

Chapter 12

Developing and Managing Customer Expectations

Introduction

- Managing operational and tactical aspects of an organization's IT activities is critical to long term success
- Service-level agreements between customers and suppliers are an important tool, creating and managing expectations
- These agreements can be used within the firm, with ASPs, with Web-hosting providers, and in many other critical relationships

Tactical and Operational Concerns

- In a distributed computing environment, server failures can ripple throughout the organization
 - Not only are a firm's computer operations vital, they also help to establish its image internally as well as externally
 - Computer operations are judged on a day to day basis
- Several key operational processes must be managed well in order to succeed

Customer Expectations

- Manager performance is judged by how well expectations are met
 - Managers must explicitly set expectations
 - Service-level agreements spell out commitments and expectations
 - Managers must choose valid measurements of service levels
 - Failure to attain service levels must force the organization to look for process improvements and address planning / production issues

The Disciplined Approach

- Disciplines are management processes consisting of procedures, tools, and people
 - The goal is to meet customer expectations
 - Must be judged against specific, quantifiable criteria
 - Expectations are set in service-level agreements
 - Management reports are essential tools for operations managers

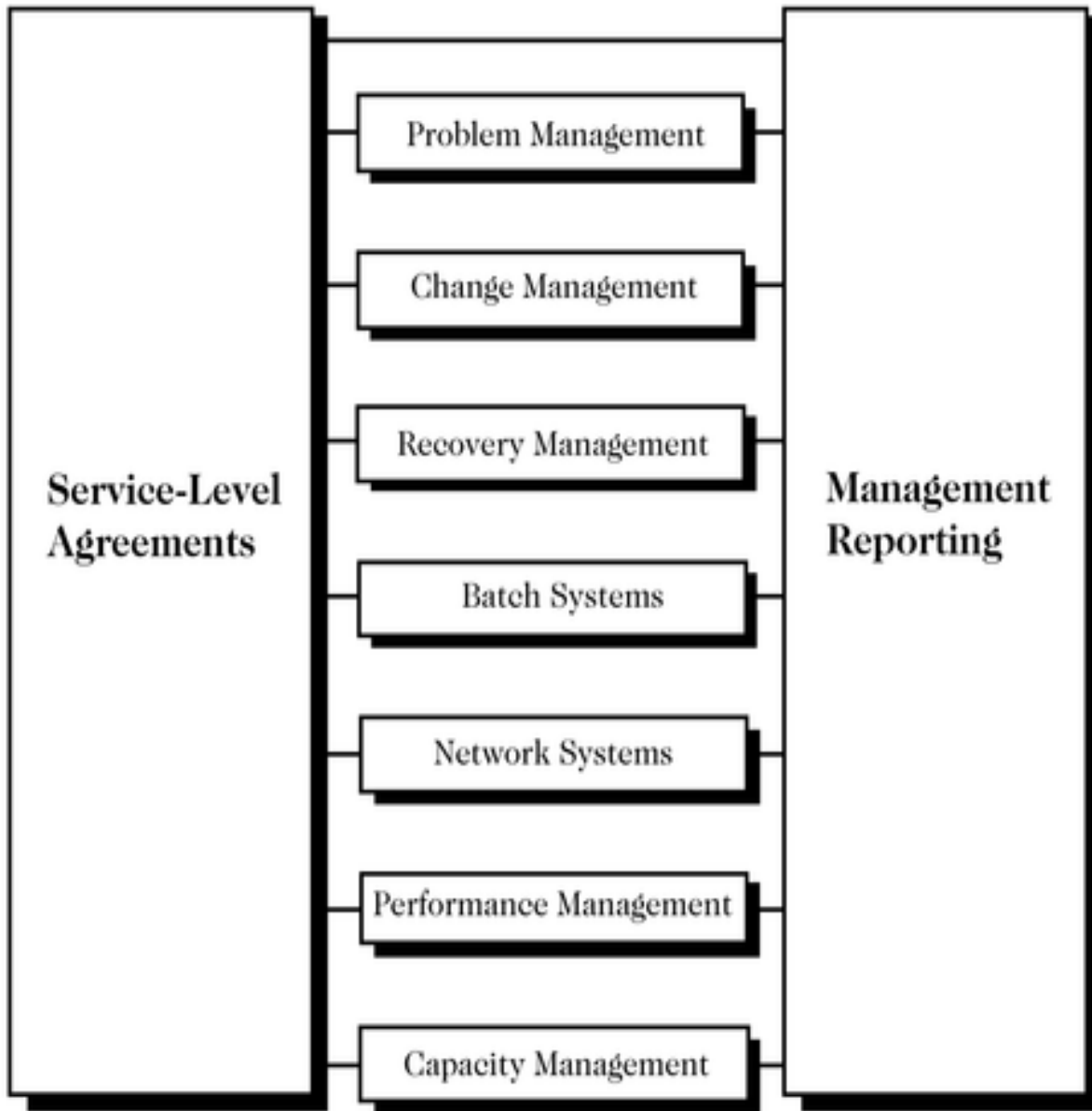


Figure 12.1 System Operational Processes

Service-Level Agreements

- A standard tool to establish and define customer service levels
 - SLAs help to reduce conflicts between users and suppliers and establish user expectations
 - With outsourcing, IT has been forced to create SLAs in order to compete to keep operations internal
 - Creating these agreements requires negotiation and discussion

Service-Level Agreements

- SLA negotiations are an iterative process
 - Requirements evolve as discussions become focused
 - New technology can offer benefits to the parties
- The end product of SLA discussions is a written document
 - Costs
 - Services
 - Other contingencies (uptime, throughput)

Service-Level Agreements

- Client organizations must justify IS costs
 - Gains from improvements must exceed costs of improvements
 - SLA negotiations are much simpler when preceded by careful disciplined planning
- All client organizations should be included in the SLA process
 - SLAs need not be only confined to IT

What the SLA Includes

- Effective date of agreement
- Agreement duration
- Type of service provided
- Service measures
 - Availability
 - Service quantities
 - Performance
 - Reliability
