



Puppet Modules

Lessons Learned

Presented by
Tim Klemz
Lifetouch Inc

Today's Topics

1. Caveats with Puppet
2. Environments
3. Modules
 - a. Using modules created by others
 - b. Creating your own
4. Things we've learned along the way
5. Samples and Demos

Puppet Caveats

Puppet Caveats

- Modules are not run in order, nor are their manifests.



- Newer versions of puppet have introduced the ability to order within a manifest using “ordering = manifest” in the puppet.conf

Puppet Caveats

- Each resource can only be declared within one module that is applied to a system, but each module included many times.
 - Due to this, modules should be able to stand on their own merits wherever possible.
- Be careful as changes made to a manifest apply to every client using that module
 - Simulate the puppet run using “-- noop” option first on a sampling of each system type

Puppet Environments

Puppet Environments



What are they?

- Isolated groups of Puppet agent nodes that a Puppet master can serve completely different manifests (modules) to.

What are they used for?

- Environments are used as a way to target Puppet nodes to utilize different module versions for testing, and lifecycle management

Puppet Environments



With Satellite 6

- Puppet environments are automatically created based on the selected content view and lifecycle environment.
- Modules need to be added to content view and promoted to the desired lifecycle environment to be available to the Puppet nodes

Puppet Environments



With Foreman

- Environments are added to the `/etc/puppet/puppet.conf` on the Puppet master

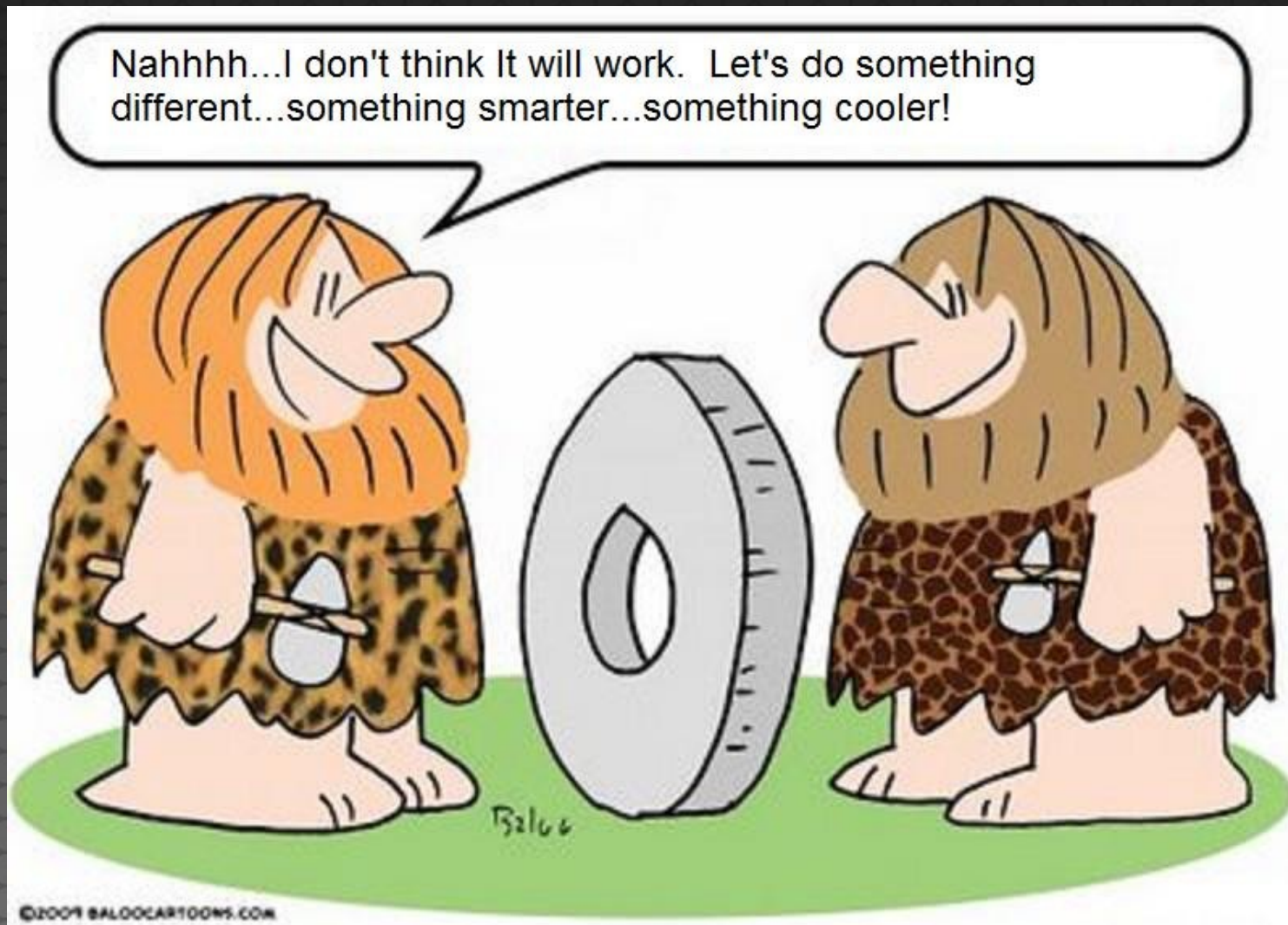
```
[development]
```

```
modulepath = /etc/puppet/environmen
```

```
config_version =
```

- Directory structure needs to be created and modules copied into said structure..

