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Introduction to Ansible

Ansible is an open-source IT automation tool used for configuration management, application deployment, and server orchestration. It allows managing multiple servers efficiently with a single admin node.

Why Use Ansible?

Example: A company has 300 servers. Using a single Ansible admin server, we can configure all other servers efficiently. Eliminates manual configuration, reduces errors, and speeds up deployment.

How Ansible Works?

```
Ansible Admin Node -> Server1
                   -> Server2
```

Hands-on Setup

Step 1: Launch and Configure Servers

1. Launch 3 Linux servers (Terraform can be used for automation).
2. Set the hostname for each server:

```
hostname <name>
bash
```

Step 2: Configure Slave Servers

1. Create an ansible user on each slave server:

```
useradd ansibleadmin
passwd ansibleadmin
```

2. Enable SSH authentication:

```
vi /etc/ssh/sshd_config
```

Change `PasswordAuthentication no` to `PasswordAuthentication yes`, then restart SSH service:

```
systemctl restart sshd
```

Step 3: Configure Ansible Admin Node

1. Grant sudo permissions:

```
visudo
ansibleadmin ALL=(ALL) ALL
```

2. Switch to `ansibleadmin` user:

```
sudo su - ansibleadmin
```

3. Install Ansible:

```
yum install ansible -y
```

Checking Connectivity

```
ansible all -m ping
```

Inventory File Setup

```
vi servers
[webserver]
192.168.1.10
[testserver]
192.168.1.11
```

Executing Commands on Remote Servers

```
ansible all -m command -a "uptime" -i servers
```

Installing Git on All Servers

```
ansible all -m yum -a "name=git state=present" -bK
```

Ansible Playbooks - Copying Files

```
---
- name: Copy index.html from admin to servers
  hosts: all
  become: true
  tasks:
    - name: Copy file
      copy:
        src: /home/ansadmin/index.html
        dest: /home/ansadmin/
        mode: "0777"
```

Running the Playbook

```
ansible-playbook copy.yaml -bK
```

Installing HTTPD Server via Playbook

```
---
- name: Install and Start HTTPD Server
  hosts: all
  become: true
  tasks:
    - name: Install HTTPD
      yum:
        name: httpd
        state: present
    - name: Start HTTPD
      service:
        name: httpd
        state: started
```

Deploying Index File via Playbook

```
---
- name: Deploy index.html to Web Directory
  hosts: all
  become: true
```

```
tasks:
  - name: Copy file
    copy:
      src: /home/ansadmin/index.html
      dest: /var/www/html/
      mode: "0777"
```

Conclusion

Ansible simplifies server management and automation. By following these structured steps, users can efficiently configure and deploy applications across multiple servers.