

Information Technology Disaster Planning: Lessons Learned from Katrina

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ABSTRACT

Educated people are aware that disaster planning is a must in today's computer dependent society. Nevertheless, when Hurricane Katrina hit the Gulf Coast of the United States in August of 2005, many businesses were surprised by the severity of this natural disaster. Disaster planning has been redefined by this major event and several lessons learned have enabled companies to be better prepared for future events. In today's increasingly computer dependent society, it is not a question of if disaster will happen, it is a question of when. With regard to Hurricane Katrina, perhaps one of the greatest sources of economic hardship and loss came from the disruption to the businesses in the Gulf Coast region that were faced with damaged facilities, displaced employees, and business interruption. A surprising number of companies were not prepared for such a disruption and had not tested their total plan for disaster recovery. Why were businesses not more prepared to recover quickly and continue operating in the face of this disaster? Why did they not have plans in place to account for and protect employees and their families, keeping them safe and productive? This paper discusses basic principles of disaster planning that have been enhanced by lessons learned from Katrina, and offers solutions for the future.

Keywords: disaster planning, disaster recovery, information systems, information technology, security and assurance education

1. INTRODUCTION

A few months ago a former college professor asked a student for help with his home computer. He said that his system would no longer start up because his hard drive had failed. The first question the student asked him was, "Do you have a backup of your files?" He did not. At that moment, the severity of his disaster hit home. He asked, "Does that mean I lost all my files?" His dilemma is a small example of a minor personal recovery "disaster" that leads home computer users to become more aware of the need for backing up their data. Business users are aware that disaster planning is a must in today's computer dependent society.

2. BACKGROUND

When Katrina hit our country, many businesses were surprised by the severity of this natural disaster. "Two weeks after Hurricane Katrina took most of the Gulf region—and the nation—practically by surprise, companies that have moved beyond shocked silence are arriving at lessons learned around how to do a better job of minimizing the impact of a disaster on the bottom line of a business." (Emigh, 2005) Disaster planning has been redefined by this major event and several lessons learned have enabled companies to be better prepared for future events. This paper will cover some basic principles of

disaster planning, enhanced by lessons learned from Katrina.

3. ABOUT KATRINA

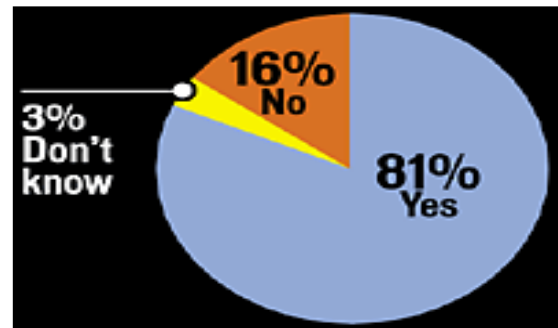
This hurricane was the costliest and deadliest natural disaster in American history. Katrina officially formed on August 23, 2005 and dissipated by August 31, 2005. "Due to its sheer size, Katrina devastated the Gulf Coast as far as 100 miles (160 km) from the storm's center." (Wikipedia) The total financial damage has surpassed 200 billion dollars and tragically over 1,836 lives were lost. Due to the failure of levees, over 80 percent of New Orleans and surrounding parishes remained flooded for weeks after the disaster. More than 3,000,000 people were without phone service and power. Federal Disaster declarations were issued for over 90,000 square miles of our country.

4. DISASTER PLANNING

In today's increasingly computer dependent society, it is not a question of if disaster will happen, it is a question of when. In regards to Katrina, perhaps one of the greatest sources of economic hardship and loss came from the disruption to businesses, in the Gulf Coast region that were faced with damaged facilities, displaced employees and business interruption. New Orleans alone was home to over 30,000 businesses, including the headquarters of smaller companies and enterprises with headquarters or satellite offices. A surprising number of companies were not prepared and had not tested their total plan for disaster recovery. Why were businesses not more prepared to recover quickly and continue operating in the face of this disaster? Why did they not have plans in place to account for and protect employees and their families, keeping them safe and productive?