No Need to Reinvent the Wheel



Puppet Forge

- For most standard tasks, someone has already done the work for you.
- If possible use a “Puppet Supported” or “Puppet Approved” module.
- Best to choose modules that are active.

Puppet Forge

- We utilize the following puppet forge modules:

ghonetcutt/dnsclient

stahnma/epel (not needed with Satellite 6)

puppetlabs/ntp

pdxcat/pam

spiette/selinux

puppetlabs/stdlib

saz/sudo

bashtoni/timezone

razorsedge/vmwaretools (not needed with

Puppet Forge

- Installing Puppet Forge modules is quick and easy! Just locate the module from <https://forge.puppetlabs.com/> and use puppet module command to install it

```
$ puppet module install puppetlabs-apache
```

Building Your Own Modules

BYOM

- Have a plan in place before you start
 - You can't automate something that you don't yet have a standard or process for
- Use Puppet modules built or approved by PuppetLabs as a template to build your modules
 - These modules should be following the best practices, making them an excellent starting point
- Revision control is your friend

BYOM

- Puppet module creation

```
[tklemz@localhost git]$ puppet module generate tklemz-motd
```

- Answer the prompts to create the metadata and file structure

```
Notice: Generating module at /home/tklemz/git/tklemz-motd...
Notice: Populating templates...
Finished; module generated in tklemz-motd.
tklemz-motd/manifests
tklemz-motd/manifests/init.pp
tklemz-motd/spec
tklemz-motd/spec/classes
tklemz-motd/spec/classes/init_spec.rb
tklemz-motd/spec/spec_helper.rb
tklemz-motd/tests
tklemz-motd/tests/init.pp
tklemz-motd/Gemfile
tklemz-motd/Rakefile
tklemz-motd/README.md
tklemz-motd/metadata.json
```


BYOM

- Modify your manifest

```
$ vim manifests/init.pp
```

```
class runteam (
  $source_base = $runteam::params::source_base,
) inherits runteam::params {
  case $::osfamily {
    RedHat: {

      ##### Install the packages required for LNSS Run Team servers
      package { "subversion" : ensure => "installed", }

      ##### Create files / structure for LNSS app start/stop scripts
      # This is used for the run team start/stop scripts
      file { "/ltapps/initscripts" :
        ensure    => directory,
        owner     => 'root',
        group     => '191',
        mode      => '2775',
        require   => File['/ltapps'],
      }

      # Ensure the OS service script is in place, to call the lNSS script
```

BYOM

- Validate manifest syntax

```
[tklemz@localhost manifests]$ puppet parser validate tomcat.pp
Error: Could not parse for environment production: Syntax error at end of file; expected '}' at /home/tklemz/g
```

- Build the module

```
[tklemz@localhost git]$ puppet module build tklemz-motd
Notice: Building /home/tklemz/git/tklemz-motd for release
Module built: /home/tklemz/git/tklemz-motd/pkg/tklemz-motd-0.1.0.tar.gz
```

BYOM

- Deploy module to Puppet Master
 - Copy generated tar.gz to a test/sandbox puppet environment and extract it
- TEST TEST TEST!!!!

BYOM - recap

1. Generate:

```
$ puppet module generate <modulename>
```

2. Create Module manifests, files, and templates

3. Validate :

```
$ puppet module validate init.pp
```

4. Build:

```
$ puppet module build <module>
```

5. Deploy:

BYOM

- Modules that we have created and use:
 - accesscontrol – manages what users can login to the system, and sudo privileges for them
 - app_type – configures system based on the application type running on the system
 - autofs – configures auto home and admin shares
 - check_mk – installs/configs check_mk client
 - directory_server – configures system to use either AD or RHDS for its directory server
 - hdlm – installs Hitachi DLM software

BYOM

- nagios – installs/configures nrpe or ncpa client
- runstages – enforces order for some prerequisite modules
- security – configures security settings based on systems necessary level (ie pci, public facing etc)
- unix_defaults – configures items applicable to every server that didn't warrant their own module
- xymon – installs xymon client

Things Learned



Things Learned..



- Ensure full team involvement all along the way
- With modules, KISS...
 - One expected outcome per module
- Test extensively
- Use parameters/variables to make your life easier
- Using Puppet modules with Foreman/Satellite 6 can be done differently than straight Puppet

Things Learned..



- Ensure files or templates managed by Puppet state this at the top of the file
- Puppet packages should be installed using puppet repo or rhn-commons (Sat 6)

Sample Modules
and Demos?

Resources

- Module Writing Basics -
https://docs.puppetlabs.com/pe/latest/quick_writing_nix.html
- Puppet Forge -
<https://forge.puppetlabs.com/>
- Ask PuppetLabs Community –
<http://ask.puppetlabs.com>

Questions?



Contact:
tklemz@lifetouch.com