- Resources needed or costs charged
- Reporting mechanism

What the SLA Includes

- Negotiation of SLAs occur while a firm is preparing its operational plan
 - At this time near-term requirements for IT services are becoming clearer
 - Stable services like payroll have better forward visibility than quickly evolving services
 - Evolving services may need to renegotiate SLAs on a more frequent basis; the trigger for renegotiation must be included in the agreement

Schedule and Availability

- Describes the period when the system and its application programs must be running
 - Includes weekends, holidays
 - Must allow for scheduled downtime
 - Should take into account seasonal fluctuations, periods of high demand
- The most effective agreements are produced by negotiators who understand system capabilities, limitations, and user needs

Timing

- How quickly users receive output data
 - For batch operations this can be measured in hours
 - Will the data be available at the start of the day following an overnight run?
 - For interactive sessions, it is the lag between request submission and result generation
 - Response times under 0.3 sec appears to the user as instantaneous
 - The result of many factors interacting
 - Network speed, capacity, database access delay

E-Business Customer Expectations

- E-business operations dramatically change the firm's IS infrastructure and add new dimensions to system management
 - ERP systems form the heart of e-businesses
 - They integrate critical data from the beginning to the end of the value chain
 - Supporting systems are also critical
 - E-mail, security, funds transfer
- All of the above systems must be always on and have high expectations of availability

Contracts with Outside IT Service Suppliers

- When creating arrangements with outside vendors, a contract is created
 - Within the firm these are termed agreements denoting the fact that they do not have legal force
- Contracts
 - Money flows outside the firm in exchange for services
 - Stipulates measurable rights and obligations
 - Give parties legal recourse

What to Include

- In addition to the items in internal SLAs
 - Unambiguous description of the services provided and the duration of the service
 - Key metrics of system reliability, availability, and performance
 - Payment terms
 - Termination conditions
 - Remedies and indemnification

Reliability

- Mean Time Between Failure (MTBF)
 - Amount of time system is operational and without failure
 - In highly redundant systems this is zero
- Mean Time To Repair (MTTR)
 - Amount of offline time before system is operational again
 - This is also zero in redundant systems

Types of Service Contracts

- Four distinct types
 - Application Service Contracts
 - Hosting Contracts
 - Network Contracts
 - Customer Help Desk Contracts

