

InterWorks 2001 HP Technical Conference

Planning & Implementing HP 9000-Based E-Business Infrastructures

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Today's Agenda

- Implementation Case Studies
- Current Trends & Issues
- E-Business Infrastructure Examples
- Determining Costs & Metrics
- Determining Return on Investment
- A New Planning & Implementation Approach

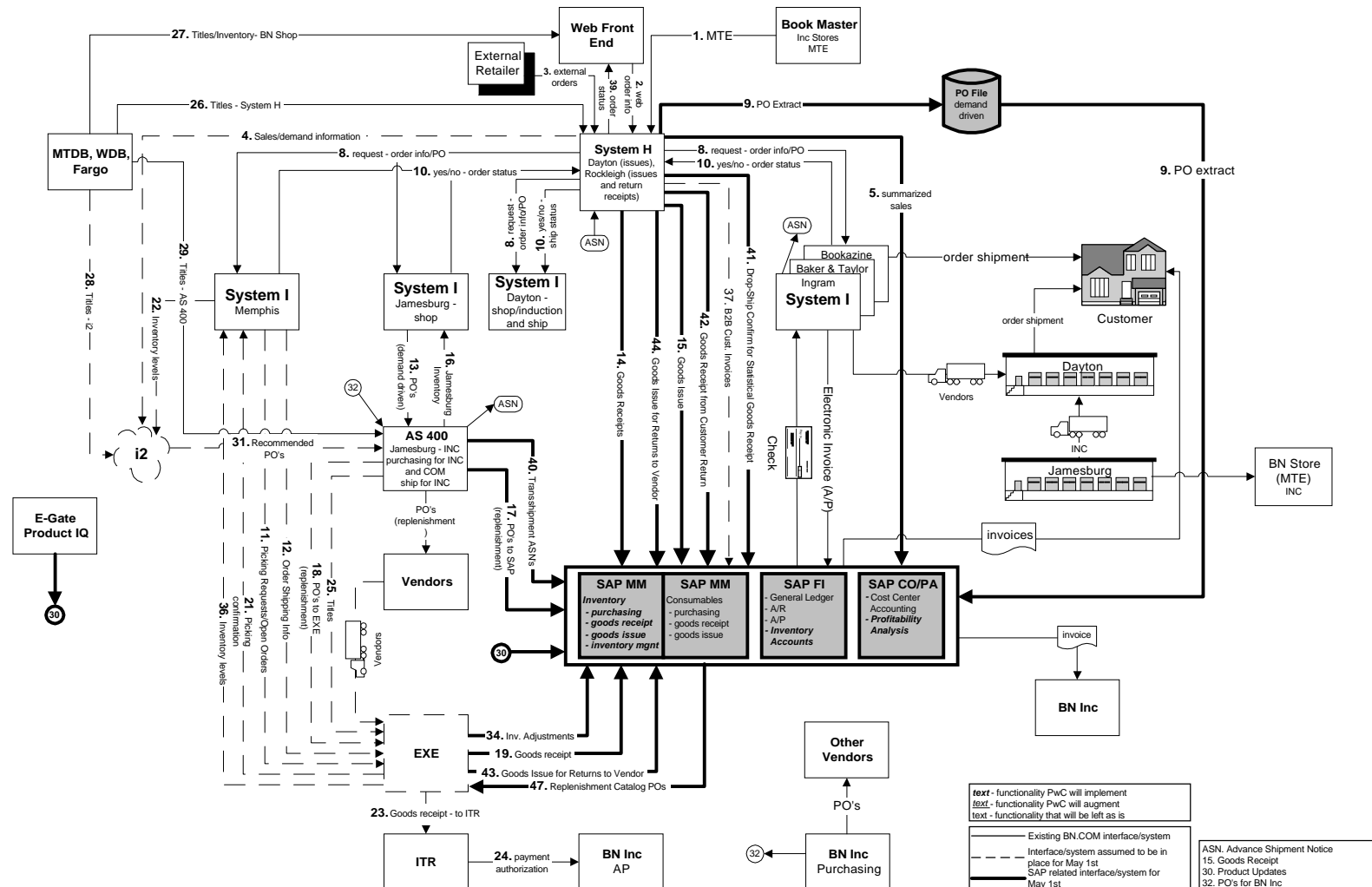


1. Implementation Case Studies

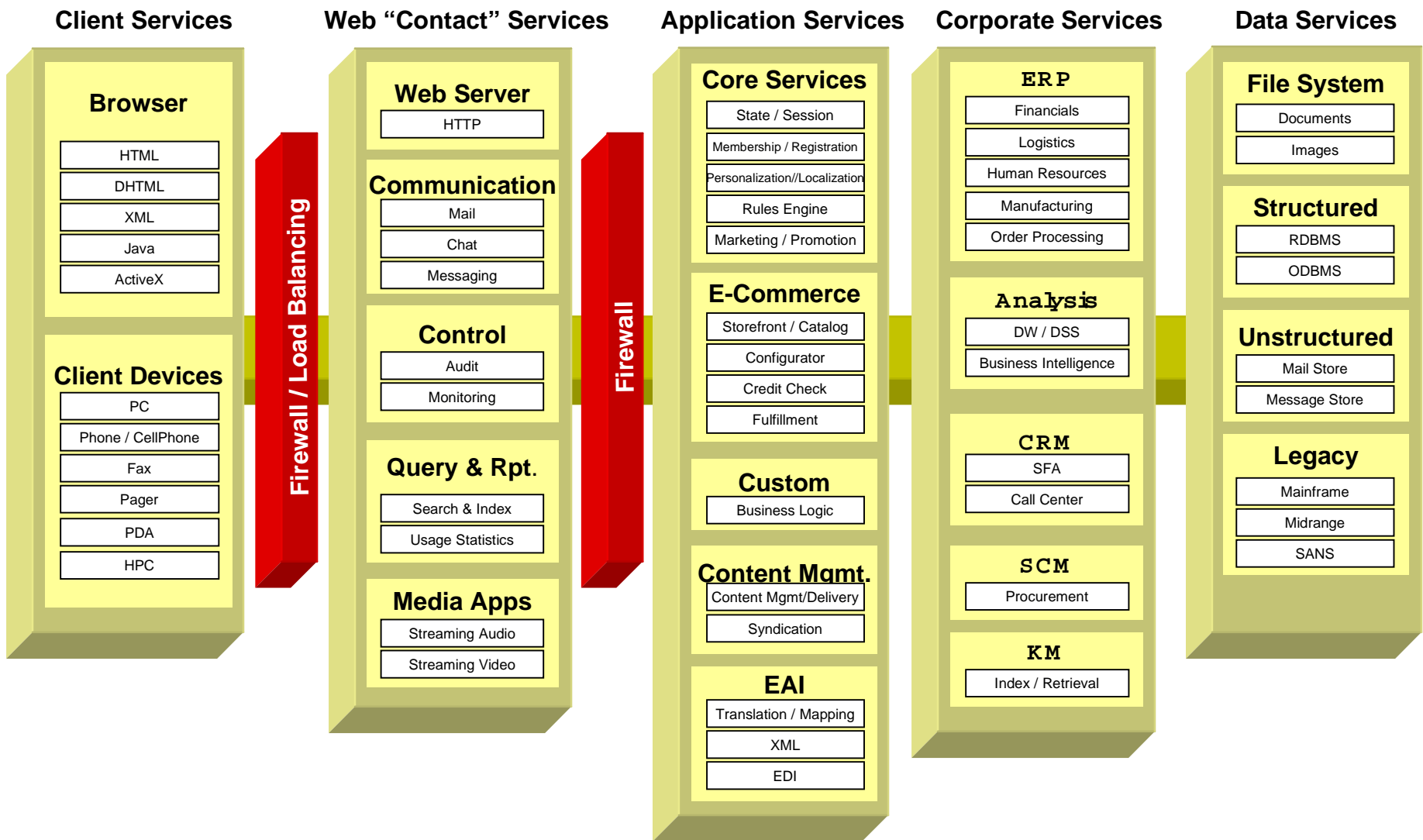
While Simple is Desirable...



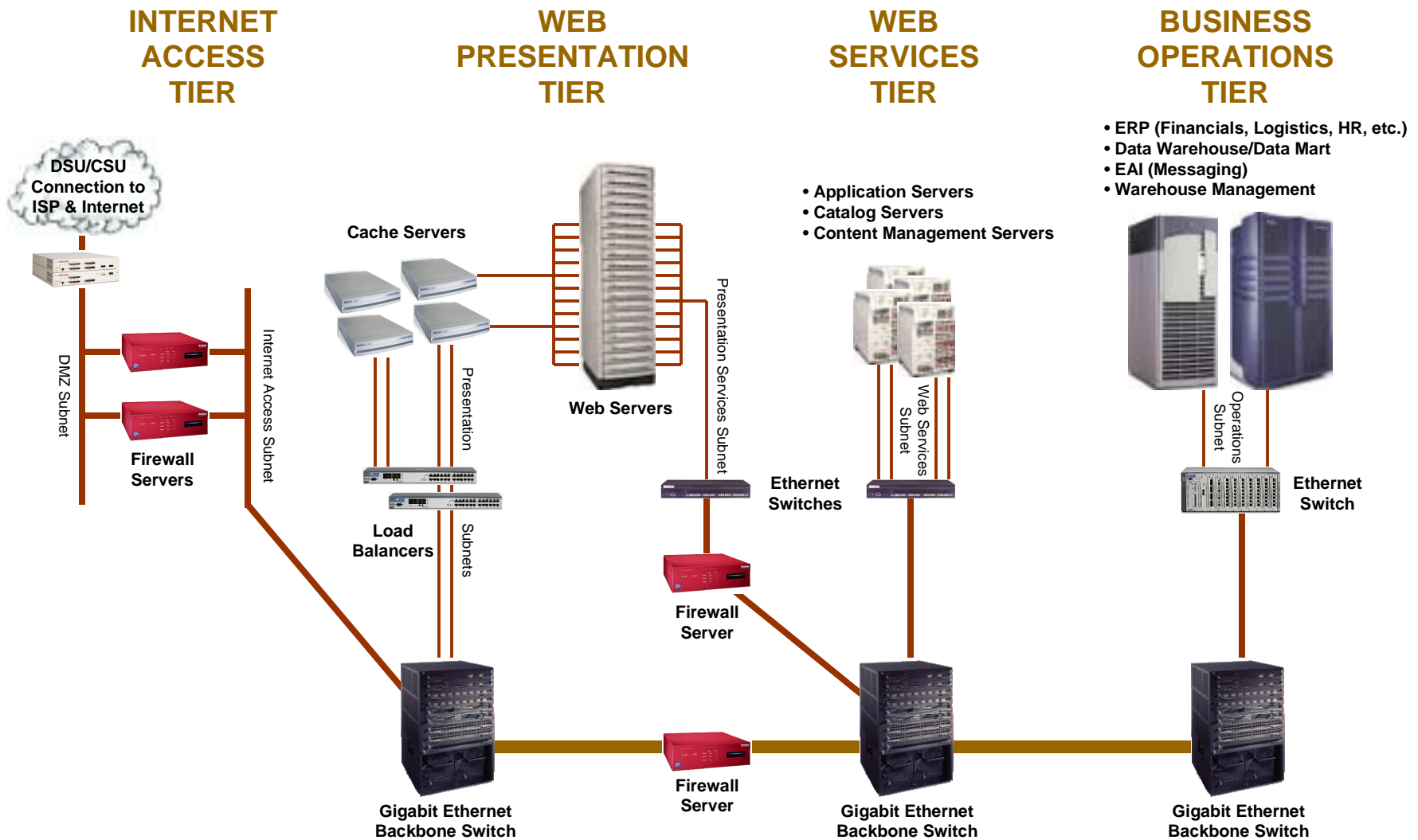
...Business Processes Are Complex...



...Application Architectures are Extensive...



