



**State of play:
12-2013**

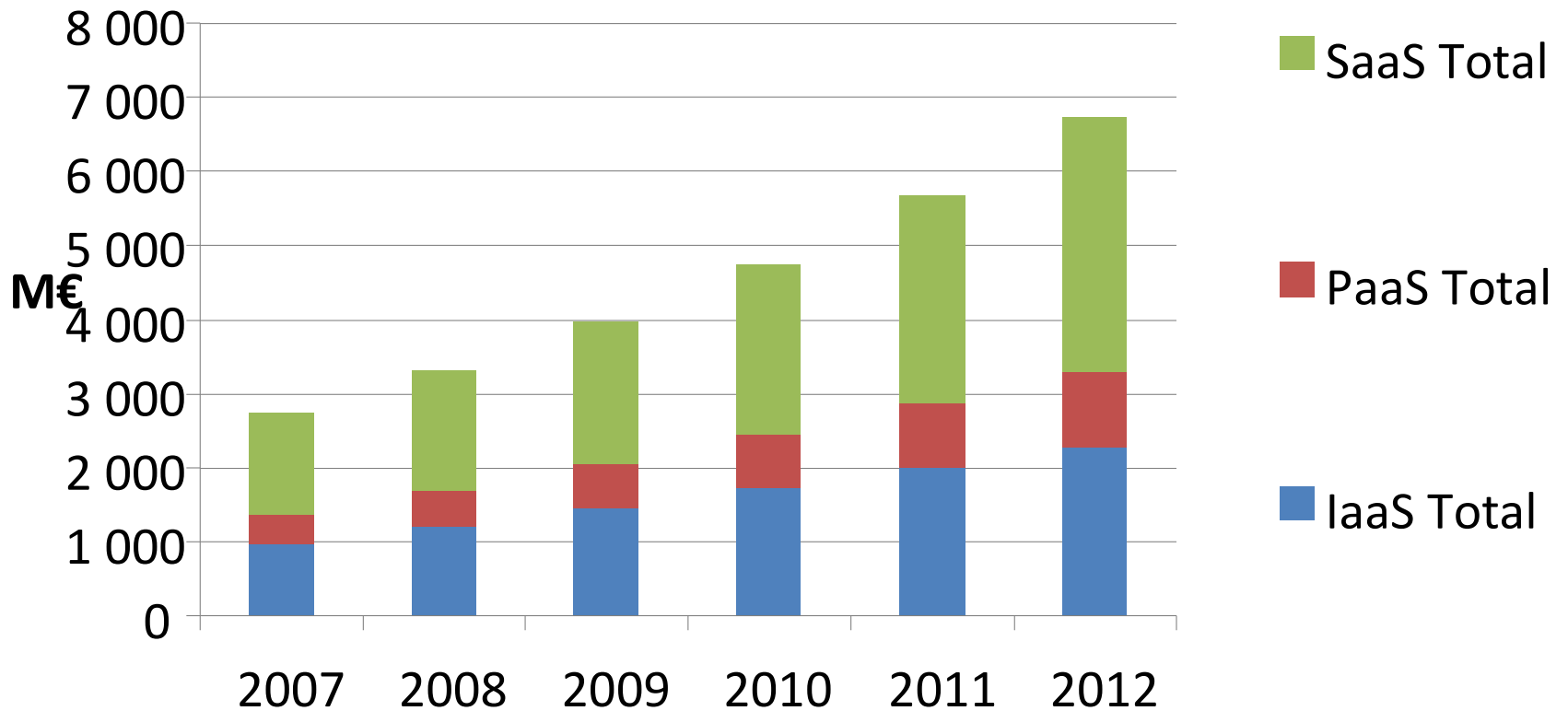
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DG CONNECT**

Cloud Computing and the European Strategy

Cloud: an **elastic execution environment of resources involving **multiple** stakeholders and providing a **metered** service at **multiple** granularities for a specified level of **quality** (of service).**