Workload Forecasts

- Accurate forecasts are critical to meeting internal SLAs and purchasing appropriate levels of external services
 - Contracts must address workload fluctuations
 - Seasonal peaks must be anticipated
 - Unanticipated demands often occur when new applications or services are more successful than planned
 - Structural changes in the firm (mergers, etc) make invalidate previous forecasts

Workload Considerations When Outsourcing

- Accurate workload forecasting is important when outsourcing
 - Outsourcing firms generally have contingency clauses that stipulate charges for incremental demand
 - In cases where demand is significantly underestimated, these charges can exceed the initial contract price
 - In cases of underestimation, monthly charges inflate final application service cost

Measurements of Satisfaction

- Suppliers and users must agree on explicit, transparent, and credible metrics
 - Accurate data creates trust with clients and builds a relationship
 - Suppliers should measure performance from the client's perspective
 - Metrics should be gathered from across a client's network, so that site specific problems can be identified and overall performance accurately reported

User Satisfaction Surveys

- Aside from meeting SLAs, providers must gather data on user perceptions of service
 - Well crafted surveys help to detect problems sooner
 - Unsatisfactory results must be addressed and the roots of the difficulty found
 - Focus groups, targeted surveys, etc
 - This becomes another method to strengthen communication between users and providers

E-Business Satisfaction Measurements

- Customer satisfaction is critical for success in e-business
 - Objective measures must be found to track customer satisfaction
 - Anonymous data must be collected in a timely manner that allows participants to opt-out
 - In B2B ventures, issues such as trust and competition can cloud users perceptions
 - B2C e-commerce is even more difficult with branding, advertising, and marketing affecting results

Additional Considerations

- Resistance to SLAs occurs at times because managers feel that they represent unnecessary bureaucracy and central control
- Some managers resist because SLAs would reign in their ability to demand and bully
- Others would like to operate their departments without the scrutiny that SLAs bring to ongoing operations and performance

Congruence of Expectations and Performance

- Sometimes SLA performance does not meet expectations
 - Inability to meet SLAs allow an organization the opportunity to re-engineer, conduct strategic planning, or consider outsourcing of the function
 - The utility of this approach is that previously hidden problems are formalized, measured, and addressed

Summary

- SLAs form the basis of services to e-businesses
- They create a foundation upon which the disciplines can be made effective
- SLAs creates respect and communication between providers and clients
- It helps IT to focus on client needs and clients to understand the services IT renders