...So IT Infrastructures are Non-Trivial



Example of Unplanned Costs

Estimated Costs:

– 3 Production Servers	\$12,000
• All NT	
• Low-end \$4000 configuration	
• 2 CPUs each	
– Software License	\$40,000
– Hub	\$3000

Total: \$55,000

Actual Costs (1 year later):

– 12 Production Servers	\$240,000
• All UNIX (software did not support NT)	
• High-end models with faster backplane	
• 4 needed for bolt-on applications	
• 4-8 CPUs each	
– 6 Development Servers	\$120,000
– 2 Gigabit Ethernet Switches	\$40,000
– Datacenter facilities cost	\$130,000
– New tape storage device	\$50,000
• Faster backup & restore required	
• 1 DLT x 12 servers x 35 days rotation	
– Additional staff	\$220,000
• New UNIX administrator	
• New after-hours shift operators	
– Software	\$420,000
• Software License & Maintenance	
• Taxes	
• Bolt-on software License & Maintenance	
• Network and system management	

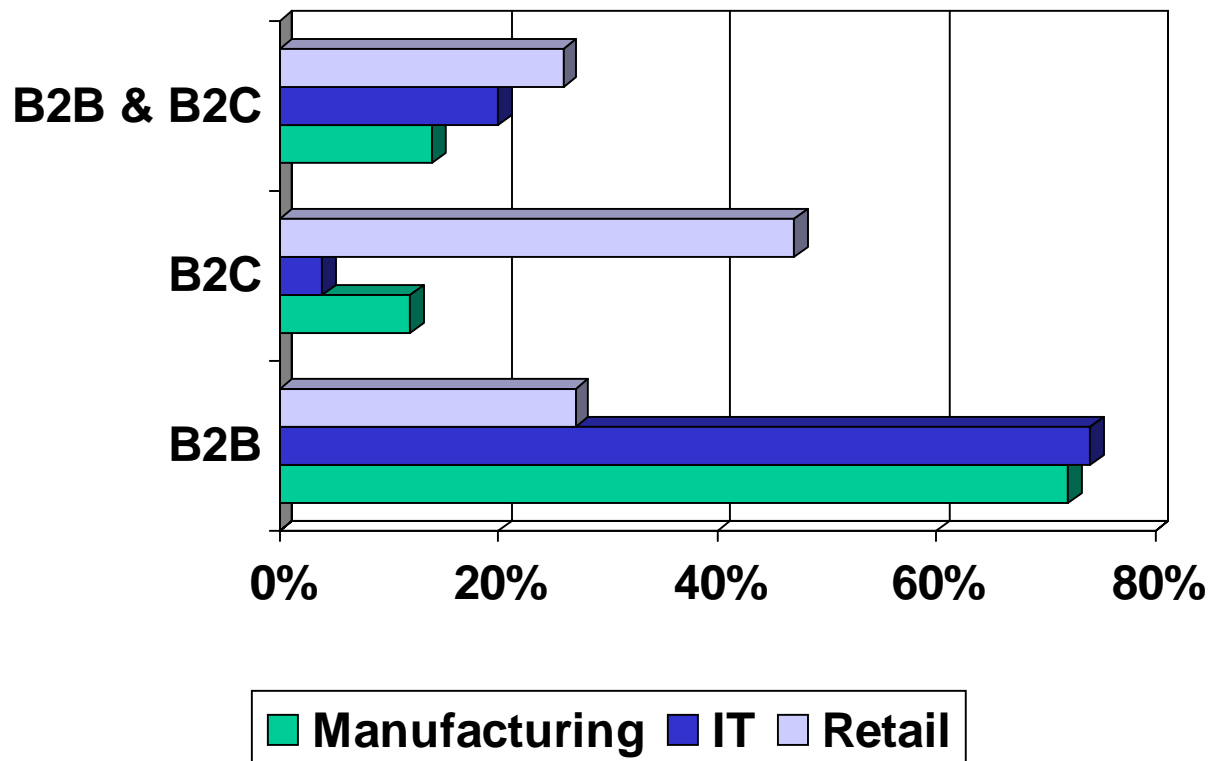
Total: \$1,220,000



2. CURRENT TRENDS & ISSUES

Primary Focus for E-Business

E-Business implementations now focusing on value-chain architectures



Source: 2000 Information Week Survey of 375 Businesses

E-Business Practitioners Issues

- Greater scrutiny of budgets & costs
 - Unknown application architecture requirements
 - Numerous application architecture choices
 - Unpredictable peak system loads
 - Pressure to “cut corners” and “take shortcuts”
 - Production & development environments on same server
 - Development servers become failover servers
 - No high-availability and/or disaster recovery solutions
- E-Business projects run over budget & fail to meet stakeholders' expectations

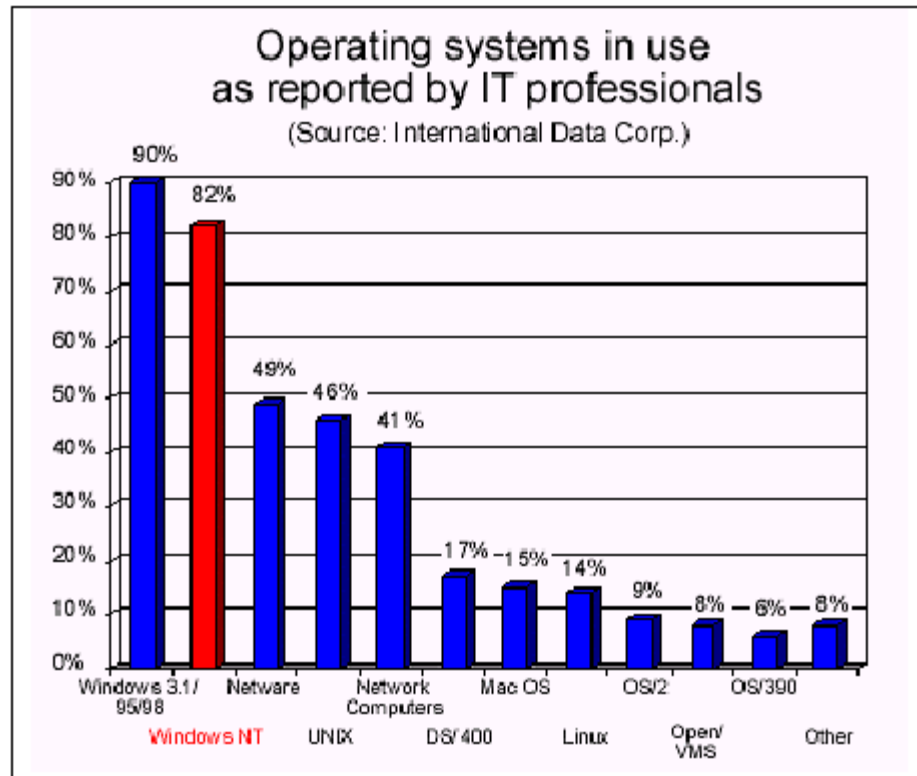
Combining Services onto a Single Server?

- Issues:
 - Security
 - Resources contention
 - High availability
 - Keeping projects on track
- Exceptions:
 - Resource partitioning capable, such as HP's SuperDome
 - When application loads are consistent and well-understood (such as small applets and certain utilities)

Why High Availability?



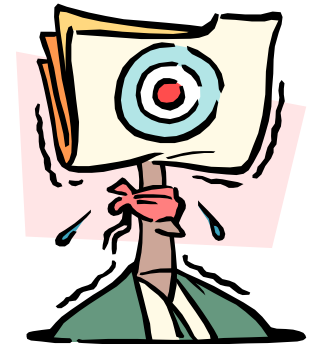
Prevalent Server Platforms



Windows NT is installed in 82 percent of corporate environments.

Impact on IT Leaders

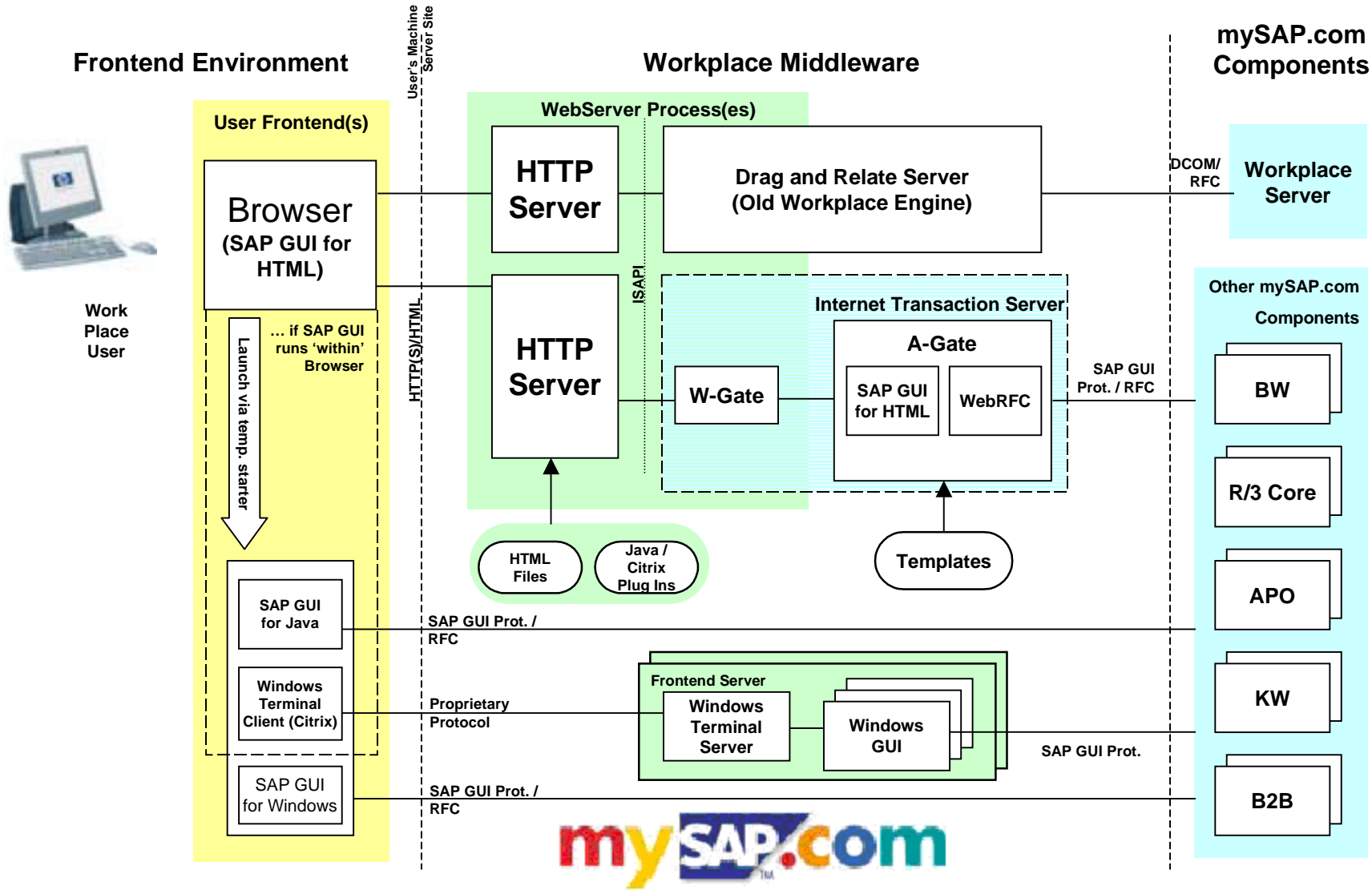
- Responsible for exposing IT ROI factors
- Need to manage expectations
- Need to communicate in business terms



