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Managing Unix servers the slack way
Tools and techniques for managing large numbers of Unix machines

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Rules of thumb

The following are obvious, right?

- Have a repeatable OS build
- Document, document, document
- Monitor your machines
- Keep failure metrics you know what to work on next
- Expect failures
- Have a repeatable application install

Logging into many machines at once

First problem: executing the same command on many machines

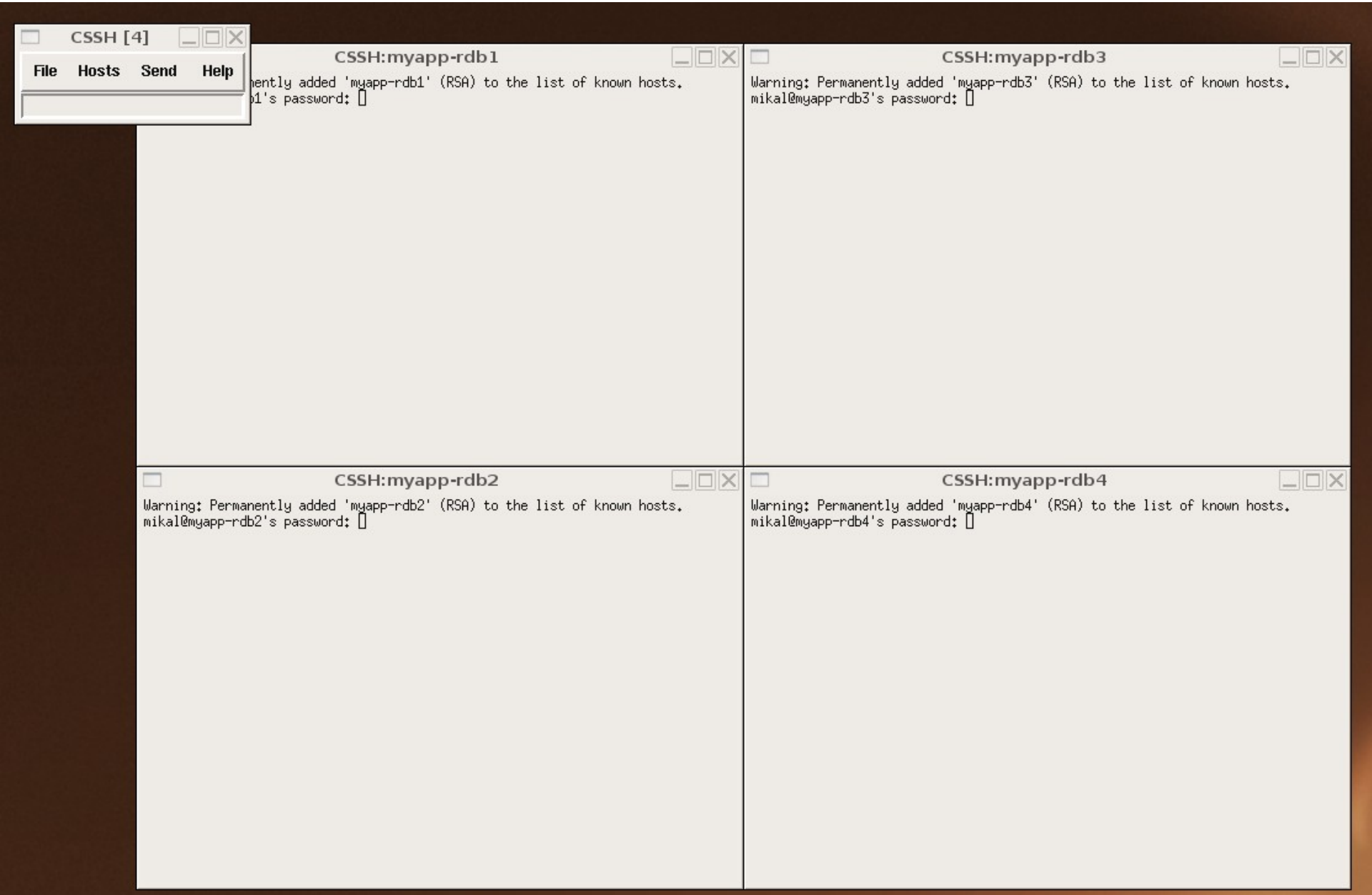
- Clusters result in lots of machines which are identical
- Logging into them one after the other to perform maintenance sucks
- You could script this work, but that isn't time efficient

