Privacy: It’s All in the Use Case

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A Brief History of Privacy

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- (NAACP v. Alabama (1958), Griswold v. Connecticut (1965)).

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- HEW study, *Records, Computers, and the Rights of Citizens* (1973); Fair Information Practices.

Fair Information Practices

- Notice: what information is being collected, by whom, for what purpose, for which recipients, and whether the data is being provided voluntarily.

Fair Information Practices

- Notice.
- Choice/Consent: the ability of the individual to control secondary uses of the data.

Fair Information Practices

- Notice.
- Choice/Consent.
- Access/Participation: ability of the individual to access data about themselves and to correct errors.

Fair Information Practices

- Notice.
- Choice/Consent.
- Access/Participation.
- Integrity/Security: that data collector ensures accurate collection, that the data is protected against unauthorized access, destruction, or disclosure.

Fair Information Practices

- Notice.
- Choice/Consent.
- Access/Participation.
- Integrity/Security.
- Enforcement/Redress: that there is a mechanism in place to permit enforcement and redress if these principles are not followed.

In 2011 ...

facebook

+1

OnStar®

foursquare

CHECK-IN HERE

Check in to unlock specials, meet up with friends and explore what's nearby.

foursquare.com
@foursquare

E-ZPass

Real Privacy Threat Categories

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- Linkability.

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- Linkability: of entity across disparate sets.

Real Privacy Threat Categories

- Linkability.
- Identifiability of a subject.

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- Non-repudiation.

Real Privacy Threat Categories

- Linkability.
- Identifiability.
- Non-repudiation: allows the attacker to demonstrate something about the user.

Real Privacy Threat Categories

- Linkability.
- Identifiability.
- Non-repudiation.
- Detectability: determining that an item exists.

Real Privacy Threat Categories

- Linkability.
- Identifiability.
- Non-repudiation.
- Detectability.
- Information Disclosure: making information available to those who should not have access.

Real Privacy Threat Categories

- Linkability.
- Identifiability.
- Non-repudiation.
- Detectability.
- Information Disclosure.
- Content Unawareness: content available without the user's knowledge.

Real Privacy Threat Categories

- Linkability.
- Identifiability.
- Non-repudiation.
- Detectability.
- Information Disclosure.
- Content Unawareness.
- Non-compliance: site not complying with advertised policies.

Real Privacy Threat Categories

- **L**inkability.
- **I**dentifiability.
- **N**on-repudiation.
- **D**etectability.
- Information **D**isclosure.
- Content **U**nawareness.
- **N**on-compliance.

“A Privacy Threat Analysis Framework: Supporting the Elicitation and Fulfillment of Privacy Requirements,” Deng, Wuyts, Scandariato, Preneel, Joosen.

Federated Identity Management

Federated Identity Management

- Liberty Alliance (2001).
- Microsoft Passport (2001).
- Proliferation of standards: WS, SAML, …
- Identity management for the “open” Internet (2005).
- NIST's Levels of Assurance.
- FICAM (Federal Identity, Credential, Access, and Management).

Federated Identity Management: Use Cases

Federated Identity Management: Liberty Alliance Use Case

- Outsourcing

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- Outsourcing

Federated Identity Management: Liberty Alliance Use Case

- Outsourcing: HR

  travel

  suppliers

Federated Identity Management: Liberty Alliance Privacy Threat

- Linkability.

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  Pseudonymity

Federated Identity Management: Use Case

- Shibboleth: library access across different research institutions.

Federated Identity Management: Privacy Threat

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- Threat: identifiability.

Federated Identity Management: Privacy Threat

- Shibboleth: library access across different research institutions.
- Threat: identifiability.
- Solution: give only “needed” identity.

Federated Identity Management: (Not Our) Use Case

- Privacy issue: link --- but don't identify.

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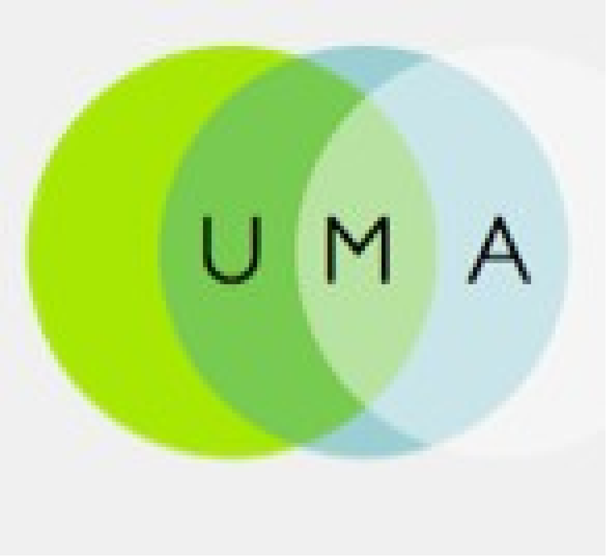

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- Users outside the enterprise as anything but “consumers.”
- The “open” Internet.

