Using Community Clouds for Load Testing: the ProActive CLIF solution

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Agenda
1. Objectives, ProActive, Use Cases (Denis)
2. Community Cloud, Challenges (Daniel)
3. Load testing, ProActive CLIF, Architecture (Bruno)
HPC Workflow & Parallelization

Scheduling & Orchestration

Cloud & Grid IaaS

GPU nodes
Community Cloud: sharing is always economically innovative

- Members of a Community (SMEs, NGOs, employees, individuals) share CPU, storage, network, and (delegate a manager to) manage the whole platform so as to run ready-to-use services on top of it

→ a Community Cloud is born

- Two business models
  - NIST-style community cloud: the services are used only by community members
  - extended: the community want to make profit and sell services in a "public" fashion
Technological problems specific to Community Clouds

1. Storage optimization for load balancing and data availability
   - sharing: data division (key-based)
   - replication: several copies of same data

2. Security (many resources are not dedicated)
   - data and computation integrity

3. Performance, reliability and profitability
   - predict what resources will be up in next periods
   - count the resource contributions for a fair payment
Using a Community Cloud for Load Testing

- Computing and networking resources are used to generate traffic (load injectors) and measure the SUT performance.
- Thanks to the community cloud these resources are widely distributed.
CLIF goes ProActive

CLIF is OW2’s Load Testing framework

- high power distributed load injection
- measures response times and resources usage
- adaptable, extendible, embeddable
  - multiple UI (Java GUI, Eclipse, command-line, Jenkins)
  - multiple protocols (HTTP, FTP, DNS, IMAP, SIP… any of your own)
- architecture based on the Fractal component model

Distribution support

- historically based on FractalRMI (► current SVN trunk)
- wide distribution across several networks may cause reliability and routing troubles
- move towards ProActive (► ProActive SVN branch)
ProActive CLIF on Community Cloud: Testbed Architecture

Performance tester

Jenkins server + ProActive CLIF plug-in

job submission

node allocation

Scheduling

Resourcing

Community cloud contributors

System Under Test

OW2Con'12, November 28-29, 2012
Orange Labs, Paris. www.ow2.org
Perspectives

• Upcoming Friendly User Test of ProActive CLIF on community cloud at Orange Labs
  • collaboration with ActiveEon

• CLIF work plan: go further into ProActive adoption
  • upgrading CLIF’s architecture to better benefit from GCM (Grid Component Model – standard from ETSI)
  • make ProActive CLIF the default CLIF (SVN trunk)
  • collaboration within the OpenCloudware project

• Local Resources (Desktops, Cluster, Severs) + Various Clouds (OpenStack, VMware vSphere, …)