



Location Privacy

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Location Dangers: Why keep location private?

- Physical danger
 - Kidnapper
 - Wife beater
 - Stalker
- Social disruption
 - Spouse
 - Parent
 - Public exposure
- Personal annoyance
 - Marketer
- Governmental interference
 - Police, tax authorities, etc.



Location Benefits:

Why use, save or share location?

- Non-data saving applications
 - Get map of current location
 - Get routing information
- Anonymous data aggregating applications
 - Improve my network coverage
 - Tell marketers where people like me hang out
- Data saving applications
 - My favorite locations
 - History based personalization
 - Tracking based personalization
- Location sharing applications
 - Find your friends, child, spouse
 - Find a date
 - Chat with nearby people
 - Play location based games



Ways to control privacy

- Hobble the system
- User pre-configures policy
 - Always, by context, never, only on request
 - Requestor: (Application, user)
 - Context: (Location, time, mode)
- User sets position accuracy
- System disassociates CPNI (Customer Provided Network Information) from location
 - Session-based or persistent ASID (anonymous subscriber ID)
- Data saving systems
 - Erase all history
 - Erase history selectively
 - Guest mode
 - Don't record locations (don't record guest)
 - Don't personalize based on regular history (don't reveal to guest)
 - Multiple identities



Reported Privacy System Errors

- Should not distinguish between
 - User unavailable
 - Location unavailable
 - Requester explicitly not permitted
 - Privacy policy not configured
 - User rejected location request
- Should not distinguish between
 - System doesn't support requested QoP (Quality of Position)
 - User policy doesn't permit this QoP
 - User rejected location request but providing QoP alternative



Privacy Checklist

- Accountability
- Purpose specification
- Notice / awareness / disclosure
- Choice / consent
- Limiting collection
- Limiting use, disclosure, retention
- Accuracy / granularity
- Security / Integrity
- Openness
- Access / update / correction
- Enforcement / Challenge procedure



Location Privacy Activity

- Location Interoperability Forum
 - Mobile Location Protocol
 - LIF TS 101 2.0.0 (3.0.0 about to be made public)
 - Privacy Recommendations
 - LIF TR 102 (not yet public)
 - Future:
 - Privacy under location roaming and local content
- IETF
 - Geopriv Draft Requirements
- CTIA
 - Privacy Policy Principles to FCC
- WLIA
 - Draft Privacy Policy Statements
- W3C
 - P3P: complex automatic policy responder
- WAP
 - Privacy Expert Group



Legal Issues: Europe

General wireless privacy: Directive 97/66/EC

New EC Data Protection Directive

– http://europa.eu.int/comm/internal_market/en/index.htm

- Must obtain the subscriber's explicit consent (opt-in)
- Must give complete information about use, storage of data
- Only use data for purpose it was collected
- Erase personal data after use or make it anonymous
- Give the user the possibility to restrict/prevent transmission of personal data
- Do not transfer data to a third party without the user's consent



US Law: Pending Legislation

- Nothing likely in 2002. Two bills in legislature.
- Online vs. Off-line:
 - Senate (Hollings) bill applies to online privacy.
 - House (Stearns) bill applies to online and offline privacy.
- Private lawsuits:
 - The Senate measure allows privacy lawsuits (\$5000/violation).
 - House bill does not.
- Notice: Both bills mandate privacy notices.
- Opt-out/in:
 - Senate bill “opt-in” for sensitive information, “opt-out” otherwise.
 - House bill “opt-out” for sharing personal information;
- Access:
 - Senate bill requires companies to permit consumers to see personal data but also allows them to charge up to \$3 for access.
 - House bill doesn’t include an access provision.
- Preemption: Both bills would preempt state laws.
- US Chamber of Commerce opposes both.



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