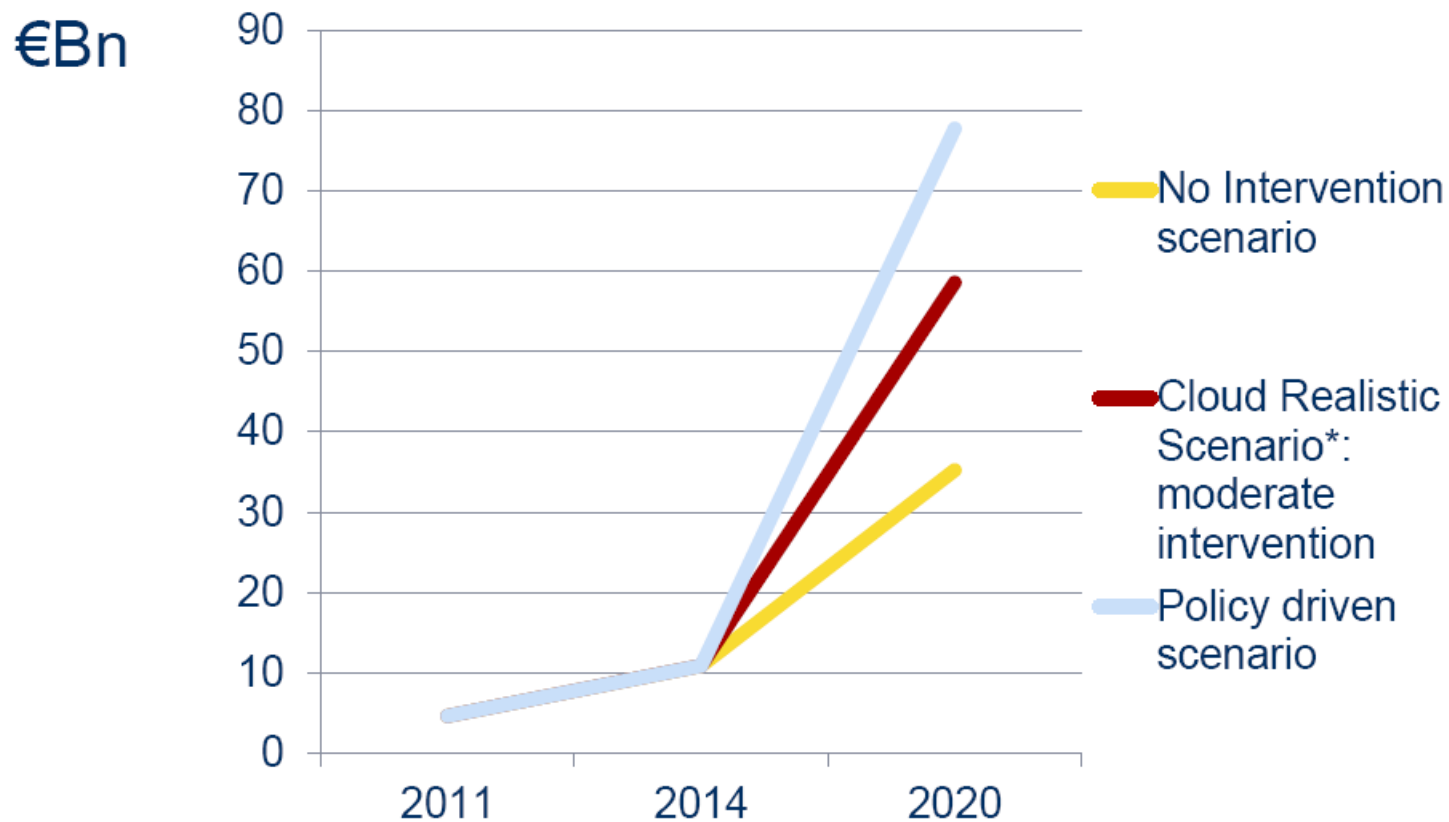
*Source: Expert group on Cloud Computing, 2009
<http://cordis.europa.eu/fp7/ict/ssai/docs/cloud-report-final.pdf>*

