Session 2.3: Interoperability between Clouds at Several Levels

INTRODUCTION by Dana Petcu
Organizers

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Representative of FP7-ICT Contrail

Alessandro Bassi
Hitachi Europe SAS, France
Technical coordinator of FP7-ICT IoT-A
Aim of the session

- offer
  - an image of the SOTA in the field of interoperability between the Clouds

- identify
  - the gaps in research and developments
  - the status of the take-up of the current available solutions
Organization

Part I:
- Challenges
- Position statements

Part II:
- Panel discussion
- Interaction with audience

Note: questionnaires available
Problem statement: why Cloud interop?

SOTA:
- Cloud oriented towards exploitation of vendor infra & services
- Companies are not moving critical apps to Clouds

Interoperability needed for at least:
- Protection of the end user investments in developments
- Development of a Cloud eco-system and market
- Take full advantage of elasticity and pay-as-you-go concept
Complexity of the problem

- Scenarios using multiple Clouds
- Multi-dimensional problem

**POLICY:**
Federate, communicate between providers

**RUNTIME:**
Migration support

**DESIGN:**
Abstract the programmatic differences
**Approaches**

### Levels

- **Business**
  - Strategies, regulations, mode of use

- **Semantic**
  - Function calls and responses
  - Automation, configuration

- **Appl & service**
  - Standards in deployment & migration
  - Protocols for requests/responses

- **Management**
  - Pre-deployment, work-loads
  - Allocation, admission

- **Techs & infrastr**

- **Image & data**

- **Network**

### Techs

- **Domain specific lang.**
  - Automated translation in code

- **Semantic repositories**
  - UCI

- **Abstraction layers**
  - Mediators, frameworks (SLA@SOI)

- **Standards**
  - OVF/DMTF, CDMI/SNIA

- **Open protocols**
  - OCCI, δcloud, jClouds, libcloud, OpenStack

- **Open APIs**
Questions

1. Which are the most prominent solutions for interoperability?
2. Are these approaches appropriate to solve the full spectrum of interoperability problems?
3. Are these taken-up by the application developers?
4. Are these taken-up by the providers?
5. Which are the interoperability requirements of Cloud-based IoT architecture?
6. How the Cloud networking research can support interoperability?
7. Which are the interoperability challenges in the Clouds of large organizations?
Can we found some answers at EC projects?
Panel speakers

Silvana Muscella
Trust-IT Services, UK
Project manager of FP7-RI SIENA,
Representative of FP7-RI Venus-C
Responding to use case requirements
and ensuring cloud interoperability

Francesco D’Andria
ATOS, Spain
Project manager of FP7-ICT Cloud4SOA
Platform-as-a-Service freedom or lock-in

Beniamino Di Martino
Second University of Naples, Italy
Project manager of FP7-ICT mOSAIC
Semantic description and discovery of
Cloud resources and services for
interoperability

Thomas Edwall
Ericsson AB, Sweden
Project manager of FP7-ICT SAIL
Cloud Networking: Network aspects of
the cloud

Yvon Jegou
IRISA-Rennes, INRIA, France
Representative of FP7-ICT Contrail
Interoperability in Cloud Federations

Alessandro Bassi
Hitachi Europe SAS, France
Technical coordinator of FP7-ICT IoT-A
IoT and Cloud
Questionnaire

On-line:
http://amicas.hpc.uvt.ro/survey/

Each 25th respondent will win a book:
“European Research Activities in Cloud Computing”