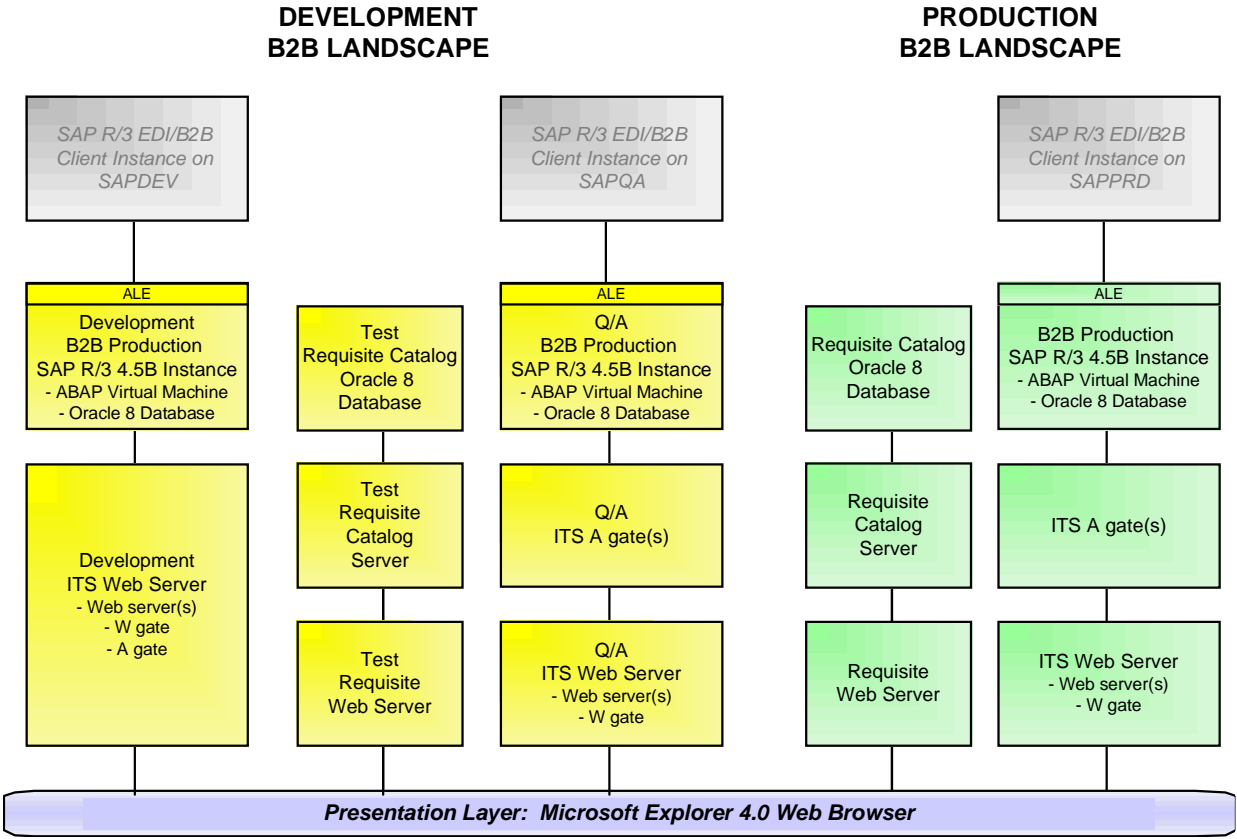


3. E-Business Infrastructure Examples

MySAP.com Architecture



MySAP.com Architecture



3.3 E-Business Infrastructure Examples

MySAP.com Architecture

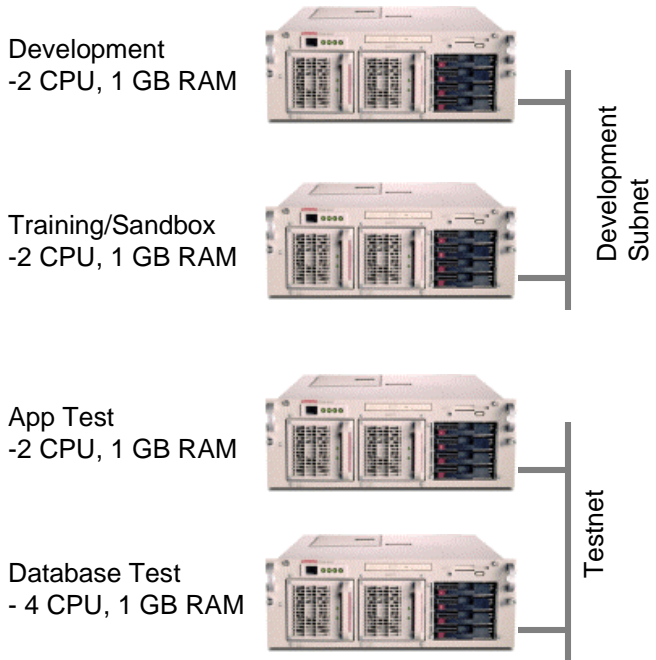
	Production Landscape	Q/A & Disaster Recovery Landscape	Development Landscape
ITS 2.2 Web Server & W-gate	HP LH4 NT 4.0 SP4 2 CPUs, 1.5 GB RAM, 10 GB usable space	HP LH4 NT 4.0 SP4 2 CPUs, 1.5 GB RAM, 10 GB usable space	HP LH4 NT 4.0 SP4 2 CPUs, 1.0 GB RAM, 9 GB usable space
ITS 2.2 A-gate	HP LH4 NT 4.0 SP4 2 CPUs, 1.5 GB RAM, 10 GB usable space	HP LH4 NT 4.0 SP4 2 CPUs, 1.5 GB RAM, 10 GB usable space	
B2B SAP R/3 4.5B instance & ALE	HP N4000 HP-UX 11 3 440MHz PARISC CPUs, 1.5 GB RAM, 50 GB usable disk space	HP N4000 HP-UX 11 3 440MHz PARISC CPUs, 1.5 GB RAM, 50 GB usable disk space	HP N4000 HP-UX 11 2 440MHz PARISC CPUs, 1.0 GB RAM, 50 GB usable disk space.
Requisite Web Server	HP LPR NT 4.0 SP4 2 CPUs, 1 GB RAM	HP LPR NT 4.0 SP4 2 CPUs, 1 GB RAM	
Requisite Catalog Server	HP LPR NT 4.0 SP4 2 CPUs, 1 GB RAM	HP LPR NT 4.0 SP4 2 CPUs, 1 GB RAM	
Requisite Catalog DB Server	HP N4000 HP-UX 11 2 440MHz PARISC CPUs, 1 GB RAM, 50 GB usable disk space	HP N4000 HP-UX 11 2 440MHz PARISC CPUs, 1 GB RAM, 50 GB usable disk space	

3.4 E-Business Infrastructure Examples

MySAP.com Infrastructure

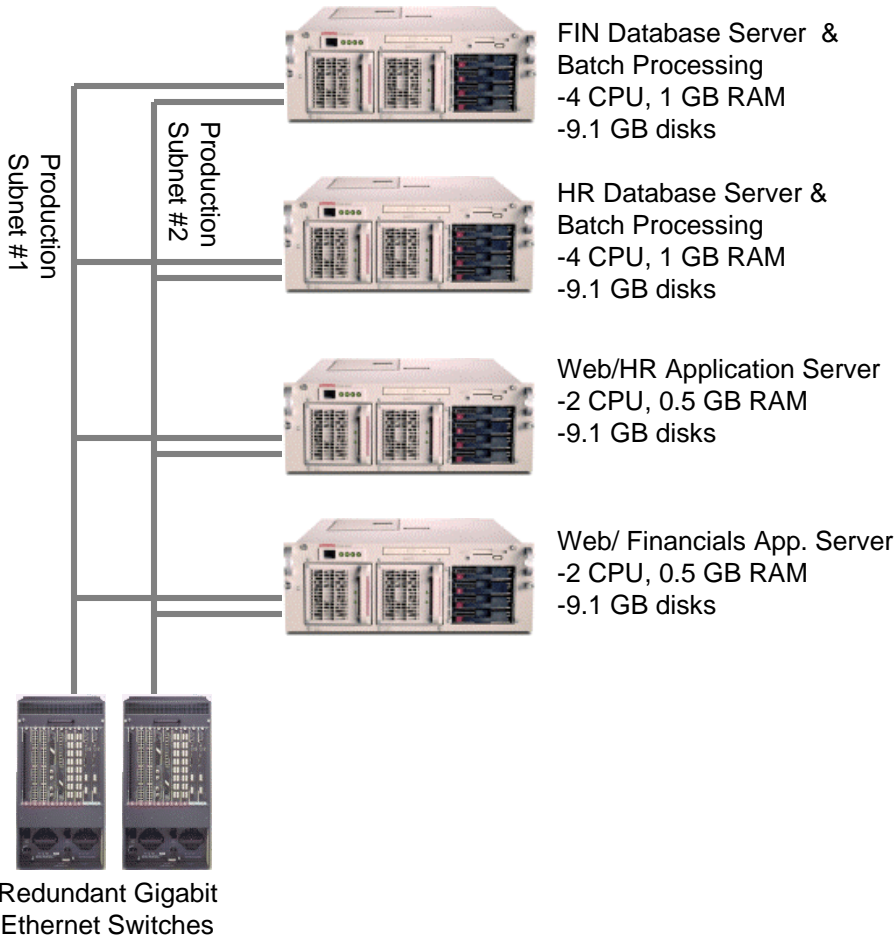
PeopleSoft 8.0 Web Portal (MidTier)

DEVELOPMENT

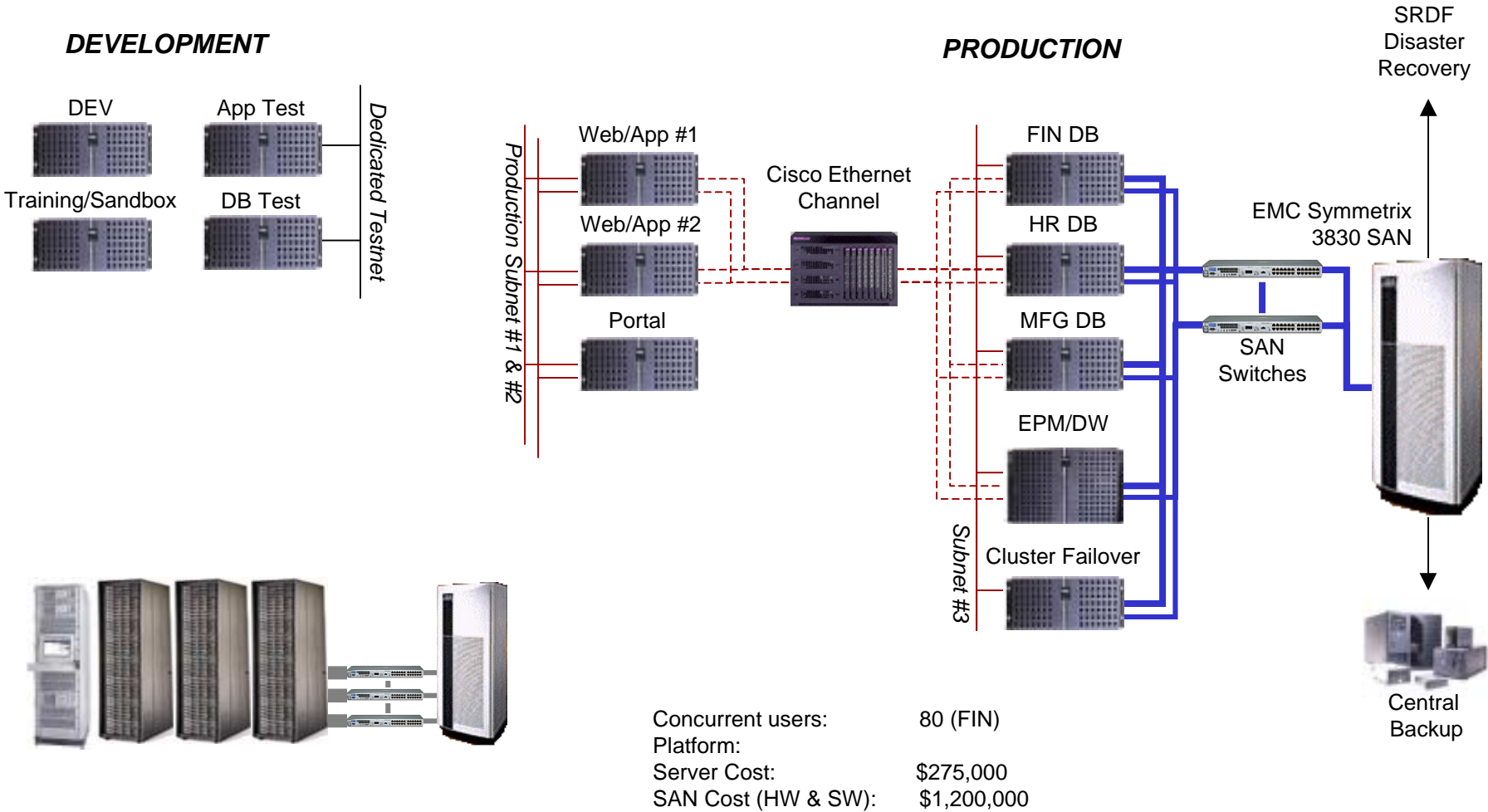


Concurrent users: 50 (FIN & HR)
 Interfaces: none
 Platform: HP LXR 8500 (rack config not shown)
 Server Cost: \$220,000
 DASD/Net Cost: \$340,000

