Break-out session 1
Cloud Computing

Ana M. Juan Ferrer, ATOS & Coordinator, ASCETiC
Lorenzo Accardo, Union Européenne des Petites et Moyenne Entreprises et de l'Artisanat, Clouding SMEs
## Projects & presenters

### Call 10 Lightning Talks
- BigFoot - Marko Vukolic, EURECOM
- CloudSpaces - Marko Vukolic, EURECOM
- CELAR - Ioannis Konstantinou, ATHENA/IMIS
- HARNESS - Alexander Wolf, Imperial College London
- LEADS - Anja Strunk, AoTerra GmbH
- OCEAN - Yury Glickman, Fraunhofer FOKUS
- PaaSage - Pierre Guisset, ERCIM
- CloudScale - Richard Sanders, SINTEF

### Call 10 Lightning Talks
- Ascetic - Karim Djemame, University of Leeds
- CloudCatalyst - Dalibor Baskovc, EuroCloud
- Cloud4Europe - Peter Deussen, Fraunhofer FOKUS
- Clouding SMEs - Lorenzo Accardo, Union Européenne des Petites et Moyenne Entreprises et de l'Artisanat
- CoherentPaaS - Ricardo Jimenez-Peris, Universidad Politecnica de Madrid
- ClouT - Isabel Matranga, Engineering
Plan

◆ Call 8 lightning talks
  ◆ Roundtable - 15 mins
    ◆ Top 5 Cross cutting themes

◆ Call 10 lightning talks
  ◆ Roundtable – to create final list of top 5s + vision for future
    ◆ Top 5 Cross cutting themes
    ◆ Top 5 R&D Challenges not yet addressed
    ◆ Top 5 New collaboration opportunities and new ideas
    ◆ A view to the future: A vision of what the interoperable cloud ecosystem will look like in 2016

◆ Feedback in plenary session by moderators & roundtable participation (16:15 – 17:30)
Big Data Analytics of Digital Footprints
http://www.bigfootproject.eu/
Focus area

- Cross-layer optimized and efficient solution to storage and analysis of large volumes of data
- Building upon existing open source (e.g., Hadoop and Spark)
  - Maintaining standard data analytics APIs

Approach
- Automatic, self-tuned deployments of storage and processing engines (analytics-as-a-service)
- Blending delay-tolerant and latency sensitive analytics combining parallel processing frameworks and distributed databases
- Improving cloud resource allocation for processing engines
- Showcase applications: IT Security and SmartGrid metering data
- Started Oct 2012, ends Sep 2015
Achievements

- **Automated, self-tuned deployment of storage/processing engines**
  - Defined interfaces and algorithms for the design and implementation of automated deployments, which exploit continuous monitoring information of the cloud operating system conditions

- **Storage & DB**
  - Novel cross-datacenter replication schemes, SSD indexing schemes
  - NoDB: a RDBMS that avoids data loading, tailored for querying raw data

- **Blending parallel processing and databases**
  - Designed a distributed NoDB on top of a Hadoop-like engine

- **Processing**: size-based resource allocation mechanisms that allow better resource utilization, fairness and performance

- **Applications**: Classification of security/energy data, forecasting power consumption
Future plans

- Self-tuned deployments of storage/processing engines
  - Analytics-as-a-service

- Potentially consider AWS CloudFormation emerging standard

- Storage/Processing
  - Practical validation of initial designs, Implementation

- Open sourcing
Open Service Platform for the Next Generation of Personal Clouds

www.cloudspaces.eu
Focus area

- Personal cloud platform for (and controlled by) SMEs
  - as well as European IaaS providers and public institutions

- CloudSpaces Storage: scalable data management
- Cloudspaces Share: interoperability (vendor lock-in) and privacy issues
- CloudSpaces Services: high-level infrastructure for third party apps

