

steinkamp.us/campdevops.pdf

Roller

Host management, simplified.



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Handcrafted





A bit about...

Roller

Host management, simplified.



Q: OK, so what does Roller do?

A: Roller installs software.

Why not...?

chef or puppet or yum or apt or rpm
or emerge or sprinkle or cfengine or
uniconf or xcopy or bcfg2 or...

Configuration
Repository

Config Server

Packages

"roll" program

CONFIGURATION REPOSITORY

colos/

datacenter-level configuration

hostclasses/

types of hosts, defined

hosts/

every server in the known universe

colos/

datacenter-level configuration

hostclasses/

types of hosts, defined

hosts/

every server in the known universe

colos/east.yml

```
code: east
name: EC2-East
zones:
- east
dns_networks:
- 10
```

colos/
datacenter-level configuration

hostclasses/
types of hosts, defined

hosts/
every server in the known universe

hostclasses/mysql.yml

hostclass: mysql

packages:

- configurate-2011.10.10_16.50
- cron-4.1
- curl-7.21.4
- db-5.1.25.NC
- encaptools-2011.09.08_00.55
- epkg-2.3.9_groupon1
- ethtool-2.6.36
- ...47 more...

colos/
datacenter-level configuration

hostclasses/
types of hosts, defined

hosts/
every server in the known universe

hosts/db1.east.yml

```
colo: east
hostclass: mysql-2011.10.11_18.40
hostname: db1
id: i-0fccb72
interfaces:
  eth0:
    inet:
      - 10.121.96.254
params:
  ntp_config:
    - ns1
    - ns2
users:
  - jimmy
  - jhno
  - zsteinkamp: { sudo: true }
```

```
>git tag -l | grep mysql
```

```
mysql-2011.10.07_20.20
```

```
mysql-2011.10.10_20.45
```

```
mysql-2011.10.11_14.60
```

```
mysql-2011.10.11_18.40
```

CONFIG SERVER

Hostclass: mysql-2011.10.11_18.40

https://config.groupondev.com/hostclass/mysql-2011.10.11_18.40

GROUPON Production Operations Colos - Hosts - Hostclasses - Users - Packages

Hostclass: mysql-2011.10.11_18.40

(Download YAML)

```
hostclass
  mysql
monitors
  cpu
    run_every
      60
    shell_command
      /usr/local/libexec/check_sar -S cpu -t wio=80:90
  disk_space_root
    run_every
      60
    shell_command
      /usr/local/libexec/check_disk_space -P / -L root -w 1G -c 500M
  iostat_sda
    run_every
      60
    shell_command
      /usr/local/libexec/check_iostat -D sda -w 2000 -c 2500
  load
    run_every
      60
    shell_command
      /usr/local/libexec/check_sar -S load -t one=8:12
```

Hosts

- db1.west
- db1.tm
- db2.tm
- scheduler-db1.east

Diff With...

- mysql-HEAD
- mysql-2011.09.01_17.58
- mysql-2011.09.01_18.20
- mysql-2011.09.07_13.00
- mysql-2011.09.07_18.07
- mysql-2011.09.09_15.10
- mysql-2011.09.13_12.25
- mysql-2011.09.23_19.10
- mysql-2011.09.27_03.20
- mysql-2011.09.27_03.55
- mysql-2011.09.27_15.30
- mysql-2011.09.27_16.10
- mysql-2011.09.27_16.20
- mysql-2011.09.27_17.00
- mysql-2011.09.27_17.10
- mysql-2011.09.27_18.20
- mysql-2011.09.28_17.30
- mysql-2011.09.28_21.50
- mysql-2011.09.30_15.05
- mysql-2011.10.03_16.55
- mysql-2011.10.03_17.25

```
>curl http://config/host/db1.east
colo: east
hostclass: mysql-2011.10.11_18.40
hostname: db1
id: i-0fccb72
interfaces:
  eth0:
    inet:
      - 10.121.96.254
params:
  ntp_config:
    - ns1
    - ns2
users:
- jimmy
- jhno
- zsteinkamp: { sudo: true }
```

```
>curl http://config/hostclass/mysql-2011.10.11_18.40
hostclass: mysql
packages:
- configurate-2011.10.10_16.50
- cron-4.1
- curl-7.21.4
- db-5.1.25.NC
- encaptools-2011.09.08_00.55
- epkg-2.3.9_groupon1
- ethtool-2.6.36
...47 more...
```

ROLL PROGRAM

- Fetch host and hostclass YAML from config server
- Fetch missing packages
- Prepare new `/usr/local` candidate
- Generate configs
- Stop services
- Move new `/usr/local` into place
- Start services

Wait, did he just say....?