Disaster can occur on various levels of intensity. Hardware failure, malicious attacks via software hacks, internet intrusions, and Mother Nature can inflict damage on computer systems. All businesses need a plan to deal with these disasters and most do have one, to some degree. A hard copy of the disaster plan, including a list of all employee, carrier, vendor and emergency numbers and contact

information (addresses and faxes), should be kept in a designated place in the agency known by all employees, in case a disaster occurs and the information cannot be accessed electronically. In addition, you may want each employee to have a hard copy of the disaster plan at home, including this same list of employee, carrier, vendor and emergency contact information "Good disaster recovery planning is about identifying those processes and resources that are truly critical, developing realistic recovery objectives for them, and then developing a plan that can achieve those objectives as simply and cost-effectively as possible." (Computer Associates Inc., 2006) The main element of failure for most businesses during the Hurricane Katrina disaster was preparedness. Although many had plans in place, most were not prepared to carry them out effectively as they were caught off guard by the intensity of the storm and the extent of its damage.

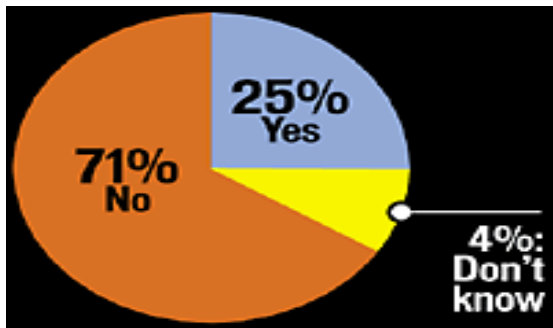


Are businesses ready for disaster? Lucas Mearian asked 283 IT professionals were asked this question. "Does your company have a plan for Disaster?" (2004) The pie chart to the right lists the results. Of the majority of those polled, 81% said that they had a plan for disaster. The 16% without a plan and the 3% who don't know of a plan were advised to designing one as soon as possible.

The next pie chart shows the responses to the question "Was your disaster plan tested last year? Of the majority of those polled, 71% admitted that they have not tested their plan (Mearian, 2004).

The testing of the software and hardware is a must and there must be a plan for people available to recover from disaster. "It's not the people being tested during a disaster

recovery exercise but the plan--because you can't depend on the people being available." (Mearian, 2004) This fact illustrates that a disaster plan must be comprehensive and accessible for all staff, since all staff may not be available. This paper is not intended to be a comprehensive how-to plan for disaster. The caxosoft.com website referred to in the references would be a recommended resource for developing a detailed plan, including how to test its efficacy.



5. BACKUPS

Most disaster recovery plans that fail do so from lack of backups. Data backup plans are a major component of disaster recovery. A detailed plan of backing up data is vital; it must cover issues of frequency, type, and location. Garret Hayes' article in *Network Computing Magazine* emphasizes the need of a secure location, "In the wake of all disasters from hard-drive crashes to tornadoes, users too often must learn and relearn the importance of making backups and keeping them secure from damage. A backup is no good if it becomes a pile of ash next to the heap of slag that used to be your computer, or flotsam, in the case of Hurricane Katrina." (Hayes, 2005) Some companies are diligent in backing up their system but fail to keep backups in a secure location.

Dean Lindey, Director of Information Technology at Slippery Rock University of Pennsylvania, was asked if his school had off-site storage of critical records. He replied, "We don't really have anything off campus because the campus is big enough that we can back up to a different building" (Lindey, 2007). It would appear that Katrina's lesson has not impacted this university in regards to storing records off

site. However, the relevance and application of disaster recovery preparations was expertly addressed in an article presented at the 2005 World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (Xing, Peterson, and Chapel, 2005). In this article, the authors stress the importance of initiating a disaster plan for higher education institutions that includes alternative locations for backups and a detailed schedule for ensuring that they are created. Furthermore, a 2005 article in *EDTECH: Focus On Higher Education* emphasizes the importance of continuity of educational services after a disaster ("Lighting a dark corner," 2005).