- Main Outcome: StackSync
  - An open source personal cloud built on top of OpenStack Swift
- Deployment models: Private (StackSync-P) and Hybrid (StackSync-H) cloud
Interoperability & Portability

- Overcomes vendor lock-in risks thanks to open interoperability APIs (Store, Share and Persistence)

- Interoperability verification with Canonical’s Ubuntu One

- Porting data across multiple public clouds (StackSync-H)

- Third party APIs (EyeOS’s Cloud Desktop)

- Built on OpenStack
Achievements

- [www.stacksync.com](http://www.stacksync.com)
  - StackSync-P (beta) available
- [hybris.eurecom.fr/code](http://hybris.eurecom.fr/code)
  - StackSync-H back-end available (hybrid cloud key-value store, codename Hybris)
  - 2014 Qualcomm Innovation Fellowship Finalist
- Privacy-aware sharing component designed
- Interoperability APIs designed

Next Steps
- CloudSpaces-H integration
- TISSAT to explore deploying StackSync as IaaS provider
- EyeOS integration with Cloud Desktop
- Further commercialization (academia, providers, companies, public organizations)
Automatic, Multi-Grained Elasticity-Provisioning for the Cloud

Nectarios Koziris and Ioannis Konstantinou
ATHENA R.C.
Focus Area

• Elasticity for cloud applications
  – User defined scaling policies
  – Automatic fine grained elasticity based on smart decision making and monitoring
  – Support for arbitrary applications and cloud providers through app modeling
  – Real-time adaptation to workload changes

• To deliver
  – True pay-as-you go for any app, cloud, policy
  – Avoid over-provisioning and under-provisioning
Interoperability and Portability

• TOSCA adoption
  – Standard for app description and submission
  – Extend to support elasticity requirements
    • Define available elasticity actions per module

• Support for multiple cloud platforms
  – Openstack compliant
  – JClouds and libcloud libraries
  – Deployment over Flexiant’s FCO and GRNET’s ~okeanos
Achievements and Future Plans

• Fully functional first version prototype
  – Opensourced at http://github.com/CELAR
  – Deployed at ~okeanos premises
  – Successfully manages a NoSQL cluster
    • Add/remove nodes according to applied workload and different policies (watch demo)

• Future plans
  – Perform fine-grained elasticity
  – Enhance decision making and app description tools
  – Offer a single downloadable celar package
The HARNESS Project:

Hardware- and Network-Enhanced Software Systems for Cloud Computing

Prof. Alexander Wolf
Imperial College London
(Project Coordinator)

FP7-ICT-2011-8 Objective 1.2
Grant agreement 318521

http://www.harness-project.eu/
Focus: Enrich IaaS and PaaS Cloud Strata

Provide an IaaS layer that can manage *heterogeneous resources*
- computation/communication/storage
- resource allocation and scheduling

Provide a PaaS layer that can exploit *heterogeneous resources*
- multi-tenancy
- application development
- cross-resource allocation and scheduling
Driving Use Cases
basis for demonstration and validation

Delta Merge for SAP HANA
in-memory OLTP and OLAP queries for "big data" analytics

Reverse Time Migration (RTM)
scientific computation for the geosciences

AdPredictor Machine Learning
open-source "map/reduce" data-flow distributed computation

Today: batch processing $O(10^9)$ entries in daily Web visit log
An Experimental Platform Architecture

Application design

Performance prediction and cross-resource mgmt.

Individual-resource mgmt.