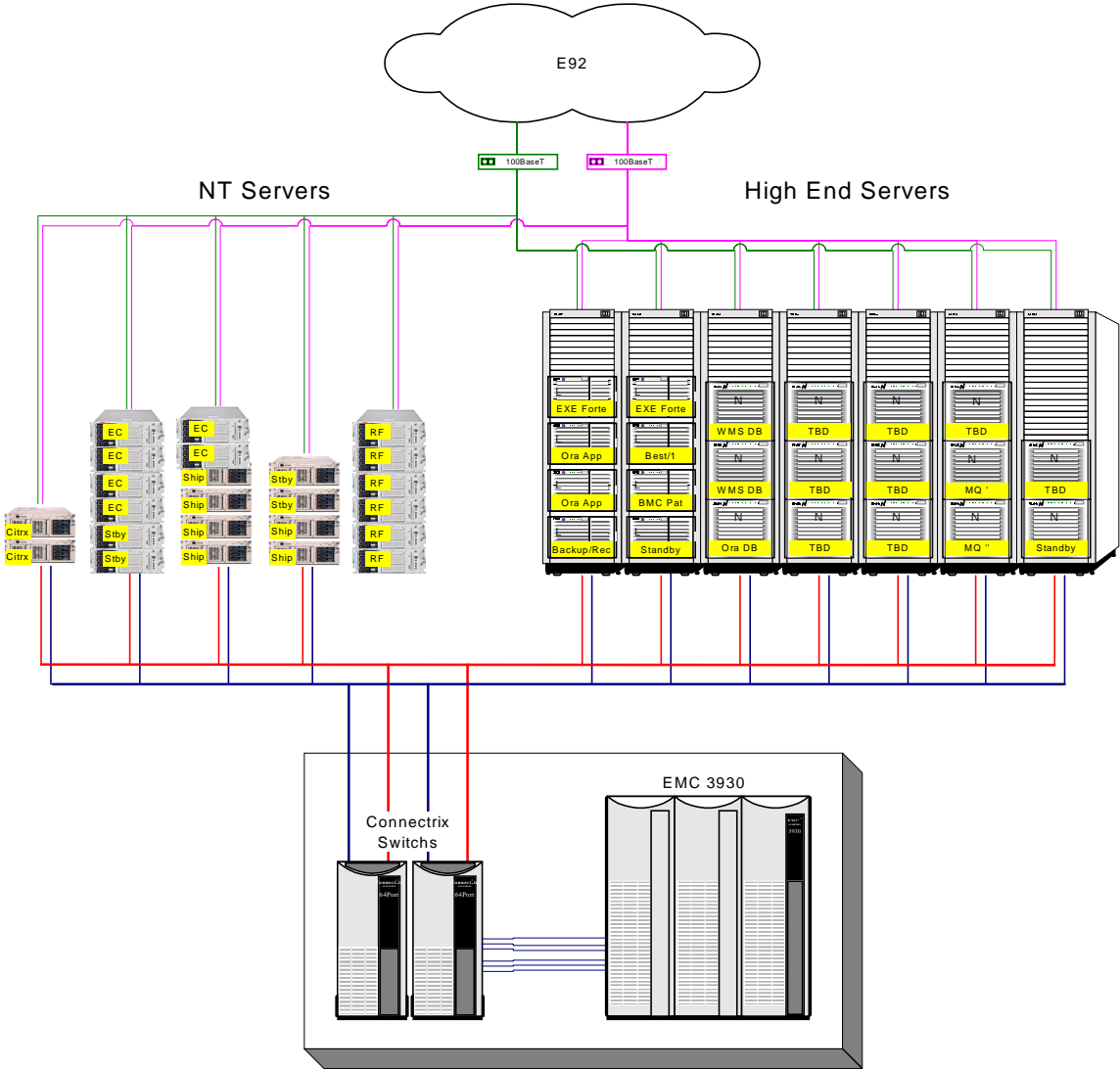
PRODUCTION



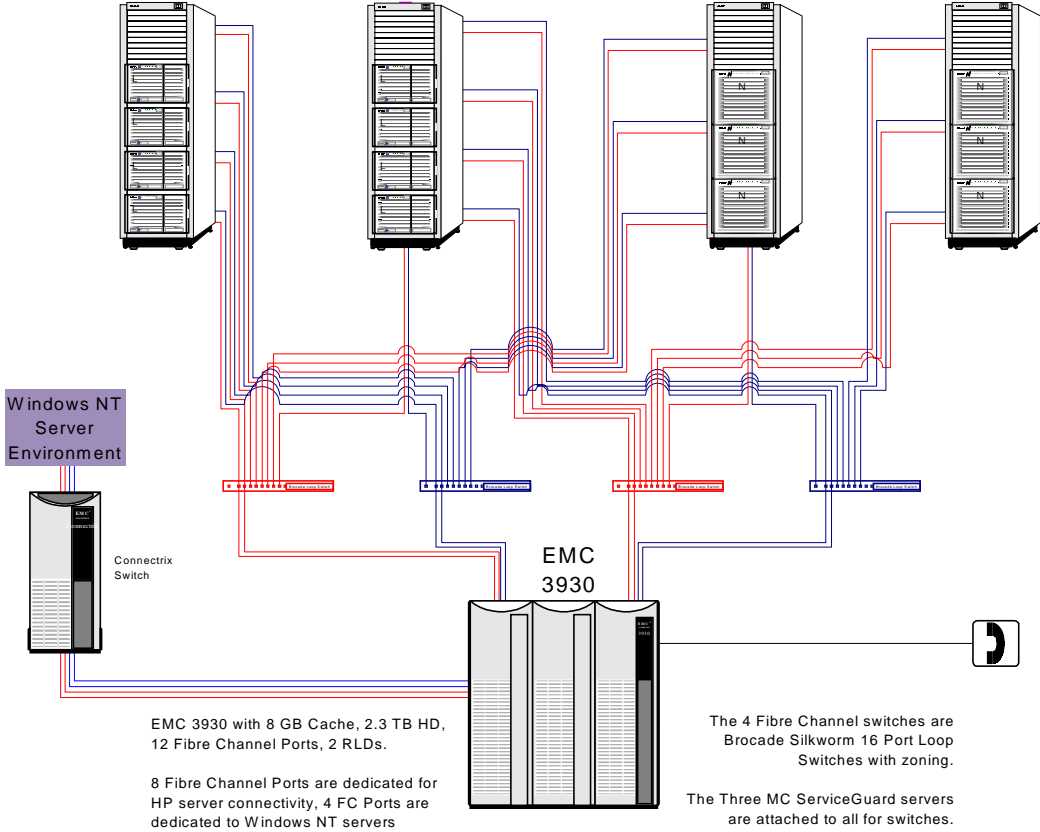
PeopleSoft 8.0 Web Portal (Fortune 500)



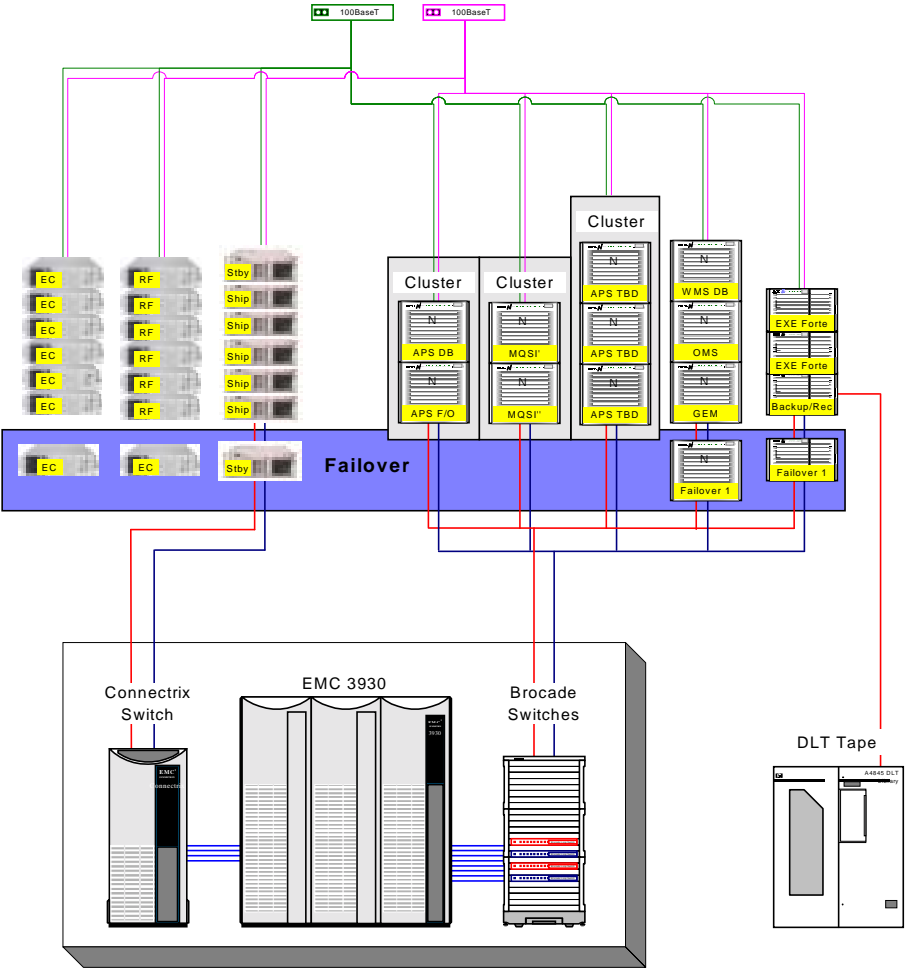
e-Business Order Management System (OMS)



