The WWW Revolution

• Late 1990: WWW, HTTP, HTML, “Browser” invented by Tim Berners-Lee at CERN.
• Mid-1994: Mosaic Communications founded (later renamed to Netscape Communications).
• 1995: “Browsing” has become a universal pastime. IE ships with Windows 95.
• New businesses (e.g., portal companies) enabled.
• Old businesses (e.g., book selling) revolutionized.
• Triumph of Internet architecture and ethos: layering, “stupid network,” open standards.
Web Brought Us E-Commerce

Electronic commerce is a set of technologies, applications, and business processes that link business, consumers, and communities

- For buying, selling, and delivering products and services
- For integrating and optimizing processes within and between participant entities
E-Commerce, cont.

• **Information** is anything that can be digitized, *i.e.*, encoded as bits. Examples include books, magazines, movies, music, web pages, software, and databases.

• **Information industries** are those that produce information goods and/or deliver information services.

• **Networked industries** are those that rely on customers' interaction. Networks can be real (as in the telecomm industry) or virtual (as in the PC-software industry).
The Internet is “an Interesting and Productive Forum” for Business

- Netscape
- Napster
- LimeWire
- KaZaa
- Amazon
- bn.com
  (Barnes & Noble)
- VeriSign
- Covisint
- eBay
- Google
- Yahoo
- AOL
- MSN (Microsoft)
The Internet is *Not* a Miraculous Forum for Business

In CPSC155 (Spr ’01), but not in CPSC156 (Fall ’03): Intertrust, Exodus, Ariba, OpenMarket, Pets.com,… In for *historical* interest: Netscape and Napster

“The Internet Boom”: c. 1997 – c. 2001 (now called “first boom”)
Existing Business Models for Information Products

- **Fee models**: Subscription purchase, Single-transaction purchase, Single-transaction license, Serial-transaction license, Site license, Payment per electronic use
- **Advertising models**: Combined subscription and advertising income, Advertising income only
- “**Free**” distribution models: Free distribution (no hidden motives), Free samples (e.g., coming attractions), Free first version, Free information when you buy something else (complementary products, bundling)
Less Traditional Business Models for Information Products

• **Extreme customization**: Make the product so personal that few people other than the purchaser would want it.
• Provide a **large product in small pieces**, making it easy to browse but difficult to get in its entirety.
• **Give away digital content** because it complements (and increases demand for) the traditional product.
• Give away the product, **sell the service contract**.
• Allow free distribution of the product but **request payment** (Shareware).
• Position the product for **low-priced, mass market distribution**.
Network Effects

• A product or service exhibits network effects if its value to any single user is strongly positively correlated with the total number of users. Communication products and services are prime examples.

• Network-effected products and services exhibit long lead times followed by explosive growth. Example: Fax invented in 1843, offered by AT&T in 1925, and widely adopted in 1980s.

• “Network-effected” ≠ “mass-market”

* Network effects cut both ways!
Lock-in and Switching Costs

• Information industries often involve systems of interoperating components and durable complementary assets. Prime examples are Intel processors, Windows PC Platform, and numerous PC application programs.

• Often leads to technology lock-in and high switching costs

• Modular architectures and open standards are mitigating forces.

• “Network effects” ≠ “Strong lock-in”

• “High market share” ≠ “High switching costs”
Discussion Points

• Have you been forced by network effects and systems effects to pay high switching costs?
• Do information industries have too much power over consumers?
• Note failed attempts to force switching: Quadrrophonic sound, (Landline) Picture Phones, DAT, “Trusted Systems,” ...
• Note current attempt: HD DVD formats
Textbook Case: Netscape

- **Late 1990**: WWW, HTTP, HTML, “Browser” invented by Tim Berners-Lee
- **Mid-1994**: Mosaic Communications founded (later renamed to Netscape Communications)
- **Summer of 1995**: Market share 80%+
- **August 1995**: Windows 95 released with Internet Explorer
- **January 1998**: Netscape announced that its browser would thereafter be **free**; the development of the browser would move to an **open-source** process.
Estimated Market Share of Netscape