Resource virtualisation
Mike’s Story: Exploiting HARNESS
http://www.harness-project.eu/

Featured technologies

– ConPaaS, the HARNESS platform management layer
– XtreemFS, the HARNESS storage resource manager
– Elastic heterogeneous computing with dataflow engines
– Programming cloud applications with aspect-oriented designs
– Software dataplane verification for programmable routers
– NaaS system for in-network processing in data centres
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Imperial College London
(Project Coordinator)

FP7-ICT-2011-8 Objective 1.2
Grant agreement 318521
LEADS – Large-Scale Elastic Architecture for Data-as-a-Service

Dr. Anja Strunk
AoTerra GmbH
Königsbrückerstraße 96
01099 Dresden, Germany
Focus Area

- A wealth of public data available on the Internet
- However, crawling, storing, and querying such amounts of data is expensive and requires a complex infrastructure

**LEADS**: Decentralized Data-as-a-Service (DaaS) framework providing means to gather, store, and query publicly available data at low costs

- Start date: 01-Oct-2012
- Duration: 36 month
- Funding: 2.89 M€
Interoperability & Portability

- Java based implementation re-using open source projects
- REST-based API
OCEAN Services for Open Cloud Projects

Yuri Glickman | Concertation Meeting - E2 Software & Services, Cloud Computing
12-13 March 2014 | Brussels, Belgium

www.ocean-project.eu
OCEAN Mission

- OCEAN – Open Cloud for Europe, Japan and beyond
  FP7-ICT-2011-8 Support Action Project

- to foster the emergence of a sustainable Open Source Cloud offering and boost market innovation in Europe, by generating greater efficiency and economies of scale among European FP7 collaborative research projects on Open Source Cloud Computing

- to support collaboration between Japanese and European research and Open Source projects on cloud computing
OCEAN Cloud Interoperability Framework
Mapping Open Cloud projects outcomes to a Cloud Reference Architecture

Your Cloud Project

Asset
Asset
Asset

Open Cloud Interoperability Framework

Roles/Activities
• How stakeholder tasks and responsibilities are supported

Functions/Components
• Architectural layers multi-layers

Technologies/Standards
• Support for Interoperability

Cross-cutting aspects
Open Cloud Directory: [www.ocdirectory.org](http://www.ocdirectory.org)
- Online registry of open source/licensed outcomes of cloud R&D projects
- Integrated **Open Cloud Interoperability Framework** → complementarities and overlaps of projects
- Evaluation results: code evaluation, interop plug experiments

Program code quality validation service
- Based on ETICS - Build, Test and Quality verification support service.
- Implements the SQALE¹ quality model

Interoperability and Collaboration events
- April 9-10 2014, Cloud World Expo/Open Cloud Forum in Paris
- 15 May 2014, Cloud Projects Collaboration Day in Brussels
- 16 May 2014, Research on Clouds and IoT in Europe and Japan (with SUCRE and ClouT)

¹[http://www.sqale.org/](http://www.sqale.org/)
www.ocean-project.eu
Contact: Yuri Glickman
yury.glikman@fokus.fraunhofer.de
THE OPENi CONCEPT

Sinead Quealy - TSSG

Concertation Meeting
Brussels March 12th & 13th
OPENi – Why?

- Inspire innovation in the European mobile applications industry.
- Re-instate the consumer to the centre of the application value chain.
  - Enable them to control and take advantage of their data.
  - Empower them to demand more from their applications
    - Single dimension applications are not enough!
- Develop a European centre of excellence.
  - Promoting co-operation and openness across the EU space.
OPENi – Key Concepts

1. OPENi is building a common framework of web APIs to support seamless integration of existing cloud-based services into applications in a platform-independent way.

2. OPENi is building a number of service enablers that exploit and enhance the richness of features available to OPENi application developers.

3. OPENi is enabling consumers that access cloud-based services through their applications to store and manage their personal data and content.
OPENi - Harness your Digital Footprint
HIGH LEVEL ARCHITECTURE

- Separation of Concerns.
- Cross platform communications is API based.
- Cloudlet Platform.
- API Platform.
- Registry.
CLOUDLET PLATFORM

- The OPENi cloudlet platform is a single location to store and control personal data.
- Consumers will remain in control of their data.
- The control mechanisms will be inherently secure and trustworthy.
- As an open technology, validated by the open source community, consumers will be assured their data is not being used without their consent.
- The OPENi Cloudlet Platform Standard defines a number of key components that make up the Cloudlet Platform.
PAA SAGE

