

TIM 50 - Business Information Systems

Lecture 15

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UC Santa Cruz
11/14/2011

Outline

- Announcements
- Components & Industry
- Student Presentation(s)
- Standardization
- MySQL

Class announcements

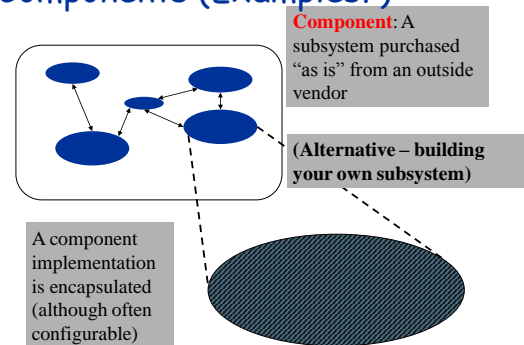
- Assignment 3 out today
- Wednesday 11/16:
 - ??
- Reading for next class:
 - Ch. 15.3.1 - 15.3.3, 15.3.6, 15.4 of Messerschmitt (pp. 426-430, 432-437)

Student Presentations

Today:
Natalja Robinetts (Sun)

Components, Suppliers

Components (Examples?)



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System Integration, Emergence

System Integration:

take the components, add custom developed subsystems, make them interact → reach higher level goal

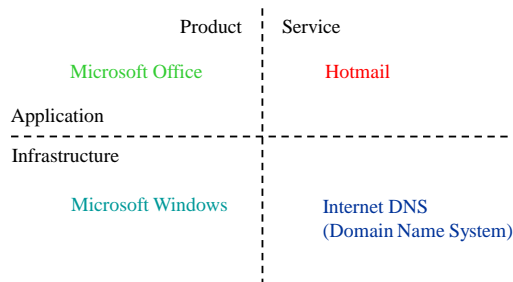
Emergence: new capabilities and functions of a system that subsystems and components could not have provided by themselves.

Supplier Types

- Three types of infrastructure/application suppliers:
 - Component Suppliers
 - Custom Subsystem Developers
 - System Integrators
- (Some suppliers are 2 or even 3 of above.)

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Four possibilities (examples)



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Application Service Providers

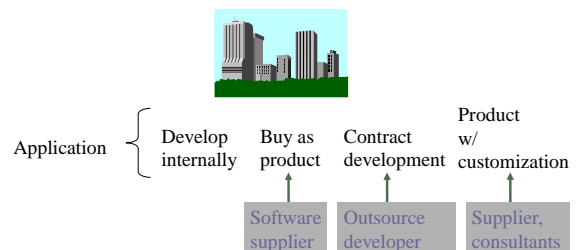
- Two types
 - Bundled
 - An infrastructure provider bundles applications with their infrastructure
 - Example: AOL, telephony service providers
 - Unbundled
 - A provider of an application service without providing an infrastructure service
 - Examples?

Examples of unbundled ASP model

- Web-based calendar (e.g. Yahoo, Google)
- Web-based email (e.g. Hotmail, Gmail)
- Web-based stock trading (e.g. Charles Schwab)

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Application acquisition



The changing industry structure

Stovepipe vs. Integrated Infrastructure

Stovepipe Architecture ---or--- Turnkey Solution

- Single supplier provides all encompassing solution
- (complete with infrastructure)

Application and Infrastructure

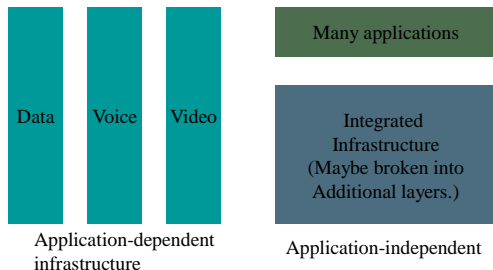
Integrated Infrastructure

Separate infrastructure that can support many applications

Application
Infrastructure

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From stovepipe to layering



Stovepipe vs. Integrated Infrastructure

- What are some examples of each?
 - Telephone network
 - Broadcast tv
 - Internet
 - Pc
- What are the advantages of each approach?

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Vertical Integration - Diversification

- Two approaches for companies wishing to expand their product offerings
- A company is **vertically integrated** when it makes rather than buys the subsystems in it's products. Example: IBM
- A **diversified** company produces products across different industry segments. Example: Compaq

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Less Vertical Integration - More Diversification?