- I use clusterssh (also known as cssh)

- Let's log into a bunch of hypothetical database replicas and check their status

```
cssh myapp-rdb1 myapp-rdb2 myapp-rdb3 myapp-rdb4
```

Logging into many machines at once



Logging into many machines at once

cssh

- A relatively simple perl script
- Runs with your choice of terminal
- You can run commands on all machines, one machine, or a subset of the machines
- This tool was not developed at Google
- http://clusterssh.sourceforge.net/

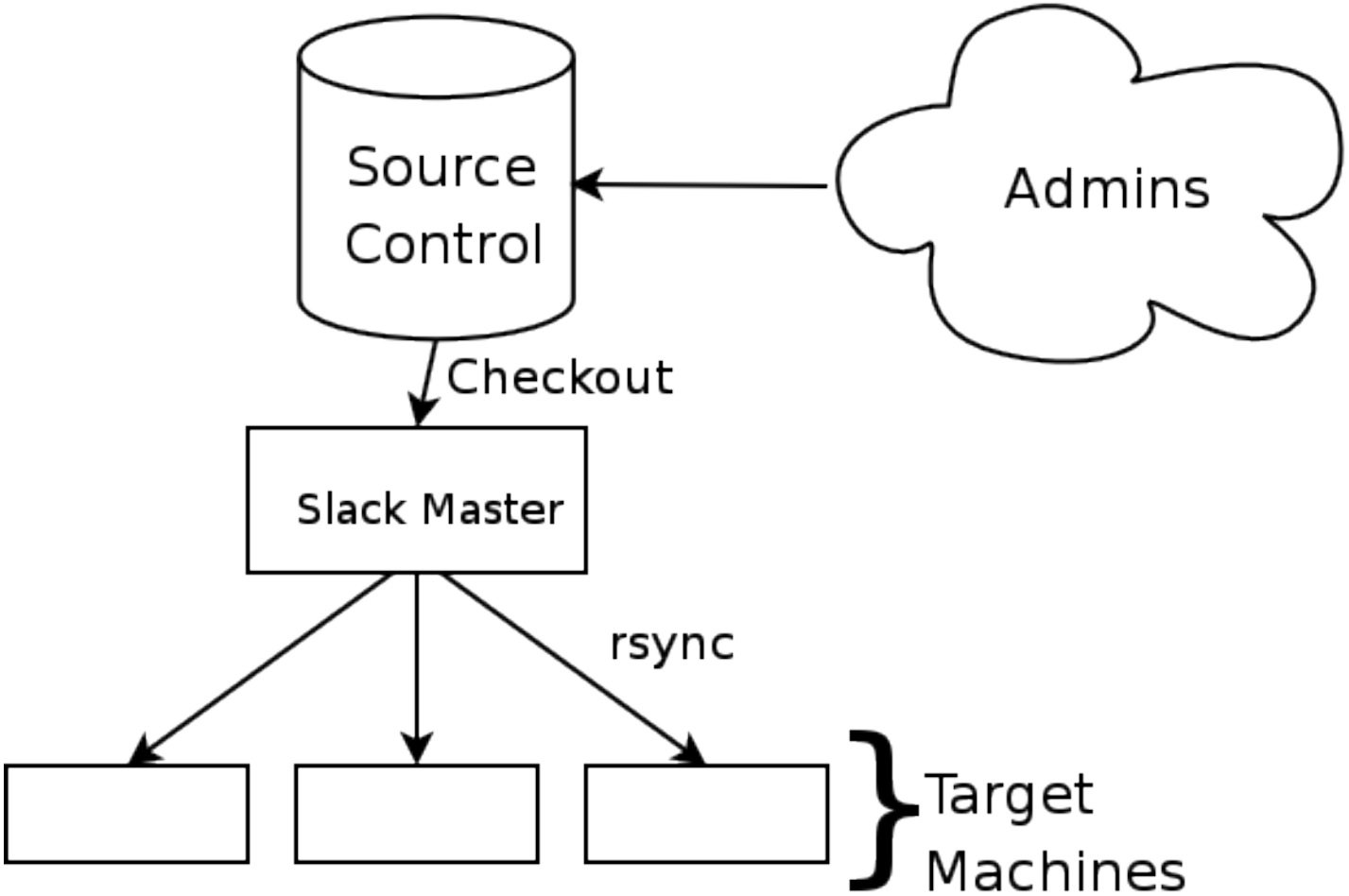
Repeatable software installs

slack

- Google's home grown software deployment system
- Written by Alan Sundell and Roman Marxer

- Centralized configuration repository
- Configuration is then deployed onto selected machines
- You can have more than one “slack role” on a given machine

Repeatable software installs



Google

Repeatable software installs

slack

- Configuration changes flow from the Administrators via a code review mechanism
- Once checked into the source control repository, they are synced to the slack master
- Individual servers then sync their configurations from the slack master
  - Manually: *slack role.sub-role*
  - Automatically via cron

Repeatable software installs

slack

- What does a role look like?

```
$ find mail-loghost -type f
mail-loghost/files/etc/cron.d/logcleanup
mail-loghost/files/etc/syslog-
  ng.conf.mailloghost
mail-loghost/files/usr/local/scripts/logcleanup
mail-loghost/scripts/postinstall
mail-loghost/scripts/preinstall
$
```

Repeatable software installs

slack

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$ find mail-loghost -type f
mail-loghost/files/etc/cron.d/logcleanup
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  ng.conf.mailloghost
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mail-loghost/scripts/postinstall
mail-loghost/scripts/preinstall
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```

Repeatable software installs

slack

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$ find mail-loghost -type f
mail-loghost/files/etc/cron.d/logcleanup