Model Based Cloud Platform Upperware

Define your application once

Deploy it at the full spectrum of the Clouds

CloudWatch Concertation Meeting, Brussels, 11-12/03/2014
Pierre Guisset (ERCIM) & Lutz Schubert (UULM)
FP7 ICT Call 8 – GA 317715 – 10/2012 -> 09/2016
Focus area

To deliver

• an open and integrated \textbf{platform} to support both design and deployment of Cloud applications,
• together with an accompanying \textbf{methodology} that allows model-based development, configuration, optimisation, and deployment of existing and new applications
• \textit{independently} of the existing underlying Cloud infrastructures.
## Expected deliverables & Standards

<table>
<thead>
<tr>
<th>1. A Cloud modelling language</th>
<th>CAMEL: a language over a collection of DSLs</th>
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<tbody>
<tr>
<td>2. A speculative profiler</td>
<td>To characterise the application</td>
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<tr>
<td>3. An intelligent stochastic reasoner</td>
<td>To propose deployments</td>
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<td>4. A functional adaptation engine</td>
<td>To adjust deployments to remain within SLA/QoS</td>
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<td>5. A metadata database</td>
<td>Knowledge base of requirements, deployments and open community</td>
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<tr>
<td>6. A set of mappers</td>
<td>To target platforms</td>
</tr>
<tr>
<td>7. A monitoring solution</td>
<td>To ensure the deployment remains within SLA/QoS</td>
</tr>
<tr>
<td>8. A minimal, distributed execution engine</td>
<td>To manage execution in a uniform way on different platforms</td>
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Achievements to date & future plans

Achievements to date

- PaaSage architecture defined
- Use cases & requirements
- CAMEL definition & specs
- PaaSage – Enlarged
- Exploitation planning

Short term plans

- Integrated prototype available in summer’2014
- “Product” to be delivered at end’2015
Thanks

Attendants to concertation meeting:
  pierre.guisset@ercim.eu
  Philippe.massonet@ctic.be
  lutz.schubert@uni-ulm.de

Scientific coordinator:  keith.jeffery@ercim.eu
Project coordinator:  tom.williamson@ercim.eu

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement n°  317715
CloudScale

Scalability Management for Cloud Computing

Richard Sanders, SINTEF
Sebastian Lehrig, Univ. Paderborn
1. Extracting Model

2. Predicting Scalability

3. Detecting Scalability Problems

4. Resolving Problems

CloudScale’s Extractor extracts models from existing code.

CloudScale’s Analyser predicts scalability at design time (e.g., costs for serving an increasing number of customers).

CloudScale’s Spotter detects scalability problems (CloudScale Scalability Anti-Patterns) and their root causes.

CloudScale’s HowTos provide guidelines for solving scalability issues.
Achievements to date

- First versions of integrated methods and tools
  - Used and evaluated by SAP and Ericsson (ENT)
  - Open source results on GitHub
- Spin-off open result: CloudStore
  - github.com/CloudScale-Project/Showcase
  - System as Service scenario
  - Migration scenario to cloud
  - Contact us here!
Future plans

- 2\textsuperscript{nd} main release of tools due Oct 2014
  - Open source results on GitHub: CloudScale-Project
  - External evaluations welcome!
- Project ends Oct 2015
- Afterlife:
  - Existing open source community around Palladio Simulator
Adapting Service lifecycle towards Efficient Clouds

Ana Juan Ferrer
Head of SEITP Lab
ASCETIC Coordinator

Dr. Karim Djerame
Senior Lecturer
Scientific and Technical Manager

Project Number 610874
Instrument Collaborative Project
Start Date 01/10/2013
Duration 36 months
Thematic Priority ICT-2009.1.2 - Internet of Services, Software and Virtualisation
ASCETiC Focus Area

- Identification of the missing functionalities to support energy efficiency across all cloud layers
- Definition and integration of explicit measures of energy and ecological requirements into the design and development process for software.

