# An Archive Audit to Support Disaster Recovery

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THIC Inc.

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# 2001 – The Year of Vulnerability Awareness

- Two Groups:
  - Those affected directly
  - Those affected indirectly

# Up in Smoke



- US Customs
- Bureau of ATF
- IRS investigators
- CIA
- Investment brokers
- Financial firms
- Insurance companies
- Family members

# The Search Begins



- PCs: (computers or paper collectors?)
  - 12% increase in paper usage since 1995.
  - 5% increase in use of computers.
- US spends $25B/year filing, storing and retrieving paper documents.

# The Data Cloud



- Paper
- Floppies
- CDs
- Laptops
- Mainframes
- Servers
- Networks
- Archives

# Pre-Sept 11 Buzz Words

- Disaster Recovery
  - Awareness emerged in 1993 after first attack
- Y2K
  - Forced us to clean up our act

# "Disaster Recovery" Plus!

- Carrie Lewis, The Yankee Group: 'Disaster recovery must go beyond simply saving data; a plan must also protect business processes.'

- "How much time will it take to get things up and running again? Do you want a separate site running - a mirrored site - so there is no interruption in service, and how often do you want backups done?"

# NYSE and DR

- In the wake of the Sept. 11 attacks, disaster recovery planning will be a key focus of New York Stock Exchange inspections,  executive VP Edward Kwalwasser of NYSE stated.

- Congress is very interested in this so the NYSE will inspect member firms' disaster recovery plans during routine examinations and may propose new rules in this area.

# FBI Requirements

- "Right now, the FBI has a large number of computers that cannot even send pictures of potential terrorists to other FBI terminals because they do not have the adequate computer capacity," Rep. David Obey (D-Wis.)

- The supplemental spending bill, for example, gives the FBI $56 million for data backup and warehousing and $237 million to speed up its Trilogy program to modernize its IT infrastructure

# IRS Funding

- The Internal Revenue Service received $16 million, of which $13.5 million is for backup systems in case its systems are compromised.

# US Customs

- The Commercial Recovery Services program includes building a primary backup facility at least 20 miles from Customs' Springfield, VA, data center and a second facility at least 350 miles away.

- Customs officials said they are seeking firms to replicate the agency's computer systems and regularly backup their data.

# US Customs (cont'd)

- In the event of a disaster, Customs wants to have fallback systems up and running with data that is no more than 36 hours old for its mission-critical applications, including its Automated Commercial System, which handles imports at the nation's borders.

- The cost of the project is estimated at more than $1 million, according to Federal Sources Inc.

- Total of FBI, IRS and Customs: $300M

# Types of Damaging Events

- Sustained loss of telecommunications
- Structural damage
- Sustained electrical supply failures
- Restricted facility access
- Smoke damage
- Gas leaks
- Hazardous materials release
- Water damage

# Vulnerability Analysis

- A matrix chart can indicate the relationship between the probability of the event occurring, the operational impact and the resources required to implement preventative measures during and after an event causing casualty.

- Vulnerability varies with the size of an organization

# Size of Business

- Someone once measured businesses impacted by the first World Trade Center bombing and a California earthquake.

- "Small to Medium" businesses (under 500 users on site) experienced a 50% rate of going out of business if they could not get to their data.

- **Lesson**: D/R is actually more important for small/medium businesses - since they are more volatile to any changes in their operating model

# 2002 Buzz Words

- Crisis Management
- Business Continuity
- Convergence
- Continuous Availability
- Disaster Recovery Planning Service
- Decentralization (critical resources)
  - 2002 may see businesses pulling out of deluxe office HQs and moving into discrete, distributed office environments.

# Crisis Management

- Probably the biggest failure experienced by businesses during September 11th was in their crisis management plans.

- This will be an important business continuity driver in 2002, as companies seek to develop crisis management plans that are tried, tested and guaranteed to work.

- This area of the market will see many new entrants as CM companies tap into a potentially lucrative market for their specialist services.

# Business Continuity and Record Storage

- The demand for records storage for legislative reasons will be a driver for business continuity.

- Digital records are now legally admissible evidence in most countries. Legislation demands that data is stored for many years in a highly available and absolutely resilient system.

- Business continuity measures are essential in achieving this requirement.

