

# Bringing order to Chaos with Puppet

Keiran Sweet

# About me

- UNIX Administrator in the Financial sector
- ~10 years UNIX experience across a number of industries
- Using Puppet for 3+ years
- Devops advocate
- Likes automating things
- Likes keeping things simple

# Obligatory..

```
disclaimer { keiran:  
              opinions      => mine,  
              representing => myself,  
            }
```

# Puppet ?

- **What is it ?**
- **What can it do ?**
- **Who uses it ?**
- **What is it's role in Devops ?**
- **Similar to ?**

# Example DSL #1

```
# Managing a User account

user { 'Keiran.Sweet':
  ensure => 'present',
  comment => 'Keiran Sweet',
  gid => '10042',
  groups => ['wheel'],
  home => '/home/Keiran.Sweet',
  shell => '/bin/bash',
  uid => '10042',
}
```

# Example DSL #2

```
# Deploying and managing a file
```

```
file { '/etc/security/limits.conf':  
  ensure => 'file',  
  source => 'puppet:///modules/ostune/limits.conf',  
  owner  => 'root',  
  group  => 'root',  
  mode   => '644',  
}
```

# Case study

# Case Study - Original Environment

- OS - Enterprise Linux
  - RHEL 4 & 5
  - CentOS 4 & 5
  - RHEL 6 was on the way
- "Management" tools
  - Satellite Server - RHEL Management
  - Spacewalk Server - CentOS Management
  - Glued together with Cobbler, DHCP, TFTP & PXE
  - Numerous "rogue" servers
  - External 3rd Party repositories
  - Lots of hand crafted servers



# Case Study - Original Environment

- Provisioning
  - Kickstart via Satellite & Spacewalk
    - Basic installs of the OS only
    - Servers were built as localhost.localdomain
    - Configuration done by hand post kickstart
    - Packages weren't being utilised (tar, zips, scripts)
    - VMTools, HP PSP's, HW Agents - Often missing
  - DVD/CD Installs still being done
    - Left disconnected from Satellite / Spacewalk
    - Non-standard configurations
    - Some talked to unknown repos on the internet (!)



**Arriving in the office each morning...**

# Linux Team Reaction



# Case Study - Original Environment

- Result - Utter carnage
  - Business was suffering
    - Application & Server instability == Outages
    - Delays in deployment of new platforms
    - Delays in upgrading and deploying our applications
  - The Linux admins were suffering
    - Flying blind - Unknown fleet composition
    - Every issue resulted in a journey of discovery
    - Inconsistent configurations made delivering other infrastructure projects difficult - ie, Monitoring
    - Wasn't enjoyable (not enough time for reddit)



**Ain't nobody got  
time fo dat**



# Case Study - What did we need ?

- Configuration Management
  - Self healing
  - Rich Reporting
  - Vendor neutral
  - Flexible
  - Version control
  - Integrates with provisioning workflow
- Software Management and Distribution
  - Centralised, Simple & Scalable
  - Secure (Signed Packages & TLS)
  - Redundancy - Supported mirrors/slaves

# Case Study - What we chose

- **Puppet**

- Configuration Management
- Self healing
- Rich reporting
- Cross platform
- Extensible

