OpenCloudware
The Cloud application lifecycle management platform

Delivering a Cloud Platform for Building, Maintaining and Operating Enterprise PaaS Distributed Applications

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What is OpenCloudware?

- Co-funded collaborative R&D project, 18 partners
- Modular software framework for building a IaaS-agnostic Dev to PaaS enterprise-grade Cloud platform
- Enables to easily build, generate and operate enterprise distributed applications for deployment on any Cloud
  - Their modeling, assembly and build
  - Their deployment and operation (PaaS)
  - On multiple infrastructures (Multi-IaaS)
- 3 years (Jan 2012 – Dec 2014)
- Supported by the French FSN (Fonds National pour la Société Numérique)
- Co-labeled by the Minalogic, Systematic and SCS Pôles de Compétitivité
Project Partners

- **Large Corps**
  - Bull
  - France Télécom – Orange
  - Thales Communications & Security
  - Thales Services

- **SMEs**
  - ActiveEon
  - eNovance
  - eXo Platform
  - Peergreen
  - Linagora (prev. Petals Link)
  - UShareSoft

- **Academic**
  - Armines/Ecole des Mines de Nantes
  - IRIT – INP Toulouse
  - Télécom Paris Tech
  - Télécom Saint Etienne
  - Univ. Joseph Fourier
  - Univ. Savoie - LISTIC
  - Inria (Grenoble, Nice, G5K)

- **Open Source organisation**
  - OW2
Use case

The user wants to deploy a distributed enterprise application (JavaEE, LAMP, ...)

First step: account creation and login (role-based access control)
Use case

The user builds its virtual app using OpenCloudware tools. S/he expresses elasticity at the right level.

The output is a vApp model (OVF++)
The vApp is built, and OpenCloudware instantiates the user vApp on the infrastructure.
Use case

The users need to know how much it will cost.

The OpenCloudware billing component shows the cost for the empty running vApp.
Use case

The users uses OpenCloudware Performance testing tools.

The consequences can be seen through the billing tool, and is given a cost per hour for a given workload.
Use case

While the performance testing tool is running, the user observes **elasticity** (the application goes beyond what 2 nodes could have done).
Testing is over. The user needs a public IP, modifies the vApp description and redeploys.

He then adds data to the DB, tests the performance with this public instance.

Latency changes, which indicates OpenCloudware has moved VMs to IaaS.closer to users.
Use case

The application goes to production.

OpenCloudware monitoring tools provide the necessary information.
End-to-end Platform
Dev to Run

OpenCloudware Software as a Service
Project Target

- Produce a component-based middleware platform
  - open platform for cloud software engineering
  - for collaborative development of distributed Cloud applications
    - targeting primarily enterprise JavaEE - OSGi virtual appliances but extensible to other middleware
  - for IaaS-agnostic Cloud Server application provisioning and deployment, orchestration and operation
    - self-service management, elasticity, green IT optimisation
  - with interoperable execution on multiple major Cloud IaaS (incl. hybrid)

- The OpenCloudware platform will be available online as a SaaS
Project Scope

3rd party build environment

3rd party Cloud IaaS (incl. open source)

+ other collaborative projects
Technologies

- Extensive re-use and development of OW2 software
  - PaaS: JavaEE, JASMINe, JORAM, Petals ESB
  - Security: AuthzForce
  - Performance: CLIF
  - Multi-IaaS: Sirocco, ProActive, Entropy
  - Portal: eXo

- Use of other open source software
  - Hudson, Maven, Jenkins, sunxaclm, jclouds etc.

- UForge for cloud image template management and VM generation
Technological Advances

- Ambitious project with several challenges
  - End-to-end Modeling
  - End-to-end Automation
  - Building multi-tier vApps
  - Autonomic management
  - Agnostic Multi-IaaS Portability
  - Security for identity and access, and application protection
- Links with
  - Many other open source cloud projects
  - Collaborative research projects (French, European)
Where are we now?
Q&A

OpenCloudware

A Cloud Software Platform for Building and Operating Enterprise PaaS to Multi-IaaS Applications

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