Outline For Today

- Class Announcements
- Student Presentations
- Alibris
- Messerschmitt Ch4
Class announcements

- Assignment 2 due Today!
- Assignment 3 out
  - (due Wednesday)
- Project Proposal due in 1 week! (April 25)
  - See guidelines on Class Webpage.
- Reading for next class
  - Messerschmitt Ch 5, Sun Case
- Student Presentations Wed.
  - Crystal Lin (Sun Case)
  - David Isaacs (news article)
Class announcements

- Business Paper Proposal due April 25
  - See webpage for requirements
  - I recommend you start soon!

- Midterm April 27
  - 2 weeks from today!!
  - Study:
    - Terms
    - ROI calculations
    - Case Studies
Student Presentation

Robert Hermann

Jessica Lo
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?
Alibris

Should Alibris actually buy books and fill up the Sparks facility?
Alibris

- 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?
Alibris

- 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
A few terms from chapter 3

**Transaction Processing Systems** record and process data from business transactions.

**Batch Processing** - transactions are accumulated over a period of time and processed periodically.

In **Online Transaction Processing (OLTP)**, transactions are processed immediately.
Data and information

by

David G. Messerschmidt
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©Copyright David G. Messerschmitt, 2000. This material may be used, copied, and distributed freely for educational purposes as long as this copyright notice remains attached. It cannot be used for any commercial purpose without the written permission of the author.
Digital information refers to information represented by discrete alternatives. As distinct from analog (continuous alternatives), as a practical matter, these discrete alternatives are represented by bits.
Example

Internet address:
- today 32 bits to represent each host (IP V4)
- \(2^{10} = 1024 \approx 10^3\)
- \(2^{32} = 4 \times 2^{30} = 4 \times (2^{10})^3 = 4 \times (10^3)^3\)
- 4 billion addresses (but only tens of millions of hosts)

Future:
- 128 bit address (IP V6)
- \(\approx 1500\) addresses per square foot of the earth’s surface (even considering inefficiencies)

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Terminology

Communicate data to another user or organization

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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

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Replication of information requires knowledge of representation.

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

Every .xxx DOS file is a representation.

Replication of information also presumes knowledge of its representation.
Implications

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

- digital library
- digital telephony
Implications (con’t)

Replication of information requires knowledge of the structure and interpretation
- standardization or some other means

Extreme supply economies of scale
- high creation cost, low replication cost
- new models of payment (like free trials, advertising, and versioning)
- most pricing is for efficient resource allocation, but not information!

Non-rival: You can give away or sell and still retain
Unauthorized replication or piracy relatively easy
Architecture

by

David G. Messerschmitt
A system is decomposed into interacting subsystems.

Each subsystem may have a similar internal decomposition.
Three elements of architecture

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Architecture example

by

David G. Messerschmitt
Architecture

Is

- internal decomposition of an application (or the infrastructure) implementation into interacting modules

Is *not*

- decomposition of the user functionality into natural groupings

Of course, these *are* related
Example

Develop a top-level architecture for a Web site that supports this course
Example: post project file

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Example: read discussion forum

- Access
  - view unread messages
  - authenticate user
  - read messages

- Discussion
- Grade view/update
  - note reads
  - retrieve messages
  - log reads

- User
- Calendar
- Messages
- Quiz
- Grades

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Networked computing infrastructure

by

David G. Messerschmitt
Layering builds capability incrementally by adding to what exists.

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Layering

Elaboration or specialization

Services

Existing layers

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The basic idea

Diversity of applications

Common services and representations and structures for information

Diversity of processing, storage, and connectivity technologies

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The Internet

by

David G. Messerschmitt
Network equipment

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What is the Internet

Internet = the major global internet
An internet is a “network of networks”
  - Interconnect standard for LAN’s, MAN’s, and WAN’s
A private internet is called an intranet
An extranet is an interconnection of intranets through the Internet

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Ideas and examples
(Chapters 4-5)

by
David G. Messerschmitt
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Terminology

Data → Representation → Communication data to another user or organization → Data

Information

Data processing

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Example

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Peer to peer

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Email application

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Chat application

Chat clients send user’s typing to server

Chat server aggregates typing from all users and sends to all clients

Other user’s clients display aggregated typing from chat server
Three-tier client/server

Local-area network

Application logic

Presentation

Note: many clients per application server, several application servers per data server
Departments

Enterprise

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