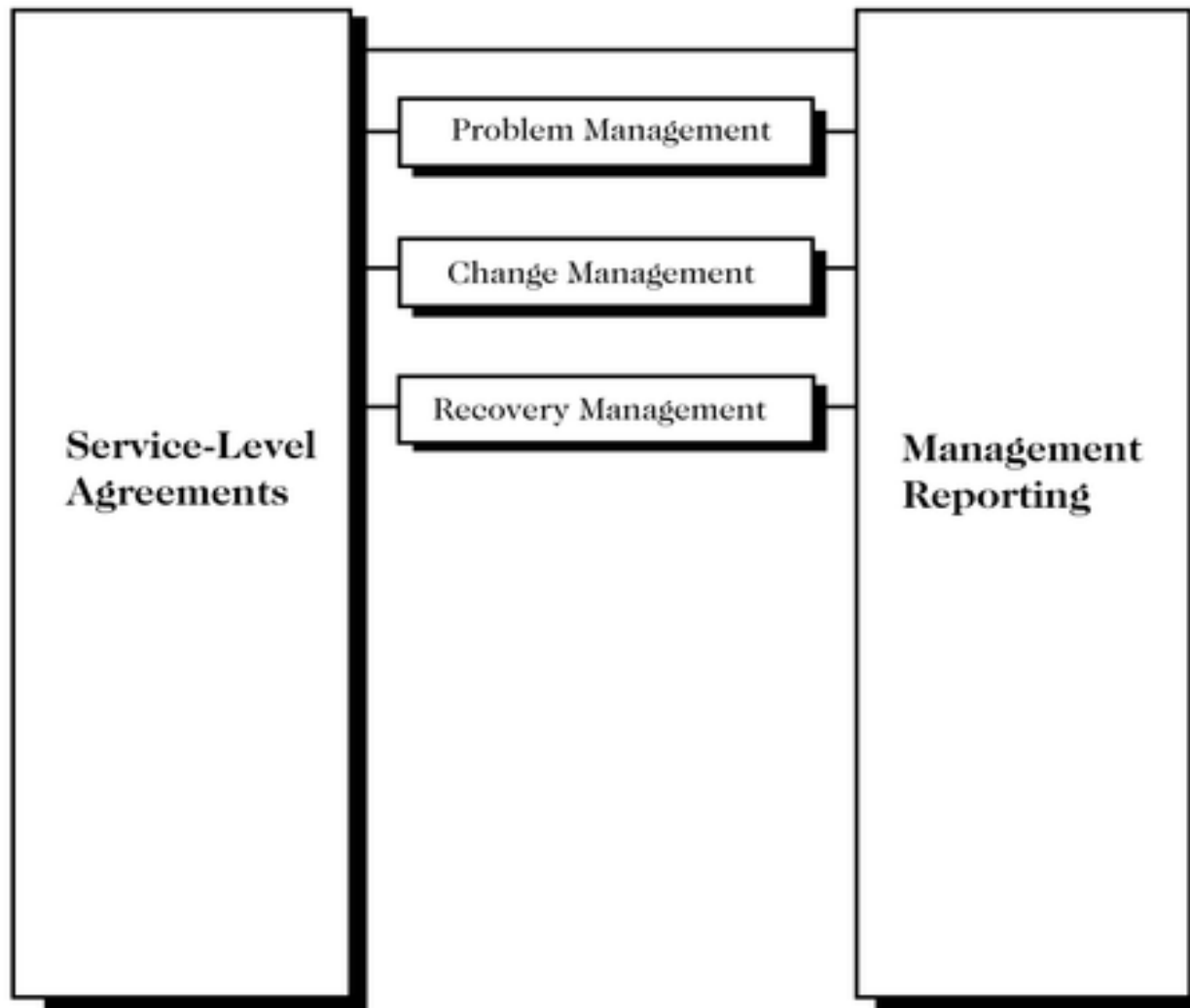
Chapter 13

Managing Computer and Data Resources

Introduction

- A disciplined, systematic approach is needed for management success
- Problem Management, Change Management, and Recovery Management are essential to achieving service levels
- Managing these areas requires a broad understanding of tools, techniques, and processes

The Disciplines of Problem, Change, and Recovery Management



The Disciplines of Problem, Change, and Recovery Management

- Problem, Change, and Recovery Management focus on departures from acceptable operations
 - Correct current deviations
 - Identify root causes for deviations
 - Change process or procedures so that deviations do not recur
- These tasks need not only take place in IT, but are useful in management practices throughout the firm

Disciplines for E-Business Systems

- E-business puts incredible demands on IT infrastructure and services
 - Low tolerance for system failures
 - Limited downtime for upgrades, repair, etc
- The e-business depends on automation perfection throughout the entire sales cycle – marketing, ordering, fulfillment, customer support, and customer relationship management

Problem Definition

- Problems are incidents, events, or failures that result in a department being unable to meet their SLAs
- The focus of problem management is to manage the problems associated with maintaining and delivering satisfactory customer service

Problem Management

- Problem management is a method of detecting, reporting, and correcting the problems that affect SLAs
 - Hardware
 - Software
 - Networks
 - Human
 - Procedural
 - External vendors

Problem Management's Scope

- Scope of problems span the enterprise
- Most problems are multifactorial and require analysis to ascertain the root cause
 - Because firms are creating integrated systems, faults may occur due to several systems under specific conditions. These can be the most difficult problems to correct because they happen infrequently and are very difficult to reproduce.

Processes, Tools, and Techniques

- The problem management process relies on incident reports, problem logs, and resolution procedures
 - A trouble ticket is created and stays active until resolved
 - The ticket is used to track all corrective actions taken to resolve the problem
 - The contents of the resolved problems become a store of known fixes and can be used as data for anticipating future problems

Problem Report Contents

Problem control number

Name of problem reporter

Time and duration of the incident

Description of problem or symptom

Problem category (hardware, network, etc.)

