

How Important is Availability?

"Managing availability is about competitive advantage, that's true. But we are in the health care services business and information failures compromise patient care. To us, managing availability is also about saving lives ! "
-Apria Healthcare



Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Where are you on your Management of High Availability?
- Do you feel that all that can be done is done and if a situation were to arise are you set to handle it?
- Following is a review of some key H/A points.

Managing Availability

The Basic Availability Requirement

- 75% of all businesses are unable to function without computer support
- Within 14 days with no computer support
 - 43% of all businesses never re-open
 - 29% of those who do re-open will close for good in two years
- 20% of all small to medium business suffer a disaster every 5 years
- Nearly 75% of all businesses have experienced business interruption

Did You Know ...

- Average company has **4** different Server operation systems, **6** operational databases, and **10GB** of data per person
- **65%** of IT Managers have begun to integrate with suppliers
- **55%** of IT Managers have begun to integrate with Customers
- **45%** of all Enterprise Integration Plans have Failed

Gartner

How much data?

UC Berkeley Study :

- “By 2003, we will have the ability to store and deliver every piece of data ever produced... estimated at 22,500 petabytes.”
- “Every year, the amount of completely new data is equal to 250MB for every Man, Woman, and Child on the planet”
- But this Data is not usable or available until it is turned into Information!
- “Almost all data analysis / interpretation will be done by machines. “

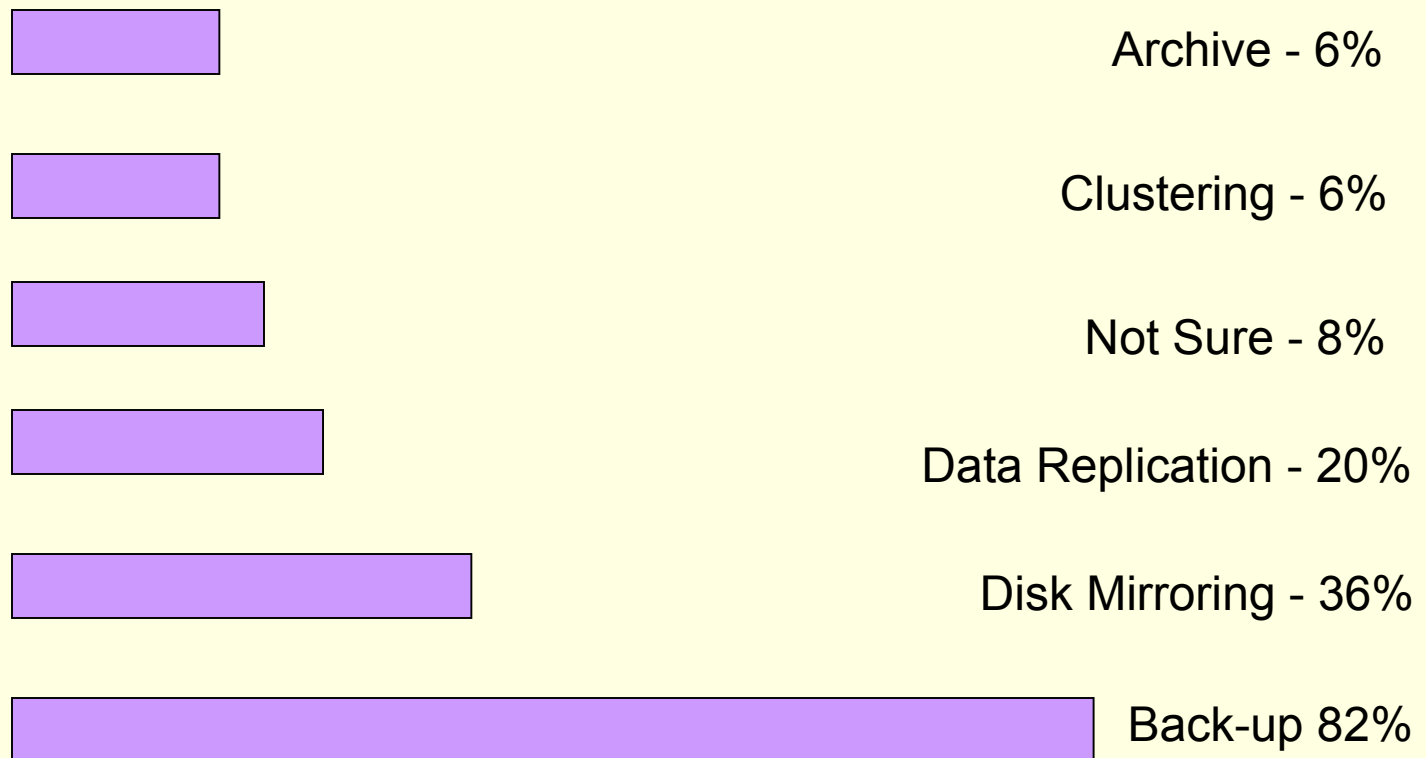
***“Data, Data everywhere,
but not one bit of Information”
-anonymous***

How Long Is An Outage Really?

