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Internet Technology and E-Business

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Overview

- Web-Based Tools for E-Commerce
- E-Marketing (continued from last week)
- E-Darwinism
- Characteristics of Internet B2B
- CGI
- JavaScript and Java
- Creating a Web Page
Web-Based Tools for E-Commerce

- Site type
  - Development
  - Intranet
  - Transaction processing: B2B and B2C
  - Content delivery

- Web server hardware
  - Self-host
  - Dedicated host
  - Shared host
Web-Based Tools for E-Commerce

- Web platform choices
  - Unix
  - Linux
  - Windows NT & 2000
- Web server performance evaluation
- Web server software and tools
  - Apache HTTP Server
  - Microsoft IIS
  - iPlanet (Netscape) Enterprise Server
- Web Server Architectures
Web-Based Tools for E-Commerce

- Search engines
- Intelligent Agents
- Web server software features
  - Core capabilities
    - Responding to HTTP requests
    - Indexing & Searching
    - Data analysis
  - Site management
  - Link validation
  - Remote Server Administration
  - Dynamic content
E-Marketing Credits

E-Marketing

- Basic market research on the Web
  - Yahoo: how do they make money?
  - Blue Martini?

- Classical market research on the Web

- Who?
  - Customers
  - Potential customers
  - Competitive intelligence
Collecting Consumer Data on the Internet: Pros

- Fast
- Cheap
- On-line response
- Deep and complex calculations running the on-line responses
  - Collaborative filtering
  - Data mining
  - Principal components
Collecting Consumer Data on the Internet: Cons

- Biases
  - Income
  - Age
  - Gender, race, etc.

- Time good or bad?

- New nontraditional methods
  - Are they well understood?
  - Comparison to old methods?
Interviewing Errors and the Internet

- Researcher error
- Sample
- Measurement process
- Instrument
- Respondent
- Control

How does the Internet affect each of these?
http://www.worldopinion.com/

<table>
<thead>
<tr>
<th>Service</th>
<th>Min %</th>
<th>Max %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houses with a Phone</td>
<td>87.4 in Miss.</td>
<td>97.9 Mass.</td>
</tr>
<tr>
<td>Unlisted Phone #</td>
<td></td>
<td>64.6 in Las Vegas, 61.7 in LA-Long Beach.</td>
</tr>
<tr>
<td>Houses on the Internet</td>
<td>About 65% of US Households</td>
<td></td>
</tr>
</tbody>
</table>
Bayne’s Old Marketer’s Tales

- If you have money, then you can do anything.
- Any web site is better than none.
- All Internet marketing activities must generate sales.
- Major Internet marketing objective is to copy your competitors site.
- If you know what you are looking for, then you can find it on the Internet yourself.
Bayne’s Old Marketer’s Tales

- IT Should be Your primary contact for all Internet development efforts.
- I-Marketing gets faster results than traditional marketing.
- I-Marketing, should, can and will replace traditional marketing.
- Successful I-Marketing requires all Internet tools, technologies and techniques.
- Traditional marketing principles apply to I-Marketing.
A model of product/service attributes

- Price
- Offering
- Customer relationship
- Brand image
- How are these leveraged (differently) by the Internet?
Traditional Leverage on Sub-Attributes

- Price: discount, coupons
- Quality: guarantees
- Delivery/Fulfillment: follow-up, free delivery
- Design: ergonomics
- Availability: marketing communications
Internet Leverage on Sub-Attributes

- Price: discount, coupons
- Quality: guarantees, E-Return Policy
- Delivery/Fulfillment: follow-up, free delivery, in some cases instant e-delivery
- Design: ergonomics, customizers, configurators
- Availability: marketing communications, e-tracking, e-catalogues, etc.
Other attribute enhancers

- Offering: e-partnerships and alliances
- Relationship: now has 24/7 component
- Service: internet checking that products are working even very far away, in some cases instant service
- What about “Manufacturing branding”? “Made is USA.”, “Bottled in France”? 
B2B vs B2C

- What differences do we have to be prepared for in E-Marketing B2B vs. B2C?
- B2B customers have integrated order information, good tracking and bidding
- Corporate buyers may have their own price schedules, etc.
- Corporate buyer behavior differs from individual buyers - how?
Percent of B2B on the Internet

- 0.2% of all B2B on Internet in 1997
- 2.1% in 2000
- 9.4% in 2003

What does this mean?