Problem severity code

Additional supporting documentation

Individual responsible for resolution

Estimated repair date

Action taken to recover

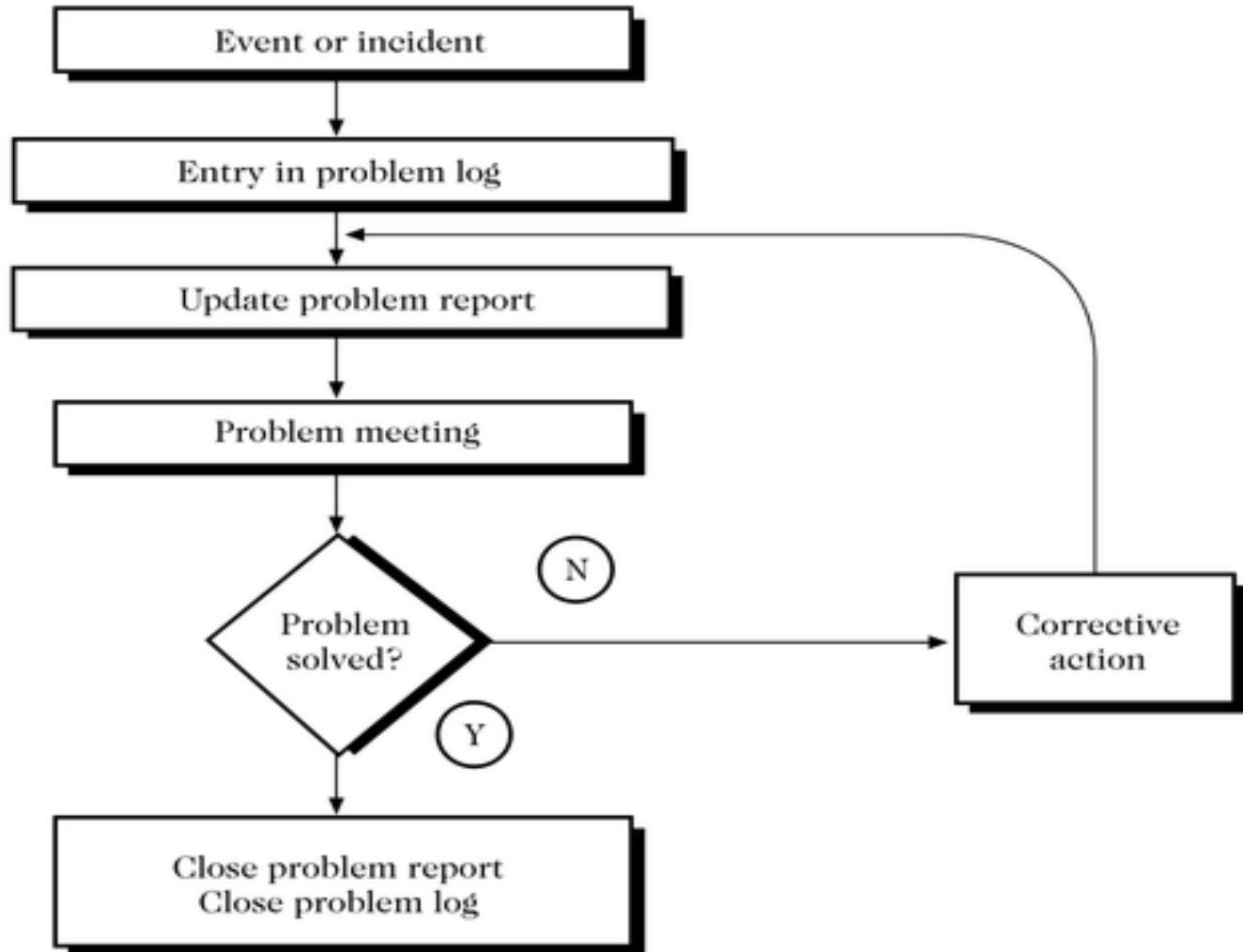
Actual repair date

Final resolution action

Problem Management and Implementation

- Problem resolution procedures include action plans and estimated resolution dates
- During the period from initiation to termination of a problem, scheduled meetings are used to discuss and focus on unresolved problems
- Major problems require additional reviews
 - Focus on root causes, impact, and prevention

