Aplicaciones web para el trabajo colaborativo

Sistema gestor de recursos para una arquitectura GRID

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Universitat Oberta de Catalunya
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Agenda

• Introduction to distributed systems
• Resource management for GRID architectures
  • Frontend application
  • RESTful API
  • Sending system’s information: agent as a service
• Conclusions
Introduction to distributed systems

• High amount of data daily
• Big computational calculations
• HPC / Vertical Scalability
• Distributed Systems / Horizontal Scalability
Introduction to distributed systems

Resource Manager for GRID Architectures
Resource manager for GRID architectures
Resource manager for GRID architectures

Frontend Application

- Listing all resources easily
- See systems’ cpu, ram and hdd
- Deleting unavailable systems
- Role based identification and authorization
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*System that sent information in last 30 minutes*
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**Unavailable System**
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Admin users can delete unavailable systems
List users

2 users found. Showing 1 - 2.

Alberto Ramírez
alberto@aramirez.es

Grid Admin Panel
adminpfc@aramirez.es

Admin users may promote other user to Admin role
Resource manager for GRID architectures

RESTful API

- Gather all systems’ information
- Expose systems’ information to the front end application
- Safe communications with both, front end application and resident agent
Resource manager for GRID architectures

RESTful API

• Apache server listening port 443
• Self-signed server certificate
• PHP, Silex, Ports and Adapter and Unit Testing
• MongoDB data storage
Resource manager for GRID architectures

Resident Agent

- Send system’s information periodically
- Safe communication
- High performance while being light in the user’s machine
- Working in several OS
Resource manager for GRID architectures

Resident Agent

• Golang
• Event Loop
• Operating System Service
• Multiplatform
Linux

Debian based distributions

$ curl -s -O http://admin.pfc.aramirez.es/agents/linux/x86_64/pfccaramirezagent-1.0.5-1.x86_64.deb && \
    sudo dpkg -i pfccaramirezagent-1.0.5-1.x86_64.deb && \
    rm -f pfccaramirezagent-1.0.5-1.x86_64.deb

RHEL based distributions

$ sudo yum install http://admin.pfc.aramirez.es/agents/linux/x86_64/pfccaramirezagent-1.0.5-1.x86_64.rpm

Other distributions

Download the compiled binary and then:

$ mv agent /usr/local/bin
$ agent

Mac OS X

Just download the package and install it.

Install
Conclusions

- Distributed systems are funny besides powerful
- Learning to package and distribute for different operating systems
- Go back to work with security issues
- Golang is powerful
- More ideas to the future as working on distributed systems algorithms such like Gossip Protocol
Demo time
Thanks