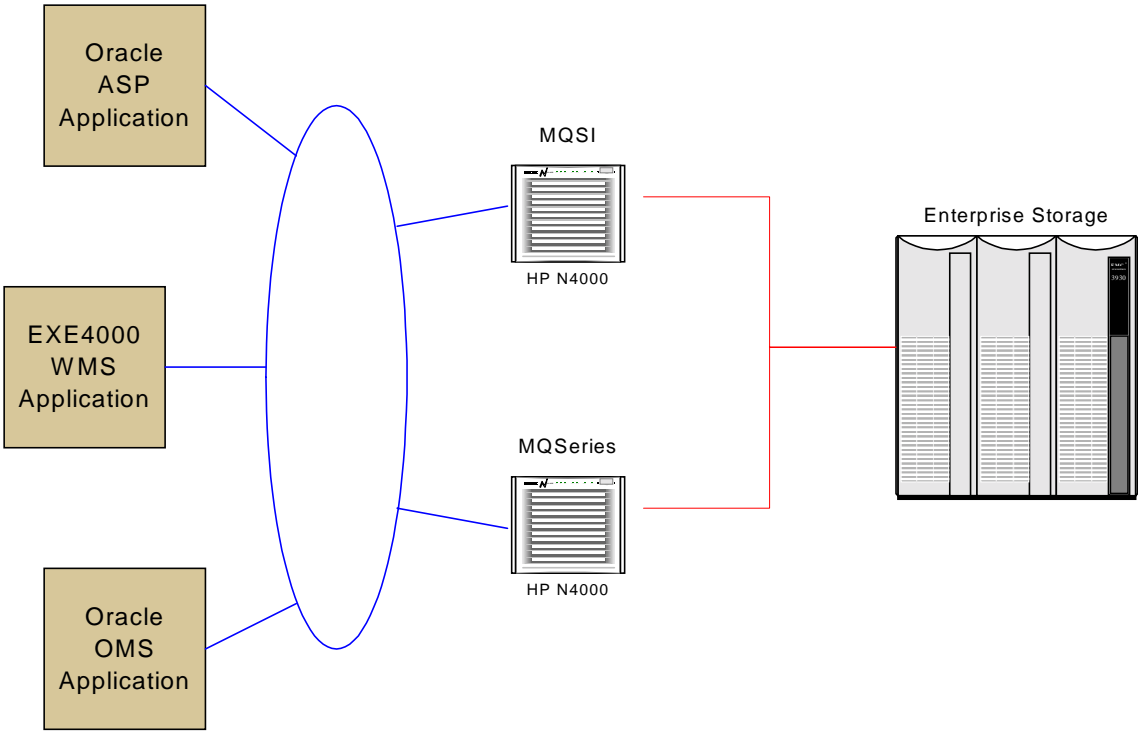
OMS's Storage Area Network



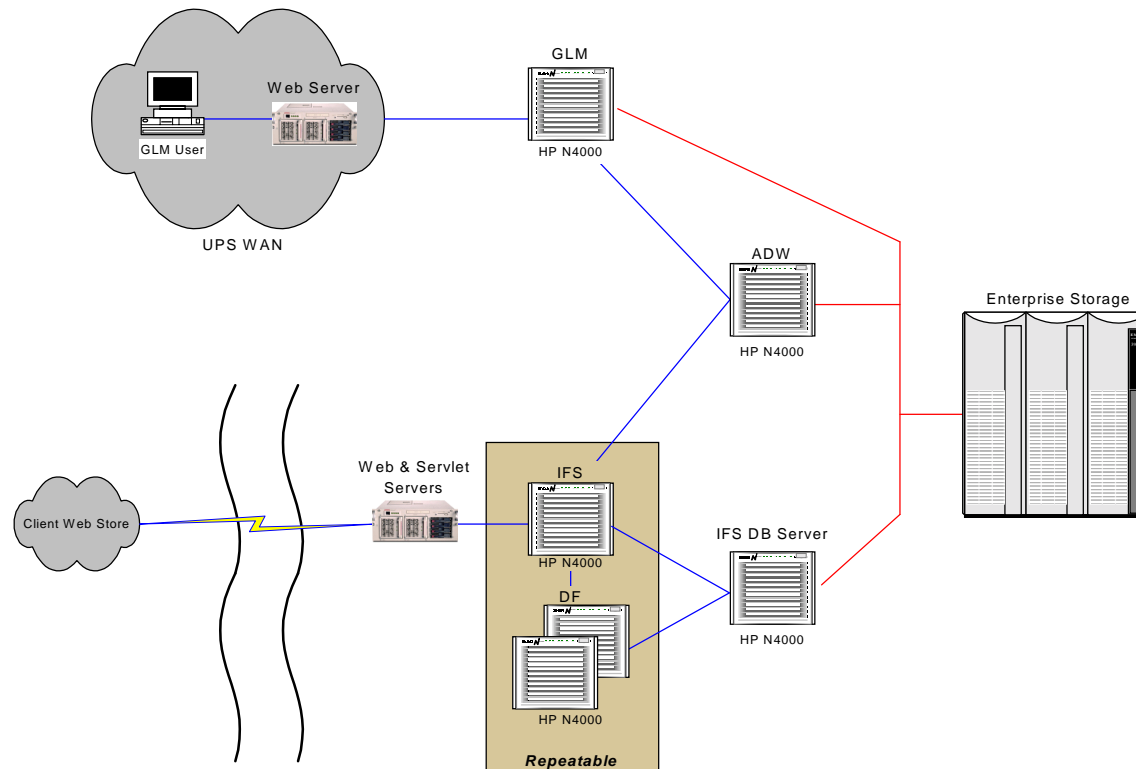
OMS's Failover Environment



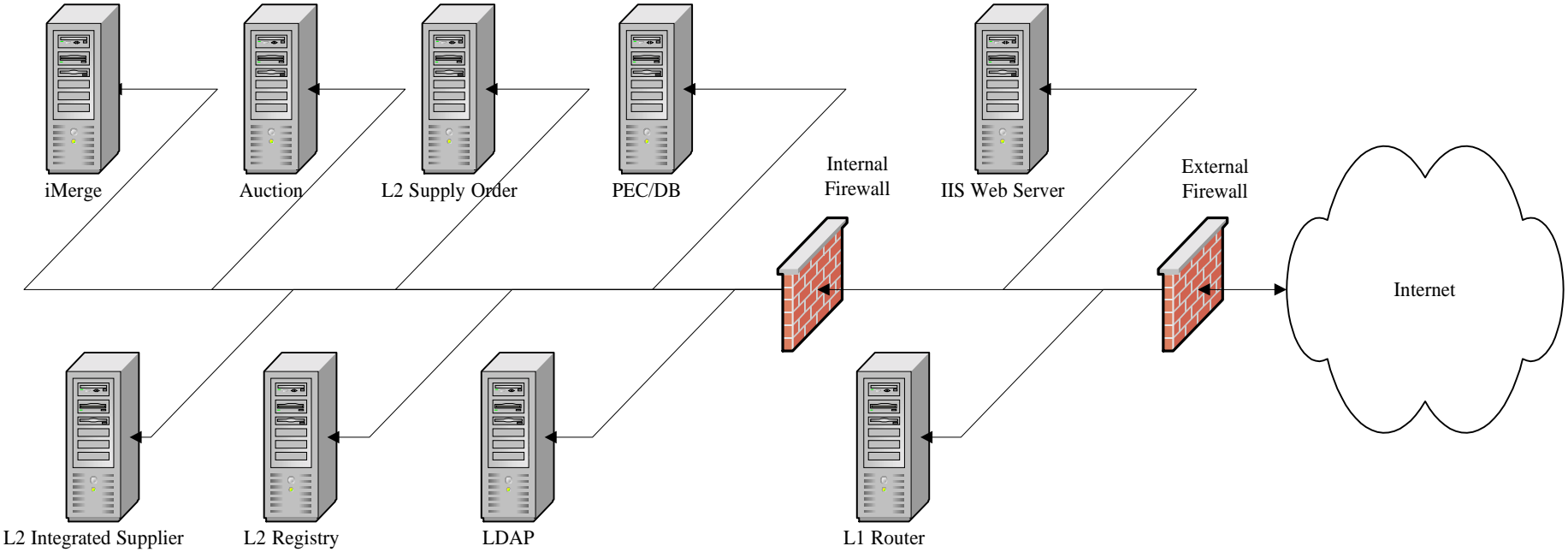
OMS's Messaging Environment



OMS's i2 Internet Fulfillment System

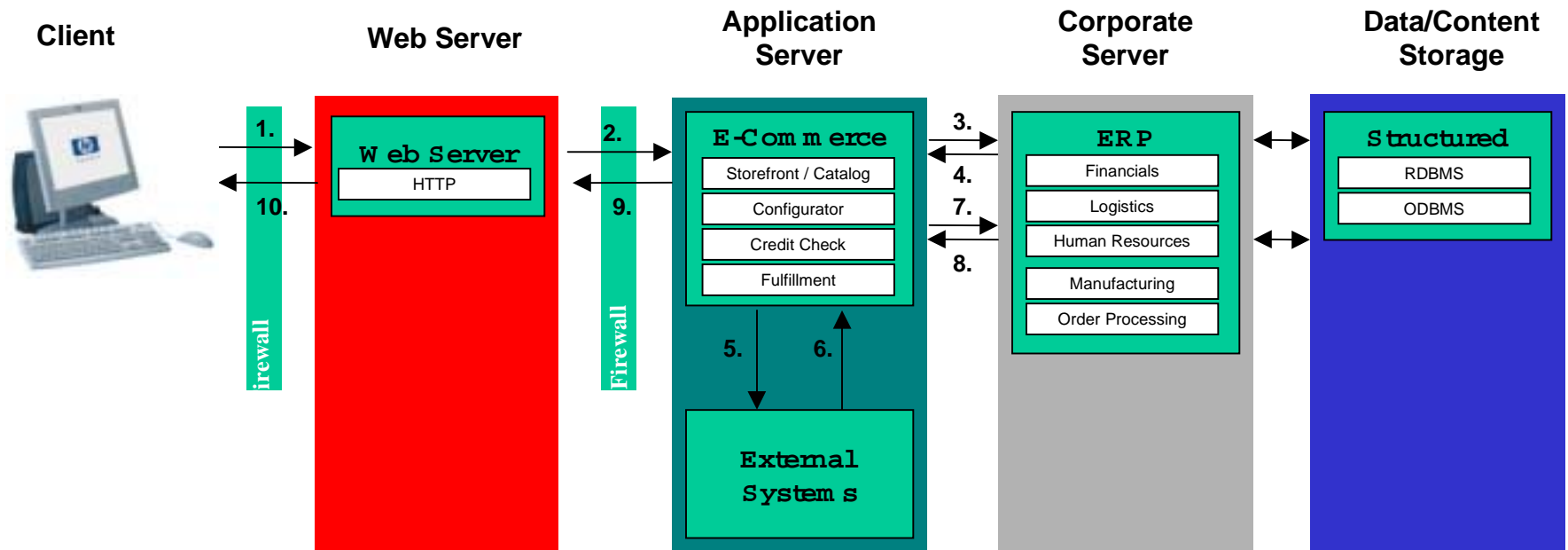


Small-Scale CommerceOne MarketSite



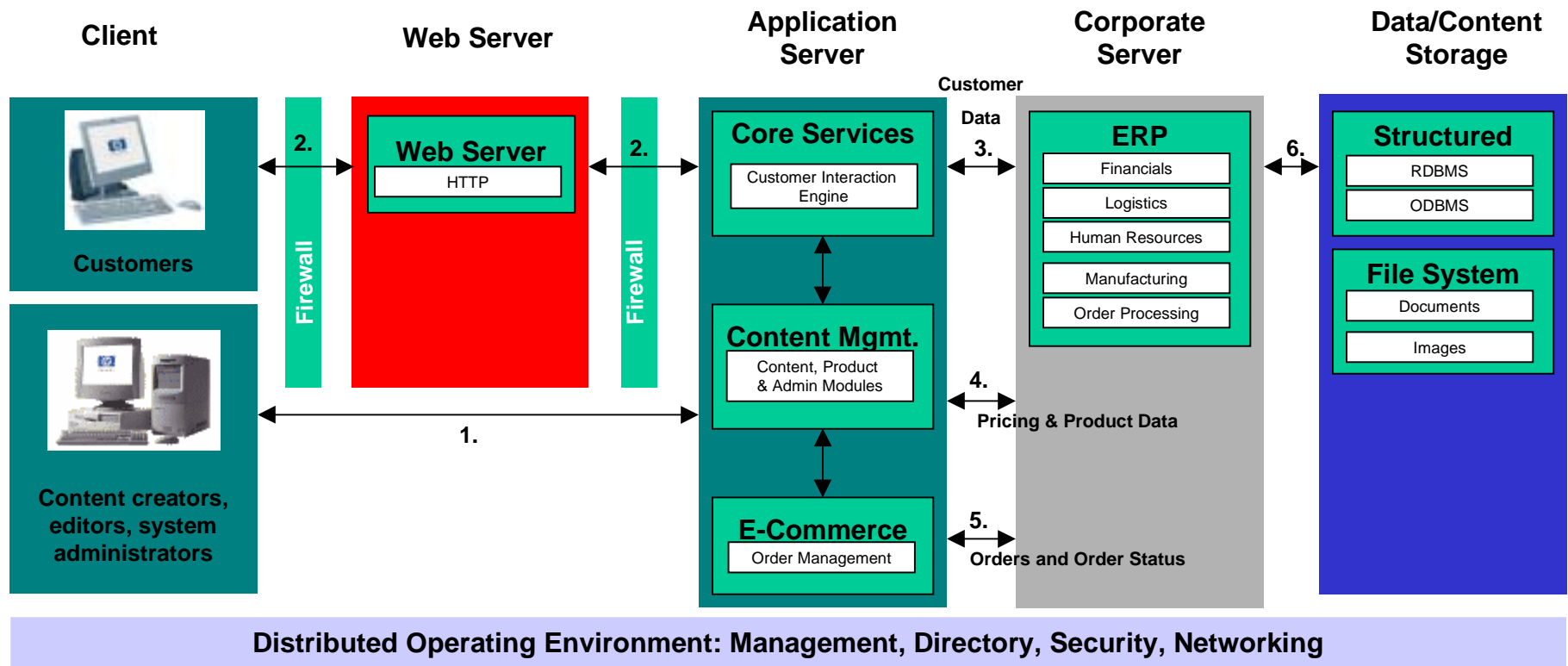
Large-Scale CommerceOne MarketSite

Order Entry Process



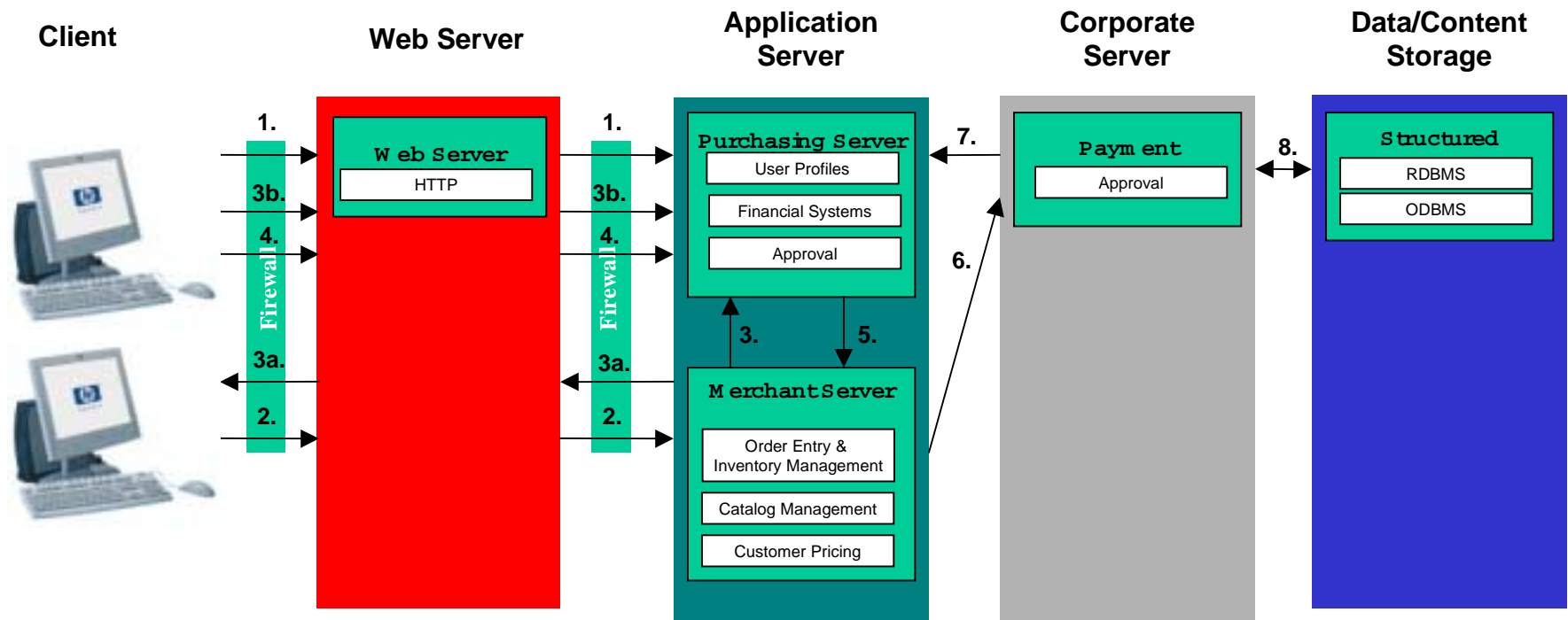
Distributed Operating Environment: Management, Directory, Security, Networking

