TIM 50 - Business Information Systems

Lecture 13

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Class Announcements

- Database Assignment 2 posted
  - Due 5/27
- Business paper draft due 5/20
Unbundled ASP model

Advantageous to user

- Proven way to reduce installation, integration, and maintenance costs
- Contractual obligation for availability and quality
- Location independence

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Unbundled ASP model (con’t)

Advantages to supplier

- Ongoing revenue stream supporting upgrade and maintenance
- Usage-based revenue better aligned with user’s value proposition
- Opportunity for price discrimination, advertising revenue, etc.

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Infrastructure acquisition

Infrastructure: Build and operate, Build but do not operate, Do not build but operate, Neither

Outsourced operations, System integrator, Service provider

Trend

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Application acquisition

Application

\{ Develop internally \quad \text{Buy as product} \quad \text{Contract development} \quad \text{Product w/ customization} \}

Trend

Software supplier

Outsource developer

Supplier, consultants
Stovepipe vs. Integrated Infrastructure

**Stovepipe Architecture**
---or---
**Turnkey Solution**

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

**Integrated Infrastructure**

- Separate infrastructure that can support many applications

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From stovepipe to layering

Many applications

Integrated Infrastructure (Maybe broken into Additional layers.)

Application-dependent infrastructure

Application-independent

Data  Voice  Video
Stovepipe vs. Integrated Infrastructure

- What are some examples of each?

- What are the advantages of each approach?
Vertical Integration vs. Diversification

- A company is *vertically integrated* when it makes rather than buys the subsystems in its products.

- A *diversified* company produces products across different industry segments.

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Vertical Integration vs. Diversification

Why do customers favor less vertical integration?
- Prefer competition amongst component suppliers
- Mix and match components
- Reduced lock in

Disadvantages??
- Customer needs to integrate components from different suppliers.

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Vertical Integration vs. Diversification

- Why do customers favor diversification?
  - Reduce coordination costs by having to deal with fewer suppliers.

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General Trend

- Less Vertical Integration
- More Diversification
- Of course there are exceptions...
Today’s supplier structure

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Standardization
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
Reference model

Decide decomposition of system
- where interfaces fall

Defines the boundaries of competition and ultimately industrial organization
- competition on the same side of an interface
- complementary suppliers on different sides
- hierarchical decomposition at the option of suppliers
- (possibly) optional extensions at option of suppliers
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
- bluray

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. IETF

Programmable/extensible approaches for flexibility
- e.g. XML, Java
Old giving way to the new

The Standards Making Universe

Traditional Model Telco Bodies

Traditional Model
Information Systems Bodies

Traditional Radio Bodies

New Model
Telco Bodies

New Model
Information Systems Bodies

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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?