- Fetch host and hostclass YAML from config server
- Fetch missing packages
- Prepare new `/usr/local` candidate
- Generate configs
- Stop services
- Move new `/usr/local` into place
- Start services

ROLLER PACKAGES

```
>ls -l /usr/local/
```

```
total 56
```

```
drwxr-xr-x  2 root root 4096 Aug 23 23:45 bin
drwxr-xr-x  3 root root 4096 Aug 23 23:45 config
drwxr-xr-x  3 root root 4096 Aug 23 23:45 doc
drwxr-xr-x  8 root root 4096 Aug 23 23:45 etc
drwxr-xr-x  9 root root 4096 Aug 23 23:45 include
drwxr-xr-x  2 root root 4096 Aug 23 23:45 info
drwxr-xr-x 13 root root 4096 Aug 23 23:45 lib
drwxr-xr-x  3 root root 4096 Aug 23 23:45 lib64
drwxr-xr-x  4 root root 4096 Aug 23 23:45 libexec
drwxr-xr-x  6 root root 4096 Aug 23 23:45 man
drwxr-xr-x  5 root root 4096 Aug 23 23:45 nagios
drwxr-xr-x  2 root root 4096 Aug 23 23:45 sbin
drwxr-xr-x 16 root root 4096 Aug 23 23:45 share
drwxr-xr-x  6 root root 4096 Aug 23 23:45 ssl
```

```
>ls -l /usr/local/bin/mysql
lrwxrwxrwx 1 root root 52 Oct 11 18:08 /usr/local/bin/mysql ->
/packages/encap/mysql-5.1.56/bin/mysql
```

Download and inspect a package...

```
>curl -q -O http://config/package/mysql-5.1.56.tar.gz
```

```
>tar -tzf mysql-5.1.56.tar.gz
```

```
...
```

```
mysql-5.1.56/bin/
```

```
mysql-5.1.56/bin/mysql
```

```
...
```

- Fetch host and hostclass YAML from config server
- Fetch missing packages
- Prepare new /usr/local candidate
- **Generate configs**
- Stop services
- Move new /usr/local into place
- Start services

Host YAML file

```
colo: east
hostclass: mysql-2011.10.11_18.40
hostname: db1
id: i-0fccb72
interfaces:
  eth0:
    inet:
      - 10.121.96.254
params:
  ntp_config:
    - ns1
    - ns2
users:
- jimmy
- jhno
- zsteinkamp: { sudo: true }
```

```
>cat /usr/local/etc/ntp.conf
```

```
# ntp servers  
server ns1 iburst  
server ns2 iburst
```

```
# local pseudo server in case remote  
# servers are unreachable  
server 127.127.1.0  
fudge 127.127.1.0 stratum 10
```

```
>ls -l /usr/local/etc/ntp.conf
```

```
/usr/local/etc/ntp.conf # no symlink!
```

```
>cd /packages/encap/ntp-4.2.6p3/
```

```
>ls -l
```

```
total 48
```

```
drwxr-xr-x 2 root root 4096 Mar 31 2011 bin  
drwxr-xr-x 3 root root 4096 Mar 31 2011 config  
drwxr-xr-x 4 root root 4096 Mar 31 2011 etc  
drwxr-xr-x 2 root root 4096 Mar 31 2011 lib  
drwxr-xr-x 2 root root 4096 Mar 31 2011 sbin  
drwxr-xr-x 3 root root 4096 Mar 31 2011 share
```

```
>ls -l config
```

```
total 16
```

```
-rw-r--r-- 1 root root 122 Mar 31 2011 C50ntp  
drwxr-xr-x 2 root root 4096 Mar 31 2011 templates
```

```
>cat config/C50ntp  
create_directory "/var/groupon/ntp", "root:wheel", 0755  
  
# generate named.conf  
render_template "templates/ntp.conf.erb", "etc/ntp.conf"
```

```
>cat config/templates/ntp.conf.erb
# ntp servers
% host.params["ntp_servers"].each do |server|
server <%= server %> iburst
% end

# local pseudo server in case remote servers are unreachable
server 127.127.1.0
fudge 127.127.1.0 stratum 10
```

```
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>cat /usr/local/etc/ntp.conf
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```
# ntp servers
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server ns1 iburst
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server ns2 iburst
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# local pseudo server in case remote servers are unreachable
```

```
server 127.127.1.0
```

```
fudge 127.127.1.0 stratum 10
```

USER MANAGEMENT

Foreman

- A Roller package
- In every hostclass
- Adds a cron entry when installed on a host
- Every X minutes "trues up" its users with config repository via config host
- Syncs homedir skeleton content

homedirs/

A directory for each account. Contains:

- .ssh/authorized_keys
- any files like .vimrc or .bash_profile

etc/users.txt

Looks like /etc/passwd

Master list of users

hosts/*.yml

Each host YAML file has a users: section.

Add or remove users to control access.

```
>find homedirs/zsteinkamp -type f
homedirs/zsteinkamp/.bash_profile
homedirs/zsteinkamp/.gitconfig
homedirs/zsteinkamp/.inputrc
homedirs/zsteinkamp/.ssh/authorized_keys
homedirs/zsteinkamp/.ssh/config
homedirs/zsteinkamp/.vimrc
```

```
>grep zsteinkamp etc/users.txt
zsteinkamp:x:1004:1004:Zack Steinkamp:/home/zsteinkamp:/bin/bash
```

```
>grep -l zsteinkamp hosts/*.yml
hosts/accounting-app1-uat.tm.yml
hosts/accounting-app1.tm.yml
hosts/accounting-app2.tm.yml
hosts/accounting-lb1-uat.tm.yml
hosts/accounting-lb1.tm.yml
hosts/accounting-lb2.tm.yml
hosts/accounting-utility1-uat.tm.yml
... many more ...
```

OTHER USES...

OK WRAP IT UP MAN.

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steinkamp.us/campdevops_notes.pdf