The Architecture of the Web

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Wkipedia: The Web is a system of interlinked hypertext documents accessed via the Internet.

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This definition is now outdated!

Modern Version: The Web is a system of data, people and software connected via the Internet and mobile networks.

Outline

1. Brief Tour to Web Standards

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2. Conceptual Stuff

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3. Ongoing Project: Better Online Marketing

Outline

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Brief Tour to Web Standards

W3C Standards

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- URI (URL, URN)

- HTTP, SOAP

- HTML, XHTML

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- XML, RDF

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OpenId

- Glossary: identity provider, relying party

- 2005: Started by Brad Fitzpatrick in LiveJournal project

- 2007: OpenID Foundation

RSS

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  - RDF Site Summary

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  Really Simple Syndication
  RDF Site Summary

- Started in 1999 by Ramanathan V. Guha

- List of feeds: OPML

- Attention profile: APML

- Challenges: filtering, discovery

OAuth

- Open standard for access delegation
- Started in November 2006, first draft in October 2007
- Glossary: User, Consumer, Service Provider, Protected Resources
- Challenges: phishing attack, DoS attack

FOAF

- Mission: creating machine-readable pages describing people, the links between them and the things they create and do

- Started in 2000 by Libby Miller and Dan Brickley

- Tim Berners-Lee: FOAF is a basis for Global Giant Graph

Microformats

- Grassroots approach to Semantic Web

- Notable microformats: hCalendar, hCard, hReview, hResume, XFN, XOXO

  `http://tantek.com/presentations/2006/07/what-are-microformats/`

Social Graph API

Brad Fitzpatrick presents Social Graph API:

http://www.youtube.com/watch?v=LabCylbapuM

Facebook Platform

- A framework for creating third-party applications that interact with core Facebook features. Launched in May 2007

- Interface (API), Query (FQL), Markup (FBML)

- Anatomy: about, left nav, Facebook canvas pages, profile box, profile action links, privacy settings, news feed, alerts, message attachments, requests

- AppFactory funding program

Other Standards and APIs

- OpenSocial

- Firefox extensions, userscripts

- iPhone OS

- iGoogle, Netwibes, Yahoo Pipes

- Wordpress & Drupal, Salesforce.com,

- Yelp API

- Yahoo Search API, Yandex XML

- OASIS standards: XRI, XDI

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Conceptual Stuff

Web OS

- Web office: Google Docs, Zoho
- Social platforms: Facebook, OpenSocial
- DesktopTwo, Netvibes, iGoogle, myYahoo
- Firefox Gran Paradiso
- CMS as Web OS?

DataPortability.org

DataPortability

- Participants: Google, Facebook, Plaxo, Drupal, Netvibes, Mystrands, LinkedIn, Flickr, Six Apart, Twitter, Digg, Microsoft

- Started: November 2007

- Standards involved: APML, FOAF, hCard, OAuth, OpenID, OPML, RDF, RSS, SIOC, XFN, XRI, and XDI.

- Next goal: DataPortability reference design

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Ongoing Project:

Better Online Marketing

Market Graph

Market Graph is a graph of relations between people, businesses and products.

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- What is the right business model for Market Graph?

- What are the incentives for consumers, companies and web developers?

- Who is responsible for maintaining Market Graph?

- Data reliability: How duplication and misinformation are handled?

- Can two identities from different providers create a relation?

- What will be the killer app for Market Graph?

- What interesting stuff can we do in market computing?

Open Advertising Platform

Open alternative to Google AdSense:

- A publisher installs an ad frame

- Every page visit send a request with context variables (page content, information about user) to advertising engine

- Engine performs an auction between applications and the winner takes the spot

Enterprise Web Programming

Workflow:

- Create userbase
- Provide API for identity space and graph of relations
- Define clear rules for application distribution

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Thoughts on Future

Emerging Technologies in the Web

- Augmented reality, Geoweb
- Vector graphics, 3D
- Internet TV, video
- Ubiquitious computing
- Semantic web
- Artificial intelligence, question answering
- Machine translation
- Intelligent agents
- New interfaces (HCI)

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- Reflection web

Research Challenges

- Semantic publishing

- Protection mechanisms

- Search (crawling, sorting)

- Identity re-integration

Links

Homepage http://yury.name
Minicourse page: http://yury.name/newweb.html

http://businessconsumer.net/files/marketing-agenda.pdf
Research Agenda in Online Marketing [Working paper]

http://yury.name/reputation.html
Tutorial on Reputation Systems

http://businessconsumer.net
Our research project in online marketing

References

Conferences: WWW, WSDM, EC, Web 2.0 Expo, Web 2.0 Summit, The Next Web, Techcrunch50, ETech, TED

Videos: Brad Fitzpatrick (Socil Graph API), Jeff Bezos (TED), OpenSocial Launch Event, Mark Zuckerberg (F8 Keynote)

Blogs: Techcrunch, ReadWriteWeb, Mashable!, Valleywag, Techmeme, VentureBeat, Greg Linden

People: Kevin Marks, Brad Fitzpatrick, Tantek Celik, David Recordon, Joseph Smarr, Matt Mullenweg, Mark Zuckerberg, Kevin Rose, Dries Buytaert, Chris Messina, Nova Spivack, Dick Hardt, Chris Saad

Summary

Thanks for your attention!
Questions?