

Why Ansible?

Task:
You have to setup Apache Webserver on a new machine

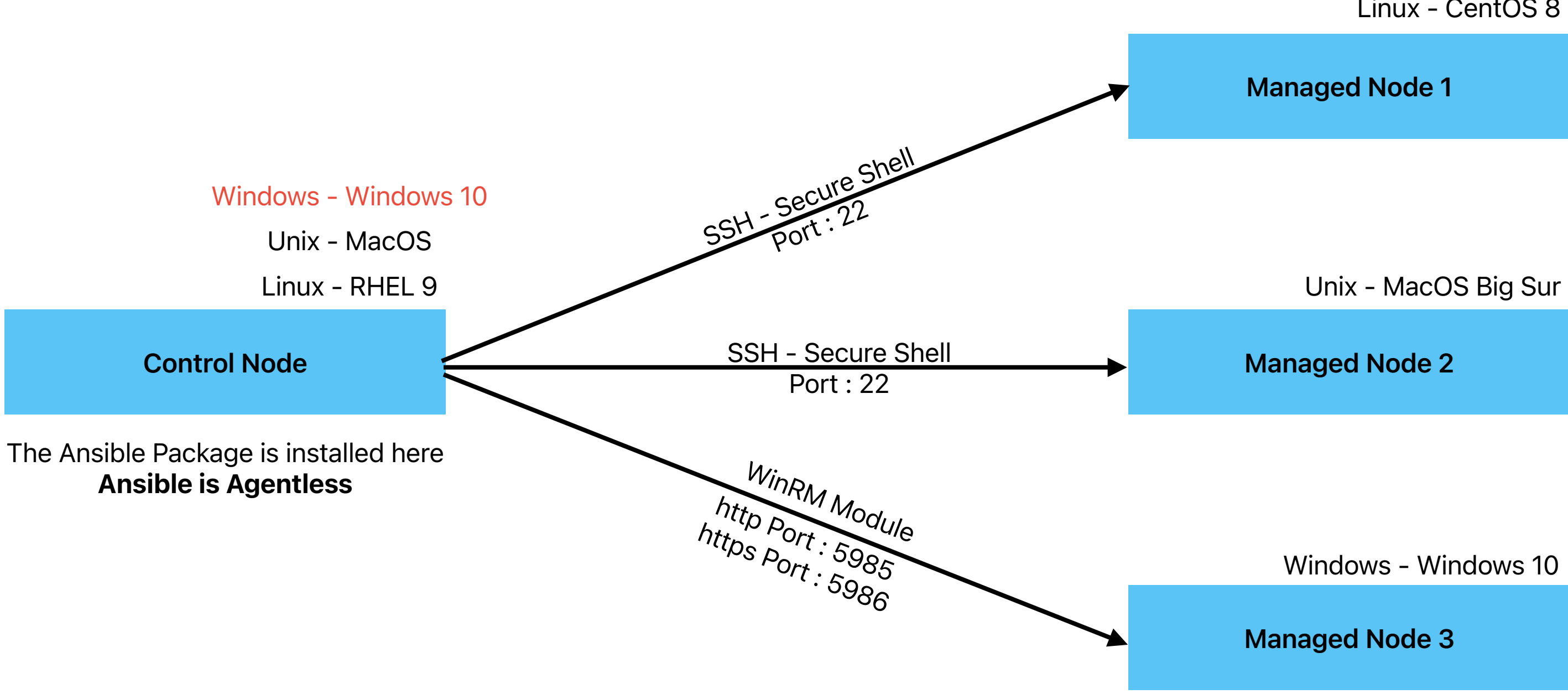
Steps:

1. Get the server (on premise, cloud, virtualisation)
2. Install OS
3. Setup Networking
4. Install package (httpd)
5. Make configuration changes as required (httpd.conf)
6. Copy the data (website/software) to document root
7. Start the Apache Service
8. Verify

100 Machines
ANSIBLE

ANSIBLE
Is a configuration management tool, it is open source and a automation platform

ANSIBLE ARCHITECTURE



Control Node:
The main server from where all other servers/nodes are managed

Managed Node:
The servers/nodes that are being managed by Ansible

Important Terms

Inventory:
A collection of all the managed nodes IP's or Hostnames

Module:
These are pieces of pre-defined codes
Ex. copy, ping, dnf etc...
90% + modules are written in Python

Playbook:
A file in which the user writes the desired state of managed nodes
Written in JSON or YAML

Various Configuration Management Tool

1. Chef
CN + MN, Opensource, Ruby + Erlang, Based on SSL, Pull Theory, Requires Agent, No GUI

2. Puppet
CN + MN, Opensource, Puppet DSL, Based on SSL, Pull Theory, Requires Agent, No GUI

3. Saltstack
CN + MN, Opensource, YAML, Based on SSH, Push Theory, Requires Agent, No GUI

4. Ansible
CN + MN, Opensource, YAML, Based on SSH, Push Theory, Agentless, WebGUI (Ansible Tower)

Ansible Features and Benefits

- Agentless
- Opensource
- Easy to write (YAML)
- Cross Platform
- Flexible
- WebGUI available
- Master Slave Model (Push Theory)
- Highly Scalable
- It is a Red Hat tool (Community)
- Secure (SSH)
- Most modules are written in Python

Ansible requires Python to work

Python Interpreter should be available on both Control Nodes and Managed Nodes

Can be resolved using the "raw" module

Ansible Ad-hoc Commands

Syntax

ansible <where you want to run it> -m <module> -a <argument>

ansible all -m ping
ansible 192.168.137.128 -m dnf -a "name=httpd state=latest"

ansible-doc <module_name>
ansible-doc -l (List all available modules)

Package Management (dnf, yum, rpm etc.)
State Options:

Absent: The package should be absent
Present: The package should be present
Latest: The package is present and in its latest version

Service Management (service module)
State Options:

Started: The service should be in started state
Restarted: The service should be in restarted state
Reloaded: The service should be in reloaded state
Stopped: The service should be in stopped state

Inventory File

A file where all the IP's / Hostnames of all Managed Nodes are stored
Ansible will not execute on any IP/hostname which is not mentioned inside the inventory file

```
192.168.137.128
192.111.121.1
lab.a.example.com

[prod]
10.0.0.1
10.0.0.2

[dev]
devserver.example.com
20.0.0.[0:15]
100.[1:3].0.0.[0:5]
lab[a:f].example.com

[test]
testingserver1
12.12.12.12

[marketing]
1.1.1.1
2.2.2.2
3.3.3.3

[IT:children]
test
prod
dev
```