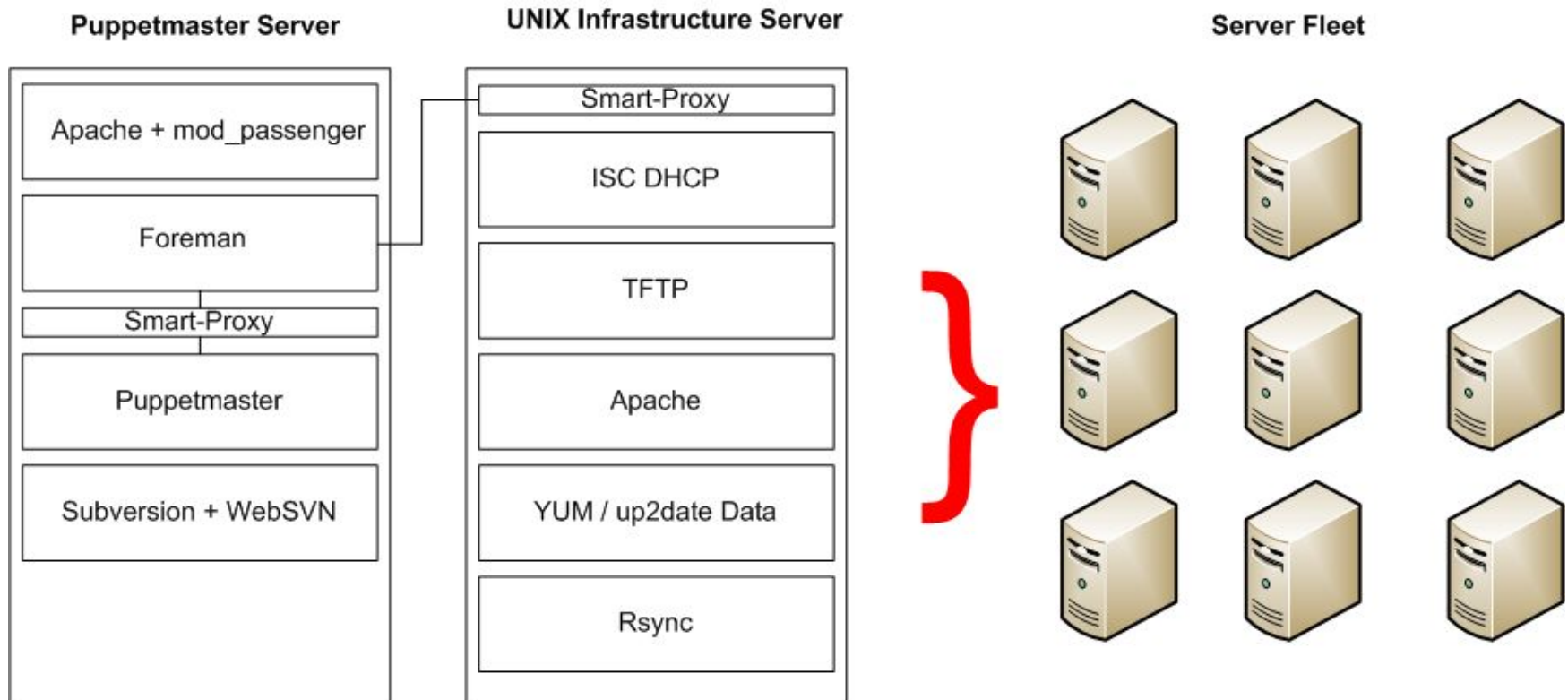


- **Foreman**

- Puppet node classifier (ENC)
- DHCP/TFTP/PXE Integration
- Puppet report visualisation
- Host inventory & CMDB



# Case Study - How it was assembled





# Case Study - Fixing Provisioning

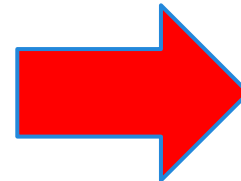
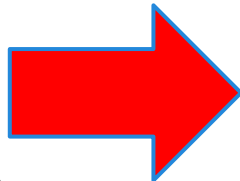
Hostname

OS Version

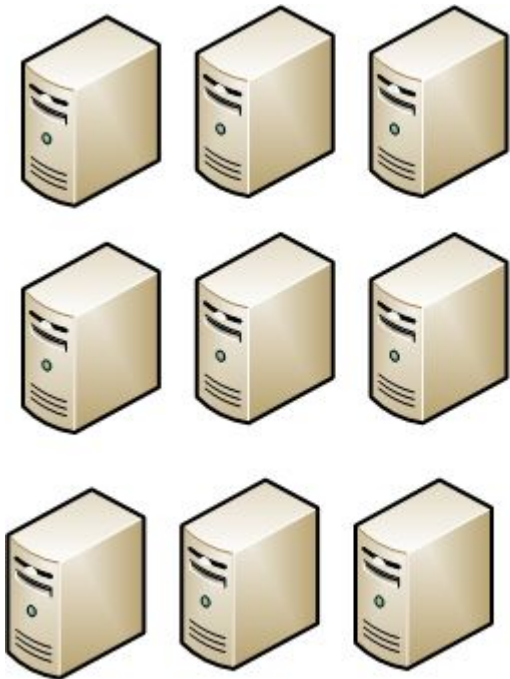
MAC Address

Partition Table

Data Center



# Case Study - Importing the fleet



- Install Puppet agent
- Boot strap the client
- Apply the standard modules
- Test

