CS155b: E-Commerce

Lecture 13: Feb. 27, 2001

C2C Internet Commerce, continued
Massive Scale Commercial-Website Operation

eBay scale:
   Approximately 20M users.
   Over 500K items added each day.
Massive strain on website reliability and availability.
Major issue for high-traffic B2C sites, too.
June 1999: Three eBay Crashes

- eBay service unavailable for “prolonged” periods of time.
- Revenue-loss estimates: $3M to $5M
- Stock-price fall: 20%
- Blamed on ISP router failure and SUN OS “memory bugs.”

→ Outsourcing to Exodus since Oct 1999.
EXODUS

- Full Name: Exodus Communications, Inc.
- Employees: 600
- Stock Price: $16.125 (Feb 19, 2001)
- Revenues in 1999: $242,100,000
- Business Area: Internet Hosting Service
WHAT EXODUS OFFERS

- “Internet Data Center” facilities in major metropolitan areas
- Connectivity to the Internet through a high-speed, high-availability, redundant network infrastructure
- Services, including security technologies
- Major clients: eBay, Yahoo Geocities, MSN, Lycos, Macromedia, CBS Sports, etc.
BRIEF HISTORY

1. 1994  Founded
2. March 1998  Went Public
3. 1999  Revenue more than $100M
4. 1999  Net loss more than $100M
5. March 2000  Historic Peak of Stock Price ($83)
Auction Design in C2C Commerce

Why Auctions?
- Hard for typical C2C seller to do market research and set optimal fixed price. Auctions allow seller to maximize revenue.

eBay ascending-bid auctions include:
- Starting Price
- Ending Time
- Bid Increment
- (Sometimes) reservation price
- “Proxy bidding agents”
eBay Ascending-Bid Auctions, cont.

• Technically equivalent to $2^{nd}$-price Vickrey
• Importance of “strategyproofness”:
  – Buyers, like sellers, will have little or no information about others’ valuations of the items; so “dominant-strategy solution concept” is appropriate.
  – “Truth telling is a dominant strategy” helps sellers maximize revenue.
• Seller can choose to use a descending bid structure (“Dutch Auction”).
Auctions for Unlimited-Supply (Digital) Goods

- “Optimal Fixed Pricing” (OFP)
- No truthful auction (even multi-price) can beat OFP revenue
- “Competitive” = Ω (OFP revenue)
- No truthful, deterministic auction is competitive.
- There exists truthful, randomized auctions that are competitive.

[Goldberg, Hartline, Wright ’99]
Sale of Monroe Photos and Release
(From February 22, 2001 WSJ)

Auctioneer: eBay Premier and Butterfields of SF
(eBay acquired Butterfields in 1999)

Seller: Tom Kelley Studios of Ventura, CA

Item: Five outtakes of Marilyn Monroe’s 1949 “Red Velvet” photo shoot and the negatives and the “model’s release form”

Expected price: $700K to $1M
Implications for Internet-Based Business

Intellectual-Property Rights Questions Inescapable
- Butterfield’s auction catalog: Right to use name and likeness for “trade and advertising purposes”
- CMG Worldwide (which represents Monroe estate): Will go after anyone who uses “those images in a commercial fashion”

• Potential limits to eBay scope
  - Previous sales of high-end photos, prints, and art have “fallen flat.”
  - Can eBay be more than a “hugely successful … online flea market”? 