E-COMMERCE and SECURITY - 1DL018

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An introductory course on e-commerce systems

http://www.it.uu.se/edu/course/homepage/ehandel/vt08/

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Preliminary course contents

• Lectures on suitable topics from the book or other related topics
  – by me and students (groups)
• Course introduction
  – overview of e-commerce technology
• Assignment
  – introducing technology for project (JSP, servlets, web server, database, etc.)
• Group project (specification, design, development, testing, deployment)
  – i.e. develop a multi-tiered e-commerce web application
• Project documentation, reporting and demonstration
• Presentations by students
• A few guest lectures
• No written examination
Possible lecture topics

- Architectures and web servers (KO)
- HTML
- NetBeans
- JavaScript
- HSQL
- JDBC
- XML & XHTML
- Apache Tomcat
- Databases and interfaces
- Data persistence
- Servlets and JSP
- Architectures & case studies
- Security (KO)
- Ajax and Web 2.0

- LAMP (Linux, Apache, MySQL and PHP)
- Document object model (DOM)
- SOAP
- WSDL & Web services
- Java EE & Enterprise Java Beans, GlassFish
- Perl, Python, PHP, Ruby, Tcl
- Google web toolkit, JavaServer Faces, Struts, Tapestry
- Ruby on Rails, WebObjects, Catalyst, Django
- Other relevant topics welcome (but check with me first)
Homework

• Prepare for your project by
  – Choosing a group and emailing the names, ssn, email and skills to the assistant (Erik Zeitler) together with info on initial project leader
  – If you cannot find a group send your personal info, listed above, to assistant to get help forming a group
  – Discuss possible ideas for your project. Browsing the web might get you some ideas.
  – Go to assignment seminar
  – Do assignment
  – Go to project seminar
  – You are ready for project
Resources

• Lecture notes
  – Will be made available on the course web site

• You’ll also find
  – details of the assignment and project, soon
  – links to software required for the assignment
  – links to related material and interesting articles

• Course books
  – Ince (2002) Developing distributed and e-commerce applications, Addison-Wesley, 0-201-73046-4
    • a good overview of many Ecommerce concerns (not just Java-based), but light on technology
Introduction to E-Commerce and Security

Darell Ince, ch 1

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Examples of some successful e-commerce applications (1)
Examples of some successful e-commerce applications (2)
Examples of some successful e-commerce applications (3)

Amazon.com: Online Shopping for Electronics, Apparel, Computers, Books, DVDs & more

Hello, Kjell Orsborn. We have recommendations for you. (Not Kjell?)

Kjell's Amazon.com Today's Deals Gifts & Wish Lists Gift Cards

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Kjell Orsborn 1/21/08
Examples of some successful e-commerce applications (4)
Examples of some successful e-commerce applications (5)
Examples of some successful e-commerce applications (6)
Examples of some successful e-commerce applications (7)
Examples of some successful e-commerce applications (8)
Examples of some successful e-commerce applications (9)
A Quick 5-minute exercise

• Imagine having to build a large e-commerce site such as Amazon or eBay.
• Write down 5 major requirements of any such site.
  – secure purchase & secure site
  – robust & easy to use
  – fast (enough)
  – scaleable
  – customized experience
  – internationalization and localization (i18n & L10n)
Technical Issues for E-commerce architects

- Security in all its forms
- Transactions & replication
- Coping with stateless HTTP protocol
  - User-tracking
- Dynamic pages
- Speed of development/change
- Division of labour:
  - graphics designers, programmers, business types
- Factoring the processes: tiers
- Support for data warehousing
A question

- **Q**: What distinguishes an e-commerce system from any other large system deployed on the web?

- **A**: Not much.
  
