What is at stake?

Cloud as a growth engine

Boost GDP:
- €940 bn cumulative impact for 2015-2020
- €250bn in 2020

Boosts productivity and efficiency:
- Up to 90% of cost savings for public administrations and private companies

Business creation:
- 400,000 new SMEs

Potential for job creation:
- 3.8 million cloud-related jobs
Several strategic technologies such as Big Data and Cloud computing are important enablers for productivity and better services. Cloud computing should improve access to data and simplify their sharing. Big Data aims to process, collect, store and analyse large amounts of data. 

EU action should provide the right framework conditions for a single market for Big Data and Cloud computing, in particular by promoting high standards for secure, high-quality and reliable cloud services.

The European Commission and the Member States, with the support of the "European Cloud Partnership", should continue to make every effort to put Europe at the forefront of cloud adoption.

The European Council calls for the establishment of a strong network of national digital coordinators which could play a strategic role in Cloud, Big Data and Open Data development."
The European Commission's strategy 'Unleashing the potential of cloud computing in Europe'

Adopted on 27 September 2012, it is designed to speed up and increase the use of cloud computing across the economy.

Cloud strategy's key actions:
- Cutting through the jungle of technical standards
- Development of model 'safe and fair' contract terms and conditions
- A European Cloud Partnership to drive innovation and growth from the public sector.

Groups working on implementing the strategy:
- ETSI: Cloud Standards Coordination - Launched on 4-5/12/2012
- The Cloud Select Industry Group on Certification Schemes - Launched on 21/02/2013
- The Cloud Select Industry Group on Code of Conduct - Launched on 10/04/2013
- The Cloud Select Industry Group on Service Level Agreements - Launched on 21/02/2013
- Steering Board Cloud for Europe - Launched on 19/11/2012
- The European Cloud Partnership - To be launched in 11/2013
Progress

• Key action 1:
  • **Standards mapping by ETSI**
    – Cloud Standards Coordination Conference Brussels 11/12/2013
  • **List of certification schemes**
    – ENISA list and meta-framework mid 2014
    – Pilots 2014

• Key action 2:
  • **Cloud Service Level Agreements**
    – Draft Templates end 2013
  • **Code of conduct (data protection)**
    – Stable draft Jan 2014,
    – to Art 29 WP, endorsement during this Commission
  • **Cloud Contract Group**
    – Launched 19/11/13

• Key action 3
  • **Cloud 4 Europe project**
    – Official launch 14 November 2013
    – Pre-notice April, tender early summer 2014
European Cloud Computing Strategy

Part II Details
Cloud Standards Mapping

- Launched in December 2012
- **Workshop in Cannes, co-organized by EC, 200+ participants**
- **Definition of work structure: 3 TGs, a coordination group (‘reference’)**
  - TG1 for definition of Roles and TG2 for collection of Use Cases
  - TG3 in charge of Use Case Analysis and Production of the Report

Reference Group (Coordination level)

**Task Group 1**
- Stakeholders
- J. CHAWKI, FT
- M. DEKKER, ENISA
- D. CATTEDU, CSA

**Task Group 2**
- Use Cases
- M. BANZI, Telecom Italia
- T. LANDERS, Microsoft

**Task Group 3**
- Identification of Standards
- E. DARMOIS, ALU
- J. FRIEDRICH, IBM

- Sub-TG SLAs
  - B. BECKER, Eurocloud
  - P. DICKMAN, Google

- Sub-TG SECURITY
  - M. DEKKER, ENISA
  - D. CATTEDU, CSA
  - G. JANSSON, oasis

- Sub-TG INTEROP
  - A. B TOUIMI, Huawei
  - D. STERN, FT

Draft Report

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

ETSİ Support: Laurent Vreck

Interim report to EC

Final Report
A view of Cloud Standardization

• The final Report provides the following technical results:
  • A definition of the roles in Cloud;
  • The collection and classification of over 100 Cloud Use Cases;
  • A list of around 20 relevant organizations in Cloud Standardization and a selection of around 150 associated documents, Standards & Specifications as well as Reports & White Papers;
  • A classification of activities that need to be undertaken by Cloud Service Customers or Providers over the whole Cloud Service Life-Cycle;
  • A mapping of the selected Cloud documents (in particular Standards & Specifications) on these activities.

