XML, Java, and Open Source:
The Case for Open Standards

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Money, Sex & Power

In The Digital Enterprise
Agenda

• Introduction
• IT Creation Myth
• Money, Sex, and Power
• The Digital Enterprise
• XML, Java, Open Source
• Epilogue
Heritage

• S.B., Physics @ MIT (Project Athena)
• Ph.D., Physics @ Caltech (NeXTSTEP)
• Associate @ Boston Consulting Group
  • Value Management Practice
  • BCG-Holt Valuation Model
• Mac OS X @ Apple
  • Darwin, Open Source, Open Standards
The Story of IT

- Provide a framework for understanding change in the IT industry
- Help you “Think Different” about the role of technology
- Motivate investment in standards-based technologies
- Change how you think about your goals within an organization
Myth
The Power of Myth

- The stories we tell ourselves
- Who we are
- How we got here
- What is our purpose
- Why things happen
- Where we are going
- The meaning behind the “facts”
Seven Days of Creation

- Eras in the evolution of computing
- Build on each other
- Define new functionality
- Introduce new:
  - Concepts
  - Environments
  - Roles
- May not be precisely true, but close enough
1: Program

- Requires Encoding
- Runs on Mainframe
- Maintained by Administrator
2: Application

- Requires Design
- Runs on Personal Computer
- Maintained by User
3: Client-Server

- Requires Schema
- Runs on Intranet
- Maintained by Network Administrator
4: Web Application

- Requires Distribution
- Runs on Internet
- Maintained by Site Administrator
5: Web Service

- Requires Directory
- Runs on Extranet
- Maintained by Communities
6: Digital Device

- Requires Sync
- Runs everywhere ("Omninet")
- Maintained by ???
7: God Rests

- Looks at the World
- Sees all the Layers
- Asks “Is it ‘Very Good?’ ”
Money, Sex, & Power
The Golden Rule

- What drives total costs
- When do you have to upgrade the system
- Who defines standards
- Which party captures surplus value
- Where do you want to be
The Role of IT
Political Systems

- Collective decision-making
- Legitimate coercion
- Reflects community values
- Three key variables
  - Freedom driven by information flow
  - Strength varies with barriers to exit
  - Innovation varies inversely with barriers to entry
### Generations

<table>
<thead>
<tr>
<th>Era</th>
<th>Money</th>
<th>Sex</th>
<th>Power</th>
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<tbody>
<tr>
<td>Mainframe</td>
<td>Hardware</td>
<td>🌌</td>
<td>Autocracy</td>
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<tr>
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<td>Devices</td>
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<td>Federalism</td>
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The Digital Enterprise
Managing Complexity

(N x M x L) (p x q x r)

- N Devices
- M Applications
- L Databases
- p Versions
- q Platforms
- r Vendors
Two Options
Conformity

- Slow information flow
- Controlled by vendor
- Evolves at pace of slowest component
- High barriers to exit
- Weak ability to defect
- Strong desire to defect
- High barriers to entry
- Only center can innovate
- Moves slowly to edge
Submission
Diversity

- Rapid information flow
- Multiple inputs
- Evolves at pace of fastest component
- Low barriers to exit
- Process, but no authority
- Defectors do not pay the penalty – the center does
- Low barriers to entry
- Innovate on the edge
- Weak link with the center
Analysis

• Positives
  • Both can work
  • May be appropriate for certain industries

• Negatives
  • Points of failure
  • Change is feared
Synthesis
Synthesis
• Chaotic information flow
  – Rapid mixing
    – Evolves independently of components

• High barriers to exit
  – Weak incentive to defect
  – Defectors pay the penalty

• Low barriers to entry
  – Innovate on the edge
  – Rapidly move towards center
How To Get There?

- XML
- Java
- Open Source
- Open Standards!
XML Standards

- Isolate Data from Function
- Each evolves independently
- Constrain interfaces
- Rapidly repurpose data and networks
Java Standards

- Isolate Function from Form
- Each evolves independently
- Constrain implementations
- Rapidly repurpose behaviors and people
Open Source

- Isolates Standards from Money
- Evolve synchronously
- Constrain interoperability
- Rapidly reconfigure systems to adopt standards
Business Case

- Open Source is the end-game of software
- Eventually unit cost = marginal cost
- But the marginal cost is zero!
- Supports commoditization, not innovation
- Same model as public broadcasting
- Individual users who benefit
- Baseline government support
- A few corporate sponsors
XML, Java, Open Source

- Loosely coupled systems
- Tightly managed organization
- Economic incentive to standardize
- Innovate rapidly
- Adapt well to unplanned change
- Support a rich ecosystem of forms and functions

Philosophy, Not Panacea
Conclusions
Final Thoughts

• What are your goals:
  • Prevent or enable change?
  • Control or empower users?

• What are your values:
  • Conformity?
  • Diversity?
  • Unity?
Summary

- The Power of Open Standards
  - XML
  - Java
  - Open Source
- The Power to Create Change
  - Apple
  - Industry
  - Your Organizations