Class announcements

- Assignment 3 uploaded on the website. Due Tuesday Feb 9, 2010

- Reading for next class
  - Messerschmitt Ch 5, Sun Case
  - Suggestion: Read Messerschmitt Ch5 first.
Student Presentations
E-commerce
Major Categories

- Consumer (B2C)
  - Example: Amazon.com sells books to consumers.

- Inter-consumer (C2C)
  - Example: eBay

- Inter-enterprise (B2B)
  - Example:
E-Commerce Principal Steps

- Matching buyers and sellers
- Negotiating terms
- Consummation
- Customer service
Matching Buyers and Sellers

- **Catalog**
  - Seller publishes a catalog of goods and services
  - Willing buyers access at their initiative

- **Advertising**
  - Attach advertisements to other publications or web pages
  - Example: Spam

- **Intermediary Recommender**
  - Examples?
Intermediaries?

- What rolls should intermediaries play in the networked age?

- What intermediary rolls may change or even be eliminated?
  - Travel Agents?
  - Others?
Negotiating Terms

- Fixed price
- Price based on buyer characteristics
  - History
  - Demographics
  - Behavior
  - Sequential versioning
  - Examples?
    - (Airlines, Hotwire, TurboTax)

- Auctions
Consummation

- **Order**
- **Fulfillment**
  - Seller conveys goods to buyer
- **Payment**
  - Buyer conveys payment to seller
- **Security?**
  - Need to ensure both fulfillment and Payment occur.
Payment options

(Topic of Chapter 14)
Account transfer authorization
Credit/debit card
Digital cash

Micropayments
- Low transaction costs
- Consolidation
Customer Support

- Often need to provide post-sales service to the customer
  - In person
  - Over telephone
  - Via Network
    - Email
    - Remote conferencing
    - FAQ board
    - Automatic distribution of new versions or patches
Customer Relationship Management

- The challenge of maintaining the relationship with a customer is called **Customer Relationship Management (CRM)**

- CRM software applications seek to provide customer facing employees a complete view of each customer.
  - What they’ve bought and returned.
  - What problems they’ve reported.
  - What other agents they’ve talked to in the past.

- An opportunity to add value.
E-Commerce

- **Major Categories**
  - Consumer (B2C)
  - Inter-consumer (C2C)
  - Inter-enterprise (B2B)
Consumer e-commerce (B2C)

- What have you bought on the Internet, or what do you buy most often?

- What are the advantages and disadvantages compared to a retail store or direct mail catalog?
Some Advantages

- **For the Consumer**
  - Check prices at many vendors with minimal effort
  - Price many options
  - Anonymity
  - Order tracking

- **For the Business**
  - Global reach
  - Automate order taking (cost savings)
  - Price Discrimination
Inter-Consumer (E-commerce)

- Prime Example
  - E-Bay

- Other examples?

- What value does something like E-bay add over a simple classifieds listing like craigslist?
Inter-Enterprise E-Commerce (B2B)

- **Procurement**
  - One enterprise purchases goods or services from another

- **Direct Procurement**
  - Ongoing, consistent, and scheduled procurement

- The relationship between firms involved in direct procurement often called a **Supply Chain**

- The set of problems associated with managing a supply chain is called **Supply Chain Management (SCM)**
SCM

- Need to manage the procurement of parts
  - Don’t run out of any one
  - Don’t order too many
  - Order far enough in advance

- Ideally
  - Know in advance
    - # cars
    - features
SCM

- Thousands of orders per day, each with different requirements!
- Adjusting orders from suppliers constantly according to demand
- Minimal inventories
  - Cut costs
  - Much more sensitive to errors or disruptions
- Mass customization requires sophisticated SCM
Networked Computing in direct Procurement

- History predates Internet
- **Electronic Data Interchange (EDI)**
  - Exchange order information between firms involved in direct procurement
  - Usually large firms who could afford proprietary communication links
  - Initially order and invoice
  - Existed since 70’s
- **Financial EDI (FEDI)** later added EFT payment capability
Networked Computing in direct Procurement

- XML (Extensible Markup Language) is another data interchange format making an impact on inter-enterprise commerce

- We will talk more about this later in the quarter.
Indirect Procurement

- Sporadic purchase of goods and services to support organizational objectives
  - Example: Office Furniture
Recall, Alibris

- A start-up to sell used books on the Internet.
- Interloc, Alibris’ predecessor, functioned like a classified ads page for book dealers.
- Alibris changing Interloc’s model
  - Actually sell the books
  - *Charge a fee per sale (instead of per listing)*
  - Intermediary strategy
    - Buy books from dealers
    - Ship to warehouse
    - Re-pack, consolidate order, ship to customer
Why did Interloc succeed so early on?
Alibris

- If Interloc is so successful, why change it?