Cloud Computing - EU27



Sources: AMR, Gartner, IDC, William Blair & Co., Merrill Lynch, PAC

Scenarios of Cloud Computing Market Growth in the EU27 (draft)



Source: IDC 2012

European Cloud Strategy: Inputs from

Industry consultation

Public consultation

International front (EU-US)

Additional meetings

(SMEs, Telecomm & Web Hosting, User Industries)

Industry recommendations

Group	Recommendation	EC	Industry
Legal Framework	Promote the Digital Single Market to encourage efficient cross border Cloud Services	XX	X
	Analyse existing legislation and legislation under review to remove barriers to Cloud computing	XX	
	Ensure privacy legislation is horizontally assessed for its compatibility with Cloud computing, and is looked at in a global context.	XX	X
Market related	SME Cloud Strategy: Raise awareness and encourage uptake of Cloud computing	XX	XX
	Public Sector Cloud Strategy for Europe: Raise Awareness & Promote uptake of Cloud computing among public authorities.	XX	X
	Advance Practices and Contracting in Cloud Computing		XX
	Ensure a proper response to data breaches in the Cloud		XX
	Investigate further the creation of voluntary and industry led mechanisms of enhancing trust and security		XX
Technology related	Build on the Past & Foster Collaborative Research in Cloud Computing	XX	
	Foster interoperability and data portability in the Cloud	X	XX

Public Consultation *in 2011*

(538 inputs, companies: 230, individuals: 182, ...)

EU legal framework unclear

Need for clarification on rights, responsibilities, data protection & liability

Guidelines for contracting welcome

Public sector can set standards (security, IOP, data portability)

International agreements needed

Improvement through R&D

European Cloud Strategy

Legal

- Cloud-friendly framework

Public sector

- Going cloud-active

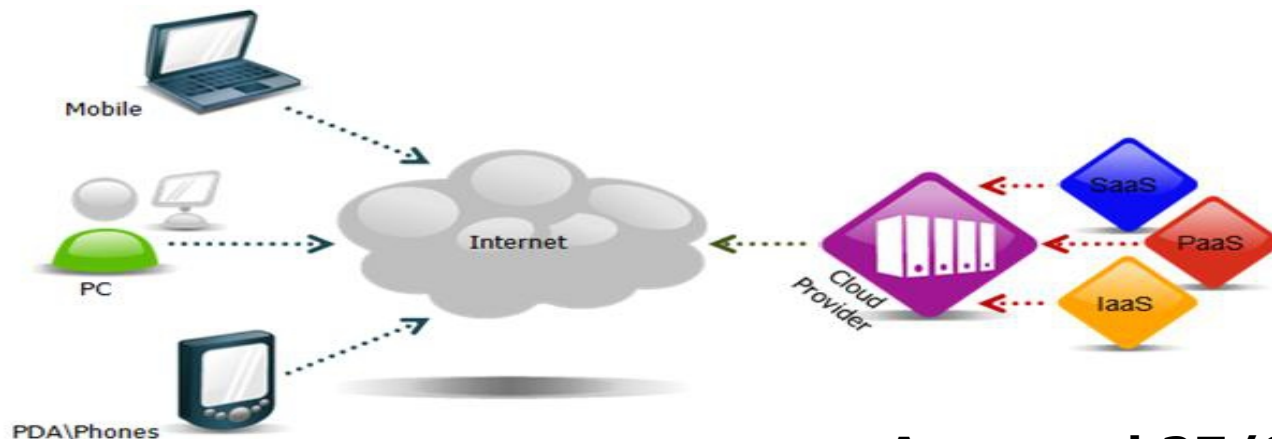
International

- Global solutions

Cloud is for
Europe &
Europeans

Objective of the EU Cloud Strategy

Enabling and facilitating **faster adoption** of cloud computing, throughout **all sectors** of the economy to help **cut ICT costs** and **boost productivity, growth and jobs**