# Business Continuity and Information Security

- Around the world, information security legislation is increasingly demanding business continuity measures.

- Examples include Gramm-Leach-Bliley and HIPAA, in the **US**, and the Data Protection Act in the **UK**.

- This trend will continue in 2002 and will, in turn, encourage the uptake of the international information security standard **ISO 17799**

# Convergence

- Convergence issues will become one of the most talked about areas of business continuity in 2002.

- Telecommunication systems and information technology were once thought of as separate networks, they are now interlinked and are increasingly mission-critical.

# Convergence (cont'd)

- Information systems will continue to be more tied to data and document storage technologies so that an enterprise is served by a "single" system.

- To accomplish this, archive systems must be tied closer to nearline systems and nearline systems must be tied closer to online systems

# Continuous Availability

- Many mission-critical processes have moved from requiring high availability (HA) to continuous (100 percent) availability.

- Expect to see the refining of products for this market in 2002, with continuous availability making HA offerings obsolete in some markets.

- In other markets, the difference between HA (keeping the users productive) and DR (keeping the data survivable) is important so that user and management expectations are set correctly.

# Continuous Availability of Archives

- Evaluate and potentially decrease the number of media per drive

- Evaluate and potentially increase number of drives per JB

- Re-evaluate most efficient use of JB clusters

# Continuous Availability of the Internet

- Internet availability will become more important in 2002, and not just for e-commerce firms.

- Business use of the Internet is growing rapidly and mission-critical processes are being transferred to the IP network, making the continuous availability of Internet services increasingly important.

- 2002 will see a greater focus upon availability, security and resilience of e-mail processing systems

# Disaster Recovery Planning

- The key to remember that no company has as much as stake during your disaster as you do.
  - Jason Buffington, NSI Software

# DR Plans and Tests

- Is there a plan?
- Has it been tested?
- Are there update procedures in place?
- Do operators have copies?
  - Office, home, car, ??
- Critical folks have access to emergency resources?  Cash for cars, flights, hotels?

# Systems Recovery

- Who has the license keys?

- Does the DR plan include 800 numbers?

- Do the right people have the codes to provide and start back-up recovery activities?

- Are tapes clearly marked?

- Who has computer room access?  Vendors? Users? Consultants?

- When? During/after shift times?

# Data Recovery Plans

- Does your plan include mail, email, incoming data and output requirements?

- Do you know what the mission critical data is?

- Do you know who the owners are?
  - Are they on your backup distribution list?

# Initiating the Plans

- A place to start the DR process is to examine the system as it operates on a day-to-day basis.

- Departments where poor design or overly complicated "solutions" are in place may hamper the development of the DR plan.

# Sample Recovery Details

- In order to get back into operational status, an inventory needs to be available for possible repurchasing equipment.
  - Digital camera or sensor specifications
  - Batch mode specifications
  - Data conversion specifications
  - Output specifications
  - Storage and HSM specifications
    - **Tape supplies, spare drives**

# DR – Not for Systems Alone

- A DR plan does not end with the data or the servers.

- If the plan does not include the people, there will be no one sitting at the consoles of those newly shipped PC's, redundant servers and mirrored archives.

- A key to successful DR is that the redundant facility must be far enough away that it is not susceptible to the outage (i.e. power grid, hurricane, flood, etc) but close enough that key people can get there if necessary.

# The Critical Human Elements

# A Vacuum of Organization



- How long can you afford to be down?

# Downtime Cost Estimates

- **Elusive estimates span a vast spectrum, from $1,000 to $100,000 per hour - even $100,000 per minute for real-time transactions.**

- **Server downtime is tied to the applications environment, producing much higher costs for transaction processing and manufacturing environments.**

- **The Gartner Group points out that downtime cost computations typically only figure productivity loss to an organization but they ignore transaction loss, loss of business, or customer dissatisfaction.**

# Statistics from CTR

- Most companies value 100 MB at more than $1M. (Jon Toigo).

- 43% of lost or stolen data is valued at $5M. (Jon Toigo).

- 43% of companies experiencing disasters never reopen and 29% close within 2 years. (McGladrey and Pullen)

- 1 out of 500 data centers will have a severe disaster each year. (McGladrey and Pullen)

# The Heart of DoD

# Hope and Refocus