- Why do customers favor less vertical integration?
 - Prefer competition amongst component suppliers
 - Mix and match components - free choice, but at a price
 - Reduced lock in
- Disadvantages??
 - Customer needs to integrate components from different suppliers.

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Less Vertical Integration - More Diversification

- Why do customers favor diversification (in the application space)?
 - Reduce coordination costs by having to deal with fewer suppliers.
 - Fewer vendors overall → less chance of toxic interactions

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Standardization

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Purpose of a standard?

- Allow products or services from different suppliers or providers to be interoperable

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Scope of a standard

- **Included:**
 - interfaces (physical, electrical, information)
 - architecture (reference model)
 - formats and protocols (FAP)
 - compliance tests (or process)
- **Excluded:**
 - implementation
 - (possibly) extensions

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The Standardization Process

- Before something becomes a standard requires....
 - recognition of its need by a standards body/industry/government
 - commitment of monetary and human resources by participants
- Usually, is an ongoing process
 - Refinements/Extensions

Examples:

ISO: <http://standards.iso.org/ittf/PubliclyAvailableStandards/>
W3C: <http://www.w3.org/>

The Standardization Process

- Each organization participates in Working Groups/Committees of interest
 - Hold periodic meetings for debates/arguments/negotiation
 - When reaching a consensus, publish a RFC (Request for Comments) draft
 - Others can give feedback/Send comments etc.
 - The committee should answer to all comments and incorporate needed changes
 - Time-consuming process
- Results in extensive documentation and sometimes in system prototypes
- Usually standards evolve
 - Backward compatibility (e.g. MPEG)
 - Compatibility with existing standards (e.g. XQuery, XSLT based on XPath)

Some issues

- **Slow and cumbersome process**
- **Once a standard is set**
 - becomes possible source of industry lock-in; overcoming that standard requires a major advance
 - may lock out some innovation

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Why do companies participate?

- **Influence the standard**
- **Gain expertise and implement prototypes**
 - Faster time to market than competitors
- **Gain intelligence about competitors**
 - That might be part of the standardization body as well
- **May benefit financially through patent protection and royalties**
 - Maintaining ownership of proprietary technology
- **Many companies contribute their expertise to design something bigger**

Types of standards

- **de jure**
 - Sanctioned and actively promoted by some standardization body, or by government
- **de facto**
 - Standard practice
 - Dominant solution arising out of the market, OR
 - Recommended by voluntary industry standards body
- **Examples?**

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Examples

de jure

- GSM (global for mobile communication),
- ISDN (Integrated Services Digital Network) Telephone interface

de facto

- Windowed GUI
- Java
- Internet protocols

Voluntary industry standards body

- IEEE (Institute of Electrical and Electronic Engineers)
- IETF (Internet Engineering Task Force)
- EPCglobal (RFID standard for UHF)

Industry consortium

- W3C (World Wide Web Consortium)
- SET (Secure Electronic Transactions)

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The changing process

- **As technology and industry move more quickly, the global consensus standards activity has proven too unwieldy**
 - e.g. ISO
- **"New age" standards activities are more informal, less consensus driven, a little less political, more strategic, smaller groups**
 - e.g. W3C, IETF, WAP
- **Programmable/extensible approaches for flexibility**
 - e.g. XML, Java

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Reasons for change

- **From government sanction/ownership to market forces**
 - Increasing fragmentation
 - Importance of time to market

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Open vs. Proprietary Standards

- **Open standard** - a standard that is well documented, unencumbered by intellectual property rights and restrictions, and available to any vendor
 - e.g. Internet protocols
- What are the advantages?
- What are the disadvantages?

The role of Venture Capital in Computing

- **Start-Ups:** Open interfaces allow small firms to contribute components without having to develop entire solution
- High risk for VCs
- Diversification
 - Each VC funds multiple start-ups
 - Each start-up funded by multiple VCs
- **Is this model successful? For the start-up? For the VC? For the customers? Why?**

mySQL

What does mySQL make?

How Successful is mySQL?

- Visibility: Fortune magazine, more mentions on www
- Reaction from giants
- Revenue growth 2001 700k, 2002 6.2m, 2003 10m
- Good performance reviews
- Recent SAP alliance
- But Market share tiny:
 - \$10 million out of \$10 billion market!
- **Why Success?**
 - Good Technology
 - Large DBMS bloated with features most don't need
 - Innovative OSS model

Standards applied to Business Processes?

