



Technology-based Business Transformation

ESD.57 – Fall 2007

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Society

Business

Technology

Class Overview

- Technology-based innovation and business survival
- Formulating a market strategy around a new, disruptive, complex technology
- Executing a multi-faceted strategy in the marketplace
- Organizational and cultural Issues
- Class project presentation and discussion

Disruptive Innovation

. . . .the Internet and World Wide Web . . .



The Internet - mid '90's



Formulating IBM's Internet-based Strategy

Key Market Factors

- How advanced is the technology?
 - The Internet and Web were breaking out of the research community into the “early adopter” general marketplace
- What is the marketplace saying about it?
 - The marketplace started paying more and more attention, especially after the Netscape IPO in August, 1995
- What are competitors doing?
 - Major competition was arising, both existing companies – e.g., Sun, later Microsoft, and new companies – e.g., Netscape and many new “dot coms”
- How are your clients reacting?
 - Clients were beginning to experiment with the Web – both putting up web sites, front ends to their existing systems, and developing brand new applications, ...

Formulating the IBM Internet-based Strategy

Key Organizational Factors

- Capabilities and “core competencies”
 - The Internet and Web were becoming an integral part of the next generation IT infrastructure requiring systems, software and services
- Fit with legacy products, services and installed base
 - Just about all existing products, services and installations were “web enabled” so they can easily integrate into an Internet infrastructure
- Fit with organization and culture
 - New “dot com” were much faster moving in the marketplace than existing companies and seemed to play by different rules that they were inventing as they went along
- Brand permission and market acceptance
 - There were lots of discussions that we were entering a “new economy” in which only “born to the web” companies could play and survive and existing businesses were destined to fade away

e-business = Web + IT

Industrial Strength

Database Transactions

Scalability Systems Mgmt

Availability

Security

IT

Web



Standards

SET

TCP/IP

HTML

SSL

HTTP

Browsers

Java

Web Servers

GUIs

The Internet, Web and e-business...



Key factor for success in e-business strategy

Balance between disruptive and sustaining innovations

- Leverage organization's skills and talent ...
 - but embrace new market realities: time-to-market, ...
- Leverage products, installed base, customer relationships ...
 - but adapt to new market requirements: standards, ...
- Leverage your brand and history ...
 - but abandon qualities that have become outmoded
- Leverage every possible strength of the organization ...
 - but make sure you are in harmony with the forces of the marketplace

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Playing by different rules in the marketplace

Some key questions - The Innovator's Solution: Chapter 5

- Which activities should a new growth venture do internally in order to be as successful as possible as fast as possible, and which should it outsource to a supplier or partner?
- Will success be best built around a proprietary product architecture, or should the venture embrace modular, open industry standards?
- What causes the evolution from closed and proprietary product architectures to open ones?
- Might companies need to adopt proprietary solutions again, once open standards have emerged?

Decisions about what to in-source and what to procure from suppliers and partners have a powerful impact on a new-growth venture's chance for success.

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Right? Well, sometimes

Managers should ask “What do we need to master today and what will we need to master in the future, in order to excel on the trajectory of improvement that customers will define as important.”

Interdependent versus Modular Architectures

The Innovator's Solution: Chapter 5

■ Interdependent architecture

- No “clean” interfaces - one part cannot be created independently of the other
- The same organization must develop all the interdependent components
- Generally optimize performance, functionality and reliability
- Generally proprietary architectures

■ Modular architecture

- Clean, well specified interfaces - no unpredictable interdependencies
- Modular components can be developed by independent groups or companies
- Optimize flexibility, time-to-market, cost – at the expense of performance
- Generally open architectures

Interdependent, optimized, proprietary architectures

- Most applicable in early stages of a product, when performance, reliability, functionality and components are not good enough
- Highly integrated design and development makes up for deficiencies – but at considerable cost and time-to-market
- Companies/units competing with proprietary, interdependent architectures must be vertically integrated, controlling design and manufacturing of every critical component

Modular, open, flexible architecture

- Most applicable in mature stages, when overall products and critical components have achieved “good enough” performance, reliability, and functionality
- New products can be introduced faster, at significantly lower costs, with far more flexibility and responsiveness
- Companies and industries disaggregate when building product with modular architectures – value-chains and ecosystem become very important

Should you build proprietary or open products?

It all depends

■ Performance dimension

- Proprietary: high performance, leading edge products - higher profit margins, high value services, requires close customer relationships, . . .
- Open, modular: high volume, mature products – generally low profit margins, commodities, requires very good processes, . . .

■ Architectural layer dimension

- Open, modular: “lower”, more mature layers – shared infrastructure, industry standards, open source, requires industry cooperation, standard bodies, . . .
- Proprietary: new applications and solutions built on top of open layers; requires good project management, leading edge tools, complex systems know-how, ...