This is likely mostly logistics - what about marketing?
Some Examples from Logistics

- Purchasing Depts. run bidding on the Internet
- Wal-Mart's famous Extranet and their shared inventory management
- Boeing’s external purchase order bidding
- GE is another leader
GE’s TPN for its Lighting Division (low value parts)

- TPN = Trading Processing Network.
- Set up by GE to make the costs of procurement cheaper
- Labor in procurement process down 30%
- 60% of procurement staff re-deployed
- Faster times:
  - 18-23 days to search for suppliers, set-up, etc.
  - Now it takes 9 to 11 days
GE’s TPN for its Lighting Division (low value parts)

- Automatic invoice reconciliation with Purchase Orders, etc.
- GE’s procurement depts. share this info and process.
- GE will always keep the details of their purchase process
- Helps GE’s suppliers, etc.
- Other advantages?
E-Darwinism

- “A digital Darwinism thins the numbers of online toy and craft stores. But while the fittest survive, some worthy examples perish.”
- Randomness seems necessary in Darwin’s Theory of Evolution through natural selection?
E-Darwinism

- 873 firms de-listed in 1999 from NASDAQ
- 700 firms de-listed in 2000 from NASDAQ
- Lag due to up to 6 months for de-listing process:
  - Trading less than $1 per share for 30 business days
  - Less than $4 million tangible assets
  - Market cap < $5 million
Some recent(ish) bankruptcies

- toysmart.com, toys on the internet
- boo.com, selling clothes in many languages and currencies
- craftshop.com
- drkoop.com
- Other notables?
- Why?
## Some recent(ish) bankruptcies

<table>
<thead>
<tr>
<th>Name</th>
<th>Financing</th>
<th>Marketing</th>
<th>Other Costs</th>
<th>Apparent Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toysmart.com</td>
<td>$45 million</td>
<td>$25 million</td>
<td>$20 million</td>
<td>Bad timing from Disney.</td>
</tr>
<tr>
<td>Boo.com</td>
<td>$135 million</td>
<td>$65 million to $85 million</td>
<td>$50 million to $70 million</td>
<td>Slow Modem Connections. Unmanaged Expectations. Timing and execution issues.</td>
</tr>
<tr>
<td>CraftShop.com</td>
<td>$3 to $5 million</td>
<td></td>
<td></td>
<td>Less than 1% of visitors purchased. Bad timing and bad execution.</td>
</tr>
</tbody>
</table>
The Fallout of IPO Madness?

- In 1999 US firms spent $109 Billion on
  - direct mail and phone marketing
- Got direct revenues of just over $1 Trillion from this marketing
- This is about 10% of revenue on marketing
Characteristics of Internet B2B

Areas covered

- Product, specs., price, sales history
- Customer, sales history, forecasts, refining JIT
- Supplier, product lead times, sales terms and conditions
- Production process, capacities, commitments, product plans
- Transportation, carriers, lead times, tracking
- Inventory, level maintenance, carrying costs, location
Characteristics of Internet B2B

- Supply-chain alliance, key contracts, partner’s roles and responsibilities, schedules
- Competitors, benchmarks, competitive offerings, market share issues
- Sales and marketing, point of sale, promotions
- Supply chain process and performance, process descriptions, performance measures, quality, delivery time, customer satisfaction
Supply Chain:

- What is the value added for Internet marketing for these pathways?
- Upstream: manufacturing & suppliers and service
- Internal manufacturing and packaging, targeting and marketing
- Downstream: distribution & sale
Characteristics of Internet B2B

- The Virtual Corporation
  - Supply chain
  - Partnering
  - Compatibility!
Characteristics of Internet B2B

- Supplier-Oriented Marketplace
  - Reduce operating costs
  - Enhance technical support
  - Reduce technical support staff costs
  - Special Case: reduce Software distribution costs
Characteristics of Internet B2B