- **Can you standardize business processes?**
- **Yes!**
 - ISO 9000
 - A set of standardized business processes for Quality Management.
 - Supports TQM (Total Quality Management)
 - RosettaNet
 - A set of standardized business processes, and accompanying standardized data interfaces/formats for conducting e-business.
 - BPEL (Business Process Execution Language)
 - An XML-based language for the formal specification of business processes and business interaction protocols

mySQL Case

mySQL

How does OSS work?

Two Types of License:

- **GPL (General Public License (GNU))**
 - Free
 - No Support
 - Any software that uses MySQL as a module must itself be made GPL-compliant
- **Commercial License**
 - Support
 - Could be distributed with non-open source software
 - Not Free:
 - MySQL: Classic \$250, Pro \$495 (for ~ 50 users)
 - Compare to:
 - MSFT \$3150 single proc for 50 users
 - IBM \$33000 single proc for 50 users
 - Oracle \$40000 single proc for 50 users

Aside: DB's in different software stacks

General Software Stack	ERP Software Stack	Web Application Software Stack	Banking Software Stack
Application	SAP Or Oracle, Axtapa, etc.	Proprietary Business Logic Apache Web Server	Proprietary Banking App.
Middleware	Oracle or MySQL, IBM, etc	MySQL or other DB	Oracle or other DB
Operating System	MS Windows or other OS	Linux or other OS	IBM z/OS or other OS

- Which companies are competitors?
- Which are complementers?
- Which are both!?

mysql

- Which segments of market is MySQL strong in?
 - Large Companies or Small Companies?
 - Web applications or Critical Enterprise data?
- Why would a major enterprise want to pay so much more for an Oracle or IBM DB
- How should MySQL proceed? What are the advantages/disadvantages?

My SQL: market

	Small 20%	Medium 30%	Large 50%
Enterprise wide data 90%	Microsoft		Oracle IBM Reliability Scalability Support Longevity
Web Sites 10%	My SQL Cost		

How should MySQL grow in order to meet it's stated goal of getting to \$100 million In revenue?

Figure Adapted from "Teaching Note for MySQL Open Source Database," 6/1/04, Stanford GSB.

My SQL: Growth Strategy

	Small 20%	Medium 30%	Large 50%
Enterprise wide data 90%	Microsoft		Oracle IBM Reliability Scalability Support Longevity
Web Sites 10%	My SQL Cost		

(Note: An arrow points from the 'Web Sites' row to the 'Enterprise wide data' row, with a red 'X' over the arrow.)

- Lack of Brand identity in this segment
- MySQL lacks the organization to offer support
- Large enterprises have high switching costs

Figure Adapted from "Teaching Note for MySQL Open Source Database," 6/1/04, Stanford GSB.

My SQL: Growth Strategy

	Small 20%	Medium 30%	Large 50%
Enterprise wide data 90%	Microsoft		Oracle IBM Reliability Scalability Support Longevity
Web Sites 10%	My SQL Cost		

(Note: A black dot is placed in the 'Web Sites' row under 'My SQL Cost', with a red 'X' over it and the text 'Stop Put?' next to it.)

- Not a big enough market to reach stated \$100 million goal.

Figure Adapted from "Teaching Note for MySQL Open Source Database," 6/1/04, Stanford GSB.

My SQL: Growth Strategy

	Small 20%	Medium 30%	Large 50%
Enterprise wide data 90%	Microsoft		Oracle IBM Reliability Scalability Support Longevity
Web Sites 10%	My SQL Cost		

(Note: An arrow points from the 'Web Sites' row to the 'Enterprise wide data' row, with the text 'Maybe?' next to it.)

- + Many of these customers already using MySQL with websites
- + Less emphasis on global organization
- + Leverage SAP alliance
- Up against Microsoft.

Figure Adapted from "Teaching Note for MySQL Open Source Database," 6/1/04, Stanford GSB.

My SQL: Growth Strategy

	Small 20%	Medium 30%	Large 50%
Enterprise wide data 90%	Microsoft		Oracle IBM Reliability Scalability Support Longevity
Web Sites 10%	My SQL Cost	→ Maybe?	

- + builds on existing brand and strengths
- - Market not so big

Figure Adapted from "Teaching Note for MySQL Open Source Database," 6/1/04, Stanford GSB.