- What will change as Interloc becomes Alibris?
Alibris

- Why did Manley feel they needed the Sparks facility?

- How does the Sparks facility keep them from becoming disintermediated?
Should Alibris actually buy books and fill up the Sparks facility?
What problems is Alibris having with its e-commerce capabilities?

Why is Alibris having so much trouble setting up simple e-commerce capabilities?

Is this really that hard??

Is it rare for a new-software product from an established, reputable vendor not to work properly?
Should Alibris stick with Oracle? Or switch back to Thunderstone?
Should Manley take the “white knight’s” offer and fire the whole IT staff??!
Alibris

- Rejects “white knight” offer
- Manley secures another bridge loan
- Goes Live 1998
- Thunderstone’s software works ok
- 1 million books at Sparks warehouse by 2000
  - Originally all on consignment from dealers
  - Later, purchases books
- 2002 – Revenue $31 million, loss $7.2 million
- 2003 – Revenue $45.5 million, loss $4.8 million
- March 2004 files for “auction based” IPO
  - May 2004, withdraws IPO after price too low
  - Still Relying on Private Financing
Data and information

by

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Key concept

The key commodity manipulated by information technology is **information**.
To be manipulated in a computing/networking environment, information must be represented by **data**.

What is information?
From a user (human) perspective...
....recognizable patterns that influence you in some way
(perspective, understanding, behavior...)
In the computing infrastructure, information has a somewhat different connotation as structure and interpretation added to data
Data

A bit is “0” or “1” — the atom of the information economy

Data is a collection of bits, like

- “0101110111010110”
- “0000011”
- “111011101011010110110111011011010”

Note: the terms data and information are not always used consistently!
Representation

- Take the place of the original
- Equivalent to, in the sense that the original can be reconstructed from its representation
- Often the original can only be approximately reconstructed, although it may be indistinguishable to the user
  - e.g. audio or video
ASCII

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<th>Hex</th>
<th>Binary</th>
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<td>&lt;9&gt;</td>
<td>/x39</td>
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<tr>
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<td>/x44</td>
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</table>

Note that this representation is not unique…

….this one happens to be a standard (ANSI X3.110-1983)
A picture

This picture conveys information

This information is represented in this computer, but how?
Expanding a small portion of the picture, we see that it is represented by square pixels....

....300 tall by 200 wide.....

....with a range of 256 intensities per pixel

300 • 200 • 8 bits = 480,000 bits (but it can be compressed)
Color picture

A color picture can be represented by three monochrome images...

At the expense of three times as many bits
**Terminology**

- **Data**: Communicate data to another user or organization.
- **Representation**: Data processing.
- **Information**: Output of representation.

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Representation needs to be standardized

If the representation is not standardized, the information is garbled!

Communicate data to another user or organization

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Regeneration

- Make a precise copy of the data (copy bit by bit)
- If you know the representation, this is equivalent to making a precise copy of the information
- Each such precise copy is called a generation
- Process is called regeneration
Replication of information

Anything that can be regenerated can be replicated any number of times

This is a blessing and a curse
Analog information cannot be regenerated

Analog information can be copied, but not regenerated

We will never know exactly what the original of this Rembrandt looked like
Discrete information can be regenerated

Regeneration can preserve data (but not its original physical form)

Regeneration is possible for information represented digitally (which is tolerant of physical deterioration)

\[ 0 + \text{noise} \rightarrow 0 \]
\[ 1 + \text{noise} \rightarrow 1 \]
Replication of information requires knowledge of representation.

Replication of information also presumes knowledge of its representation.

Replication preserves the integrity of the data, but that is not sufficient.

Every .xxx DOS file is a representation.

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Implications

Digitally represented information can be preserved over time or distance in its precise original form by occasional regeneration

- digital library
- digital telephony

Replication of data is easy and cheap
Implications (con’t)

- Replication of information requires knowledge of the structure and interpretation
  - Standardization or some other means
- Extreme supply economies of scale
- You can give away or sell and still retain
- Unauthorized replication or piracy relatively easy