- Buyer-Oriented Marketplace
- Benefits to Buyer
  - Identifying partnerships and suppliers
  - Strengthening relationships & streamlining source process with current business partners
  - Rapidly distributing spec. information to partners
  - Transmitting e-drawings, etc., to multiple suppliers simultaneously
  - Cutting sourcing cycle times & reducing costs for goods/services
  - Quickly receiving comparable bids from a large number of suppliers, leads to better prices
Characteristics of Internet B2B

- Buyer-Oriented Marketplace
- Benefits to Seller
  - Boosted sales
  - Expanded market research
  - Lower costs for sales and marketing activity
  - Shortened selling cycle
  - Improved sales productivity
  - Streamlined bidding process
**CGI Scripts (by T. Ziegler)**

- **What?** Common Gate Way Interface - another protocol
- **Why CGI?**
  - HTML’s weaknesses!
- **Some flavor of Unix**
- **Perl: a ‘scripting language’**
  - Good: Easy to use
  - Bad: runs on your server!
  - Good or Bad: many ways to do things
Guest book example:

- `<form method=POST action = "http://your.host.com/cgi-bin/guestbook.pl">`
- Your Name:<input type=text name=realname size=30><br>
- E-Mail: <input type=text name=username size=40><br>
- `</form>`
CGI Scripts (by T. Ziegler)

- What does “guestbook.pl” do?
- Where does it do it?
- Can this be a security problem?
- Other problems or issues?
JavaScript (by Thau!)

- Points out that CGI appears to work ‘semi-interactively’
  - Form based
  - Runs on someone’s server
- JavaScript:
  - Runs on client machine!
  - Gives much more interactivity and distribution of computation
JavaScript (by Thau!)

- JavaScript is a complete programming language and not a protocol
- JavaScript is NOT Java (or even particularly closely related)
  - Netscape & JavaScript
  - ECMAScript, Microsoft & JScript
- JavaScript runs in browsers, only!
- JavaScript intermingles with HTML directly
JavaScript (by Thau!)

- <html>
- <head>
- <script language="JavaScript">
- <!-- hide from old browsers
- JavaScript here
- // end JavaScript here -->
- </script>
- </head>
- </html>
Java

- Interpreted Object Oriented Programming Language
  - OO Like C++
  - Interpreted like Basic or JavaScript
  - Can work in browsers: Java Applets
  - Can work on its own

- Sun Microsystems and Bill Joy
Java

- Why is Java Interpreted?
  - Why is this very useful for the Web?
  - Whose machine does an applet run on?
  - What problems could this lead to?
  - Run-time security

- Why is Java Object Oriented?
  - Large scale development
  - Large libraries of useful functions
Java

- Java is not public domain
- Java is largely machine independent
  - *Java Byte Codes*
- JVM---Imagine a Java Virtual Machine on every desk top
- Interpreters and performance
- Security checks and performance
Creating a Web Page

- See the RUCS materials for fuller details
- Create a “HomePage” directory on your local machine
- Build your web pages:
  - WORD
  - Netscape Composer
  - FrontPage
  - Hot Metal
  - etc.
- Name the top level page “index.html”
- Telnet to your home directory on eden/pegasus using your account name and password
Creating a Web Page

- Create a subdirectory public_html:
  - md public_html

- Enable public access:
  - chmod a+xr public_html

- Logout

- ftp the content of the “HomePage” directory to public_html
  - ftp ftp.eden.ruters.edu
  - Login using your account name and password
  - cd public_html
  - put C:\HomePage\index.html
  - etc.

- Test! Test! Test!
Creating a Web Page

- Work incrementally

Index Page

- Set background color to a browser-safe color
  - #FFFFCC
- Set your name as Heading 1
- Add a hypertext reference to another page
Creating a Web Page

Other page(s)

* Use at least two levels of heading
* Add a hypertext reference to another part of the same page
* Add a hypertext reference to a page on another Web Site
* Use an unnumbered list
* Incorporate an image file
* Include text
  ◆ In different colors
  ◆ In bold
  ◆ In italics
Creating a Web Page

- Add some PHP (!)
- Add some JavaScript

- Next week we will look at adding ASP . . .