Availability Percentage	Total Outage Per Year
99.9999	32 Seconds
99.999	5 Minutes
99.99	53 Minutes
99.9	8 Hours
99	87 Hours
90	876 Hours

What's Being Done About It ?

2002 Availability Strategies



IRG Survey

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

■ Mark Bremner

- Director of System Availability Series VAR
- 20+ years of midrange experience
- Design and managed IBM Rochester's hardened data center
- Involved with over 1500 AS/400 & iSeries installations
- Director for one of the largest iSeries installations
- Board of Directors for
 - LUG
 - COMMON Speaker Review Board (SPEX)

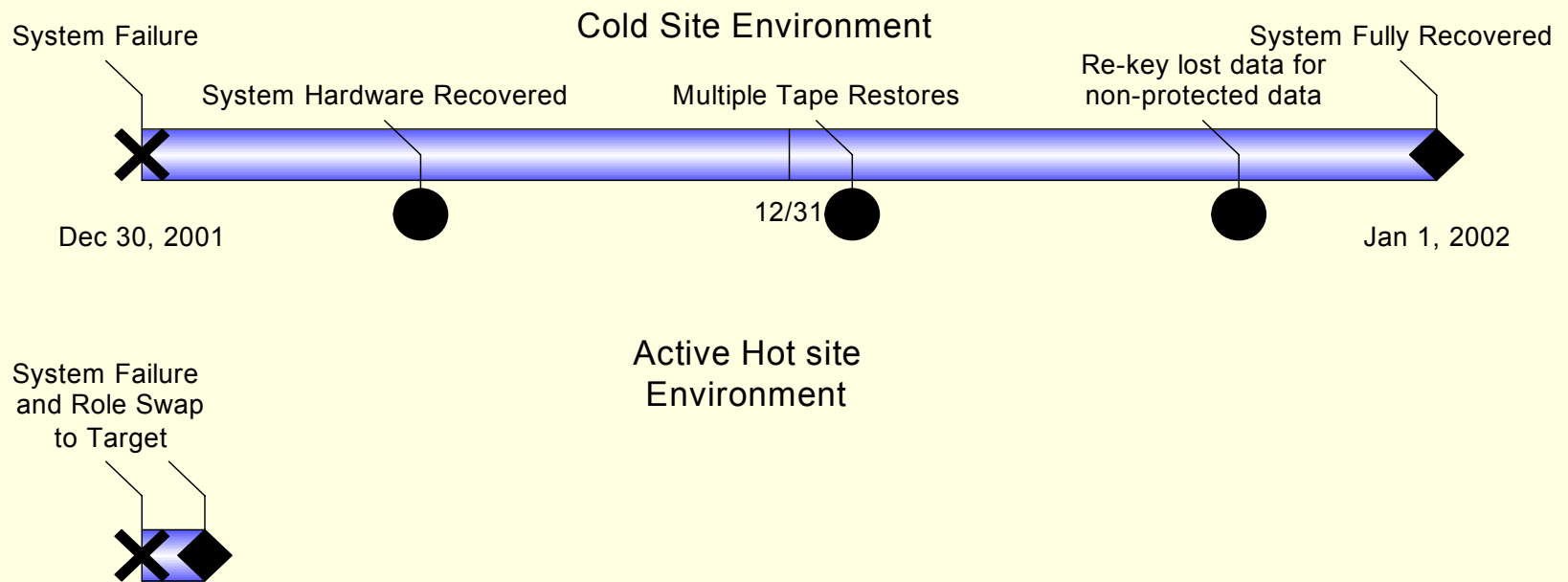
The Issue of “Downtime”

- **Unplanned – 20% of all Downtime**
 - Environmental Factors – 20%
 - HW, OS, Power
 - Operator Error – 40%
 - Application failure – 40%
- **Planned – 80% of all Downtime**
 - Physical Environment – 2%
 - Back-up / Recovery – 10%
 - HW, Network, OS, Systems Software – 10%
 - Batch Processing – 10%
 - Application and database – 65%

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Ownership
- Accuracy of information
 - No exaggeration
- Accuracy of testing
 - Offsite
 - Definition--Disaster
 - Onsite
 - Definition--Crisis

System Recovery



Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Business model
 - Have you done one?
 - Cost of down time
 - Do you know?
 - The calculation are easy
 - Business DR plan vs. IS DR plan

