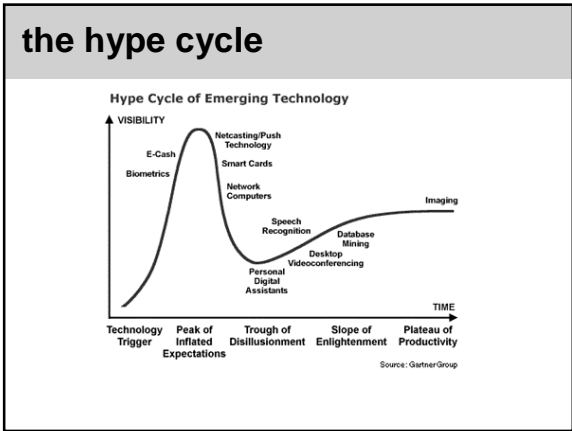


administrivia

- material for final
 - from Alter
 - chapters 2-6, 11-12
 - from Lofland and Lofland
 - parts 1 & 2 (chapters 1-8)
- review lecture



ecommerce

- ecommerce – a radical new idea?
- let's think back...

ecommerce

- ecommerce – a radical new idea?
- let's think back...
 - commerce 5000 years ago

```

    graph TD
      A[buyer locates seller] --> B[selection of goods]
      B --> C[negotiation]
      C --> D[sale]
      D --> E[payment]
      E --> F[delivery]
      F --> G[post-sale]
  
