Cloud for Europe – lessons learned
Public sector challenges

- active participation
- establishing key enablers
- user needs
- access to public information
- reduced administrative burden
- seamless e-government services
- strengthening citizens and businesses
- improved organisational processes
- increased transparency
- sustainable low-carbon economy

Public sector cloud use as a collaboration between public authorities and industry through pre-commercial procurement.
Our Mission

Cloud for Europe brings together public authorities and industry to support public sector cloud use.

• Identify **obstacles** for cloud use in the public sector
• Define **services** that overcome those obstacles
• Procure research from industry to find **innovative solutions** for cloud services
Expected Outcomes

• Public sector in Europe is empowered to procure cost-effective, secure and reliable cloud services

• Pre-commercial procurement terms, do's and don'ts, opportunities and pitfalls are understood

• Industry prepared through the PCP research and experience to meet public sector needs
Pre-Commercial Procurement (PCP)

PCP is one particular approach for **procuring R&D services** only, which enables public procurers to:

- **Develop solutions** for concrete public sector needs, whilst comparing/validating alternative solution approaches
- **Share risks and benefits** with participating companies in a way that does not involve State Aid
- **Create optimal conditions for wide commercialisation** of R&D results
Joint cross-border PCP

Combining the procurement actions of all the contracting authorities

Only **one tender** published on behalf of all participating authorities (in English)

Only **one entity** awarding the resulting R&D service contracts for all PCP phases on behalf of all participating authorities

(Lead Procurer: AGID, Italy)
PCP Operation

Tender preparation (14 months)

PCP operation (18 months)

Share (6 m.)

1. Solution exploration (4 months)

2. Prototype (8 months)

3. Test Products / Pilot (6 months)

- Tendered through functional specific
- Framework contract governs 3 phases
- Industry keeps IPR

Company A

Company B

Company C
Benefits

FOR INDUSTRY
- International leadership in new markets
- Shorter time to market
- Wider market size
- Shared risks and benefits
- IPR

FOR PUBLIC PROCURERS
- Better quality products
- Opportunity to share development risks with suppliers – license free use for procurers

FOR CITIZENS & POLITICIANS
- Quality and efficiency of public services
- Highly qualified employment
- Attracting foreign investment
- Optimising public R&D spending

. This project is partially funded by the European Union’s Seventh Framework Programme: FP7-ICT-2013-10 and Grant agreement no: 610650
Process – Gaps ...

MIND THE GAP
### Challenges addressed

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Process – Service Definition Timeline

SoA and Gap Analysis

1. Collect / diverge
2. Consolidate through stakeholder dialogue
3. Select for PCP Tender – July 31

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## Service List Overview

### Piloting Services

1. Basic Communication  
2. Document Mgmt. and Collaboration  
3. Customs Supply Chain  
4. Customs Data Pipeline  
5. Legislation-Aware Storage  
6. European Citizen Initiative  
7. Archive as a Service  
8. Secure Personal Data and Document Vault  
9. Documents and Files Interoperability Node  
10. eDocument Service  
11. Restful Secure Distributed Collaboration Tools  
12. Legislation Executing Cloud Services  
13. Personal Digital Asset Service

### Horizontal Services

1. eID as a Service  
2. Encryption as a Service  
3. Independent Third Party Assurance  
4. Public Administration Cloud Services Broker  
5. Cloud Certification as a Service  
6. Resilient Open-Source Cloud Services Stack  
7. Changing the Cloud Provider
Service List Consolidation

Piloting Services

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Horizontal Services

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Services as solutions to be procured

• Federated Certified Services Brokerage for EU Public Administration Cloud

• Secure Legislation-Aware Storage

• Legislation Execution Cloud Services
Status quo

• Cross-border cloud services must be secure in terms of country and EU legislation, privacy protection and security
• Current fragmentation can be overcome by federated EU public administration cloud
• Dynamic real time cross-border service certification monitoring

Issues to be solved

• **Interoperability**
  (service governance, data portability, identity propagation)
• **Service certification**
  (architecture of components, automated certification)
• **Legislation awareness**
  (legislation compliance, definition and assessment, interface for legislative changes propagation)
Secure Legislation-Aware Storage

Status quo

• Limited service offers for legislation awareness and security mechanisms to ensure integrity
• Encryption performed by the user or cloud provider claims to encrypt
• Cloud storage offering often not clearly perceived as legislation compliant
• Multi-legislation requirements difficult and expensive to satisfy

Issues to be solved

• Establish trust by contractual means
• Simplify selection/procurement of legislation compliant cloud (storage) services
• Create tools to manage citizen access rights to personal data in a legislation compliant way
• Tackle multiple regulations concerning the storing of data: archiving, disclosure, and restricted access to backups
Legislation Execution Cloud Services

Status quo

- Some legal barriers lead to no go decisions for cloud adoption
- For sensitive data only private or community clouds are used
- Example: no automatic notification of unauthorised access to data owner and service provider

Issues to be solved

- Developing a cloud service that meets requirements imposed upon cloud actors by national or international legislation

Possible solutions

- A framework (methodology, guidelines, specifications)
- Generic services to be combined with business services
- Services, integrated with business services
Federated Certified Service Brokerage for EU

Abstract / use case

Cloud Services User in Public Administration should have absolute guarantee that cross-border provided services are secure in terms of country and EU legislation, privacy protection and security. Otherwise PA customer will use only his country PA Cloud Services.

