Puppet Introduction

Systems Administration

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The problem

- Configuring systems one at a time is too slow.
- One at a time configuration can lead to inconsistencies.
- Information about how your systems are configured winds up scattered across your network.

The solution: configuration management systems

We'll store all of the configuration information on a central server that will push configurations out to client machines. This will

- Get all of our configuration information in one place.
- Ensure that configuration is consistently and promptly applied to all systems.
- Save time!

Examples of configuration management systems

In this paper we will use *Puppet* for configuration management.

- Ansible
- Chef
- Puppet
- Salt

Puppet

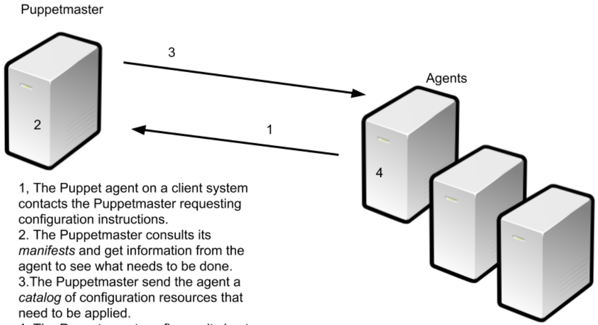
In this paper we will use *Puppet* for configuration management.

- It is mature and powerful.
- It is widely used.
- It is reasonably cross-platform.

Puppet overview

Our `mgmt` servers will manage Puppet for us. In Puppet terms, these servers will be *puppetmasters*.
The client machines (including the `mgmt` servers) will be *agents*. They periodically contact the puppetmaster to get new configuration information.

Puppet overview



1, The Puppet agent on a client system contacts the Puppetmaster requesting configuration instructions.
2. The Puppetmaster consults its *manifests* and get information from the agent to see what needs to be done.
3.The Puppetmaster send the agent a *catalog* of configuration resources that need to be applied.
4. The Puppet agent configures its host as directed by the Puppetmaster.

Some Key Terms

Manifest	Any bit of Puppet code stored in a file that ends with the .pp extension. These sit on the puppetmaster.
Node	A collection of resources in a manifest that will be applied to a particular agent.
Catalog	The puppetmaster reads the manifests and compiles a catalog for each host. A catalog is a set of resources to be used on an agent system.
Resource	A unit of puppet configuration. A resources has a *type*, a *title*, and one or more *attributes*.

Some Types

Puppet supports many standard types, and it is possible to define your own. Some important types include:

- Package
- File
- Service
- User
- Group
- Exec
- Cron

Nodes

A node is basically a host you want to configure.

```
node 'www.foo.org.nz' {

}

node 'db1.foo.org.nz', 'db2.foo.org.nz' {

}
```

The Default Node

If you specify a *default* node, its configuration will be applied to any node that does not have a specific node definition.

```
node default {

}
```

Applying Configuration to a Node

```
node ’db.foo.org.nz’ {
  package { ’vim’:
              ensure => installed,
            }

}
```

Modules

A collection of related resources can be organised into a *module*. For example, we may want to install the nginx package, its configuration file, and set up a document root directory. We can create a module that incorporates all of these things, and then use the module in a node:

```
node 'app.foo.org.nz' {
  include nginx-webserver
}
```

We will create and apply a module in Thursday's lab.