Security practitioners in context:

Their activities and collaborative interactions

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Motivation

Security tasks are highly interdependent.

To improve security tools, we need to understand how security practitioners collaborate in their organizations.

Approach

Field Study Goals

Security practitioners:

- What do they do?
- With whom do they interact?
- How do they interact?

Data collection

- Semi-structured interviews
- Questionnaires
- Participatory observation

Analysis

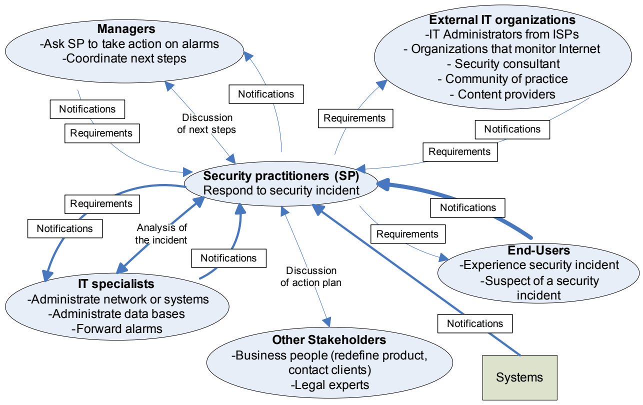
- Identify interactions
- Identify resources used during interactions
- Propose improvements of security tools and practices

Results

Security practitioners perform many activities:

- Security audits
- Train and educate other specialists
- Design new IT services including security criteria
- Mitigate new vulnerabilities
- Solve end-users IT security issues
- Develop security policies
- Implement access security controls
- Respond to security incidents

Each activity involves information exchange with multiple stakeholders:



Managers
-Ask SP to take action on alarms
-Coordinate next steps

External IT organizations
-IT Administrators from ISPs
- Organizations that monitor Internet
- Security consultant
- Community of practice
- Content providers

Security practitioners (SP)
Respond to security incident

End-Users
-Experience security incident
-Suspect of a security incident

IT specialists
-Administrate network or systems
-Administrate data bases
-Forward alarms

Other Stakeholders
-Business people (redefine product, contact clients)
-Legal experts

Systems

Notifications

Requirements

Discussion of next steps

Notifications

Requirements

Notifications

Requirements

Requirements

Notifications

Analysis of the incident

Notifications

Discussion of action plan

Notifications

Requirements

Notifications

Example: five different stakeholders to respond to security incidents

Diverse, Customized Exchange of Information

- Information exchanged in different formats across multiple communication channels
- Security information spread for different purposes:
  - Report
  - Notification
  - Requirement
- Use of tacit knowledge

Organizational Factors

- Academic freedom
- Distribution of IT management
- Tight schedules
- Security not part of the core business

Multiple Stakeholders Involved

- Different perceptions of risks
- Security as second priority
- Lack of security culture
- Lack of security training
- Transactive memory

Complex Interactions → **Security Issues**

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Implications for Research

Develop security tools that:

- Integrate information from different communication channels
- Provide flexible reporting (reports adapted to the recipient)
- Communicate security information between secure and insecure domains
- Integrate unrelated databases
- Communicate configuration changes (e.g., firewalls)
- Provide customizable account structure