INT333:DEVOPS ADVANCE CONFIGURATION MANAGEMENT

L:2 T:0 P:2 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: understand the basics of Puppet.

CO2 :: demonstrate configuration management skills using Puppet.

CO3 :: learn how to install and configure Nagios for continuous monitoring.

CO4 :: use different Nagios commands for different operations.

CO5 :: describe the fundamentals of Ansible and installation.

CO6 :: write Ansible playbooks to automate multiple system administration tasks.

Unit I

Puppet Basics : Configuration Management System: Configuration Management, Pull, Push, Introduction to Puppet: Puppet, Why Puppet, Components of Puppet, Puppet Architecture: Puppet Master: Manifest, Template, Files, Certificate Authority, Puppet Clients: Agent, Facter, Installation of Puppet, Puppet Development in Isolation

Unit II

Introduction to advance Puppet : What is advance puppet, operations used in puppet, puppet on command line, managing resources with the puppet apply command, Puppet Manifests, Puppet Configuration, Managing Packets in Puppet, Puppet Module, Monitoring Web Server, Load Balancing the Cluster, Scaling Up the Puppet Environment, Connecting Puppet Agent with Puppet Master, Making the configuration dynamic, Extending Puppet, Puppet Classes, Puppet function, Puppet-Custom Functions

Unit III

Overview to Nagios : Continuous Monitring: What is Continuous Monitring, What is Nagios, Why Nagios, Nagios Architecture, Introducing Plugins, Benefits of Monitoring, Main Features, Soft and hard States, Installing Nagios: Installing Nagios using Package Managers: Installation with apt-get/dpkg, yum/rpm, Installing Prerequisites, Compiling and installing Nagios, Setting up web server, Commands, Objects

Unit IV

Working with Nagios : Configuring Nagios: Configuring Nagios to Monitor Web Server, Using the Built-in Web Interface: The Nagios web interface, Using the web interface, managing hosts, managing services, managing downtimes, Managing comments, Nagios Information, Learning command-line interfaces, Deploy simple web application on a server

Unit V

Understanding Ansible : Introduction to ansible and configuration management, How Ansible works, Modern infrastructure management, Ansible and RedHat, Architecture of ansible, Ansible Infrastructure Management: on snowflakes and shell scripts, Installing Ansible, creating a basic inventory file, Ansible and Vagrant: Setting up Vagrant, Using Ansible with Vagrant

Unit VI

Working with ansible : Ansible roles and command Line usage, Ansible playbook: Power Plays, Running Playbooks with ansible-playbook, Real-world Playbook, Handlers, Environment variables, Variables, Facts, Prompts, Tags, Blocks, Understanding relation of AWS and Ansible, Application Deployment with the help of ansible

List of Practicals / Experiments:

1

- Downloading Oracle VirtualBox, Downloading the puppet Learning VM, Importing the Puppet Learning VM into VirtualBox

2

- Installation of Puppet, operations used in Puppet, Puppet Configuration, Connecting Puppet Agent with Puppet Master

3

- Installation of Nagios on CentOS 8, Installing Prerequisites, Nagios server and client setup

4

- Configuring Nagios to Monitor web server, server monitoring with Nagios

5

- Installation of Ansible, creating basic inventory file, setting up Vagrant

6

- Creating a directory structure and File for Playbook, Running the Playbook, Extend Playbook, Apply to Multiple host

References:

1. MASTERING PUPPET 5 by RYAN RUSSELL-YATES, PACKT PUBLISHING

2. ANSIBLE FOR DEVOPS: SERVER AND CONFIGURATION MANAGEMENT FOR HUMANS by JEFF GEERLING, N.A

3. LEARNING NAGIOS by WOJCIECH KOCJAN, AMAZON.COM