Country PA Clouds are heterogeneous (...Governmental Clouds, ENISA, 2013) at different stage of development and the only realistic way how to overcome fragmentation is creation of federated EU PA Cloud.

It is extremely complex task to provide guarantee of compliance with all country PA needs and restrictions in environment of federated heterogeneous EU PA Cloud when using cross-border cloud services.

Important part of guarantee provided should be dynamic real time cross-border service certification within Federated EU PA Cloud.
Federated Certified Service Brokerage for EU

State of the Art

ENISA study shows that 10 of 18 reviewed countries have been created government Private or Community Clouds which are closed, secure, country legislation-aware environment. These PA will open only if Federated PA Cloud should provide the same level of secure, legislation-aware, cross-border environment.

Cloud Service Brokerage is rapidly growing category of cloud computing but Gartner Hype Cycle graph(2013) shows it is still in its initial phase with estimated 5-10 years to reach “plateau of productivity”

There is not Cloud Service Brokerage available for Federated PA Cloud

Certification schemes are mostly static ones. Other cloud related certification programs certify professionals and not running services. There are many benchmarking, profiling tools available only for centralized systems. The same happens with testing and API interception framework or vulnerability scanners.
Federated Certified Service Brokerage for EU

Issue and Aimed Solution

Challenge is to create FCSB which will enable secure legislation-aware exploitation of cross-border provided services within Federated EU PA Cloud

Following issues should be resolved for EU Federated PA Cloud

- Interoperability
  - Service governance
  - Data portability
  - Identity propagation
Federated Certified Service Brokerage for EU

Issue and Aimed Solution

- Service certification
  - Architecture of components, one for each property to be assessed
  - Automated certification with assurance of consistency and elasticity
- Legislation awareness
  - Legislation semantics standardization
  - Interface for legislative changes propagation
  - Legislation compliance assessment
- Service usage metering
What comes next?

• Wee seek comments – positive and negative, i.e.
  • What sounds useful to you?
  • What could bring EU Cloud market forward?
  • What are we missing?
  • Where are we wrong?

• And most importantly ...

... where is research needed that justifies our involvement, i.e. through tendering in PCP
First results of PCP tender

• 29 economic operators from 11 countries submitted bids to the Cloud for Europe PCP tender
  • Italy, Austria, France, Germany, Estonia, France, Netherlands, Romania, Slovakia, Spain, Switzerland
  • 45% represent SMEs, 24% large companies and 31% public research bodies.
• The tender opening session took place on 24-27 March in Rome.
• 13 offers to lot 1 (federated certified service brokerage)
• 7 offers to lot 2 (secure legislation-aware storage)
• 4 offers to lot 3 (legislation execution).
Lessons learnt – PCP preparation phase

Selection of the suitable procurement model

• There are two different procurement models to be selected for PCPs
  • the lead authority with joint framework contract model
  • the common procuring entity model

Lessons Learned:

• Takes time! And PCP is a new instrument, not know upfront

Recommendations:

• Decide upfront,
  • Lead authority, for single PCP,
  • Common entity for multiple PCPs or PPI
Lessons learnt – PCP preparation phase

Changes of procurers

• The Cloud for Europe project was open to add additional procurers during the project up to the tender publication. The understanding of the joint PCP was not clear at the beginning of the project. Procurers from different European countries thought of having a national tender instead a joint PCP tender. In addition, although there is a co-financing of the European Commission, procurers have to do an own investment. Political changes in some countries have enforced certain procurers to withdraw from their commitment. Fortunately to the openness, new procurers could join the project. These changes took time and delayed the tender.
Lessons learnt – PCP preparation phase

Identification of Challenges

Lessons Learned

• Harmonization of requirements went well.

• Cloud Computing offers a lot of challenges for the public sector. We came up with a quite huge list of potential services to be procured. Having 5 procurers from different countries with specific and different interests doesn’t make it easier.

• Market consultation helped a lot to better focus on the challenges.

Recommendation

• Start with a joint understanding what to procure
Managing the PCP

Joint PCP is a quite new instrument for procurement

Lesson Learned: the process is time consuming

• It took time to understand what joint PCP is.
• It took time to convince procurers that PCP is different from commercial procurement.
• As the lead procurer is the legal entity, it has to follow national legislation.
• Legal aspects need time – procurers agreement, tender documentation

Recommendation:

• You need to have legal advisors (external or internal)
• As technology changes very quickly, the PCP process takes quite some time, it is questionable if this is a suitable instrument for innovation.
Useful Links

• Visit [www.cloudforeurope.eu](http://www.cloudforeurope.eu)

• Join Cloud for Europe stakeholder mailing list [www.cloudforeurope.eu/stakeholder-area](http://www.cloudforeurope.eu/stakeholder-area)

• Send questions to [info@cloudforeurope.eu](mailto:info@cloudforeurope.eu)

• Follow us and engage in discussions
  - [@cloudforeurope](http://twitter.com/cloudforeurope)
  - group: Cloud for Europe