Content Management Process



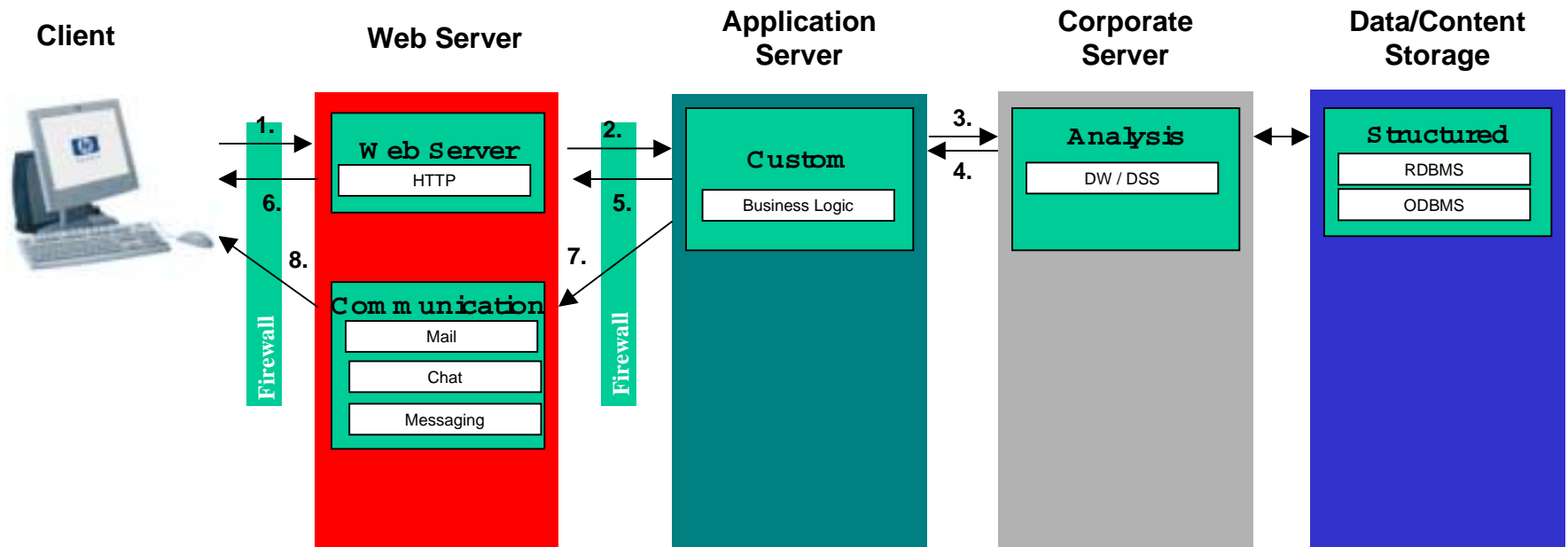
3.16 E-Business Infrastructure Examples

E-Procurement System



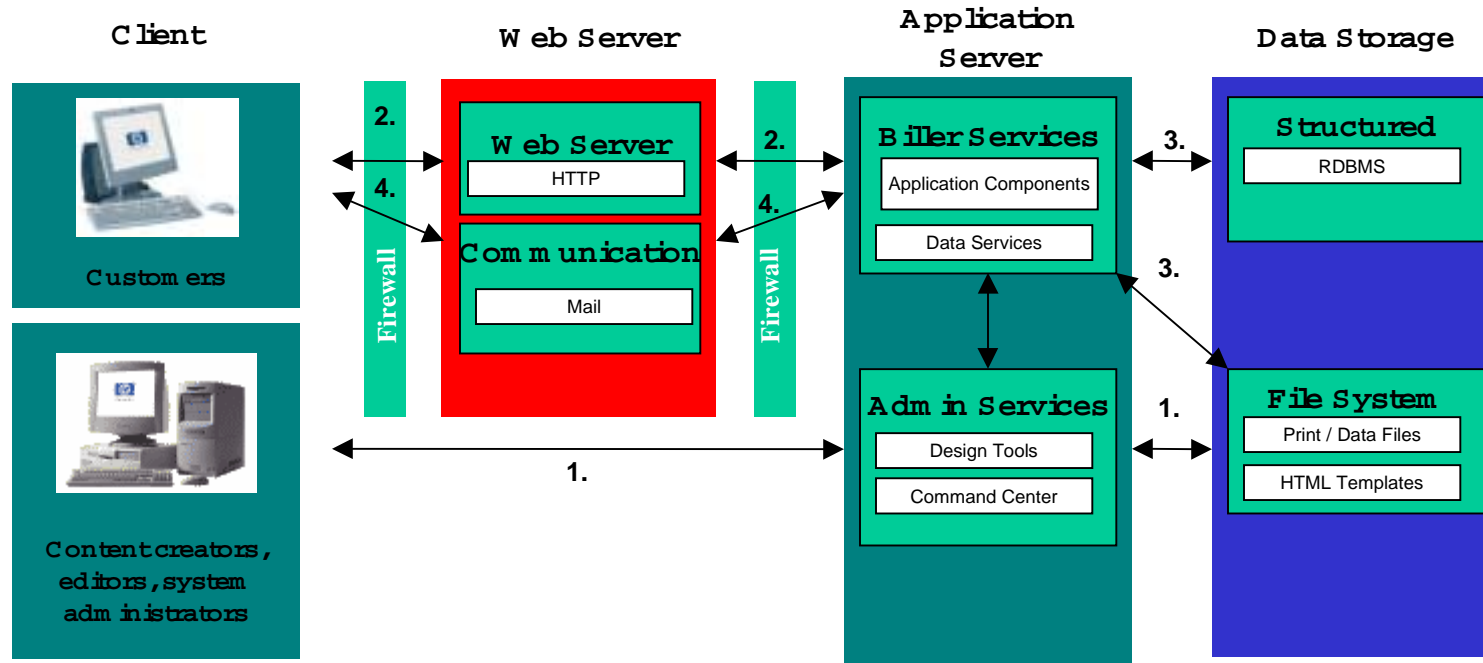
Distributed Operating Environment: Management, Directory, Security, Networking

Data Warehouse / Data Mart



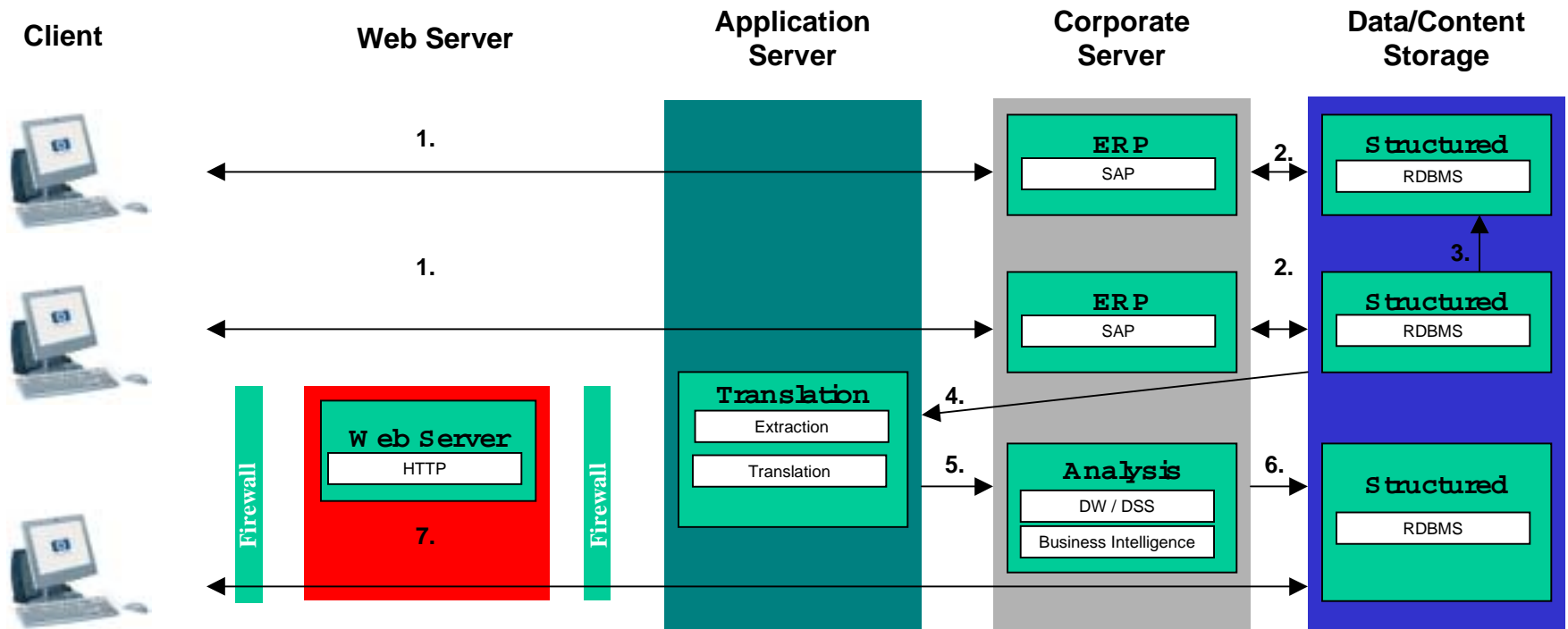
Distributed Operating Environment: Management, Directory, Security, Networking

Electronic Bill Payment



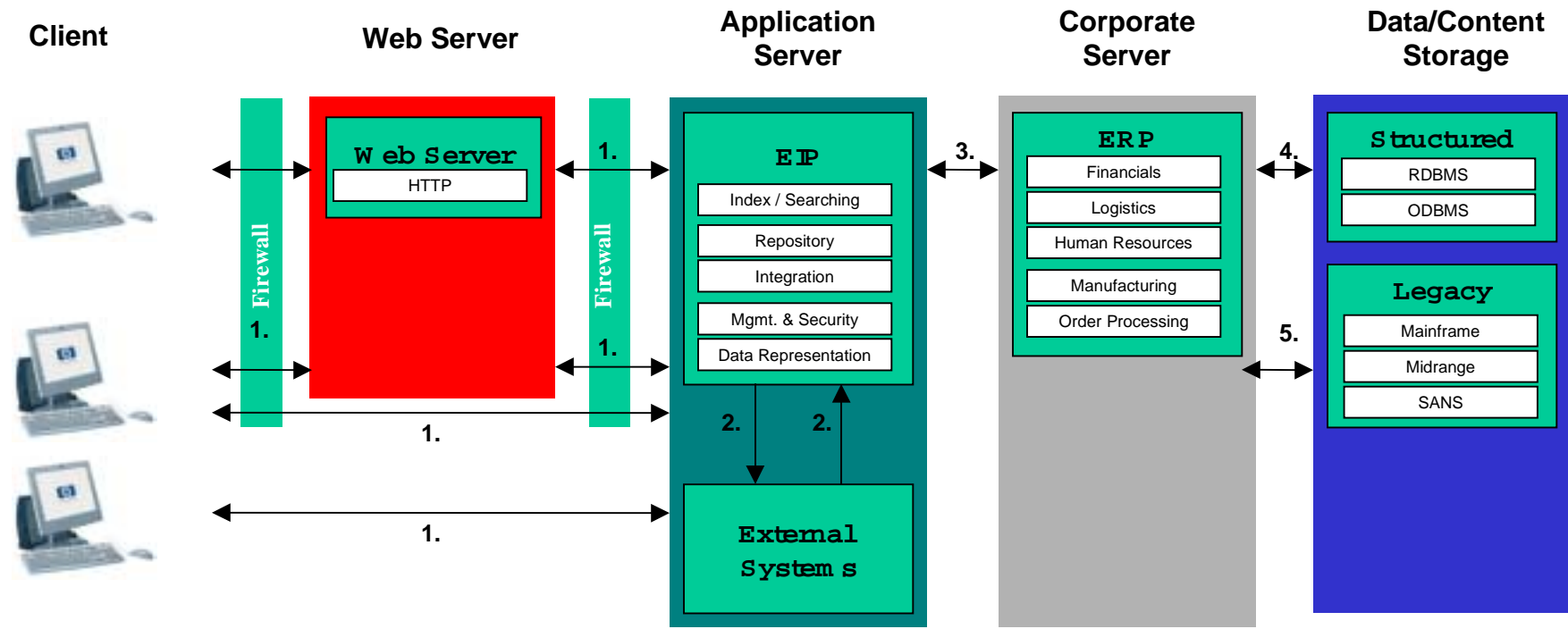
Distributed Operating Environment: Management, Directory, Security, Networking