• And conclusions on the status of Cloud Standardization
  • general aspects (fragmentation, etc.)
  • specific topics of Interoperability, Security & Privacy and SLA.
Activities mapped with Standards and Specifications (and other documents)

- Analysis of 5 Use Cases have identified activities through the Cloud Service Life-Cycle phases
  - 3 phases: Acquisition, Operation, Termination
- Relevant documents from selected SDOs mapped with the activities
  - Standards & Specs (and related R&WP)
  - Identification of standards needed

<table>
<thead>
<tr>
<th>Activity</th>
<th>Short Summary</th>
<th>Related Standards &amp; Specifications</th>
<th>Related work</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN_1.0</td>
<td>Requirements specification</td>
<td>None at this time. Standards needed.</td>
<td>This is on-going work at TMF, OGF, OASIS, ODCA, ... FP7 projects results: SLA*, SLAware, ... see [FP7-SLA].</td>
<td>Such standards may help comparison of providers.</td>
</tr>
<tr>
<td>GEN_1.0a</td>
<td>Security &amp; Privacy Requirements specification</td>
<td>[CSA2] Security Guidance</td>
<td>Certification created by the FP7 Europrise project.</td>
<td>Europrise specifications is a standard of privacy requirements compliant with DP legislation.</td>
</tr>
</tbody>
</table>
Main conclusions

NO Jungle of Standards

Enough Standards to start with

Despite new standards coming, some gaps identified

Foster collaboration to ensure no fragmentation happens
Identified EXISTING Certification schemes

- Cloud Security Alliance – Open Certification Schema
- SOC / ISAE 3402 / SSAE16
- ISO 27001
- Eurocloud Star Audit
- LeetSecurity Rating
- Europrise
- TÜV Rheinland
- Cloud Industry Forum Code of Practice
- ISACA - COBIT
- PCI-C
- Fisma
- ISO 20000 / ITIL
- ISACA - COBIT

Initial Evaluation

- **Data security:** recognized standards/schemes, but only few fit for cloud purpose
- **Data protection:** no recognized standards/schemes yet
- **Lack of transparency** about some schemes (recognition, scope, added value, etc.)
- No **one-stop shop** in EU
Solutions

- Listing certification schemes
  - Anything can get on the list
  - Characteristics that can be objectively assessed/discussed
  - Who governs the scheme, who audits, what is the standard
  - A process for adding/updating schemes

- Meta-framework to be developed by ENISA
  - Part of ENISA’s WP for 2014
  - High level security objectives
  - Detailed auditable security measures
  - Security measures divided in levels
  - Mapping to existing schemes
  - Close collaboration with CERT-SIG
  - First draft due mid 2014
  - Pilots ECP?
## SLAs: Creating A Common Vocabulary of Understanding

<table>
<thead>
<tr>
<th>Purchaser’s Dilemma</th>
<th>SIG SLA Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Cloud Contracts are not comparable and use different definitions”</td>
<td>Template SLAs and Terms and Conditions</td>
</tr>
<tr>
<td>“I don’t know which Cloud Delivery Options are right for my specific need”</td>
<td>Cloud Decision Flowchart</td>
</tr>
<tr>
<td>“I don’t know if I have considered the most important aspects for this contract”</td>
<td>Cloud Contract Checklist</td>
</tr>
</tbody>
</table>
Service Level Agreements Templates Increase Understanding and help focus on key Contract Topics

Agreement within SIG about initial set with 11 important attributes to define standard options for SLAs and contracts

<table>
<thead>
<tr>
<th>Access</th>
<th>Trust</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of service</td>
<td>Auditability</td>
<td>Data privacy conditions</td>
</tr>
<tr>
<td>Problem Resolution</td>
<td>Certification and Compliance</td>
<td>Data Location</td>
</tr>
<tr>
<td>Reporting and Quality of Service</td>
<td>Limitations</td>
<td>Security Provisions including backup and disaster recovery</td>
</tr>
<tr>
<td>Data Portability</td>
<td>Penalties</td>
<td></td>
</tr>
</tbody>
</table>
Key Project Facts

- CSA-CP for PCP under FP7
- 24 partners from 11 states - AT, BE, DE, EE, ES, FI, IT, NL, PT, SI, TR
- Main phases:
  1. Preparation of PCP tender + dissemination
  2. Cloud services through joint PCP (industry)
     - Currently procures from AT, ES, FI, IT, NL, PT, SI
- Budget: ~ 13.5 M€ (~ 9.5 M€ for PCP)
- Start date: 1st June 2013