**Result:**



# Case Study - End result - Stability

- Costs are down
- Business applications are more stable
- React to requests more rapidly
- Users have a common experience
- Fleet management is *much* easier

# Questions ?

- Contact
  - Twitter: @keiran\_s
  - Email: Keiran@gmail.com
  
- Images
  - [Devops Reactions](#)
  - Reddit



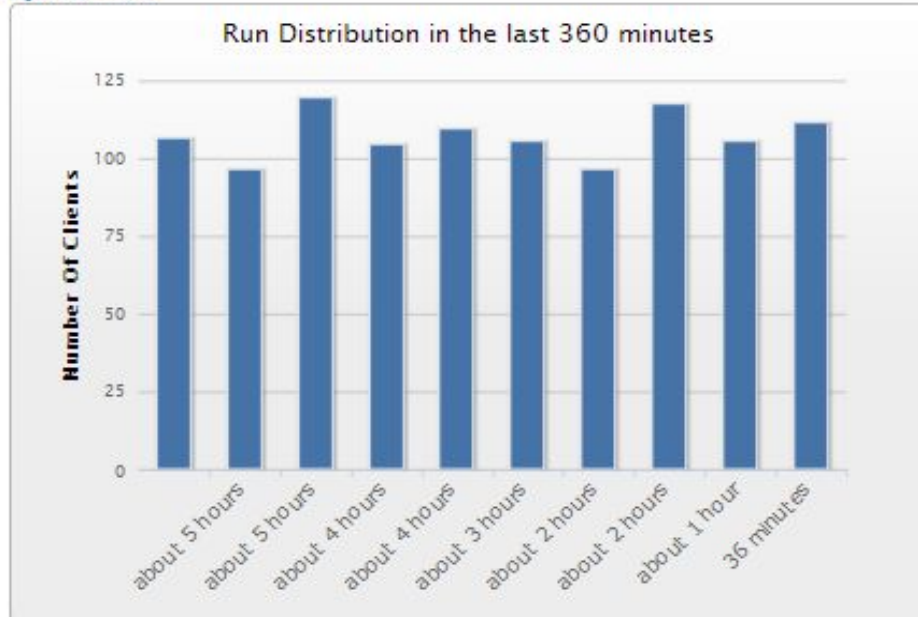
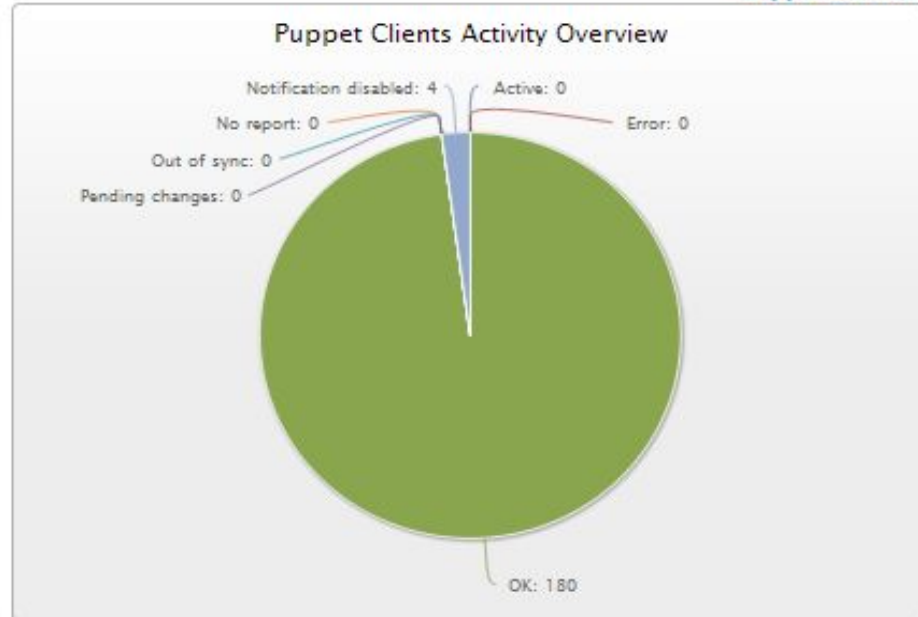
# Overview

