

**22:010:622**  
*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*

- S.-Y. Choi, D. O. Stahl, and A. B. Whinston: *The Economics of Electronic Commerce*. MacMillan Technical Publishing, 1997.
- D. R. Lehmann, S. Gupta, and J. H. Steckel: *Marketing Research*, Addison Wesley, 1998.
- E. Turban, J. Lee, D. King and H. M. Chung: *Electronic Commerce, A Managerial Perspective*. Prentice Hall, 2000.
- K. M. Bayne: *The Internet Marketing Plan*, 2<sup>nd</sup> Edition. J. Wiley & Sons, 2000.

# *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/>

<b>Service</b>	<b>Min %</b>	<b>Max %</b>
Houses with a Phone	87.4 in Miss.	97.9 Mass.
Unlisted Phone #		64.6 in Las Vegas, 61.7 in LA-Long Beach.
Houses on the Internet	About 65% of US Households	

## *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
- Custom Ingredient branding: “Intel Inside.” Search engine powered by Inktomi.
- 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*

- *NY Times: 29-May-2000, E-Commerce Report, by Bob Tedeschi, page C5.*
- “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*

- <http://www.redherring.com/investor/2001/0213/in-v-mag-92-delisted021301.html>
- 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*

<b>Name</b>	<b>Financing</b>	<b>Marketing</b>	<b>Other Costs</b>	<b>Apparent Problem</b>
Toysmart.com	\$45 million	\$25 million	\$20 million	Bad timing from Disney.
Boo.com	\$135 million	\$65 million to \$85 million	\$50 million to \$70 million	Slow Modem Connections. Unmanaged Expectations. Timing and execution issues.
CraftShop.com	\$3 to \$5 million			Less than 1% of visitors purchased. Bad timing and bad execution.

# *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

# *Characteristics of Internet B2B*

## ■ 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**

# *CGI Scripts (by T. Ziegler)*

## ■ 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+rx public_html`
- Logout
- ftp the content of the “HomePage” directory to `public_html`
  - \* `ftp ftp.eden.rutgers.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  
- #FFFFFF
  - \* 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 . . .