RFID Tags

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- Had been used for IFF, animal tracking, car key fobs, inventory management, toll collection.
- **Now was being proposed for inventory management at the consumer level: individual goods.**

RFID Tag Problems

- Remarkably rich source of information:

  data on tag

  data in database

  time of reading

  location of reading

  association between individuals.

RFID Tags

HIGHLY, HIGHLY CONTROVERSIAL

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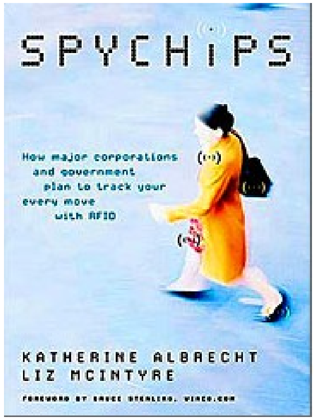
SPYCHiPS
How major corporations and government plan to track your every move with RFID
KATHERINE ALBRECHT
LIZ MCINTYRE

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- Creates ability to track an individual.
- Simplifies remote corporate espionage through tracking.

RFID Tag Solutions: What's the Use Case?

-

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- Libraries: track where the books are.

RFID Tag Solutions: What's the Use Case?

- Libraries.

The right to read anonymously is extremely important.

RFID Tag Solutions: What's the Use Case?

- Need the data: on exit/entry to library,
  within library for tracking.

RFID Tag Solutions: What's the Use Case?

- Need the data: on exit/entry to library,
  within library for tracking,

  but nowhere else.

RFID Tag Solutions: Libraries
What's the Use Case?

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  within library for tracking.

Track books (not users).

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- **Post policy (e.g., “This library uses RFID technology. It does not collect personal information.”).**

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- **Strive for openness and standardization.**

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- Supply appropriate training and education.
- Post policy (e.g., “This library uses RFID technology. It does not collect personal information.”).
- Strive for openness and standardization.
- **Audit regularly and often.**

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- Address privacy during design stage.
- RFID use is about book tag, not smart cards.
- Ensure that patron information databases are not linked with tag information databases or tag chips.
- Patron information should only be linked on checkout of media.
- **Personal information should not be stored on the RFID tag's chip.**

Guidelines for Using RFID Tags in Ontario Public Libraries

RFID Tags: What's the Technology?

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- Passive, active, read only, read-write.
- Encryption on tag.
- Secure communication protocols.
- Authentication of tags and readers.
- Randomized numbering of tags.