The Cloud computing strategy

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

Key Action 1 :

Cutting through the Jungle of Standards

- ETSI (European Telecoms Standards Institute) to coordinate stakeholders & identify necessary standards (e.g. for security and interoperability)
- Recognize ICT technical specifications for data protection
- Work with ENISA & others to assist development of EU-wide voluntary certification schemes
- Agree with industry harmonised metrics for energy consumption & carbon emissions of cloud services

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Development of model 'safe and fair' contract terms and conditions

Key action 2:

Safe and Fair Contract Terms

- Develop with stakeholders model terms for cloud computing service level agreements for professional cloud users
- European model contract terms and conditions pursuant to Common European Sales Law; expert group for cloud-related issues beyond the CSL
- Review standard contractual clauses & binding corporate rules for international data transfers by cloud providers
- Work with industry towards a code of conduct for cloud providers for Article 29 Working Party to endorse

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Cloud Partnership to drive innovation and growth from the public

Key Action 3:

European Cloud Partnership (ECP)

➤ What:

- Identify common requirements for public sector cloud use
- Towards common & joint public procurement of cloud services
- Shape the market to benefit private use

➤ How :

- Steering Board: industry and MS
- Pre-Commercial Procurement Action with MS (FP7, EUR 10m, started on 1 June 2013), with industry input
- Umbrella for MS cloud activities

Within Key action 3:

- **European Cloud Partnership Steering Board**
- **Cloud 4 Europe initiative**





European
Commission

ECP Steering Board Members

ECP Steering Board Membership

Toomas Hendrik Ilves,

Chair of Steering Board, President of Estonia

Léo Apotheker, former CEO of SAP and HP

Thierry Breton, Chairman and CEO of ATOS

Bernard Charlès,

President and CEO of Dassault Systèmes

Kate Craig-Wood,

Managing Director of Memset

Christian Fredrikson,

President and CEO of F-Secure Corporation

Michael Gorriz,

CIO of Daimler AG and President of EuroCIO

Jim Hagemann-Snabe,

Co-CEO of SAP AG

Vivek Dev, CEO Digital Services, Telefonica Digital

Pierre Nanterme, CEO of Accenture

Karl-Heinz Streibich, CEO, Chairman of the Management Board and Group Executive Board of Software AG

Hans Vestberg, President and CEO of Ericsson

Werner Vogels, Vice President and Chief Technology Officer of Amazon.com

Katarina de Brisis, Norwegian Ministry of Government Administration and Reform, Deputy Director General of the Department of ICT policy and public sector reform

Aitor Cubo Contreras, Deputy Director General of Programs, Studies and Promotion of Electronic Administration, Spanish Ministry of Finance and Public Administrations

Jacques Marzin, ICT Corporate Director for France, Direction interministérielle des systèmes d'information et de communication de l'État

Michael Hange, President of the German Federal Office for Information Security

Maarten Hillenaar, Government CIO and Director of the central government ICT-policy department, Dutch Ministry of the Interior and Kingdom Relations

Reinhard Posch, CIO and Chair of the Austrian e-Government DIGITAL:AUSTRIA, Austrian Federal Government

Andrzej Rękowski, Vice-Minister, Polish Ministry of Administration and Digital Affairs

ECP Steering Board – Work in progress –

1. Provide a secure and trustworthy cloud environment for Europe
2. Achieve a single market for cloud computing (ongoing activities on standards, certification and Service Level Agreements will contribute to this)
3. Working groups on public and private cloud uptake barriers and public sector projects are in place
4. Specific recommendations are expected by summer 2014

Cloud-for-Europe (C4E)