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  ng.conf.mailloghost
mail-loghost/files/usr/local/scripts/logcleanup
mail-loghost/scripts/postinstall
mail-loghost/scripts/preinstall
$
```

Repeatable software installs

slack

- What about those scripts?
  - You're passed the name of the role as $1
  - And that's pretty much it, so go wild

Repeatable software installs

slack

- Common things to do in those scripts
  - Generate MySQL server ids (unique 32 bit number)
  - Assemble several config files into one
  - Start and stop daemons
  - Install and upgrade packages

Repeatable software installs

slack

- What does a sub-role look like?

```
$ find mail-loghost -type f
mail-loghost/files/etc/cron.d/logcleanup
mail-loghost/files/etc/syslog-
  ng.conf.mailloghost
mail-loghost/files/usr/local/scripts/logcleanup
mail-loghost/scripts/postinstall
mail-loghost/scripts/preinstall
mail-loghost/files.trakken-mail/etc/syslog-
  ng.conf.mailloghost
$
```

Repeatable software installs

slack

- What about those scripts?
  - You're passed the name of the role as $1
  - You get a fully qualified name, so in this example:

    mail-loghost.trakken-mail

Repeatable software installs

slack

- There are lot of similarities between this and binary packages like .deb or RPM:
  - Pre and post install scripts
  - Deploys files
- Things which are cool about slack:
  - There is no intermediate packaged form
  - It works on any OS which can run perl and rsync
  - Sub-roles
  - Pre and post install scripts in any language

Repeatable software installs

slack

- Versioning
  - How do I undeploy a slack role?
  - How do I find out what slack roles a machine needs?
  - Dependencies between slack roles?

Repeatable software installs

slack

- Where can you get slack?
  - Google and Alan Sundell have released slack!
  - http://www.sundell.net/~alan/projects/slack/

Questions?

Any questions?

One final note

Google is hiring, both domestically within Australia, and Internationally. Talk to me if you want to know more.

Google™

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