Smart Cities and Communities and Social Innovation

Open City Platform: a cloud platform for the digitalization of the country specifically designed for the Public Administration.

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OCP: Industrial Research Project co-financed by MIUR
(Ministry of Education, Universities and Research).
People involved: more than 100
Person Months: more than 2000
Project drivers

An open source based solution

Use only production ready components

Work with the stakeholders

Focus on the cloud platform
The Open Source is a market reality, but not only...

The Open Source is now leading the innovation

**The Project Drivers: Focus on the Open Source**

### Private Cloud Usage

<table>
<thead>
<tr>
<th>Application</th>
<th>Running apps</th>
<th>Experimenting</th>
<th>Plan to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMware vSphere/vCenter</td>
<td>31%</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>OpenStack</td>
<td>12%</td>
<td>23%</td>
<td>13%</td>
</tr>
<tr>
<td>VMware vCloud Director</td>
<td>12%</td>
<td>14%</td>
<td>9%</td>
</tr>
<tr>
<td>Microsoft System Center</td>
<td>11%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>Citrix CloudStack</td>
<td>6%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>3%</td>
<td>12%</td>
<td>6%</td>
</tr>
</tbody>
</table>

*Source: RightScale 2014 State of the Cloud Report*
The Project Drivers: Use Only Production Ready Components

OCP: an exit strategy to break the link between innovation and sand box model
The Project Drivers: Work with the Stakeholders

More than 9.000.000 citizens potentially involved in regional experimentation
The project drivers: focus on the cloud

93% of Respondents Are Using Cloud

- 30% Public Cloud Only
- 58% Public and Private
- 5% Private Cloud Only

Public = 88%
Private = 63%

Source: RightScale 2015 State of the Cloud Report
The use case

Open City Platform è un progetto cofinanziato da

Ministero dell’Istruzione, dell’Università e della Ricerca
Private Cloud: Why?
Private Cloud: How?
Build the technology infrastructure of the Public Administration as we do for our houses
The IaaS platform is the foundation of our building, the most important features are the robustness and sustainability in the long run.
A Robust Foundation

Openstack: the winning open source cloud solution

- Public Cloud:
  - Amazon
  - OpenStack

- Private Cloud -> OpenStack
A Robust Foundation

OpenStack Platinum Members

AT&T
Canonical
Hewlett Packard Enterprise
IBM

Red Hat, Inc.
SUSE
Intel
Rackspace
A Robust Foundation

OpenStack Gold Members

- Aptira
- CCAT
- Cisco
- Dell
- DreamHost
- EMC
- Ericsson
- Fujitsu
- Hitachi
- Huawei
- inwinSTACK
- Juniper Networks
- Mirantis
- NEC
- NetApp
- Symantec
- Virtuozzo
- Yahoo Inc.
In an Enterprise environment, it is not enough to choose the best-in-class solution. The best-in-class solution should be industrialized in terms of efficiency, high availability and control of the platform.
A robust foundation: the OCP approach

OCP provides a set of different hardware configurations to build a High Availability environment.
A robust foundation: the OCP approach

The efficiency starts from the installation task

A manual installation of OpenStack may require 2-3 weeks of work, with an experienced worker.

With the OCP tools for automatic installation and configuration it is possible to install the platform in HA within 2 working days.
The Living Space: Flexibility and Efficiency
The Living Space: Flexibility and Efficiency

Cloudify Architecture

- Universal Service Adapter
  - Installation
  - Service Provisioning
  - Monitoring
- Cloud Controller
  - Deployment
  - Monitoring
  - Scaling Rules
  - Alerting
- Cloud Driver
  - Provisioning
  - Network Configuration
  - Security Configuration

Cloudify stack
- VM deployment
- Management
- Shell

IaaS (e.g., OpenStack)

Presentation Tier
- HTTPS
- SSL

Application Tier
- Tomcat 7.0.50
- Alfresco 4.2.0
- DB
- NFS

Data Tier
- Postgres 9.3
- NFS Share

Layers:
- Public Net
- PaaS
- IaaS
- Bare Metal

Partners:
- INFN
- Almaviva
- Maggioni
- Lascaux
- ESTP
- TERRITORIAL
- JDI
- INFORMATICA
- phoops
- sined
- PUSERVICE.NET
- Filippetti
- SEDA
- 300
- APRA
- Alalley
- elos
- italsol
The Attic: Simplicity and Lightness

(Eco) Sustainability: Reuse, Sharing, Monitoring
The Attic: Application Store

**Full OCP Cloud:**
This is the target solution, integrated with the OCP platform. In this case, the application store enables the portability of the mobile model in the cloud environment, using all the functionalities provided by the IaaS layer, the PaaS layer and the monitoring tools.

**Small and micro environments:**
Software download

**Development:**
Tools to integrate and enrich data and services provided by the OCP platform
The Attic: Monitoring

Applications events

Monitoring IaaS

Monitoring PaaS

Applications Logs

Complex Event Processor

Integration

NoSql (logs)

NoSql (events)

Monitoring

Billing

Logs management
Security and Safety
This framework is based on the most popular international standards:

- Authentication: SAML2/SPID
- Authorization: XACML3
- OAuth2

The development of this framework is the result of the collaboration with the Public Administrations.
Safety: Disaster Recovery as a Service

This solution is based on SymmetricDS that is an open source software for both file and database synchronization.
thank you!