Elements of a Crisis/Disaster plan

Applications

- Access codes and Support numbers
- Size
- Importance
- Main Internal Resource
- Hours of critical need
- Needed system resources and Data base accesses

Hardware

- Systems
 - Models and Features
 - Disk
 - Memory
 - CPU
 - Access protocols
 - System Diagram

Communications

- Network diagram
- Intranet requirements
- Extranet requirements
- LAN/WAN requirements
- Support procedures

Elements of a Crisis/Disaster plan

Environmentals

- Floor space metrics
- Cooling capacity
- Power requirements
- Access points and support space

Personnel

- Primary and Secondary support
- Internal and External assignments
- Travel needs and availability.
 - Religious responsibilities
 - Passport
 - Purchasing Power
 - Documentation Distribution
- Escalation steps including who and when

Documentation

- Support and Recovery manuals
- Internal phone list with home and cell numbers
- Save and Restore procedures
- Run Book requirements

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Elements that make of an I.S. infrastructure.
 - Software
 - Hardware
 - Environmentals
 - Communications
 - Computer Room Access
 - D/R testing

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Software
 - License Keys
 - Upgrade Protection
 - Procedure for failures

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Hardware
 - What is redundant?
 - Processor
 - DASD
 - Busses
 - System

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Environmentals
- Electrical, starting with the basics....
 - Batteries
 - Last cycle date
 - Maintenance schedule
 - Do you have an accurate capacity number?
 - Generator
 - Additional fuel source
 - What is connected?
 - All racks
 - User electricity
 - Chillers - lots of overhead

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Environmentals
- Chillers! for how long!
 - Are your chillers on backup power?
 - When were the filters last changed?
 - Do you measure the inbound temperature?
 - Last time you opened the cover
 - Checked on their programming
 - Rate of climb during hot season
 - Facilities management

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Communications
 - What level of redundancy
 - Backup design in place
 - Off-site connection

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Computer Room Access
 - Who?
 - Service and Support
 - Has this been tested
 - What about building Security procedures
 - For repair personnel access
 - For off hour access

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- Disaster Recovery testing
 - Do you?
 - Do you have a plan?
 - Do you have copies of the plan?
 - Do you have copies and where are they?



System Availability with Series VAR

Need for Availability Solution

- **Downtime simply not acceptable**
 - *Patient processing*
- **Shrinking Back-up Windows**
 - *#1 cause of planned outages*
- **Mission-Critical Applications**
 - *Business continuity is lost if any downtime occurs*
- **Risk of loss of data in between backup windows**
 - *Affordability to loose any data in an unplanned outage situation*

System Availability

H/A Today

- **Single view of multi-platforms**
- **Stronger ROI and TCO**
- **Remote Journaling**
- **IFS, Data area, and Data queue, Journaling**
- **CRC Sync checking**
- **LPAR implementation**
- **LAN/WAN installations**
- **Ease of implementation and use**

Special and new Technology

- **Journaling Updating on both the Primary and**
- **Backup Servers**
- **Sophisticated Level of Synchronization Tools within the H/A Software product**
- **Customizable Role Swap Procedures**
- **IP Switching of Specific Users**
- **Transaction Replication**
- **Support for Commitment Control, Referential Integrity and Multi member Logical Joins**

The Scoop on Uptime

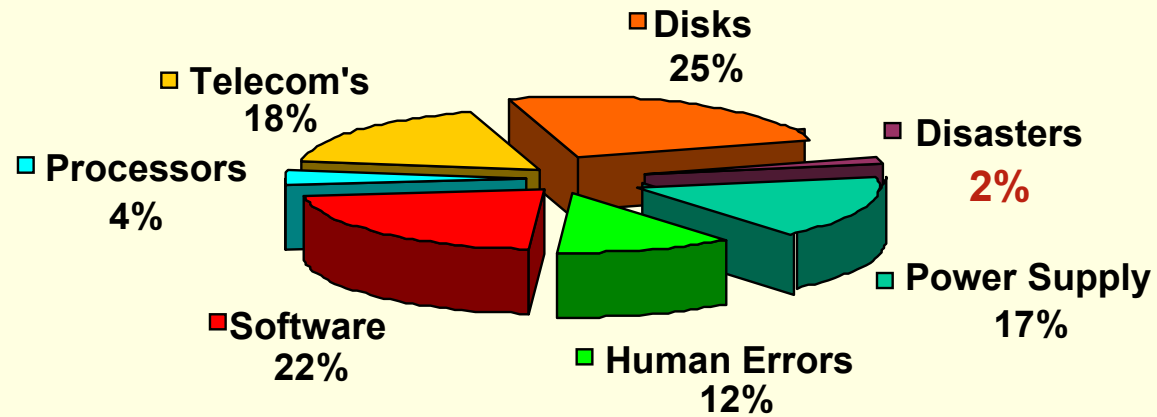
■ iSeries

- Reliable System
- Affected by care and feeding elements
- 87% up time on average

