Puppet Configuration and Administration

Basic / Intermediate Concepts and Techniques

Course Description

This course presents the system management and configuration tool **Puppet Enterprise**, from methods, techniques, capabilities to implementation. Each participant will learn how to install the **Puppet** master and agent (client) applications along with the impact on the **Linux** system. A lot of time and attention will be spent in learning, writing, and applying resource definitions, the key part of **Puppet** that allows an administrator to synchronize environments easily and uniformly.

Course Objectives

At the completion of the course, participants should be able to **:**

- install and configure **Puppet** servers and agents
- create and modify manifests that contain resource definitions
- create and modify classes
- create and modify modules
- create and modify node definitions
- create and modify environments
- apply manifests, classes, nodes, and environments
- extend **Puppet** with functions
- use (and extend) **Facter** facts
- generate basic reports
- use tools **MCollective** and **Hiera**
- design a 'best practice' strategy for using **Puppet** capabilities

Implementation

Each participant will have a dedicated **RHEL 7** virtual server for **Puppet Enterprise** installation, resource definition writing and application. Depending upon the available resources on the host system (**Windows** or **Mac OS X**), a second **CentOS 7, Solaris 10, or Windows** virtual system will be setup as the **Puppet** agent. The system will also be used as a **masterless Puppet configuration**.

Audience

This course is for **Linux** systems administrators looking to automate the provisioning of key areas of the **Linux** system, such as packages, services, and distribution of (**ssh**) keys.

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Course Content

- **Configuration Management Overview**
  - configuration management
  - **Puppet** configuration management
  - **Facter** (concepts)
  - **Facter** installation
  - **Facter** core facts
  - using **Facter** information
  - extending **Facter** (external and internal facts)

- **Puppet Enterprise (Master Server) Installation**
  - **Puppet Enterprise** overview
  - **yum** (package) repositories
  - **Puppet Enterprise** Master installation
  - **Puppet Enterprise** components
  - **Puppet Enterprise** key directories
  - **Puppet Enterprise** documentation
  - **Puppet Enterprise** certificates and licensing

- **Puppet Resource Definitions and Declarations**
  - overview of resource management
  - defining configuration resources
  - checking syntax of configuration resources
  - **Puppet** style guide
  - applying configuration resources (locally)
  - metaparameters
  - conditionals
  - arrays of resources
  - classes
  - parameterized classes
  - classes with inheritance (and parameters)
  - defined resources (definitions)
  - run stages
  - modules
  - virtual resource definitions
  - **Puppet** standard library functions

- **Puppet Enterprise (Agent) Installation**
  - **Puppet Enterprise** agent overview
  - **Puppet Enterprise** agent installation
  - **Puppet Enterprise** agent initial setup

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- **Creating Nodes and Environments**
  node definitions
  environment definitions

- **Extending Puppet with Reporting, MCollective and Hiera**
  reporting
  transaction reporting
  syslog (**rsyslogd**) reporting
  MCollective
  Hiera

Prerequisites

It is assumed that participants are working systems administrators with some scripting knowledge (**bash, ksh, Perl** or **Python**) and an understanding of the various system tasks relating to setting up and supporting **Linux** systems.

Duration

This course normally requires **three** (3) **days**, 50% lecture, with 50% hands-on commands and lab exercises.