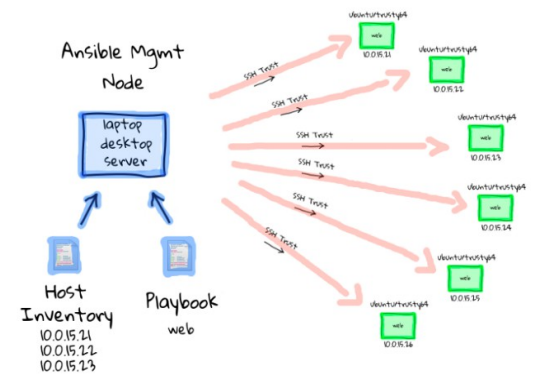
2. Host node:- Is worker node that we are going to manage using Ansible. You do not have to install Ansible or additional software on the management nodes, that's why Ansible is referred to as agent-less

3. Host Inventory :- All the managed hosts we are using in the ansible environment are to be listed in a single simple file which is present under `/etc/ansible/` named `hosts(/etc/ansible/hosts)`

4. Playbook :- Playbooks are simple files written in YAML format which describes the tasks to be executed by Ansible.

5. Ansible.cfg :- This file contains the configuration for the Ansible, like the path of the Inventory file and values for the default variable in the Ansible

◆ An alternative to playbook is ad-hoc commands.



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ANSIBLE TOWER

- ◆ Ansible Tower is a UI or web based solution to manage your Ansible playbooks. It provides you a nice and simple dashboard with a quick summary of all the hosts, inventories, projects, job status, recently executed jobs and their historical trends etc.

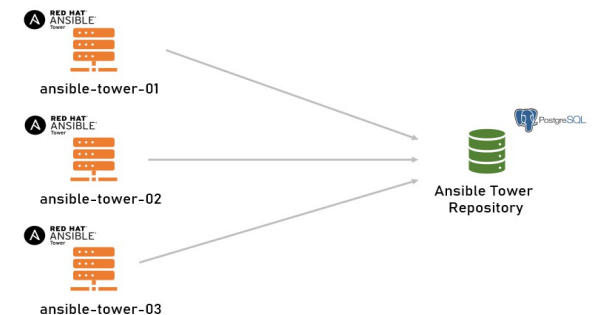
- ◆ Benefits of Ansible

1. Support of Cluster Environment

Use Case:-

Suppose you run one playbook and suddenly on the middle of the operation your Controller Node goes down, then there is no one to perform the roll back.

Here comes the play of Ansible Tower. As Tower works on a cluster environment, so if somehow one Tower Node fail then we have other Nodes to handle the situation. Also as they are accessing the same Database across all the Tower Node, so we don't need to worry about Data loss.



- ◆ Login to Ansible Tower:- <https://<Tower server name>/>

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ANSIBLE TOWER

◆ Benefits of Ansible

2. Credentials Storing & using in a Smart Manner

Use Case:-

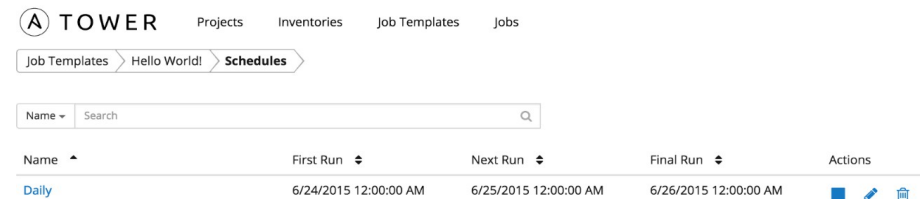
Suppose you want to provision AWS VPC, Subnet and SG using one playbook, then on each task we need to mention our credentials. This will make our code heavy.

To avoid this, Ansible Tower stores our credentials in a secure encrypted format on the centralized database and in future we don't need to mention the credentials on the playbook.

3. Job Scheduling and Notification Support

Use Case:-

If we want to run our playbook periodically daily, or weekly or in between any time, then we can achieve that using the option of Job Scheduling in Ansible Tower. Once the job is completed you might need to send the notification which can be done by using MODULES in ANSIBLE



The screenshot shows the Ansible Tower web interface. At the top, there's a navigation bar with 'TOWER' and links for 'Projects', 'Inventories', 'Job Templates', and 'Jobs'. Below this, a breadcrumb trail shows 'Job Templates' > 'Hello World!' > 'Schedules'. A search bar is present. The main content area displays a table of scheduled jobs. The table has columns for 'Name', 'First Run', 'Next Run', 'Final Run', and 'Actions'. One job is listed with the name 'Daily' and scheduled runs at 12:00:00 AM on 6/24/2015, 6/25/2015, and 6/26/2015. The 'Actions' column contains icons for a status indicator, edit, and delete.

Name	First Run	Next Run	Final Run	Actions
Daily	6/24/2015 12:00:00 AM	6/25/2015 12:00:00 AM	6/26/2015 12:00:00 AM	