ISM 50 - Business Information Systems
Lecture 16
Instructor: John Musacchio
UC Santa Cruz
November 20, 2008

Class announcements
- Reading for Tuesday (Nov 25):
  - Akamai Case
- Student Presentations Tuesday (Nov 25):
  - Krystal Randentz (Akamai Case)
  - Ryan Okrant (Home Depot)

Student Presentations
Kian Fattahi (Business paper)
Jack O’Neill (Business paper)

Standardization
Slide adapted from slides for Understanding Networked Applications
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Purpose of a standard?
- Allow products or services from different suppliers or providers to be interoperable

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

Slide adapted from slides for Understanding Networked Applications
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Some issues

Once a standard is set
- becomes possible source of industry lock-in;
  overcoming that standard requires a major (~10x?) advance
- may lock out some innovation

In recognition, some standards evolve
- IETF, CCITT (modems), MPEG
- backward compatibility

Types of standards

- de jure
  - Sanctioned and actively promoted by some organization
    with jurisdiction, or by government
- de facto
  - Dominant solution arising out of the market
  - Voluntary industry standards body
  - Industry consortium
  - Common or best practice

Examples?

Examples

- de jure
  - GSM, ISDN Telephone interface
- de facto
  - Microsoft Windows API (Application Programming Interface)
  - Intel Pentium instruction set
  - Voluntary industry standards body
  - IEEE (Institute of Electrical and Electronic Engineers)
  - IETF (Internet Engineering Task Force)
  - Industry consortium
  - W3C (World Wide Web Consortium)
  - SET (Secure Electronic Transactions)
  - Best practice
  - Windowed GUI

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. OMG, IETF, ATM Forum, WAP
  - Programmable/extensible approaches for flexibility
    - e.g. XML, Java

Reasons for change

- From government sanction/ownership to
  market forces
  - Increasing fragmentation
  - Importance of time to market
- Greater complexity
  - Less physical/performance constraint for
    either hardware or software

Lock-in

(Particularly open) standards reduce consumer lock-in
- Consumers can mix and match complementary products

Increase supplier lock-in
- Innovation limited by backward compatibility
  - e.g. IP/TCP, x86, Hayes command set
Aside: Network Effects

- The value of owning some products goes up if lots of other people have it too.
  - Examples?
- This phenomenon is called "network effects"
- How do standards influence network effects?

Network effects

Standards can harness network effects to the industry advantage
- Revenue = (market size) x (market share)
- Increases value to customer
- Increases competition
  - Only within confines of the standard
  - But forces customer integration or services of a system integrator

Why standards?

de jure are customer driven to reduce confusion and cost
de facto standards are sometimes the result of positive feedback in network effects
Customers and suppliers like them because they
  - increase value
  - reduce lockin
Governments like them because they
  - promote competition in some circumstances
  - May believe they can be used to national advantage

Approaches

Consensus
  - ISO
Collaborative design
  - MPEG
Competitive "bake off"
  - IETF
Coordination of vendors
  - OMG

Open vs. Proprietary Standards

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

Why companies participate

Pool expertise in collaborative design
  - e.g. MPEG
Have influence on the standard
Get technology into the standard
  - Proprietary, with expectation of royalties
  - Non-proprietary
Reduced time to market
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.

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

MySQL

How does OSS work?

Two Types of License:
- GPL
  - Free
  - No Support
  - Any software that uses MySQL as a module must itself be made GPL
- Commercial License
  - Support
  - Could be distributed with non-open source software
  - Not Free:
    - MySQL: Classic $250, Pro $495 (for ~50 users)
    - Compare to:
      - MSFT $1350 single proc for 50 users
      - IBM $33000 single proc for 50 users
      - Oracle $40000 single proc for 50 users

Aside: DBs in different software stacks

<table>
<thead>
<tr>
<th>General Software Stack</th>
<th>ERP Software Stack</th>
<th>Web Application Software Stack</th>
<th>Banking Software Stack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application</td>
<td>SAP or Oracle, Axtapa, etc.</td>
<td>Proprietary Business Logic</td>
<td>Proprietary Banking App.</td>
</tr>
<tr>
<td>Middleware</td>
<td>Oracle or MySQL, IBM, etc.</td>
<td>MySQL or other DB</td>
<td>Oracle or other DB</td>
</tr>
<tr>
<td>Operating System</td>
<td>MS Windows or other OS</td>
<td>Linux or other OS</td>
<td>IBM z/OS or other OS</td>
</tr>
</tbody>
</table>

- Which companies are competitors?
- Which are complimenter?
- Which are both?