RFID Tags Solutions: Consumers

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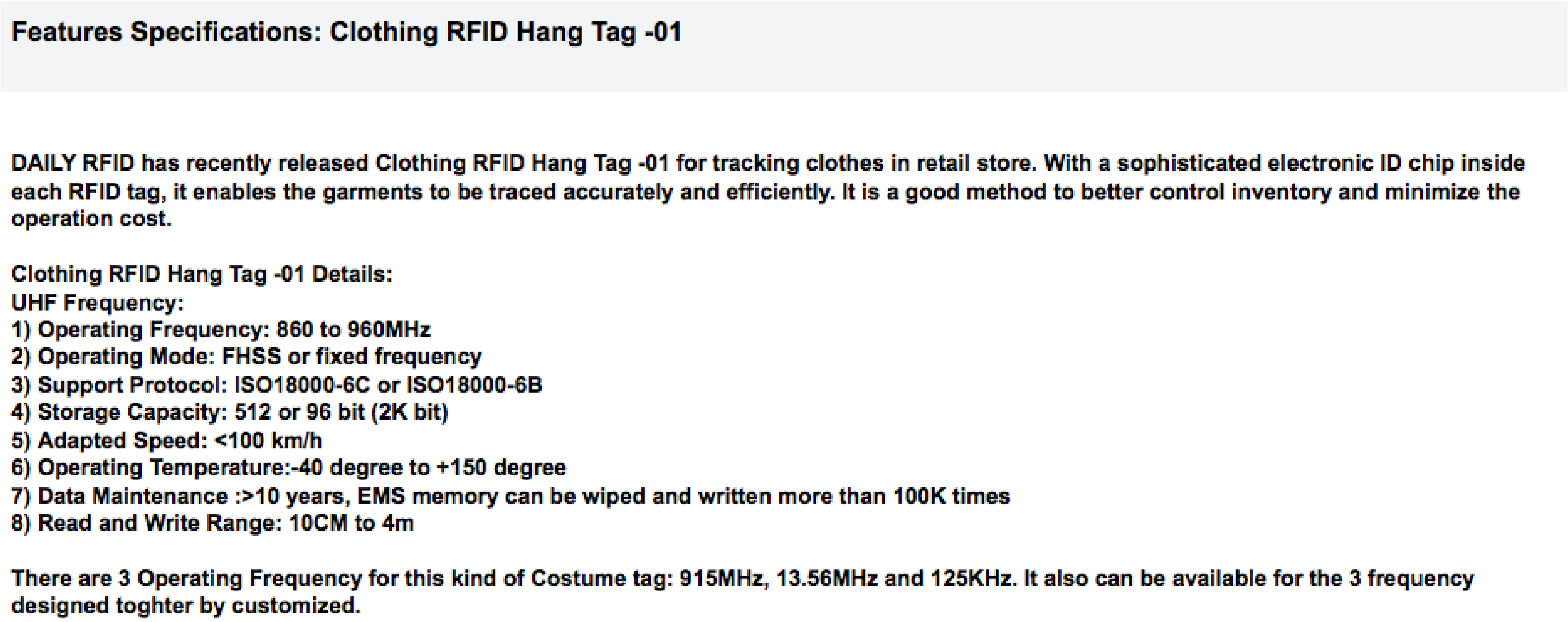

Features Specifications: Clothing RFID Hang Tag -01

DAILY RFID has recently released Clothing RFID Hang Tag -01 for tracking clothes in retail store. With a sophisticated electronic ID chip inside each RFID tag, it enables the garments to be traced accurately and efficiently. It is a good method to better control inventory and minimize the operation cost.

Clothing RFID Hang Tag -01 Details:
UHF Frequency:
1) Operating Frequency: 860 to 960MHz
2) Operating Mode: FHSS or fixed frequency
3) Support Protocol: ISO18000-6C or ISO18000-6B
4) Storage Capacity: 512 or 96 bit (2K bit)
5) Adapted Speed: <100 km/h
6) Operating Temperature:-40 degree to +150 degree
7) Data Maintenance :>10 years, EMS memory can be wiped and written more than 100K times
8) Read and Write Range: 10CM to 4m

There are 3 Operating Frequency for this kind of Costume tag: 915MHz, 13.56MHz and 125KHz. It also can be available for the 3 frequency designed toghter by customized.

RFID Tags Solutions: Consumers

- Full LINDDUN (**L**inkability, **I**dentifiability, **N**on-repudiation,**D**etectability, Information **D**isclosure, Content **U**nawareness, **N**on-compliance).

RFID Tags Solutions: Consumers

- Full LINDDUN (**L**inkability, **I**dentifiability, **N**on-repudiation,**D**etectability, Information **D**isclosure, Content **U**nawareness, **N**on-compliance).
- Response: De-activate RFID on purchase (European Commission, 2009).

RFID Tags Solutions: Supply Chain

- Partial LINDDUN (**L**inkability, **I**dentifiability, **N**on-repudiation,**D**etectability).

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RFID Tags Solutions: Supply Chain

- Partial LINDDUN (**L**inkability, **I**dentifiability, **N**on-repudiation,**D**etectability).
- Tags contain unique identifier.
- Cloning easy, tracking easy.

RFID Tags Solutions: Supply Chain

- Partial LINDDUN (**L**inkability, **I**dentifiability, **N**on-repudiation,**D**etectability).
- Who's the threat?
- What's the risk?
- Does it make things better than before?

RFID Tags: Privacy Depends on the Use Case

- Library: passive tags, no personal information on tags.
- Consumer: deactivation or removal at point of sale unless opt in (European Commission, 2009).
- Supply chain: currently problematic --- **in theory.**

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- When use case changes, so do privacy protections.
- Privacy tradeoffs are not just about cost.
- Policy role critical.
- In privacy, there are no spherical chickens.