Develop models for software design, supporting energy efficiency at all stages of software development and execution.

Develop and evaluate a framework with identified energy efficiency parameters and metrics for cloud services.

Integrate energy efficiency into service construction, deployment, and operation leading to an Energy Efficiency Embedded Software Lifecycle.
Relevant Standards for Interoperability and Portability

- An architecture capable of self-adaptation to improve the energy and eco-efficiency profile at runtime while keeping the quality of service at a user-chosen level
- Reference implementation
  - a cloud stack integrating energy efficiency into service construction, deployment, and operation leading to an Energy Efficiency Embedded Service Lifecycle.

The GreenGrid
Improve the resource efficiency of information technology and data centers.

COST804
IC0804 - Energy efficiency in large-scale distributed systems

ISO
ISO/IEC J TC1-SC 7 on Software and Systems Engineering (SSE), and ISO J TC 1-SC 38 on Distributed Application Platforms and Services (DAPS).

OGF-OCCI
Open Grid Forum - Open Cloud Computing Interface

DMTF-OVF
Distributed Management Task Force

SNIA-CDMI
(Storage Networking Industry Association- Cloud Data Management Interface)

Under study: OASIS CAMP and TOSCA
Achievements and next steps

- **State of the art, Initial Market Analysis, Business Goals and Technical Requirements**
  - SoTA for Full-Service Life-cycle and Economics of Green Clouds
  - Stakeholders in Full Cloud Development & Service Life Cycle
  - Conducted 17 interviews with stakeholders to extract business goals
  - Technical requirements for ASCETiC components and Use Cases

- **Specification of the ASCETiC architecture (year 1)**
  - architectural roles, scope and interfaces of ASCETiC components
  - components’ communication patterns
  - SaaS, PaaS and IaaS layers

- **Testbeds set-up**

- **Dissemination and Collaboration opportunities**

- **Iteration 1 (Y1): Static Energy-Efficiency:** This iteration will concentrate on delivering energy awareness in all system components. Monitoring and metrics information will be measured at IaaS level and propagated through the various layers of the Cloud stack (PaaS, SaaS) considering static energy profiles.

- **Initial exploitation interests**

- **Collaboration and Dissemination activities**
Thank you for your attention
CloudWATCH E2 Connect Concertation meeting
12-13 March 2014 _lightningtalkECE
Boosting EU Competitiveness with Cloud Computing
SME & Industry Perspectives
Unit E2 Software and Services, Brussels
Dalibor Baskovc, VP EuroCloud Europe,
Chairman EuroCloud Slovenia,
Agenda

• Project Background
• Challenge for Interoperable European Cloud Ecosystem
• Achievements to date & Future plans
Launch a set of actions to foster the emergence of a strong and enthusiastic community of cloud adopters and supporters in Europe:

1. Support entrepreneurs, researchers and software developers to create value-added Cloud products and services;
2. Increase the awareness of Cloud Computing benefits and positive impact in the European economy and ensure project sustainability

**Project title:** Reenergize productivity, efficiency and competitiveness of European economy through Cloud Computing

**Project number:** 612053

**Project coordinator:** PORTUGAL TELECOM

**Duration:** 24 month (started Oct 2013)

**Total cost** - € 615 000,00

**Website**

[www.cloudcatalyst.eu](http://www.cloudcatalyst.eu)
Challenge for Interoperable European Cloud Ecosystem

◆ Challenge: Insufficient interoperability due to
  ◆ large data transmission and inadequate bandwidth
  ◆ proprietariness of services and APIs (vendor lock in)
  ◆ security and data privacy

◆ Our Scope: Identify the critical success factors to
  ◆ overcome the current technical challenges for Cloud expansion
  ◆ supporting different Cloud providers in the implementation of these solutions.
The main outputs