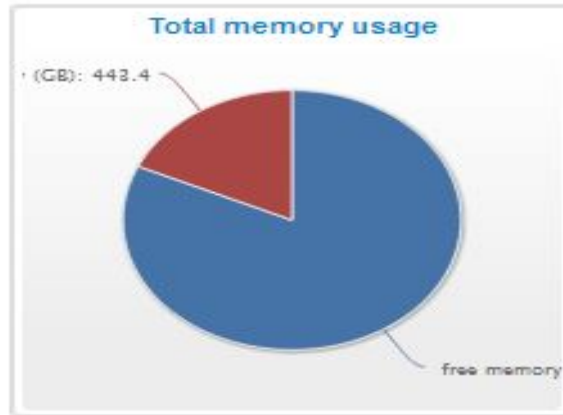
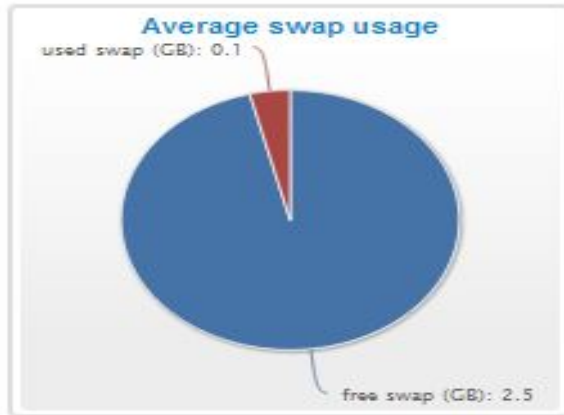
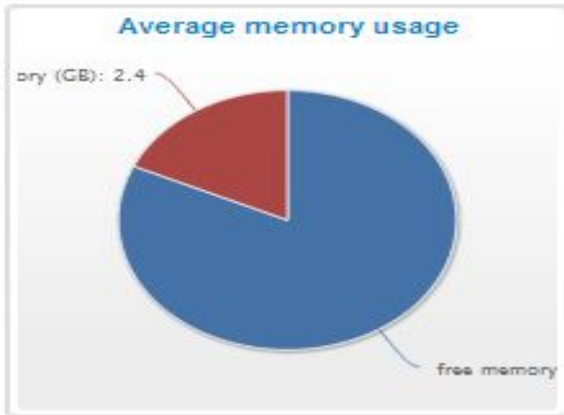
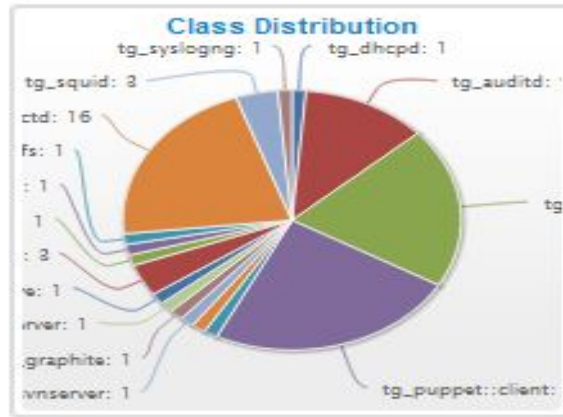
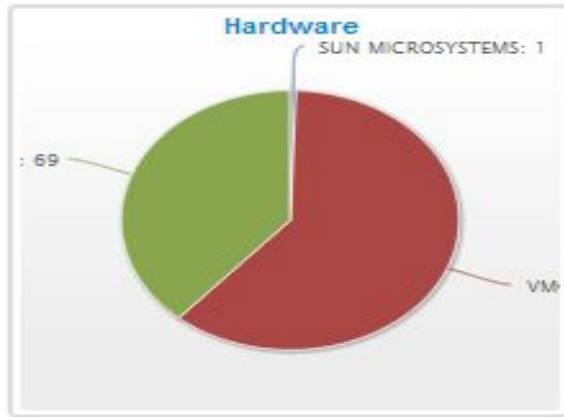
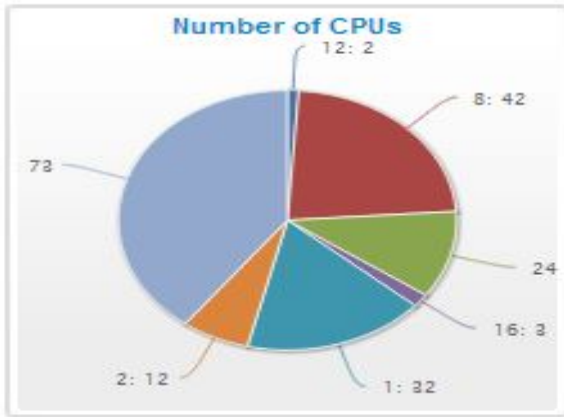
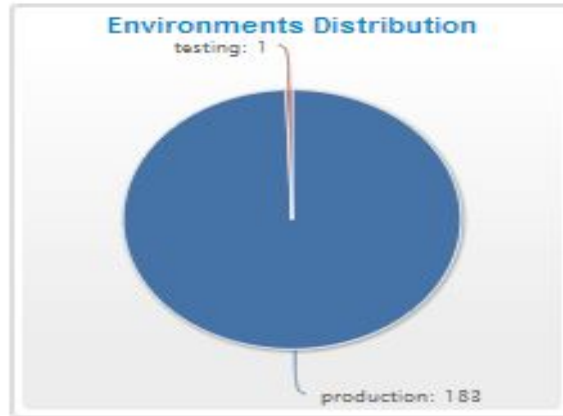
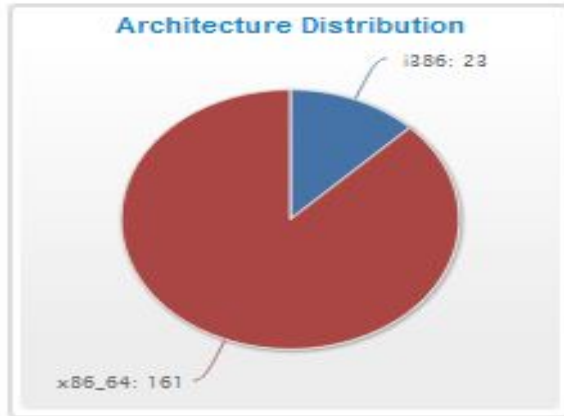
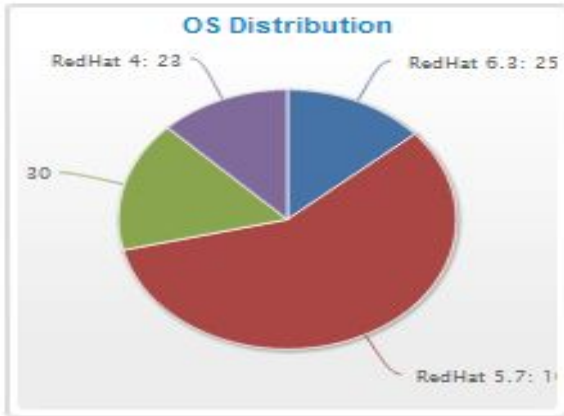
Filter ...

Generated at 22 Apr 16:49

Description	Data
Hosts that had performed modifications without error	0
Hosts in Error State	0
Good Host Reports in the last 365 minutes	180 / 184 hosts (97%)
Hosts that had pending changes	0
Out Of Sync Hosts	0
Hosts With No Reports	0
Hosts With Alerts Disabled	4

## Puppet Clients Activity Overview







Reports from the last 7 days - 164 reports found

- Edit
- Build
- Run puppet
- All Puppet Classes
- Delete

- Properties
- Metrics
- Templates

**Details**

- Facts
- Reports
- YAML

Properties	
Domain	
IP Address	10.23.8.238
MAC Address	
Puppet Environment	production
Host Architecture	x86_64
Operating System	RedHat 5.7
Host Group	Production Server / Server/GS2
Owner	Keiran Sweet

