

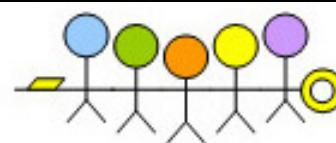


Beyond Golden Containers

Complementing Docker with Puppet



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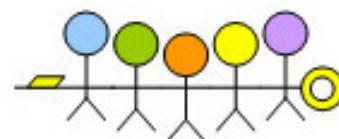
What's that machine doing ?

```
lang en_US.UTF-8
keyboard us
...
rootpw --iscrypted $1$uw6MV$m6VtUWPed4SqgoW6fKfTz/
part / --size 1024 --fstype ext4 --ondisk sda

repo --name=fedora --mirrorlist=...
repo --name=updates --mirrorlist=...

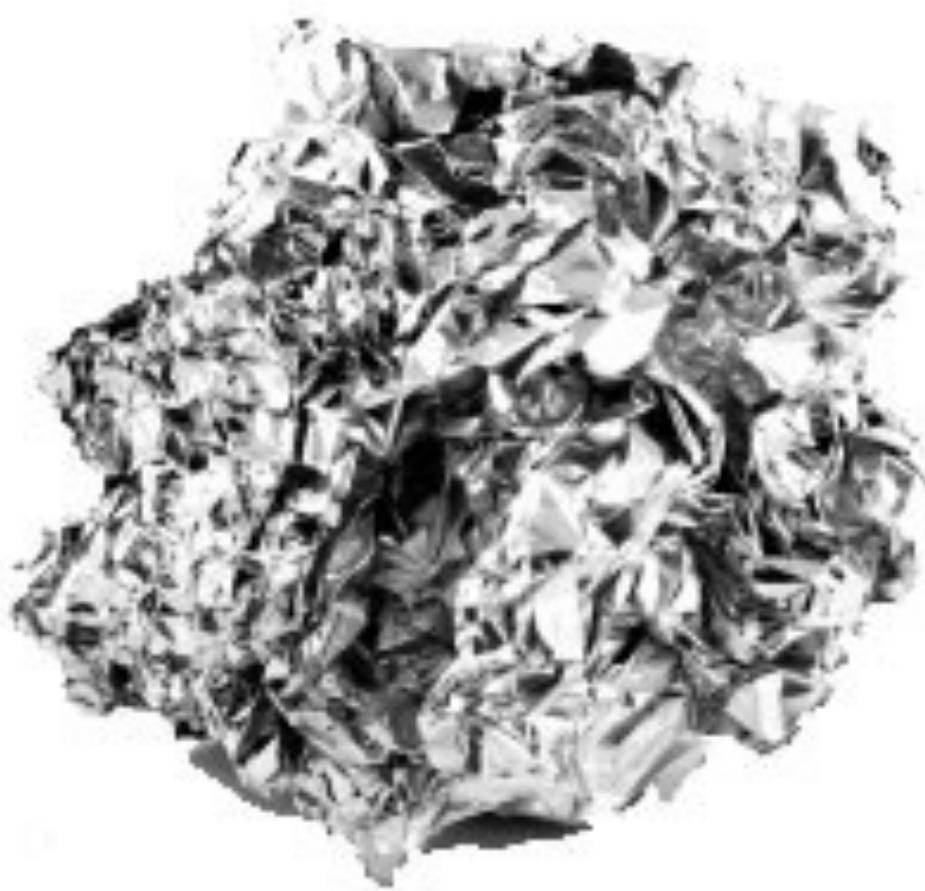
%packages
@core
%end

%post
curl http://example.com/the-script.pl | /usr/bin/perl
```





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Overview

- *Puppet from 10,000 feet*
- Managing the host
- Building images
 - without a master (`puppet apply`)
 - with a master (`puppet agent`)
- Runtime configuration