- Accelerator toolbox, which will include guidelines, best practices and management tools for accelerating the development of innovative and disruptive Cloud Computing services and products collection;
- Online service for information sharing and dissemination, coaching and consulting to EU entrepreneurs and SMEs and other key stakeholders interested in the development and implementation of cloud solutions.
Achievements to date & Future plans

◆ Achievements
  ◆ Specification of the basic methodology to foster current usage according in
    ◆ key economic sectors (Government, Mass media, Healthcare, Information technology, Banking, Education)
    ◆ within seven countries, Portugal, Spain, Slovenia, Germany, Poland, France, UK.
  ◆ Compilation of reports, studies, analysis, case studies, success stories, legal requirements for Cloud Services

◆ Future plans
  ◆ To provide a common understanding platform for all different types of cloud stakeholders –
    ◆ stimulating the provision and consumption of services efficiently in compliance to established cloud business strategy patterns.

◆ The Dissemination and Communication Strategy will clearly target three major groups:
  ◆ The software development and scientific community developing and deploying cloud computing solutions;
  ◆ Incubators on local, national and European wide levels;
  ◆ Large industries, SMEs, Startups and entrepreneurs with a high need flexible and scalable solutions
Questions??

info@cloudcatalyst.eu

Dissemination coordinator:
Dalibor Baskovc - Dalibor.baskovc@eurocloud.org
• CSA-CP for PCP under FP7
• 25 partners from 12 states
  • AT, BE, DE, EE, ES, FI, IL, IT, NL, PT, SI, TR
• Two main phases:
  1. Preparation of the PCP tender (by consortium)
  2. Cloud services through joint PCP (from industry)
    • At present procures from IT (lead procurer), NL, PT, SL, RO
• Budget: ~ 13,5 M€ (~ 9,5 M€ for PCP)
• Start date: 1st June 2013 – November 2016, 42 month
Project main Objectives

• Enable public sector Cloud use
  • in an open dialogue between public sector and industry
  • establish awareness on the potential of cloud computing
  • Define solutions for public sector cloud use

• Bear down uncertainties on legal aspects
  • address issues on data protection, security, contractual aspects
  • relate legal aspects to cloud services in question

• Support related research from industry
  • pilot services that improve public sector needs
  • risk-benefit sharing through PCP where industry can later commercialize
  • Bring innovation to the public sector
  • Industry prepared through the PCP research and experience to meet public sector needs
Service Requirements (1st list)

• Cross-border trust of cloud providers within Europe
• Enable pan-European Cloud market
• Jurisdiction-aware infrastructure (e.g. location of data)
• Security provisioning services (eID, encryption, signature, data protection)
• Data and service portability
• Building trust (Cloud certification, Cloud seals)
Project Phases

Tender preparation (14 months)

Berlin Launch Event Nov. 2013

Industry Consultation March 2014

PCP operation (18 months)

Tender July 2014

Share (6 m.)
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CloudingSMEs : Accelerating the adoption, deployment and use of Cloud Computing by SMEs

(http://www.cloudingsmes.eu)

Lorenzo Accardo (l.accardo@ueapme.com)
CloudingSMEs Goals

Facilitate / Boost the accelerated and more effective adoption of cloud computing by European SMEs

- Facilitate SMEs to adopt and fully leverage Cloud Computing Solutions (demand-side goal)

Provide directions to ICT SMEs in order to enable them to innovate in cloud computing

- Facilitate SMEs to build innovative cloud-computing solutions (supply-side goal)
Tangible Results of the Project (1)

- **Tangible Result #1**: Development and support of a sustainable pan-European SME community on Cloud computing
- **Tangible Result #2**: Production of a vision document reflecting the common voice of SMEs in terms of cloud computing issues
- **Tangible Result #3**: Building the SME community and provide support and training through the multilingual SaaS PROMIS® platform which will be tailored to the CloudingSME’s needs. It will include tools and templates for cloud adoption issues
  - E.g., selection of cloud vendor/provider, conduction of techno-economic analysis, assessment of data protection issues, successful confrontation of legal/contractual issues, negotiation of SLAs
Tangible Results of the Project (2)