```

ecommerce

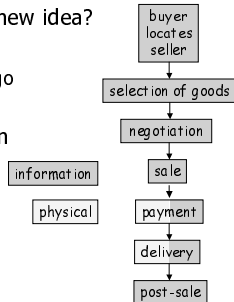
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      H[information] --> B
      I[physical] --> D
  
```

ecommerce

- ecommerce – a radical new idea?
- let's think back...
 - commerce 5000 years ago
 - not so very different
- commerce & information
 - commercial transactions have always depended on information



ecommerce

- commerce has always depended on information
 - what's different in ecommerce is the *medium*
 - electronic forms of communication and exchange
 - telephone, television, the Internet
- commercial transactions have two components
 - an information component
 - product availability, customer preferences, etc.
 - a physical component
 - exchange of payment and goods, etc.

ecommerce

- two questions for ecommerce
 - *how to improve or transform the information component?*
 - better information
 - more effective use of the information you have
 - *how to manage the physical component?*
 - logistics
 - payment systems

fiduciary vs scriptural money

- fiduciary money (fiat money, legal tender)
 - issued by a central (government) bank
 - has real "discharging power" (to discharge debts)
 - cannot be refused
- scriptural money (not legal tender)
 - money not issued by central bank
 - bank accounts, travelers checks, gift certificates, scrips
 - discharging power based on trust in issuer
 - can be refused

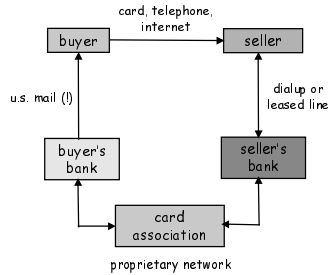
token vs notational money

- token money (value represented by physical article)
 - represented by a physical article
 - e.g. cash, gift certificate, traveler's check
 - can be lost
- notational money (value held in account balance)
 - examples: bank accounts, frequent flyer miles
 - transferred by order
 - requires clearance (determining net effect of multiple orders)
 - requires settlement (payment in fiduciary money)
- hybrid money
 - check, telephone card (carries promise of future service)

credit cards

- most expensive payment mechanism
 - MasterCard: \$0.29 + 2% of transaction value
 - a \$100 charge costs the merchant \$2.29
- currently the most convenient method
- advantage: allows credit
 - people can buy more than they can afford
 - (this is a disadvantage too!)
- disadvantages:
 - doesn't work for small amounts (too expensive)
 - doesn't work for large amounts (too expensive)

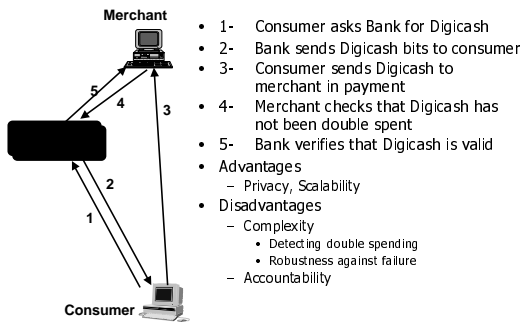
credit card transaction



digital cash

- bit strings as tokens representing value
 - amount, serial #
 - digital signature to protect integrity
- issued by banks
 - similar to 19th century bank notes
- advantages
 - anonymous
- disadvantages
 - can be easily duplicated
 - need to prevent double spending
 - monitor serial numbers

digicash model

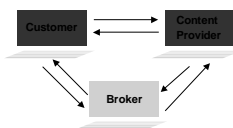


micropayment systems

- the Internet operates on a large scale
 - billions of users
 - billions of pages
- regular payment systems don't scale
 - transaction costs
 - minimum charges
- micropayments allow for tiny charges
 - e.g. paying for page views

millicent

- compaq's (DEC) micropayment system
- vendor-specific currency, called *scrip*
- consumer buys scrip from broker
 - merchant checks for double spending
- transactions:
 - values down to 0.1 cents
 - cost down to 0.002 cents
- minimize crypto processing



thoughts on micropayments

- once upon a time...
 - micropayments once seemed inevitable
 - early days of the Internet
 - commercialising existing activity (e.g. page views)
 - many competing schemes
- these days
 - some notable advocates (e.g. Nielsen)
 - actual ecommerce is *macro*-payments
 - large scale items
 - more likely to buy a car than a newspaper article!

subscription model

- subscription services
 - like micropayments
 - payment mechanism for repeated small charges
 - unlike micropayments
 - paying for *right* to purchase/view/use
- advantages for merchants
 - predictable income model
 - opportunity to learn about customers
- advantages for customers
 - familiar model (e.g. newspapers, AAA)
 - understand consequences for action

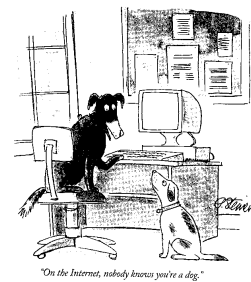
payment system costs

- dispute resolution costs
 - non delivery (Internet is unreliable)
 - processing refunds
- credit risk
 - losses due to overdrawn debit (credit) account vs costs of real time verification
- record keeping costs
 - statements
- communication and processing costs
 - number of messages
 - cryptographic processing
 - privacy protection
- costs of availability
 - realtime versus deferrable communications

the information aspect

- commercial transactions always informational
 - but now the information is:
 - more pervasive
 - available in real time
 - directly communicated between customer and vendor
- so what can we do?
 - what we can do depends on what we can know
 - target marketing information better
 - depends on knowing who's where
 - create more appealing products
 - adapting to individual tastes
 - lower costs
 - integrating information about multiple people

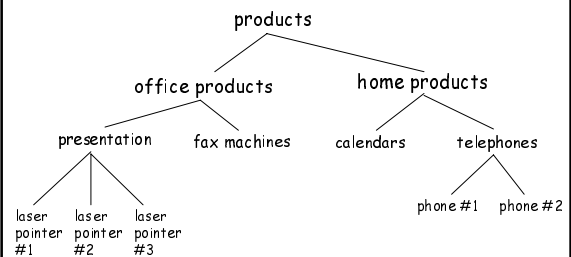
adaptation vs anonymity



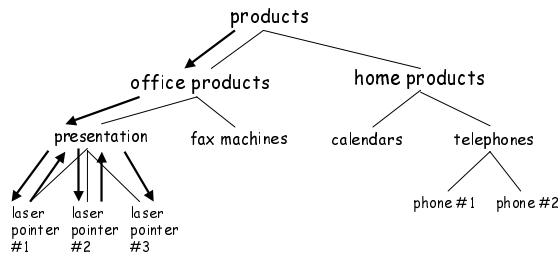
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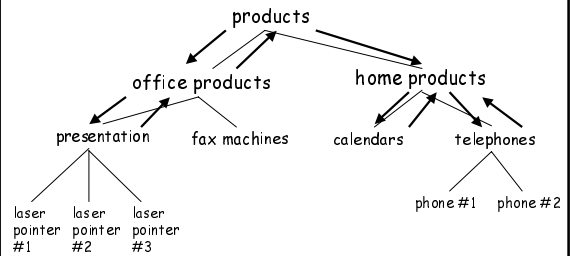
within-site tracking



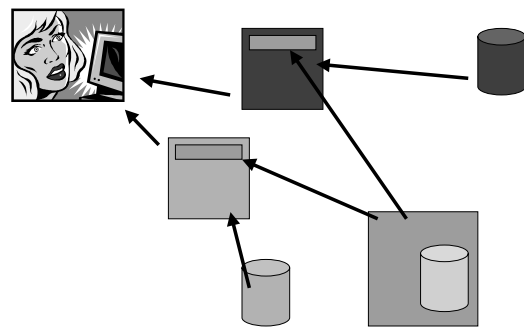
within-site tracking



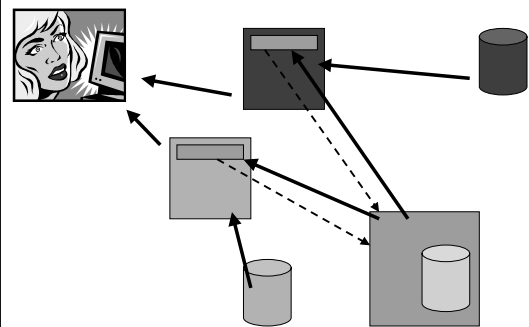
within-site tracking



between-site tracking



between-site tracking



building customer profiles

- customer profiles
 - integrate information from different places
 - where customer has been
 - what they were doing there
- target audience
 - browsing tables at bookstores
 - the amazon.com front page
- personalise experience
 - replace the in-person experience of f2f
 - but now, can do this on a massive scale

personalisation/customisation

- *mass* personalisation
 - in the everyday world
 - there's only one store
 - you have limited information about customers
 - manufacturing and sales are decoupled
 - in the online world
 - everyone's experience can be uniquely tailored
 - indeed, tailored not just to Joe, but to Joe-at-this-moment
 - can integrate sales and manufacturing directly
 - build-to-order
 - personalised profiles

demand aggregation

- traditional commerce aggregates *supply*
 - doesn't make sense to make just one computer
 - first make a number of them, then sell to many people
- ecommerce allows aggregation of *demand*
 - “exercising buying power”
 - buying power comes from putting people together
 - ie aggregating demand
 - e.g. PriceLine; Mercata
- it's a question of information economics
 - this was always possible; it was just too hard
 - now it's easier to get the information you need

ecommerce and integration

- integration through the product lifecycle
- integration between organizations
- integrate customer into processes
 - why bother doing order entry yourself?
 - get the customer to do it!
- this is all about *competitive advantage*
 - reducing costs
 - aggregating demand
 - personalisation and adaptation (switching costs)

next time

- two more lectures
 - case studies on Wednesday
 - review lecture on Monday
 - email me if there are specific topics you want to go over