Infrastructure as Code

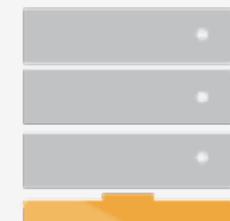
1) DEFINE

Re-usable infrastructure-as-code



2) SIMULATE

Before deploying changes



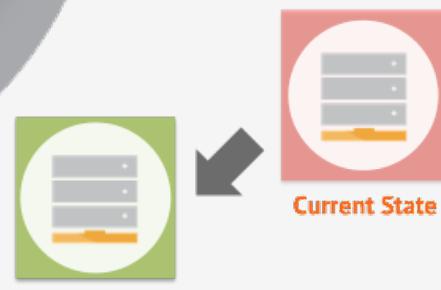
4) REPORT

Insight into changes

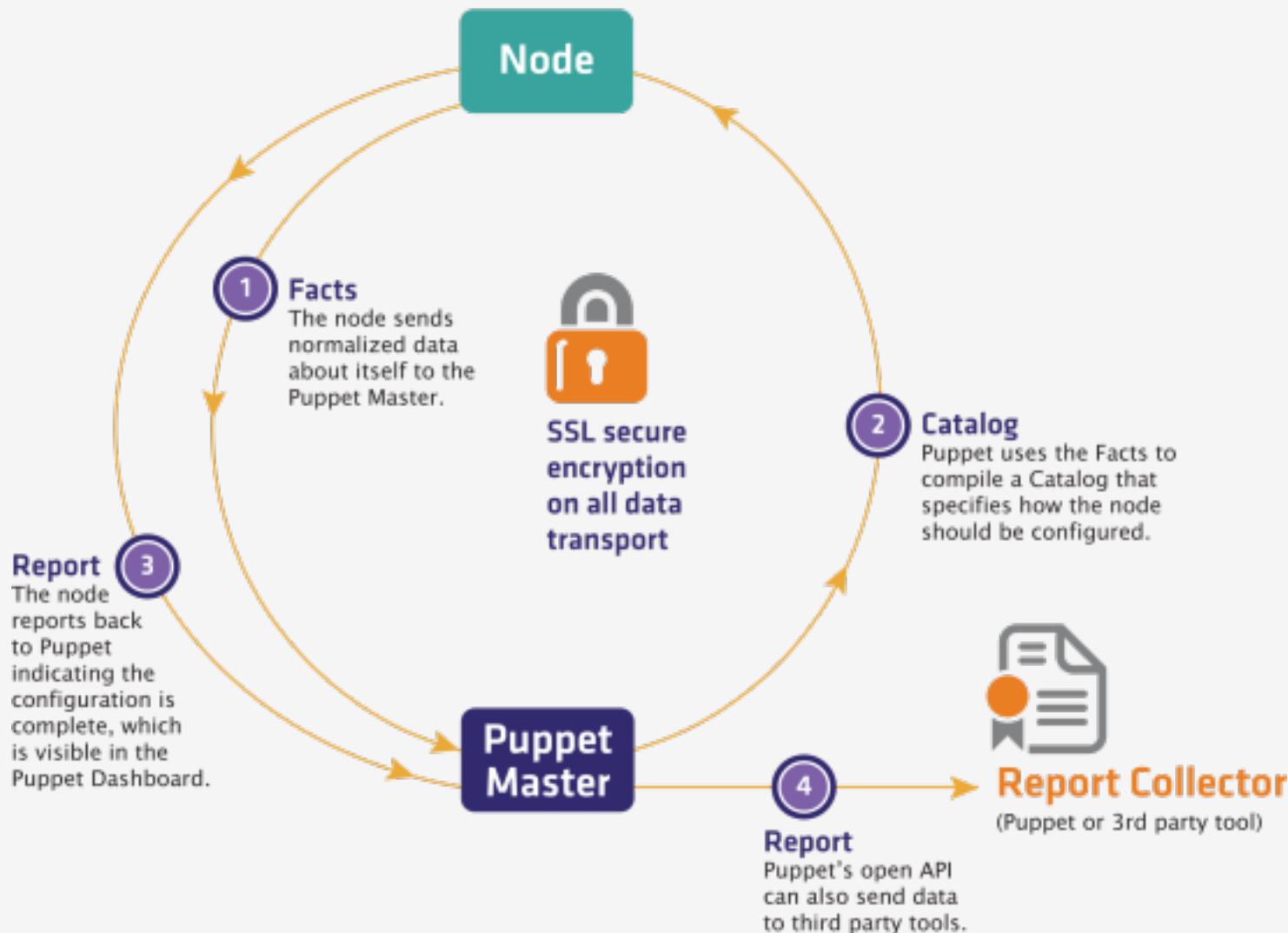


3) ENFORCE

Automatically and reliably



Dataflow in Puppet



A basic manifest

```
class webserver {  
  
    package { 'httpd':  
        ensure => latest  
    } ->  
  
    file { '/etc/httpd/conf.d/local.conf':  
        ensure => file,  
        mode   => 644,  
        source => 'puppet:///modules/httpd/local.conf',  
    } ->  
  
    service { 'httpd':  
        ensure      => running,  
        enable      => true,  
        subscribe  => File['/etc/httpd/conf.d/local.conf'],  
    }  
}
```



Override via inheritance

```
class webserver2 inherits webserver {  
  
  File['/etc/httpd/conf.d/local.conf'] {  
    source => 'puppet:///modules/httpd/other-local.conf',  
  }  
  
}
```



The site-wide manifest

```
node host1.example.com {  
    class { 'webserver': }  
}  
  
node host2.example.com {  
    class { 'webserver2': }  
}  
  
node host3.example.com {  
    class { 'mongodb::server':  
        port      => 27018  
    }  
}
```



around 87 modules now

Filters

clear

Operating System

- Any -

Puppet Version

- Any -

Puppet Enterprise Version

- Any -

Puppet Enterprise

 puppet



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Managing the host

Gareth Rushgrove's module:

<https://forge.puppetlabs.com/garethr/docker>

- Install docker (Ubuntu and CentOS)
- Manage images
- Run containers



Setting up Docker

```
class { 'docker':  
  tcp_bind    => 'tcp://127.0.0.1:4243',  
  socket_bind => 'unix:///var/run/docker.sock',  
}
```



Pulling down images

```
docker::image { 'ubuntu':  
  image_tag => 'precise'  
}
```



Running containers

```
docker::run { 'appserver2':
