

# Improving Condor configuration management with Wallaby

#### William C. Benton and Robert H. Rati Red Hat, Inc.



### Forecast

- Background
- Introducing Wallaby
- How it works
- Availability



# Why?



\$ wc -1 condor\_config.generic 2500 condor\_config.generic \$ grep = condor\_config.generic \ grep -vc ^\# 279 \$ grep -c = condor\_config.generic 558







#### MASTER\_HA\_LIST = \$(MASTER\_HA\_LIST), SCHEDD HA\_LOCK\_URL = file:\$(SPOOL) VALID\_SPOOL\_FILES = \$(VALID\_SPOOL\_FILES), SCHEDD.lock SCHEDD\_NAME = schedhost SCHEDD.QMF\_STOREFILE = \$(SPOOL)/.schedd\_storefile HA\_LOCK\_HOLD\_TIME = 3ØØ HA\_POLL\_PERIOD = 6Ø





## Other problems

- Dependencies and conflicts
- Restart vs. reconfig vs. full-reconfig
- Managing multiple nodes
- Configuration versioning, backup, and rollback



# Introducing Wallaby













### Wallaby as a service

- Inspect and manipulate features, nodes, groups, parameters, and subsystems
- API access from many languages (including C++, Python, and Ruby)
- Two flavors of command-line tools
- Simple client library for quick scripts



### Feature relationships





### Feature relationships





### Feature relationships









### Feature inheritance











## **Configuring groups**





# **Configuring groups**

**group**<sub>A</sub>

Groups have a list of enabled features; their parameters are merged in to the group config in inverse priority order.

```
EC2 Enhanced
Scheduler
Execute node
Master
```









# **Configuring nodes**

node.local.

Nodes have a list of group memberships; their configs are merged to the node config in inverse order. Wallaby validates configurations at the node level. node.local.

#### **Cloud submitters**

**Execute nodes** 

default



# **Configuring nodes**

There are two special kinds of groups: *identity* groups, which contain only one node, and the *default group*, which is applied to every node at the lowest priority.

node.local.

node.local.

**Cloud submitters** 

**Execute nodes** 

default



### Versioning and backup

- Config files are good candidates for traditional version control tools, but not everyone is willing to use these!
- Wallaby includes version control; you can snapshot the state of the service at any time and roll back if you need to.



### Forecast

- Background
- Introducing Wallaby
- Wallaby's design and architecture
- Availability



# How it works



# **High-level architecture**

- A pool has one Wallaby server
- Each node has a config daemon
- Clients use the Wallaby API
- Client-server communication occurs via the QMF management bus



### Sidebar: QMF

- AMQP is an open standard for enterprise messaging; Qpid is a scalable implementation of AMQP
- QMF is a management framework built on Qpid messaging
- (see http://qpid.apache.org/ for more)































6. Config daemons store new config files in \$(LOCAL\_CONFIG\_DIR)

7. Config daemons issue *restart* or *reconfig* commands to Condor daemons as necessary



#### Wallaby interface (QMF)

Wallaby backend (DB)



## Using the Wallaby API

- Interactive and batch command-line tools for pool management
- Example specialized clients: a node inventory tool, a store serializer, and a config file importer
- \$(YOUR\_IDEA\_HERE) via client lib



# Availability





## Availability

- Wallaby and its dependencies are open-source. If you're comfortable installing cutting-edge libraries and tools, we'd love your feedback!
- Packaged versions of Wallaby will likely be available in future Red Hat and Fedora Project offerings.



### Thanks!

- For more information: *http://getwallaby.com/ http://www.redhat.com/mrg/*
- Ask us for a demo at Condor Week
- Contact us via email: {willb,rrati}@redhat.com