- 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

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-for-Europe (C4E) initiative**
 - Public launch conference on 14 November 2013
 - Pre-notice April, tender early summer 2014





European Commission

The Cloud Computing Strategy

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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 Practice Launched on 10/04/2013

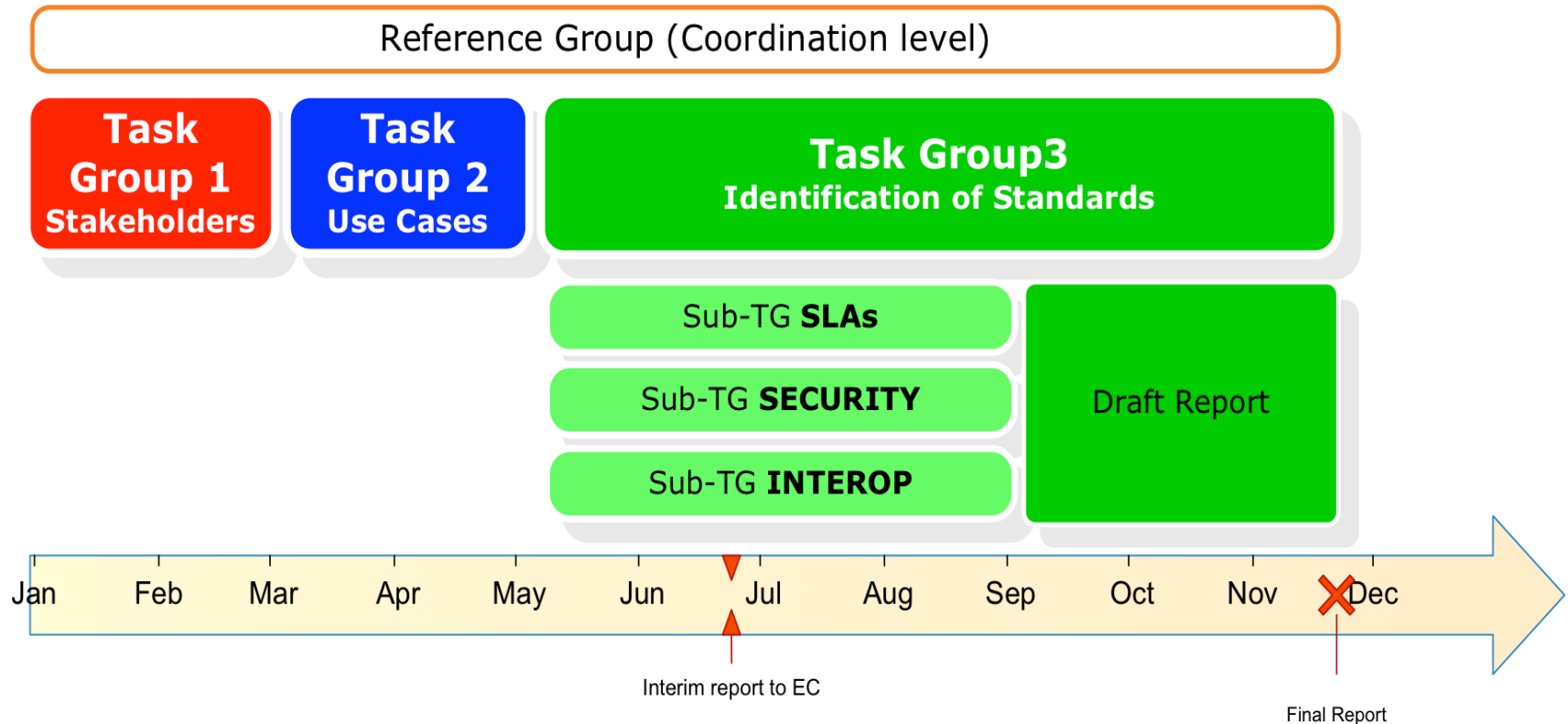
The Cloud Select Industry Group on Service Level Agreements Launched on 21/02/2013