  image          => 'fedora:20',
  command        => '/usr/sbin/init',
  ports          => ['80', '443'],
  links          => ['mysql:db'],
  use_name       => true,
  volumes        => ['/var/lib/couchdb', '/var/log'],
  volumes_from   => 'appserver1',
  memory_limit   => 10485760, # bytes
  username       => 'appy',
  hostname       => 'app2.example.com',
  env            => ['FOO=BAR', 'FOO2=BAR2'],
  dns            => ['8.8.8.8', '8.8.4.4']
}
```



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Dockerfile for puppet apply

```
FROM jamtur01/puppetbase
MAINTAINER James Turnbull <james@lovedthanlost.net>

ADD modules /tmp/modules
RUN yum -y install puppet; \
    puppet apply --modulepath=/tmp/modules \
    -e "class { 'nginx': service_ensure => disable }"

EXPOSE 80
CMD ["nginx"]
```



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Dockerfile for puppet agent

```
FROM fedora:20
MAINTAINER David Lutterkort <lutter@watzmann.net>

ADD puppet /tmp/puppet-docker

RUN yum -y install puppet; \
    yum clean all; \
    /tmp/puppet-docker/bin/puppet-docker
```



Support files

```
> tree puppet

puppet/
├── bin
│   └── puppet-docker
├── config.yaml
└── ssl
    ├── agent-cert.pem
    ├── agent-private.pem
    ├── agent-public.pem
    └── ca.pem
```



Configure agent run

```
> cat puppet/config.yaml
```

```
---
certname: docker
# server: puppet-master.example.com
facts:
  container: docker
  build: true
```



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Runtime configuration

- Install an init system (systemd)
 - run cron or puppetd
 - run target service(s)
- Possibly move to one agent per host



Summary

- Explain what you are doing clearly
(or scare those trying to understand you to death)
- Manage container hosts with
<https://forge.puppetlabs.com/garethr/docker>
- Sample materials for puppet agent etc. at
<https://github.com/lutter/puppet-docker>

Questions ?

