Accountability for Cloud and other Future Internet Services
The A4Cloud project

This project is partly funded from the European Commission's Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
This project is partly funded from the European Commission's Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
Collaborative Project under Call 8 of the 7th Framework Programme of the European Commission

- DG.CONNECT – Unit H4: Trust & Security

Project Start Date: 1st October, 2012

Project Duration: 42 months

Stay tuned - www.a4cloud.eu
This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
Drivers for an accountability-based approach

Increase trust and assurance
Allow more dynamism
Decrease regulatory complexity
Provide effective data governance and control in cloud-based IT

Accountability-based approaches for trust and security

This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
This project is partly funded from the European Commission's Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).

Defining Accountability

Accountability consists of explaining one's actions, justifying those actions and remedying any failure to act properly.

Accountability concerns data stewardship regimes in which organizations that are entrusted with personal and confidential data are responsible and liable for processing, sharing, storing and otherwise using the data according to contractual and legal requirements from the time it is collected until when the data is destroyed (including onward transfer to and from third parties).
Inter-disciplinary approach for co-designing Accountability

The realm of accountability research

This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
The chain of Accountability

The example of sticky policies
Our deliverables

Control and Transparency
- Policy Configuration and Enforcement System
- Accountability Validation Tool

Choice
- Risk Assessment Tool
- Contract Support Tool

Compliance
- Evidence Collection System
- Remediation Tool
- Policy Monitoring Tool

Ethical Accountability
- Recommendations and guidelines
- Reference architecture
- Models on data governance
- Interoperable Policy languages
- Accountability metrics

The Accountability Framework

This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
<table>
<thead>
<tr>
<th>Tool</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountability and Privacy Enforcement Tool</td>
<td>Enable enforcement of policies in ways that can be verified and audited</td>
</tr>
<tr>
<td>Audit Agent System</td>
<td>Enables customers of cloud services to perform audits of their cloud infrastructures</td>
</tr>
<tr>
<td>Cloud Control Tool (CCT)</td>
<td>The declarative definition of implementation techniques and tools for the addition of new functionalities to existing Cloud applications and infrastructures</td>
</tr>
<tr>
<td>Data Protection Impact Assessment Tool</td>
<td>Selecting service providers by assessing the impact of a particular choice before sensitive information is transferred or shared</td>
</tr>
<tr>
<td>Data Track</td>
<td>Enabling data subjects to exercise their rights online to access, correct and request removal of their data at data controllers</td>
</tr>
<tr>
<td>Data Transfer Control Tool</td>
<td>Accountable data localization and transfer across cloud software, platform and infrastructure services, usually run by data processors</td>
</tr>
<tr>
<td>Incident Response Tool</td>
<td>Provides data subject access rights and to file complaints regarding the processing of personal data by the controller and/or an incident</td>
</tr>
<tr>
<td>Plug-in for assessment of policy violation</td>
<td>Provide an assessment on the relevance of the violation of policies, so that stakeholders receive information about the most relevant policy violations</td>
</tr>
<tr>
<td>Redress Tool</td>
<td>Advises end users and organisations on actions that can be taken in case of violations</td>
</tr>
<tr>
<td>Tool for Cloud Contracts</td>
<td>A simple expert system to help with drafting and managing custom contracts</td>
</tr>
<tr>
<td>Transparency Log</td>
<td>Transfer of data from CPs to CCs/CAs in a secure and privacy-friendly way</td>
</tr>
</tbody>
</table>
This project is partly funded from the European Commission's Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).

Current status: areas being covered

Checkpoint (M9) – 109 entries

- Compliant (M14) – 25 std + 39 specs
  - Interoperability, IT governance, Risk/Security management, IAM Infrastructure management
- Lack (M17) – 4 std/specs
  - SLA, auditing/certification, metrics composition, privacy mechanisms
- Leveraged (M17) – 8 std/specs
  - Security/Privacy /Risk management, Incident Response, Forensics
- Opportunity to contribute (M15)
- Contributing (M17) – 3 std
  - See next slide
This project is partly funded from the European Commission’s Seventh Framework Programme (FP7/2007-2013) under grant agreement no: 317550 (A4CLOUD).
Thank You.