- **Tangible Result #4**: A Catalogue of Best Practices and guidelines for policy development that will foster the adoption of cloud computing within SME communities (of both the demand- and of the supply side).
  - To be provided both as an online interactive catalogue and as a publication

- **Tangible Result #5**: A dissemination and awareness raising campaign comprising various activities
  - It will spread the key messages and outcomes of CloudingSMEs to more than 90,000 SMEs.
CloudingSMEs: Toolbox Tools

Cloud Security ScoreCard: Access the Security of Cloud Services

TCO Calculator: Compare Costs of Data Center vs. Cloud Solutions
Toolbox Tools and Interoperability

- **Cloud Services Catalogue**
  - A Directory of Cloud Services (Meta-data)
  - Including Regional/National Services Provider

- **Cloud Services Standards**
  - A Catalogue of Cloud Standards
  - Including Standards for Interoperability & Portability (e.g., OGF’s OCCI, SNIA’s CDMI, Delta Cloud)
SME Community Building Efforts (in progress)
- Feedback for setting-up and improving our services (e.g., Toolbox)
- Feedback regarding SME needs – Common Voice of SMEs

Best Practices Development and Guidelines for Policy Development
- Tailored to SME Needs
- Serving the Longer Term Vision of Cloud Adoption
ClouT
Cloud of Things for empowering the citizen clout in smart cities

Isabel Matranga
(Engineering Ingegneria Informatica SpA)
**Project overview**

- Joint European-Japanese project
- Start - End date: 1st April 2013 – 31st March 2016

ClouT will provide infrastructures, services, tools and applications to make cities smarter.
Major outputs

Trillions of things and people that are integrated via virtual services in the Cloud

Set of platform level tools and services to facilitate IoT application development, employment and Supervision

Secure data access and processing mechanisms that can handle big data acquired from the heterogeneous sources.
Field trials in 4 pilot cities

- Participatory sensing
  - Participatory citizen
  - Sensing loop citizens

- Urban context-aware
  - Multi-modal transportation
  - Event perception support
  - Interactive city infrastructures
  - Sharing IoT devices in the Cloud
  - Augmented mobility

- Safety, emergency and health management
  - Risk warning and management
  - Caring for elderly people
  - Health and active walking support
For further information

http://clout-project.eu/

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Questions?

Thank You  
ありがとうございます
CoherentPaaS
Coherent and Rich PaaS
with a Common Programming Model

Concertation Meeting
Brussels – 12th-13th March 2014

Ricardo Jiménez-Peris
Universidad Politecnica de Madrid
Many Clouds applications are being built today with a combination of cloud data management technologies: NoSQL, SQL and Complex Event Processing (CEP).

Unfortunately, this ad-hoc combination results in two main difficulties:

- Lack of transactional consistency across data stores.
- The application has to deal “programmatically” with queries across data stores.
CoherentPaaS fills the current gap for building cloud applications with multiple data stores by:

- Providing holistic ultra-scalable transactions that enable to perform transactions across data stores.
- Providing a common query language that enables to make queries over multiple cloud data stores (e.g. a join across different data stores) and with the possibility of including subqueries written in the native query language/API of the underlying data stores.
The project is motivated due to the gap in the market to support cloud applications that require multiple data stores.

A startup is being created that will commercialize the holistic ultra-scalable transactions plus its integration with some of the cloud data stores and a SQL engine.

Several startups participate as partners that will commercialize their enhanced cloud data stores in partnership with the startup to enable to develop applications with holistic transactions.
The research leading to these results has received funding from the EC Seventh Framework Programme FP7/2007-2013 under Grant Agreement n° 611068.