The Cloud Computing Contract Group Launched on 19/11/2013

Steering Board of The European Cloud Partnership Launched on 19/11/2012

Cloud for Europe Launched in 11/ 2013

Cloud Standards Coordination



Standards map:

Accomplished work

Task Group 1: Stakeholders roles & responsibilities

- To make a **model of stakeholders and responsibilities**

Task Group 2: Use cases selection & prioritization

- Select use cases (UCs) and related requirements and prioritize them.
- Ensure **UCs address all stakeholders and their roles and responsibilities**

Task Group 3: Specs identification

- The work was carried by three sub-groups (**SLAs, Security & Privacy, Interoperability, Data Portability & Reversibility**) working in parallel.
- The final result was delivered to the EC on 11th December 2013.



Cloud Standards Coordination: Final report

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.



Cloud Standards Coordination: Final report

Conclusions on the status of Cloud Standardization:

- general aspects
- specific topics of Interoperability, Security & Privacy and SLA.

The report is available at:

http://www.etsi.org/images/files/Events/2013/2013_CSC_Delivery_WS/CSC-Final_report-013-CSC_Final_report_v1_0_PDF_format-.PDF

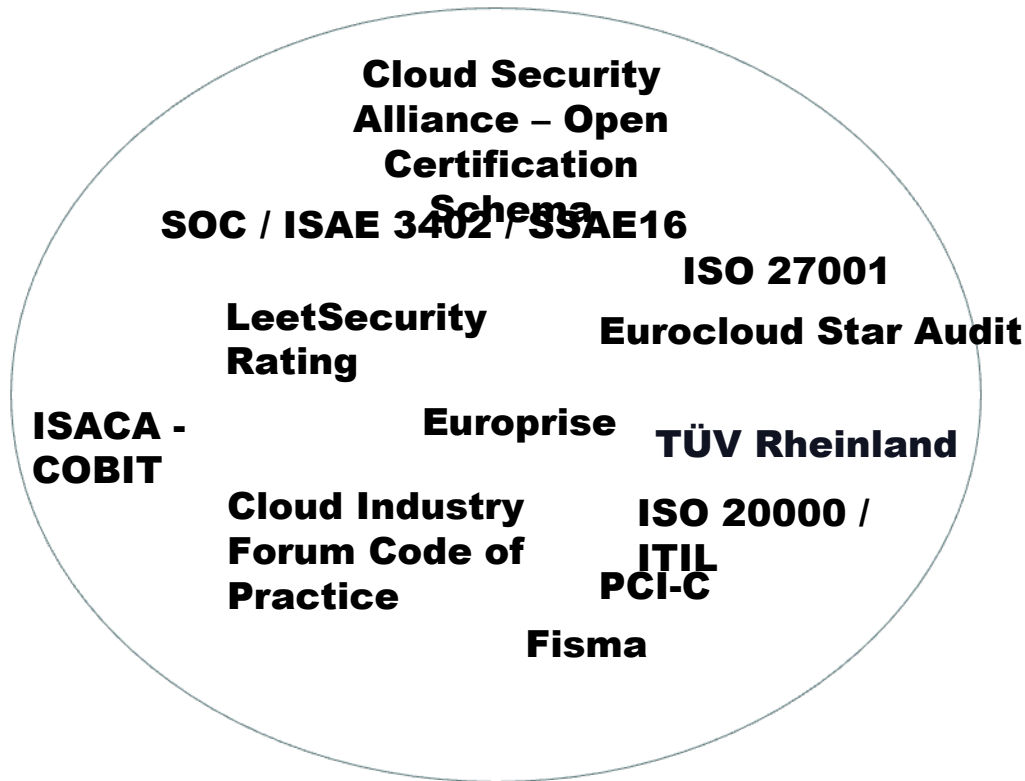
Cloud Certification:

Main goals

Certification improves transparency and trust in the cloud computing market

- Assist in the development of **voluntary EU-wide certification schemes** in the area of cloud computing
- Establish a **list of certification schemes** in the area of cloud computing by **2014**

SIG-certification group: Identification of EXISTING certification schemes



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

Further steps on certification with the support of ENISA (1/2)

- Listing cloud relevant security 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
- Dealing with detailed security requirements
 - Which of my detailed security requirements are covered?
 - Options:
 - One EU wide voluntary certification scheme
 - One-on-one mappings between schemes
 - A meta-framework mapping to different schemes

Further steps on certification with the support of ENISA (2/2)

- A meta-framework of security certification schemes
 - 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
- Small steps
 - not a comprehensive security framework
 - consolidates existing best practices
 - SLAs, data protection, et cetera not right away.
- Incremental
 - High-level principles from Code of Conduct can be translated to auditable security measures and added.

Service Level Agreements:

- Service Level Agreements help to enhance transparency and reduce the transaction costs
- The Commission will develop with stakeholders **model terms for cloud computing service level agreements for contracts** between cloud providers and professional cloud users, **taking into account the developing EU acquis in this field.**

Service Level Agreements:

- SIG-service level agreements expert group initial papers to identify **checklist**, develop **flowchart** and a list of **attributes** for service level agreements (presented at ECP Steering Board meeting in July 2013).
- Agreement within SIG about initial set with **11 important attributes** to define standard options for SLAs and contracts:
 - Access: Availability of service, Problem Resolution, Reporting and Quality of Service and Data Portability
 - Trust: Auditability, Certification and Compliance, Limitations and Penalties
 - Security: Data privacy conditions, Data Location, Security Provisions including backup and disaster recovery



Code of conduct:

Main goals

- Code of conduct supports a **uniform application of data protection rules**
- The Commission will work with industry to agree on a code of conduct for cloud computing providers. The codes of conduct will support a uniform application of data protection rules and may be submitted to the Article 29 Working Party

Code of Conduct on DP:

Background

- Directive 95/46/EC art 27 encourages adoption of codes of conduct and their endorsement by art 29 Working Party
- EC Cloud Computing Strategy of 27-09-2012
 - “Work with industry to agree a code of conduct for cloud computing providers to support a uniform application of data protection rules which may be submitted to the Article 29 Working Party for endorsement in order to ensure legal certainty and coherence between the code of conduct and EU law.”
- A Code of Conduct endorsed by the Article 29 Working Party which must remain simple and pragmatic so that it can be implemented by Cloud Service Providers and understood by Cloud Service Customers



Code of conduct: Progress

- First draft of the **EC Data Protection Code of Conduct** presented to the Working Party²⁹ Technology Subgroup in September 2013
- Informal observation of the Article 29 Working Party - Technology Subgroup on principles for the **EC Data Protection Code of Conduct**
- Revised version of the **EC Data Protection Code of Conduct** will be presented to the Article 29 Working Party - Technology Subgroup in Q1 2014
- Possible deliverable to the ECP Steering Board and to the Commission in 2Q 2014

Next steps on cloud computing

following the EUCO conclusions

1. Promoting high standards → the diffusion of results from ETSI and ENISA work on cloud computing
2. A single market for cloud computing → Service level agreements, contracts, data protection / code of conduct
3. European Cloud Partnership – public and private sector CEO's and CIO's working together on becoming the world's leading trusted cloud region
4. National digital coordinators → systematic high level Member State engagement in public service IT innovation across the spectrum big data, open data & cloud



Cloud & big data

- 1) Cloud critical for big data:
 - **lowering cost and raising efficiency of storage**
 - **distributed data processing infrastructures**
 - **optimisation**
- 2) Big data needs fast secure data comms
- 3) Privacy & security systems: new challenges due to big data
- 4) New opportunities for business growth (apps, software, services)