NOTE: data are from different sources and not exact

Nov 1998: AOL buys Netscape
Perfectly Captures the Essence of the First Boom

- Enormous power of Internet architecture and ethos (e.g., layering, "stupid network," open standards)
- **Must** bring new technology to market quickly to build market share
- Internet is the distribution channel.
  - First via FTP, then via HTTP (using Netscape!)
  - Downloadable version available free and CD version sold
Uses Many “Information Business Models”
(esp. those that involve making money by “giving away” an information product)

Complementary products (esp. server code)
• Bundling
  - Communicator includes browser, email tool, collaboration tool, calendar and scheduling tool, etc. One “learning curve,” integration, compatibility, etc.
• Usage monitoring
  - Data mining, strategic alliances
  - “Installed base” ≠ “Active installed base”
Browser as “Soul of the Internet”

• “New layer” (Note Internet architectural triumph!)

• Portal business
  - Early “electronic marketplace”
  - Necessity of strategic alliances
  - “Positive transfers” to customers

• (Temporarily?) Killed R&D efforts in user interfaces
Pluses and Minuses of Network Effects

+ Initial “Metcalf’s Law”- based boom
+ Initial boom accelerated by bundling, complementary products, etc.

- Network effects ≠ strong lock in high market share ≠ high switching costs
- Network effects are strong for “browser” but weak for any particular browser.
Terminology

- **B2C Commerce**: Interactions relating to the purchase and sale of goods and services between a business and consumer—retail transactions.

- “Novelty” is that retail transaction is done on the Internet, rather than in a “brick and mortar” store location.
  - All the customer needs is a browser!

- Technical evolution of B2C from “brick and mortar” model not new.
A Different Approach to Location Retailing

• In 1886, a jeweler unhappy with a shipment of watches refuses to accept them.
• A local telegraphy operator buys the unwanted shipment.
• He uses the telegraph to sell all the watches to fellow operators and railroad employees.
• Becomes so successful that he quits his job and started his own enterprise, specializing in catalog sales.
• Name: Richard Sears of Sears Roebuck
B2C Revenue Models

• Sell goods and services and take a cut (just like B&M retailers). (e.g., Amazon, E*Trade, Dell)

• Advertising
  - Ads only (original Yahoo)
  - Ads in combination with other sources

• Transaction fees

• Sell digital content through subscription. (e.g., WSJ online, Economist Intelligence Wire)
First-Generation B2C

- Main Attraction: Lower Retail Prices
- “B2C Pure Plays” could eliminate intermediaries, storefront costs, some distribution costs, etc.
- Archetype: www.amazon.com
Many Failed B2C Pure Plays

eToys.com, pets.com, webvan.com,…


“Here’s a radical thought: The future of the online grocer market belongs to grocery stores. They know the business, they can mix (sales) channels, and they can take their time.”

W. Andrews (Gartner), 7/9/01, commenting on the webvan.com bankruptcy.
“Multi-Channel” Retail (B2C w/ B&M)

• Exploit multiple marketing and distribution channels simultaneously
  - B&M ("bricks and mortar") stores: Customers browse on the web before going to the store.
  - Catalog sales, telephone, tv advertising,…

• Since 2002, multi-channel retailers (i.e., B&Ms or traditional catalog companies that also sell online) have accounted for most of B2C e-commerce. Originally, they focused mostly on high-margin sales, e.g., computers, travel, and automotive.

• Multi-channel retailers are more profitable, on average, than web-based and store-based retailers.

(source: Boston Consulting Group)
Advantages of Multi-Channel Retail

- Leverage existing brands.
- Biggest B&M retailers have huge clout. (*Walmart’s annual sales are still much larger than all e-tailers’ combined.*)
- Profits from existing channels can subsidize e-tail start-up. No need to quit when VCs lose interest.
- Use established distribution and fulfillment infrastructure (*e.g.*, LL Bean, Land’s End, …).
- Cross-marketing and cross-datamining.