■ The Task at Hand

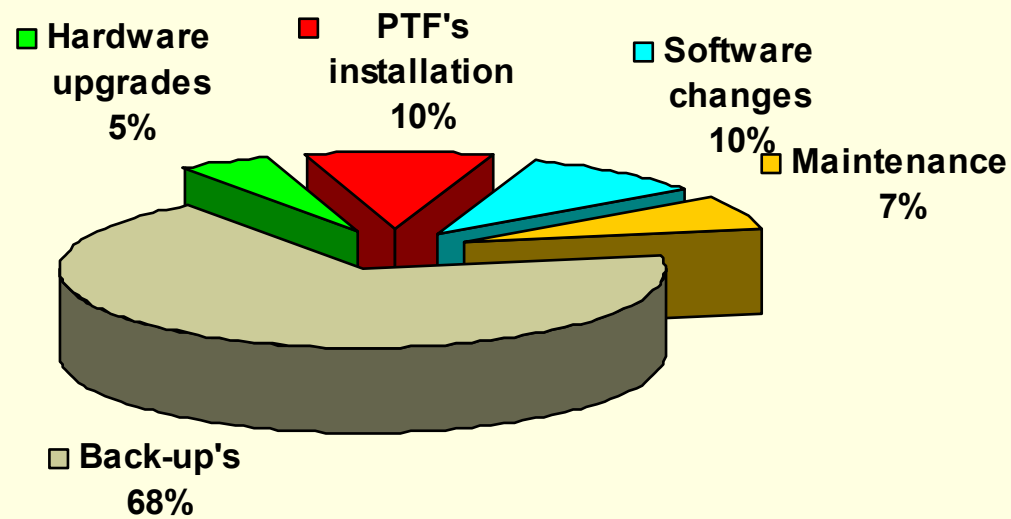
- 95 – 99% uptime
- 99% equals 146 Hours a year.
- *Less than 3 hours a week for backups, unplanned Downtime, etc.*

Unplanned Downtime



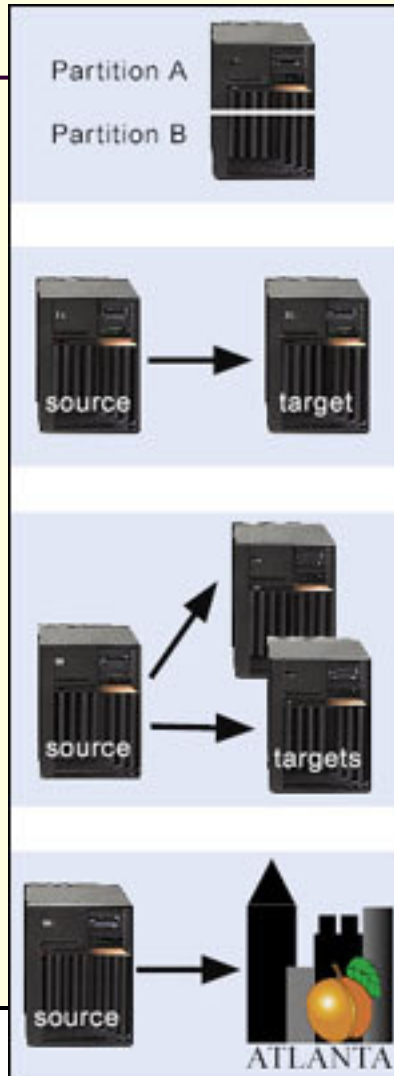
*Source: IBM AS/400 Research Center
Rochester*

Planned Outages



Source: *IBM AS/400 Research Center Rochester*

Availability Configurations



Benefit: Redundant Series 2000 environment on low cost single iSeries system.

Benefit: Full system redundancy for Series 2000.

Benefit: Series 2000 system redundancy and multi-site disaster recovery capability.

Note: This example demonstrates "One to Many". System Availability for Series 2000 can also be configured for "Many to One."

Benefit: Full system protection with low capital investment. Trained, certified, and highly experienced technicians managing your environment.

Recovery Point Objectives and Recovery Time Objectives: An I.S. or Business Issue

- What is in your D/R plan?
 - H/A is a plan
 - What is budgeted this year
 - Next year
 - Business model alignment
 - Point of Recovery
 - Accurate
 - Definable
 - In line with business objectives

Questions & Answers





Managing Availability Across the Enterprise