Crime and Punishment in the Cloud
Accountability, Transparency, and Privacy

Stefan Berthold, Simone Fischer-Hübner, Leonardo A. Martucci, and Tobias Pulls

Karlstad University
Department of Mathematics and Computer Science
65188 Karlstad, Sweden

6th June 2013
Accountability
- document policies, procedures and practices, assign the duty to implement privacy policies to specified individuals in the organization, provide suitable training, inform about privacy breaches, give access to effective sanctions and procedures for compensations in case of privacy breaches.

Implications
- accountability $\rightarrow$ transparency + liability for privacy + $\cdots$  
- privacy breaches (crime) $\rightarrow$ punishment.

Accountability

- document policies, procedures and practices, assign the duty to implement privacy policies to specified individuals in the organization, provide suitable training, inform about privacy breaches, give access to effective sanctions and procedures for compensations in case of privacy breaches.

Implications

- accountability ← transparency + liability for privacy + ⋯
- privacy breaches (crime) ↝ punishment.

Accountability

- document policies, procedures and practices, assign the duty to implement privacy policies to specified individuals in the organization, provide suitable training, inform about privacy breaches, give access to effective sanctions and procedures for compensations in case of privacy breaches.

Implications

- accountability ← transparency $+$ liability for privacy $+$ ···
- privacy breaches (crime) $\rightarrow$ punishment.

Privacy & Transparency

privacy ← accountability → transparency

stefan berthold <stefan.berthold@kau.se>
Privacy & Transparency

Privacy \rightarrow \text{accountability} \rightarrow \text{transparency}

stefan berthold <stefan.berthold@kau.se>
Privacy & Transparency

confidentiality → accountability

transparency

unrestricted data access
Privacy & Transparency

confidentiality

accountability

unrestricted data access
Privacy & Transparency

confidentiality

unrestricted data access

accountability

?
Transparency of the next move.

**Definition**

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.

Transparency of the next move.

Definition

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.


stefan berthold <stefan.berthold@kau.se> crime and punishment in the cloud tafc workshop, málaga, spain, 6th june 2013
Transparency

Definition

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.

Transparency of the next move.

Definition

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.

Transparency of the next move.

**Definition**

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.

Transparency is the state when every party in the target group possesses perfect knowledge about the observable of interest. In other words, no party in the target group could learn any information (in Shannon’s sense) about the observable of interest.

Privacy is the right of individuals to control the flow and use of their personal data. **requires** informed decisions about • data disclosure, • data storage, and • data processing, and their enforcement.

Reference. EU: Data Protecting Directive 95/46/EC.
Accountability for end-users.

Definition
A data controller is accountable, if privacy breaches are transparent to the respective data subjects and the data controller is sanctioned and/or the data subject is compensated in case of privacy breaches.

Challenges.
- accountability: composing privacy and transparency.
- the cloud doesn’t make that challenge easier.
- solutions exist for accountability where privacy is end-user control.
- hard conflicts between transparency and privacy when privacy is confidentiality.
Accountability for end-users.

Definition
A data controller is accountable, if privacy breaches are transparent to the respective data subjects and the data controller is sanctioned and/or the data subject is compensated in case of privacy breaches.

Challenges.
- accountability: composing privacy and transparency.
- the cloud doesn’t make that challenge easier.
- solutions exist for accountability where privacy is end-user control.
- hard conflicts between transparency and privacy when privacy is confidentiality.
Q&A

Stefan Berthold, Simone Fischer-Hübner, Leonardo A. Martucci, and Tobias Pulls

[firstname.lastname]@kau.se