Problem Management Process Flow



Problem Management Reports

- Reporting from the process can reveal trends and indicate problem areas
- Reports help managers establish service level targets
- An aged problem report is useful in evaluating responsiveness of the organization
- Reporting systems lend credibility in SLA processes and helps increase cooperation between supplier and consumer

Change Management

- A management technique for planning, coordinating, handling, and reporting system changes that could negatively impact service delivery
- Changes generate problems, and change must be managed to ensure reliable delivery of services
 - In undisciplined organizations solutions to two different problems results in creation of a new problem

Change Management Scope

- Most changes to computer-based information systems or their environment risk causing service disruption
 - Applications maintenance
 - Operating system upgrades
 - Environmental changes (power source changes, heating or cooling upgrades)
 - Hardware upgrades
 - Network reconfigurations or changes in outside suppliers

Change Management Process

- The elements of change management include:
 - Change request
 - Change analysis
 - Prioritization and risk assessment
 - Planning for the change
 - Management authorization

Change Request Document

Change description and assigned log number

Problem log number if change results from a known problem

Change type

Prerequisite changes

Change priority and risk assessment

Test and recovery procedures

Project plan for major changes

Requested implementation date

Individual responsible for managing the change

Individual requesting the change, if different from above

Management authorization

Change Management

- Major or extraordinary changes require thorough project plans that identify:
 - People
 - Responsibilities
 - Target dates
 - Implementation reviews
- These changes also require planning for failure with configuration rollback and a prospective plan for failure analysis

Change Management Reports

- Change management logs must be reviewed periodically to ascertain trends and assess effectiveness
- Reviews focus on:
 - Expectations vs. results
 - Required emergency actions
 - Percentage of failures or rollbacks

Recovery Management

- Rapid recovery from disaster oftentimes is the difference between the firm's survival and failure
- Recovery management is made difficult because managers believe the risk of destruction is low, and recovery solutions complex and costly

Recovery Planning and Contingency Management

		Risk of Loss	
		High	Low
Probability of Occurrence	High	Recovery Planning	
	Low	Contingency Management	Problem Management

Contingency Plans

- Addresses high-risk events with low occurrence probability
 - Ensures successful performance of critical jobs when resources are lost
 - Responsibility sharing requires increased interaction between owners and service providers
 - The parties must work together in a responsible manner to serve the firm's best interests

Critical Applications

- IT managers must identify the most critical applications in the organization
 - Must be determined in context of other applications – interdependency is key
 - Timing is important – applications that run continuously vs. those needed only episodically
 - Understanding which applications are more critical than others allows managers to optimize the firm's response to disaster under non-optimal circumstances

Emergency Planning

- Planning for events with low probability of occurrence and high associated uncertainty
 - Typically affect a large area
 - Planning must include the entire firm
 - Business continuity planning or business resumption planning
 - Early detection of the disaster helps to limit the impact (fire alarms, water detectors)

Strategies

- Disaster recovery is a growing business and many options are available
- In severe outages, some form of backup is required for all systems
 - Distributed systems can be very effective in backup operations if communication links are operational
 - Planning for software compatibility is key
- Many external options are open
 - Hot standby, NaviSite, mutual cooperation, etc

Strategies

- Telecommunications is becoming more critical as organizations move to distributed systems
- Firms must explicitly address:
 - Network redundancy
 - Alternative routing
 - Alternative termination facilities

Recovery Plans

- Action plans must involve all parts of the firm that engage in IT activities
- Most important component of recovery plans are the employees
 - Communications within the firm must continue
- Need written emergency processes
 - Copies of plans need to be stored offsite
- Testing of plans is essential

Considerations for E-Business

- With outsourcing to ASPs or web hosting firms, recovery and contingency planning begin to fall outside the firm
 - SLAs must include recovery and continuity of services
 - Change, problem, and recovery processes must be examined as if they were within the firm
 - Periodic reviews are necessary with updates as appropriate

Summary

- Problem, Change, and Recovery Management are critical to managing computing facilities effectively
- These disciplines support execution of SLAs
- Thoughtful, conscientious individuals can work together to minimize the effects of the difficulties inherent in complex environments