Interfacing with an ERP System



Distributed Operating Environment: Management, Directory, Security, Networking

Web Portal



Distributed Operating Environment: Management, Directory, Security, Networking



4. Determining Costs & Metrics

Costs to Consider

- Applications
 - Core software (licenses, support fees, taxes)
 - “Bolt-on” software
 - Application architecture software (messaging, monitoring, etc.)
- Infrastructure
 - Capital costs (servers, storage, network devices, etc.) & depreciation
 - Infrastructure support costs (maintenance plans, repair, etc.)
 - Services (leased lines, ISP, etc.)
 - Continuance: backup units, off-site tape storage, high availability & disaster recovery
- Facilities
 - Datacenter (floorspace, power, cooling) or application hosting providers
 - Office space
- People
 - Employees/contractors/outsourcing for implementation & support
 - Training
 - Helpdesk

Sample Costs

Infrastructure	Network carrier	\$2K - \$4K/month
	Router configuration	\$40K - \$100K
	Web server	\$0 - \$10K
	Cache server	\$1K - \$4K
	App server	\$20K - \$50K
	Database server	\$50K - \$250K
	Storage/SAN/NAS	\$120K - \$2M
Application Architecture	Load balancing	\$10 - \$4K
	Security	\$25 - \$100K
	EAI	\$200K - \$1.6M
	SFA	\$200K - \$600K
	eProcurement	\$400K - \$5M
	Logistics	\$200K - \$800K
Outsourced Services	Caching service	\$10K - \$16K/month
	Web hosting center	\$3K - \$6K/month
	AHP service	\$500 - \$40K/month
	Ad serving	\$10K - \$30K/month
	Customer support	\$100K - \$500K

Costs Concerns

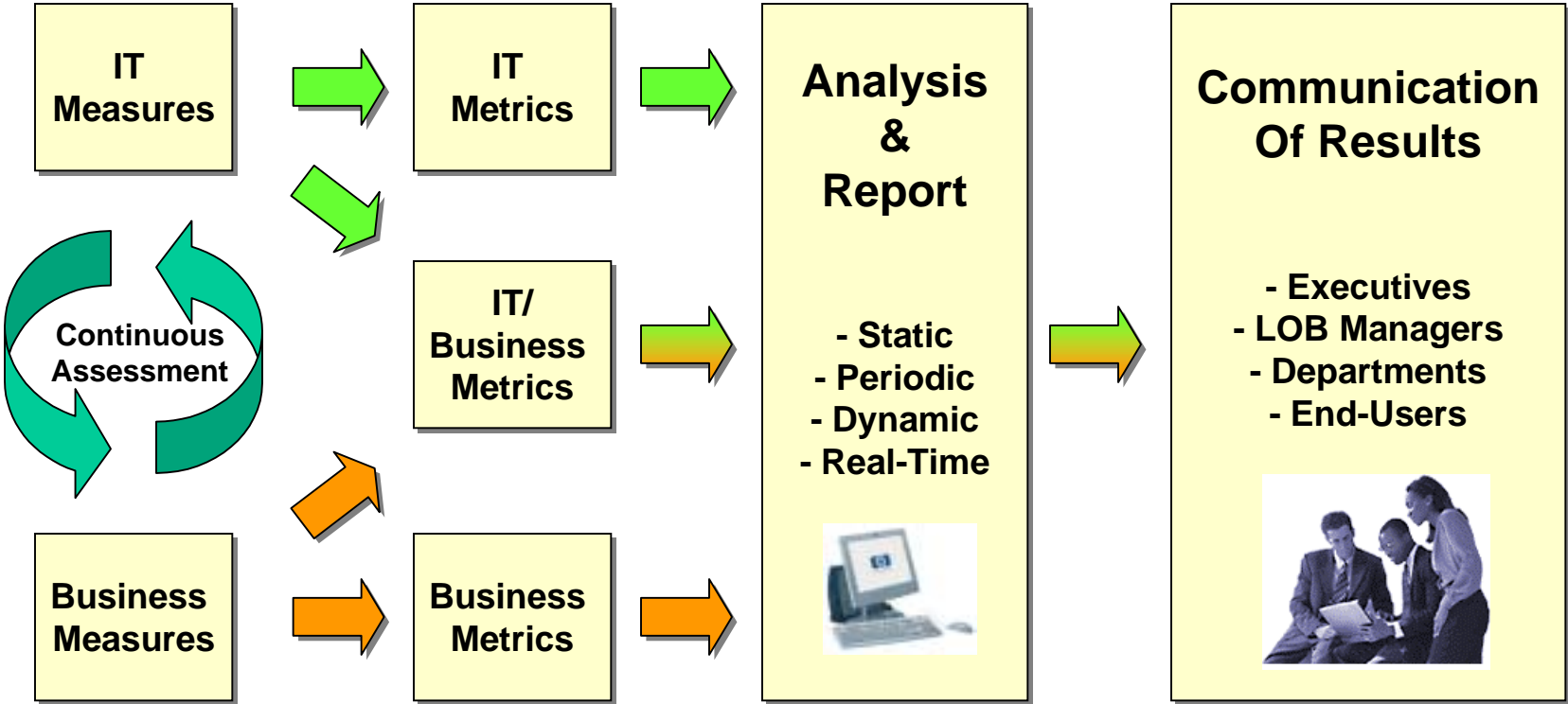
- Can we afford to undertake this project?
- What costs will be incurred over time?
- What value do these incurred costs provide a business?



Metrics

- Business with access to complete breadth & depth of IT operational metrics will gain better insight into IT costs & investments
- IT metrics should always be business or cost-related
- Metrics should be presented in logical groupings
- Metric focus
 - Old: Availability, performance & customer satisfaction
 - New: Efficiency, quality, & impact on the business
 - Logical groups via taxonomy

Traditional Approach to Metrics



Sample IT Metrics

General Cost-Based Metrics:

- IS budget per employee
- IT cost per unit sold
- IT cost per user
- IT operations costs
- IT investment (new technologies and implementations)
- IT maintenance costs
- IT staffing costs
- Applications Development: *\$ per function point*
- Data Center: *\$ per MIPS*
- Central Servers: *\$ per combined power rating*
- Distributed Computing: *\$ per user*
- IT Help Desk: *\$ per call*

Macro “CFO” Metrics:

- IT budget as % gross revenue
- IT Budget breakout
- Trends in spending
- IT to non-IT ratios
- Per employee IT/OPS cost
- % of Tech. Leadership in strategic initiatives

System-Based Metrics:

- Storage consumption or data warehouse size vs. number of business elements
- Business process transactions used per application (“most popular report”)
- B2B or Web content site hits correlated with e-commerce revenue
- Number of application interfaces

People Metrics:

- IT staff turnover per reporting period
- IT training per % payroll/IT budget
- Average number of IT training days per employee
- IT employees to total employees

Network Metrics:

- Hardware cost per network port
- Support cost per network port
- Average cost of staff (fully burdened)
- Hardware, software, and personnel cost distributions
- Move, add and change average cost
- Support staff fragmentation index
- Cost of network management by device
- Voice Network: *\$ per minute and \$ per extension*

Sample Business Metrics

- Customers
 - Number clients/day
 - Number concurrent users/day
 - Activity peaks
- Logistics
 - Number of distribution centers
 - Number of orders-lines-units/day
 - Units per order/day
 - Number of parcel shipments/day
 - Number of returns/day
 - Number of kitting/day
 - Number of invoice-report printouts/day

Metric Taxonomies

	Infrastructure	Operational Process	Product	Business Process	Project	Other
Efficiency	Cost per GB	Cost per # requests	Cost per desktop Cost per server	Cost per 100 invoices processed	% actual cost to planned cost	
Availability/Performance	WAN availability LAN availability	% jobs completed	Order management application availability	Average order-to-cash execution	Days behind schedule and cost impact	
Quality		Defects as percentage of change requests	% orders completed without error			
Effectiveness			Cost per order	Web hit rates to revenue	Project burn rate	
Satisfaction			Customer satisfaction of service requests		Deliverables met per plan	
Capability	# days of available data retention					IT turnover rate

Recommended Approach Practices

- Develop, implement and enforce IT standards & strategies
- Implement failover solutions for all aspects of the architecture
- Generally assume only one application per server
- Plan production environment for peak utilization periods
- Remember the people equation
 - Implementation resources
 - Post-go live support
- Plan for all phases: development, testing, training, go-live
- Implement a proactive enterprise management system solution
 - HP Openview
 - BMC Patrol
 - CA Unicenter
 - IBM Tivoli



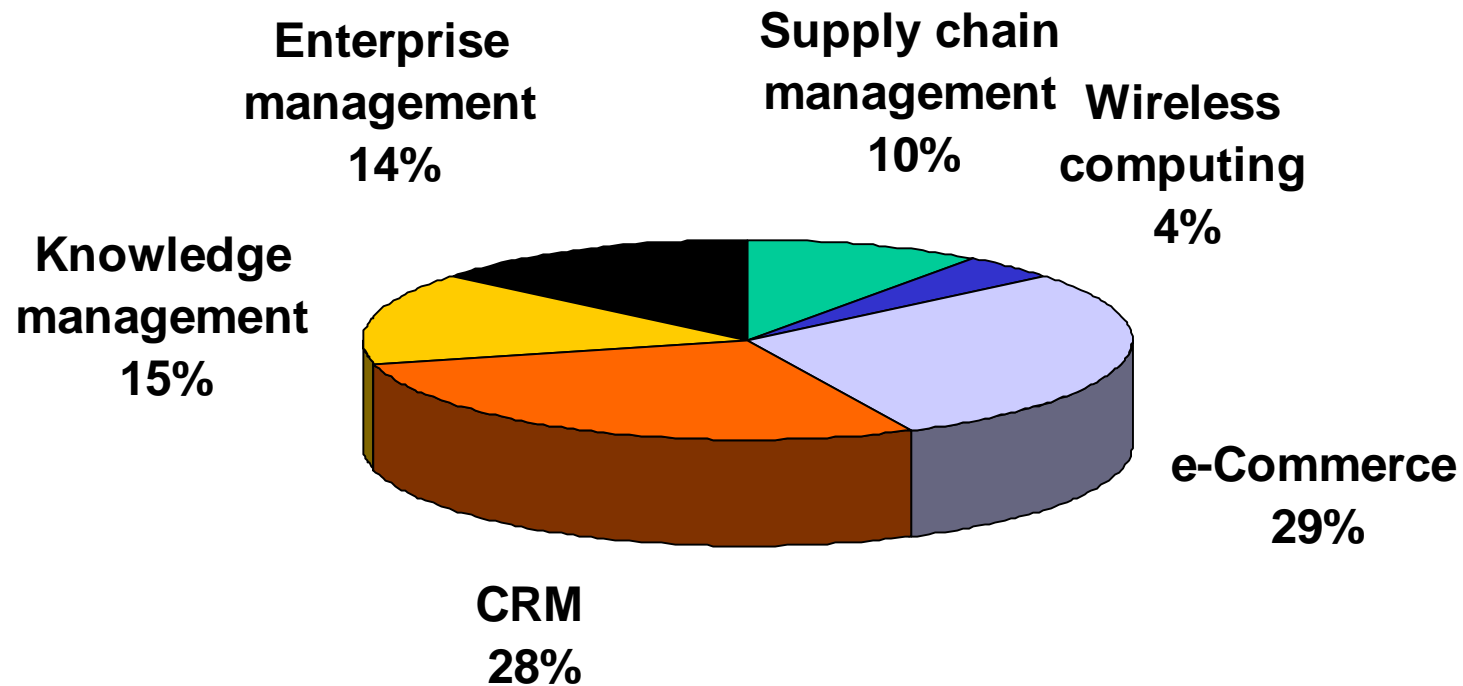
5. Determining Return on Investment

ROI Assessments

- When costs are understood and metrics are in place, ROI can be assessed.
- When ROI is determined, cost concerns can be addressed
 - Can we afford to undertake this project?
 - What costs will be incurred over time?
 - What value do these incurred costs provide a business?
- ROI is a continuous process



