Systems management with project RHQ

Heiko W. Rupp
Senior Developer JBoss ON
Red Hat

www.devoxx.com
Overall Presentation Goal

Give an impression about RHQ and Jopr and how those can help solving your daily administration tasks.
Heiko W. Rupp is senior developer with JBoss Operations Network, Jopr and RHQ

He wrote the first German book on JBoss AS and one of the first German books on EJB3

He is and has been involved in other Open Source and commercial software projects

Heiko also gave trainings and was consulting at customers
Agenda

- Introduction
- History
- Architecture
- Subsystems
- Demo

Development of Plug-ins
Project RHQ and Jopr are Open Source Management Tools

RHQ is the foundation framework and upstream for Jopr

RHQ is generic and also supports via plugin
Introduction

- RHQ - Common Project by Red Hat and Hyperic
- RHQ upstream for JBoss Operations Network 2 (JBossON)
- RHQ is Open Source since February 2008
- Start page: http://www.rhq-project.org/

- Jopr: Project on top of RHQ to support JBoss software
RHQ 1.x

- To a large extend written from scratch and uses
  - JBoss AS 4.2.1
  - JBoss Remoting
  - EJB 3
  - JPA / Hibernate
  - JSF / Richfaces
- SIGAR Library by Hyperic (also in the Open Source)
- Parts of the GUI are still from JBoss ON 1.x
- Parts are written from scratch in JSF
Architecture overview

- Central Server or cluster thereof
- Agent per Machine („platform“)
Agent Architecture

- Hosts central services
- Local Inventory
- Logging
- Spooling
- Scheduling
- Hosts plugins
Resources

- Resources
- Everything that can be managed / monitored

Resource Type
- E.g. Linux, Max OS X, JBoss AS, Hibernate Stats, DB-Table

Resource Category
- Place in the resource hierarchy
- Parent - Child - Relation
- Platform = machine

Platform

Server

Service

Hosted by
Subsystems

- Monitoring
  - Measurement of values and states
  - Graphs of metrics on the server GUI
- Inventory: The central component that knows all components
- Configuration: Configuration of Resources
- Alerts: Alerting of operators and Automatic actions
- Operations: Execute operations on resources
- Packages: Software upload on to Resources
Available Plugins

- RHQ
- JMX
- Postgres / MySQL
- Apache
- IIS
- Linux-stuff
- SNMP-Traps
- ...

- Jopr
- JBossAS 3/4, 5
- Tomcat
- JBossCache
- RHQ-Server
- Hibernate
- Mobicents
DEMO

Let's have a look at the console of the RHQ server
Development of Plug-ins

- Plug-ins will be installed in the plug-in container

- Hot-Deploy via server
- Agent pulls the plugins down and restarts the Plug-in-Container
3 Components of a Plug-in

- Discovery Component
  - Responsible to discover and add new resources
  - Resource key must be and stay unique!

- Plugin Component
  - Implements Facets
  - Analog to the subsystems

- Plugin-Descriptor defines the features of the plug-in as metadata
  - Wires the Java classes

```xml
<server name="HttpCheck"
description="..."
discovery="HttpDisco..."
class="HttpComponent">
```
Concluding statement

RHQ is a powerful Open Source foundation for systems management. It can be easily extended via plugins.

Go and write a plugin for your favorite tool.

Join the RHQ / Jopr projects
Q&A
Thanks for your attention!

http://www.rhq-project.org/
http://www.jboss.org/jopr/
http://www.redhat.com/systems_management/resource/

http://pilhuhn.blogspot.com/
http://twitter.com/pilhuhn