New Directions for the Web

Dave Raggett, W3C

SWXG
Introduction

• Privacy is important for everyone
• Usability
  – Experience with P3P
  – Website terms & Conditions of service
  – User interfaces for signing up with websites
• Whose interests are they protecting?
• How much do ordinary people know?
  – Can I trust this site?
  – Where is it hosted?
  – What do my friends think?
Anywhere, Any time

- My laptop
- My mobile
- My living room
- On vacation, when I step into an internet cafe
- In my friend's house, using her computer
We're all lazy
(well most of us)

- Clicking though legalese
- Giving away too much in order to get to something interesting
- Same user name/password on different sites
- We need help!
Trends

- Use of email address as user identifier
  - Facebook, linkedin viadeo, ...
  - Easier for users to remember
  - And great for tracking users across sites ...
    - Single pixel GIF's are good for that too
- Single sign-on with OpenID
- Granting cross site access to your data
  - OAuth
OpenID

- You are asked to type in an http URL to log in
  - Each user must have a web page
  - Requesting website gets this URL
    - Same tracking concerns as for email Ids
- You log in with your identify provider
  - Via browser redirection
- Your identity provider may allow you to set privacy preference for personal data it discloses on your behalf
OAuth

- Avoid the need to give one website your account details (user name/password) when it needs to access your data on another site
  - e.g. Web printing service and separate photo site
- Printing service redirects your browser to the photo site for you to log in and grant rights for the printing service to access your photos
  - Server to server protocol magic
- Constrained access rights
  - Time and purpose limited
Beyond OpenID?
Privacy is more than Identity

• How about only requiring users to disclose the URI for their privacy provider rather than themselves?

• Same browser redirection technique
  – Or use separate sandbox within webpage

• Your privacy provider helps you
  – When setting up a new account on a website
    • Independent advice
  – When logging into that website
  – When that website ask for personal details
Privacy in the Digital Age

• Enabling users to negotiate data handling obligations with websites
  – What personal data is collected?
  – How long can it be held for?
  – What purposes can it be used for?

• P3P as first generation approach
  – What lessons can we learn from it?

• Research projects: Prime, PrimeLife

• Cryptographic credentials
  – Minimal disclosure of personal data
Privacy Providers

• Social Network Providers are compromised by their business model
  – Seek to maximise what they know about you
    • Hard to find privacy policies!

• Privacy provider as independent 3rd party
  – What business models, though?
    • Subscription and slice of micropayments?
    • GlobalLockBox.com as sign of future?

• Relationship to web of personal sites?
  – Distributed SNS
Partial Identities

- How do you identify yourself on the Web?
  - Public vs Private identity
  - Social groups are often somewhere in between
    - Party photos that come back to haunt you
- Privacy provider can help
  - Making it easy for you to use a different identity on different sites
  - Or to have multiple identities on the same site
- Partial identity as URI
Web Run-Times

• Execution environment for web apps
  – Mark-up, style sheets, scripts, etc.
• Browsers, Widgets, and now Websites
• Personalized apps that run 24x7 on your behalf
  – Combo of mark-up, style sheets scripts, etc.
  – UI as shareable widgets on web pages
  – Run somewhere in the Cloud
• Disruptive potential to displace centralized SNS
Agents, Trust and Privacy

• How do you trust communicating agents to look after your privacy?

• Answer: use privacy providers to manage access control and data handling obligations

Eggs and Baskets

- Is it reasonable to trust a "privacy provider"?
- What are the alternatives?
- How usable are they?
Switching providers

- What happens if a company goes bust?
- What happens if the jurisdiction it operates in becomes unfriendly to its citizens?
- Need to be able to transfer providers
- Hence need for standards!
Context Awareness
Context

- User preferences
- Sensory or cognitive impairments
- User's past behaviour
- Behaviour of others like you
- Variations across devices
- Changes in the environment
- Nomadic interfaces – where you dynamically switch from one device to another
Context in the Cloud

• Maintaining context descriptions and making them available to web applications and authoring tools
  – Model-based UI design & MBUI XG
  – Responding to changes at run-time
• Ontologies for sharing the underlying models
  – UWA WG's Delivery Context Ontology
  – Different APIs for different needs
• Privacy and Trust as key considerations
The Web of Things

- Moore's law driving down cost of connecting things into the Cloud
  - Ubiquity of devices everywhere
    - Hundreds of microcontrollers in every home
- Extending the Web to real-world things
  - Web technologies as key to reducing costs
- Rich models of the real-world
  - Virtual objects in Web Run-Time as proxies for real world things
- Lots of potential for Social Web of Things
Proxies for accessing services

DOM – XML Document Object Model
Discussion