Developing Cloud applications with OCCl

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Outline

• OCCI introduction

• How to use the OCCI API

• INFN OCCI implementation
OCCI introduction

• Open Cloud Computing Interface is an interoperable API for Cloud providers
Adoption

• If you are a Cloud provider that exposes resources to the outside, you should use OCCI
• If you already use a proprietary API, you should think about wrap it around OCCI
• Use OCCI increase interoperability between providers
How it works

GET http://infn.it/compute/instance001-x5
Keys for implementation

• Understand RESTful principles
• Use a REST-capable library
• Understand how CURL (or any other decent HTTP client) works
• Customize the API to fit your needs, until all the extensions will not be in place
INFN OCCI implementation

- OCCI is used to expose a second service that coexists with the T1 Grid infrastructure
- The same pool of resources used for Grid jobs can be used for Cloud requests
INFN OCCI implementation

- Custom security extensions, both for authentication and authorization (X.509, OpenSSH public keys)
- API implemented with industry standards such as Tomcat, Spring, Hibernate, JAX-RS, GWT
- Soon will be opened to the public for testing (and to developers for study)
Application flow

curl -i -H "Accept: occi/text" -X POST \
-H "Category: img_ETICS_sl53; label='eticsVm'" \
--cert x509.pem \nhttps://fenrir.cnaf.infn.it:8443/grid-cloud/ws/compute

OCCI API
JAX-RS

Compute Resource

Thread Pool Executor

LSF Batch System
WNoD

Virtual Machine

Database
Application flow

Application flow

1. curl -i -H "Accept: occi/text" -X POST \
   -H "Category: img_ETICS_s153; label=eticsVm" \
   --cert x509.pem \n   https://fenrir.cnaf.infn.it:8443/grid-cloud/ws/compute

2. Compute Resource

3. Database

4. Thread Pool Executor

   LSF Batch System

   WNoD

   Virtual Machine
Application flow

curl -i -H "Accept: occi/text" -X POST \
-H "Category: img_ETICS_sl53; label=eticsVm" \
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Application flow

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   --cert x509.pem \  
https://fenrir.cnaf.infn.it:8443/grid-cloud/ws/compute
Thanks for your attention