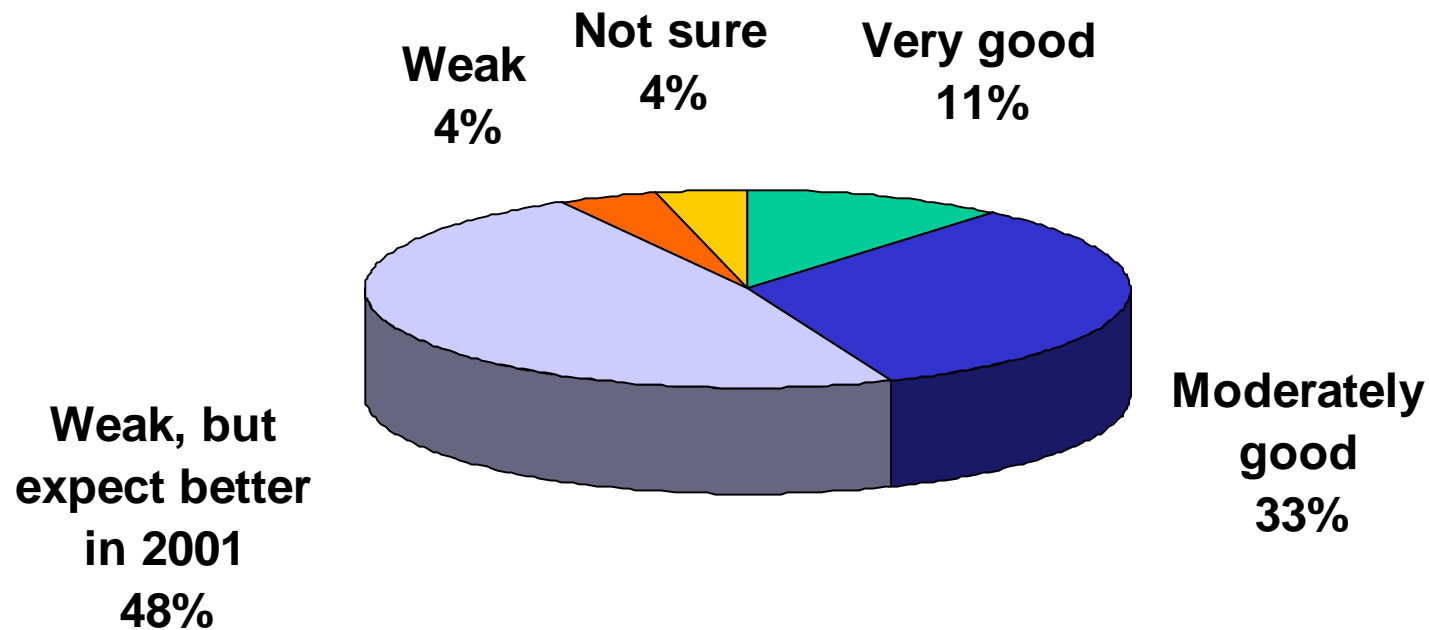
Best Returns for e-Business Investments



Source: December 2000 Beyond Computing Business Survey



Payback for e-Business Investments



Source: December 2000 Beyond Computing Business Survey



6. A New Planning & Implementation Approach



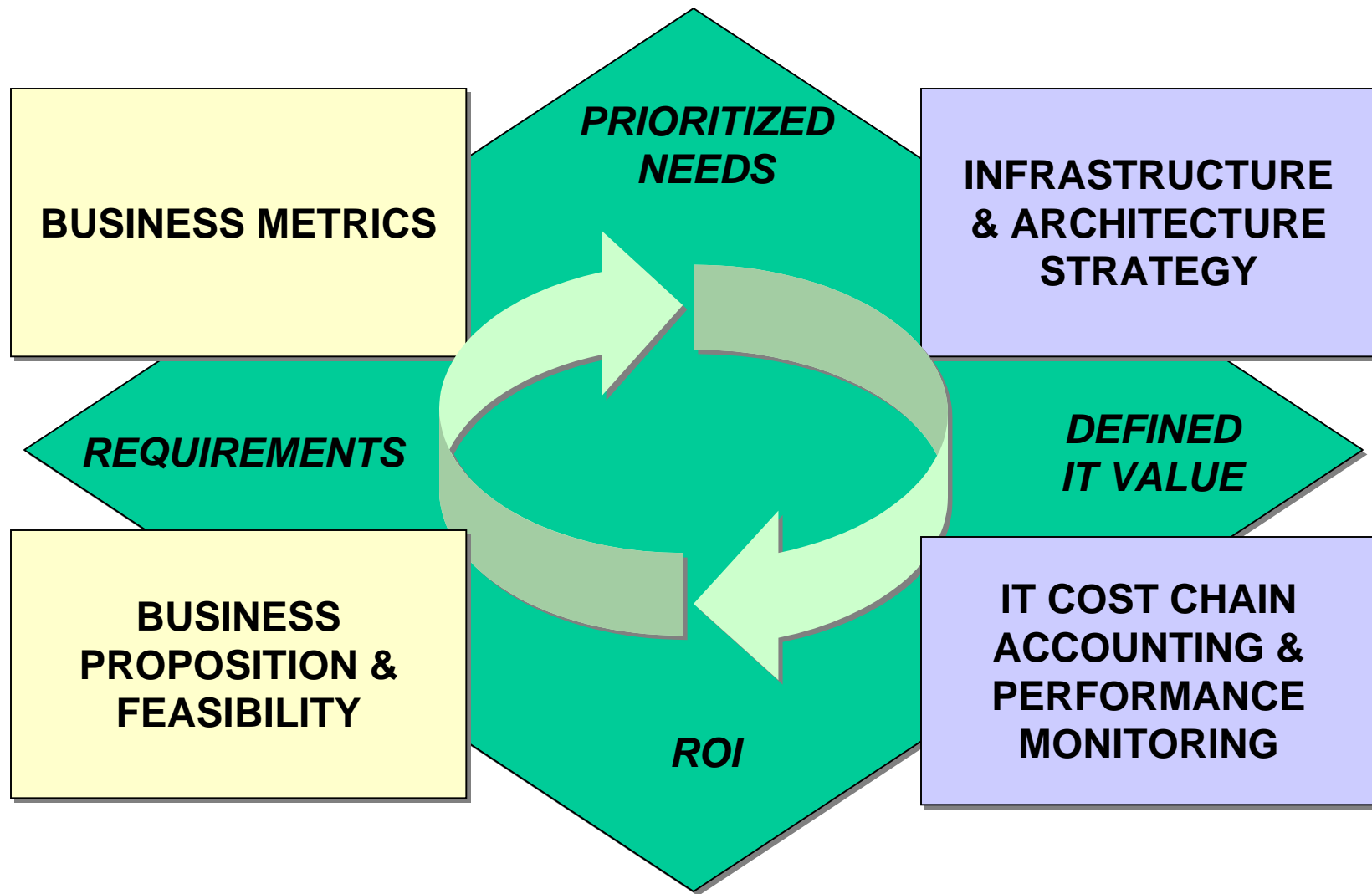
Approach

- Alignment & collaboration
 - Emphasis on IT to drive the process
 - Emphasis on business to define requirements & success metrics
- Business Process Requirements Model
- Acquisition Stages
- IT Cost Chain Accounting Approach
- Proactive monitoring using ESM Tools
- Outcome: ROI determination



6.2 A New Planning & Implementation Approach

Method





Business Process Requirements Model

- Identify and capture the business process
- Identify key business metrics
- Develop the model incorporating:
 - Metrics
 - Timeline
 - Growth estimates
- Target 5-year scope



6.4 A New Planning & Implementation Approach

BPR Model Example

*LIVE
DEMONSTRATION*



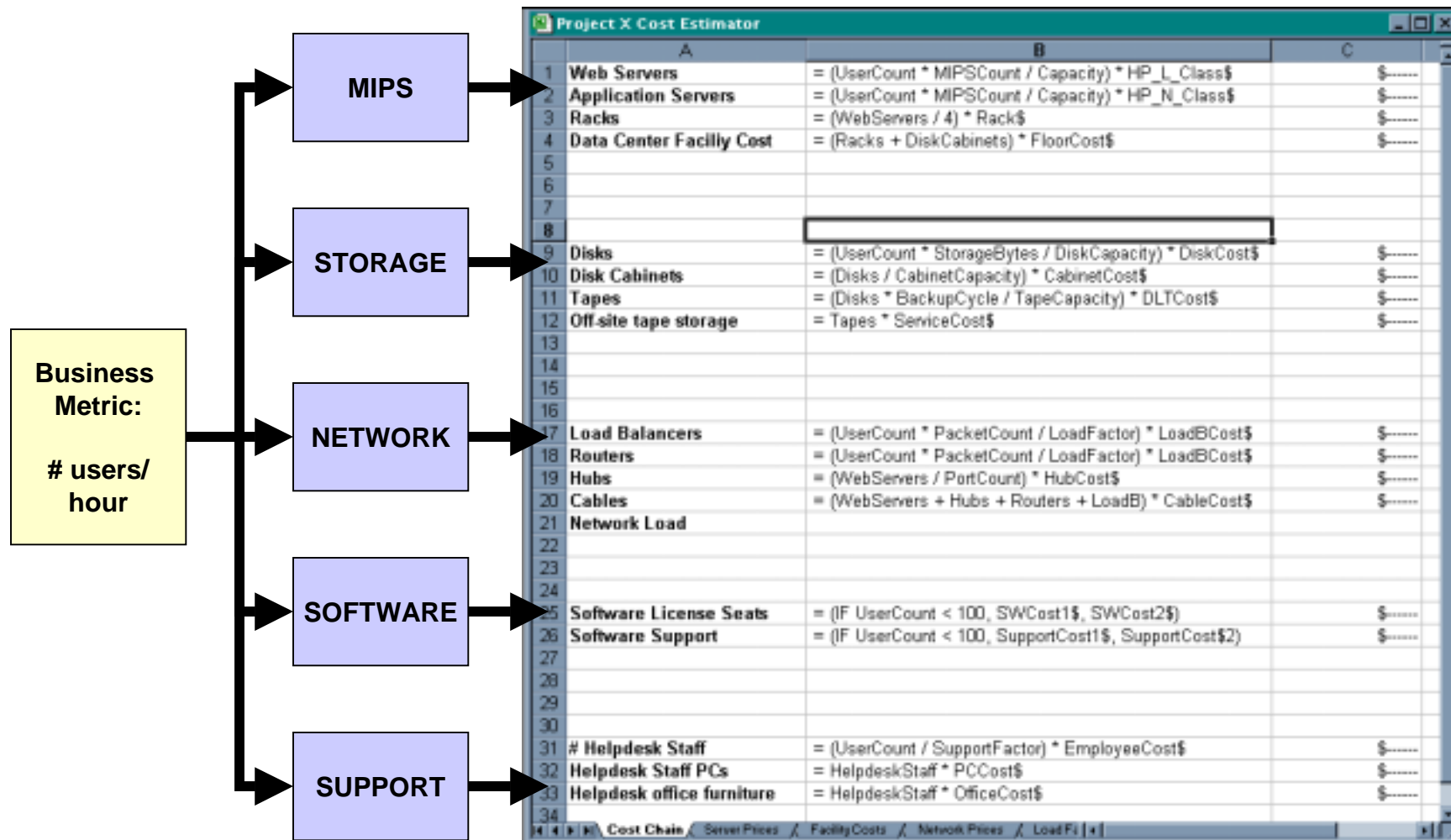
Acquisition Stages

- Business Process Requirements Model can identify short-term and long-term hardware & software requirements
 - Development & testing
 - Training
 - Production (datacenter and off-site)
- Benefits:
 - Spread capital costs out across the life of an architecture
 - Meet actual demand without overspending or overcapacity
 - Datacenter floorspace planning



6.6 A New Planning & Implementation Approach

Simple Cost Chain Example





6.7 A New Planning & Implementation Approach

Complex Cost Chain Example

*LIVE
DEMONSTRATION*



Benefits

- Measure & demonstrate IT's value to the business
- Track & communicate progress toward measurable goals
- Develop predictive tools that identifies future risk as well as ROI
- Establish common measurement and management tools to facilitate informed decision making.

SUMMARY

- E-Business implementation costs are never trivial
- Comprehensively plan for potential costs based on a Business Process Requirements model
- Always identify up-front all components of an application architecture and its support infrastructure
- Develop and use a cost chain modeling tool
- Ensure alignment with overall business goals