  - Such sites must be secure, robust, scaleable, etc…
Enterprise computing

• Most of the aforementioned concerns apply to the architecture of any enterprise level solution
• Enterprise systems include those for e-commerce, but also denote
  – Internal, web-enabled, systems
  – Systems with no element of “commerce” as it is usually understood
• Technologies discussed in this course applies to enterprise-level systems, not simply those involving e-commerce
What isn’t here

• Design
• Multimedia delivery
• Hosting
• Mobile internet
• Management
• Ethics, as e.g.
  – Is it a good thing that Hotmail has access to the personal messages of 100 million inhabitants of the globe?
  – Is it a good thing that Google have histories of browsing patterns?
  – Is it a good thing that Ebay have access to millions of trading details?
How money is being made on the net

• In principle...
• Caveat!
  – some of the information in the following slides may not be up to date, given the rapid development of the internet
  – exercise: try to find out the latest figures for each technology so you can gauge the rate of change!
Current e-commerce models

- Brokerage
- Advertising
- Infomediary
- Merchant
- Affiliate
- Community
- Subscription
- Utility

- Source: Hardaker & Graham (2001) p22
Brokerage

- Bring buyers and sellers together
  - Can be B2B, B2C or C2C
- Usually charge fee for transaction thus brokered
- Many forms:
  - virtual malls
  - portals eg Yahoo
  - auction eg eBay
  - common services eg zShops (Amazon)
  - buyer aggregator
  - reverse auction: “name-your-price”
Example: eBay

- Pioneered auction model in 1995
- 62 millions users
- 10 million unique auctions in progress at any time
- In UK alone, 150m pounds changed hands in Q4 2002
- Est. 40000 given up jobs to become eBay traders
- One of most profitable ecoms
Example: Cybersettle

- Settles disputes online, without lawyers
- Each member of dispute enters 3 settlement bids (high, medium, low) without knowledge of the other party’s bids
- If any pair of bids is within 30%, the mean is paid as settlement
- Continues until settlement
Advertising

• Since the web started as a publishing medium, advertising was the early (and obvious) business model
• Traditional CPM (cost per 1000 model) used in eg TV is becoming redundant
• Focus on narrowcasting via intelligent software agents
Example: hotmail.com

- Pioneer of viral advertising
- Largest web-based email company (launched 96, acquired by M$ in 98)
- Fastest growth of subscriber base of any company in history
- Spent only $500,000 on advertising (5% of competitors’ costs) in 2 years
Infomediary

- Collects and markets information to other businesses (to aid narrowcasting)

- Syndicators: sell capability rather than content eg Amazon zShops use Amazon ordering system

<table>
<thead>
<tr>
<th>Type of site</th>
<th>Information collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommender eg deja.com (now owned by Google), ePinions</td>
<td>Users’ opinions about products</td>
</tr>
<tr>
<td>Free content</td>
<td>Users’ registrations details and site usage patterns</td>
</tr>
</tbody>
</table>
Merchant model

• Selling goods and services online
  – Existing wholesalers and retailers (“e-tailers”): clicks & mortar, sometimes aggregated into malls
  – Virtual merchant eg Amazon

• Shopping trolley technology
  – Standard steps: find, add to trolley, checkout
  – Additional options: track shipping, cancel before dispatch

• E-wallets
**Affiliate model**

- Site offers financial incentives (usually % of revenue) to affiliates for any sales generates from affiliate sites
  - Pay-per-click
  - Pay-per-lead
  - Pay-per-sale
- Generates estimated 15-18% of sales
- Affiliates typically receive 7-15% commission
- Downside for affiliates: loss of ‘stickiness’
- Affiliate solution providers (eg tracking) are infomediaries
  - Linkshare.com
Example: Amazon.com

• Pioneered affiliate model in 1996
  – attempting to patent model
• 900,000 affiliates in 2003
• Pays up to 15%
Subscription model

• Customers pay to access information
  – Wall Street Journal

• Roughly 50% of users say they won’t (ever) pay for content - and maybe the other half will only pay for porn?

• Runs counter to most web developments

• Related models
  – subscribe to premium services after hooking users with free, but limited, content
    • eg Studyspanish.com
  – Microsubscription
    • eg pay for recipe rather than for whole cookery book
Utility model

- Pay-as-you-go (micropayments) as in other utilities such as electricity, phone etc
- Pay by the byte
- Much touted, but not much in evidence yet, apart from free ISPs which receive revenue from phone company for time online
Summary of business models

• Some are novel
  – eg affiliate
• New ones appearing all the time
• Behind webfront, business as usual for many companies, but others are purely virtual