Evolution of Systems

Breadth and Scope



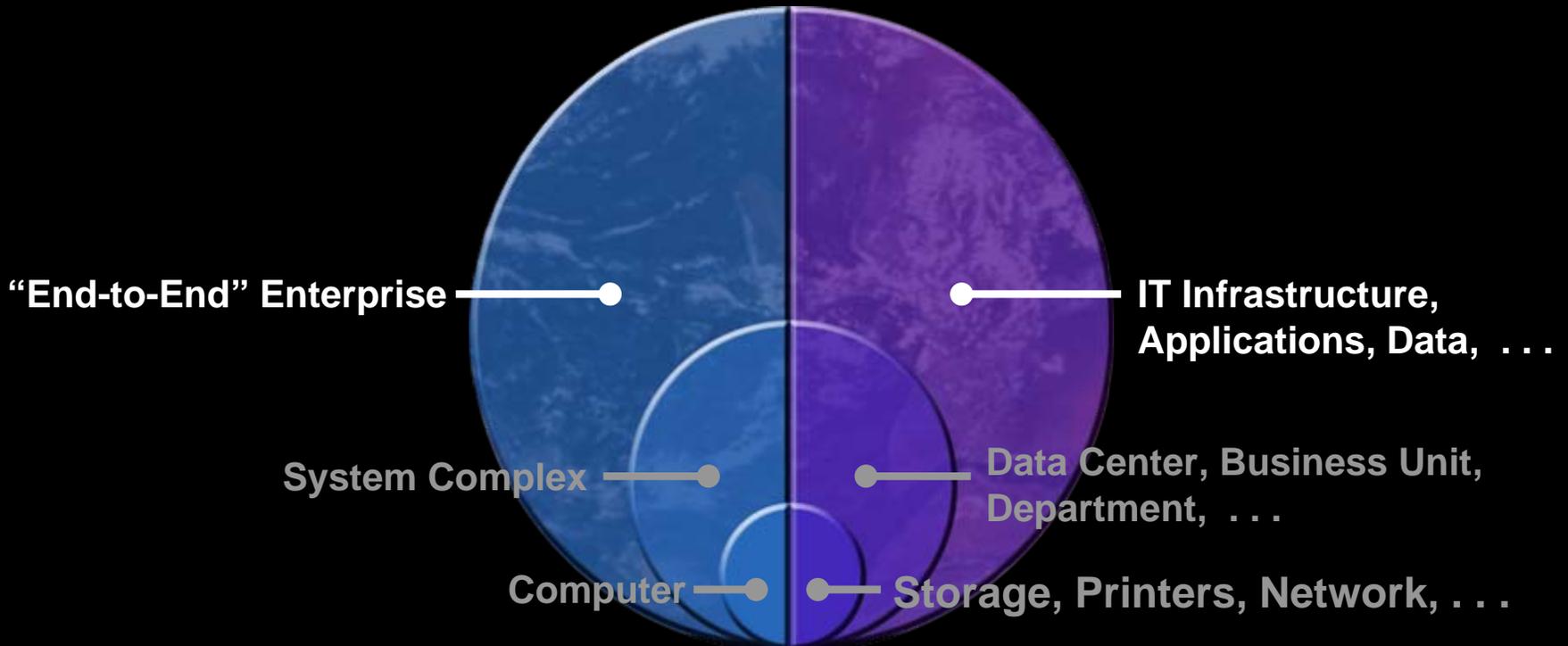
Evolution of Systems

Breadth and Scope



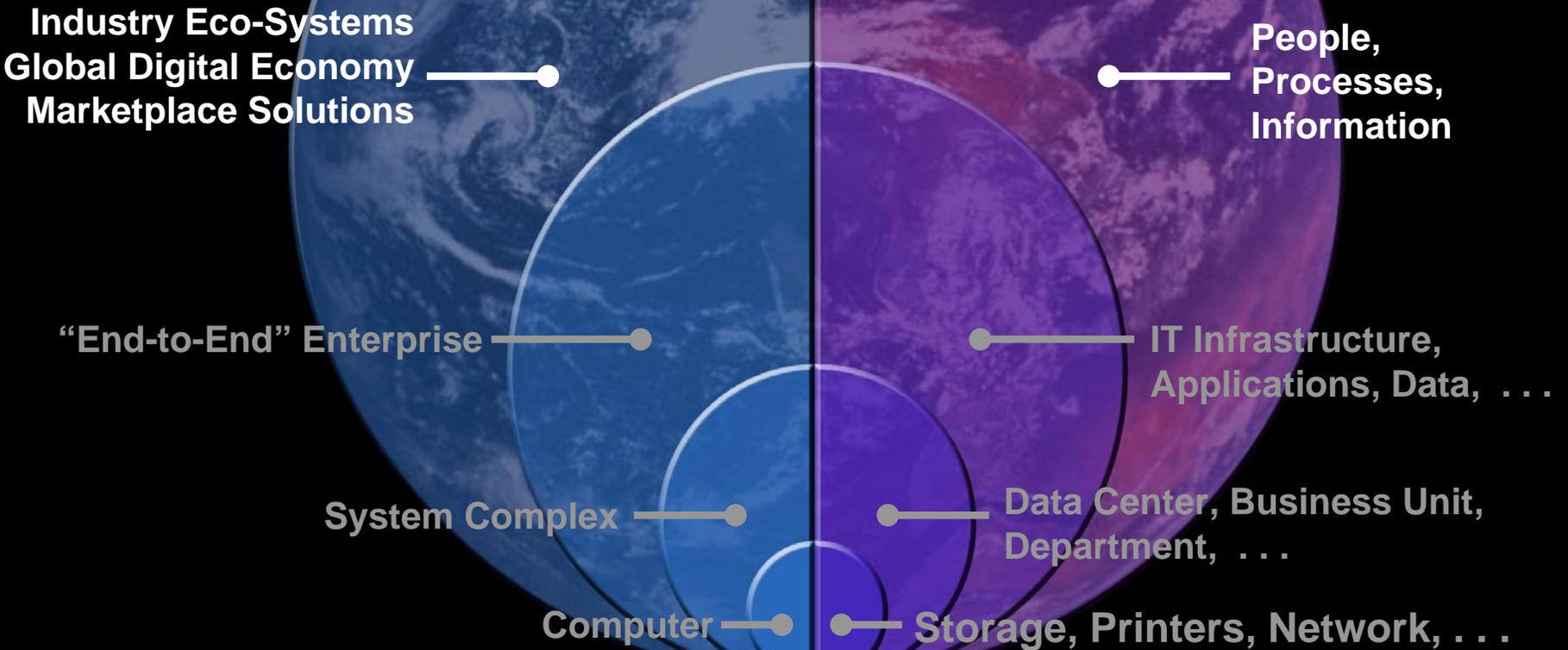
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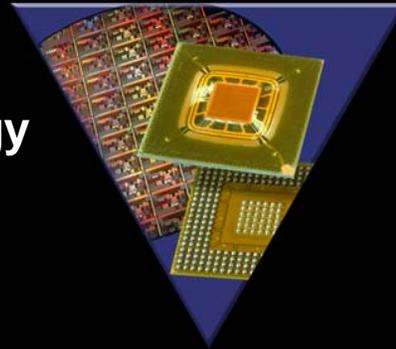
Evolution of Systems

Breadth and Scope



Evolution of Systems *Up the Stack*

Technology

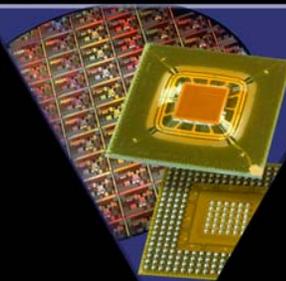


Evolution of Systems *Up the Stack*

Products



Technology



Evolution of Systems *Up the Stack*

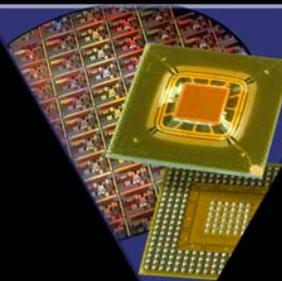
Applications



Products



Technology



Evolution of Systems: *Up the Stack*

Business



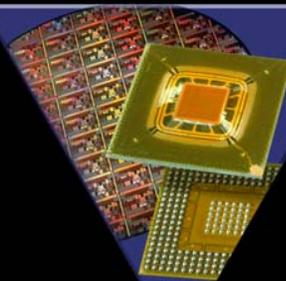
Applications



Products



Technology



Executing IBM's e-business strategy in the marketplace

Key Organizational Factors

- What is the right balance between open and proprietary products and services?
- What should you build in-house versus focusing on partnerships or acquisition?
- How do you focus and organize your offerings in the marketplace?
- How do you measure and track progress including financial returns and market share?

Executing IBM's e-business strategy in the marketplace

Key Organizational Factors

- Balance between proprietary and open
 - Did not participate in “browser wars”, looked at browser as “basic dial tone”
 - Embraced open source Apache web server vs “http” internal effort
 - Focused internal efforts on proprietary enterprise quality software: WebSphere built on Apache and other open source components

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 - Focused on key areas where IBM had skills and enterprise had needs: hosting, security, back end integration, web application servers, . . .
 - Organized offerings around Content, Collaboration and Commerce

Executing IBM's e-business strategy in the marketplace

Key Application Segments

■ Content

- Corporate web sites, general information, . . .
- Customer self-service

■ Collaboration

- Communications, e-mail, instant messaging, . . .
- Internal web sites, employee and partner applications,

■ Commerce

- Business-to-Consumer e-commerce applications,
- Business-to-Business e-commerce applications, . . .

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- **Financial and Market measurements**
 - Tracked directly a number of key, “pure” Internet projects
 - Focused primarily on larger Internet impact on overall revenues, key client engagements, and market impact
 - Reviewed progress closely with CEO and top senior management

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