Defintions of Accountability

Accountable Systems are those that:

• Hold people responsible for behavior when they deviate from the rules that apply to the system

• Raise the cost of rule violation for adversaries

• **Not** systems that provide provable *a priori* enforcement of rules
Sample Accountable Systems

- Microsoft
- Banking system
- Access logging
- Wiki - edits and citations
  - Plus: logging
  - Minus: spammed - lack of editorial control
  - Admin people may not be accountable
- Secure voting systems - want to know where it may have failed
- Proof carrying authorization
  - Is the goal to hold people or systems accountable?
Sample Accountable Systems (cont.)

• Hold people accountable
  – Protection of PII in business process
  – Protect user’s data
  – Semantically annotated Xaction logs
    • Provide forensics
    • Alert users of potential violations
• Important to hold system accountable
  – Make the people who built the sys. Accountable
  – Reputation of software is critical
• Domain keys (email) - commercial deployment - verify sending domain
• Workflow systems
Sample Accountable Systems
(cont.)

• Online virtual worlds
  – Concern: Bots coming in
  – User experience degraded -> lose of users
• PGP
• Wireless - name the access point & machine
  – Breaks down in ubiq. Comp. CONOPS
• Virtual Organization across multiple physical domains
  – Single sign on
  – Shared storage spaces
Where is it needed?

• Email
  – Spammers not accountable
  – Currently people could lose job via email

• Evidentiary chain of custody?
  – Too much data? Inadequate discovery capability?
    • Problem may be related to semantic structure of information
    • Could have tools to reveal information
    • Someone else judges intent
Where is it needed?

- Need balance with privacy
- Legitimacy of data
  - Confidence in integrity
  - Sensitive data - log who touched when
  - Are access controls OK? (spot checked)
- Cost of accountability?
  - Overhead may overwhelm intended system functionality
- Accountable systems make risk to adversary higher - from adversary point of view
  - Example: Anti fraud systems for credit cards