The Federal Financial Institutions Examination Council states that a good plan should, "Anticipate disruptions in communications services, possibly for extended periods of time and the location of any backup site can be critical to successful recovery efforts." (FFIEC, 2006) Forrest Whitesides' article reports that "firms that had off-site data backup systems in place before the hurricane hit had a much easier time getting their businesses up and running again." (Whitesides, 2005) It is recommended that companies contract out their off-site data storage to companies that specialize in online data backup. These companies typically offer a range of options and pricing plans, and allow for backup of documents, database files and email. With an online backup system in place, a dislocated firm could retrieve their client data from any location with an Internet connection. This geographical issue was a lesson learned from Katrina, your data backup needs to be off-site.

6. POWER SOURCES

Computer hardware is obviously energy dependent. Even home users are becoming aware of the need for battery backup devices for computer systems. Look under the computer desk at most businesses and you will probably see a black, rectangular device called a UPS, uninterruptible power supply. If the power company is down for days, the UPS is not going to be sufficient. "Katrina taught business that they need to plan for total utility outages and procure industrial strength backup power generators and enough diesel fuel for at least a week."

(Dingnan, 2006) Some universities have backup generators stationed at mission critical buildings, including those that contain our computer systems. Perhaps students should ask their university administrators if the power backup devices have been tested and how long will they run based on the fuel available. With manmade and natural disasters unfortunately becoming more and more common, planning for all the potential "what if" scenarios is quickly becoming a necessity, and something every family or business should account for. Businesses need to purchase a generator that can run all mission critical equipment including phone systems. There are two basic power generators for companies to choose from diesel or natural gas. Diesel generators have been popular for many years. Most of us have seen those big yellow boxes sitting behind businesses and schools. They will automatically generate electricity in the event of power loss from incoming sources. Whether it's a hurricane, fire, earthquake, terrorist attack, or just a bad storm that causes widespread power outages, flooding, etc., being hit unprepared when disaster strikes can be catastrophic. A few years ago a major power outage struck simultaneously across dozens of cities in the eastern United States and Canada. The prospect that terrorist threats exist at our power plants, increase the need for a plan that includes providing power to run computer equipment. Homes and business lost electricity for weeks following the Katrina disaster. Power blackouts are not just a temporary concern.

7. HUMAN COMMUNICATION

A favorite motto that is applicable to this research topic comes from the Boy Scouts of America. Its well-known motto, "Be Prepared," has been challenged by the events surrounding Hurricane Katrina (Boy Scouts of America National Council, 2007). Companies must understand that they need to prepare for the worst-case scenario if they want a comprehensive disaster plan. "If the biggest lesson of Katrina is that worst-case can be much worse than people imagine, its other lesson is that without people and the means to communicate with them, no disaster recovery plan is worth much." (Myers, 2005) The importance of open and reliable communication to

recovering quickly from disaster was driven home during Hurricane Katrina. Many businesses did not have a back-up communication plan in place. While disaster recovery is largely dependent on technology, people also play critical roles. If disaster strikes, recovery and continuity will be largely determined by employees—how they react, how they've been trained, and whether they can put to use the tools they've been provided. But in an extreme situation like that created by Hurricane Katrina—where the hardest-hit areas were evacuated and the people that remained were immobilized by rushing flood waters and dangerous winds—businesses that didn't have back-up human resources available could not carry out the plans they had in place. Further, those employees that could be accounted for were more worried about the well-being of themselves and their families than whether or not they were fulfilling obligations to help their businesses recover from the storm and continue to be productive and profitable. "A comprehensive disaster recovery plan includes assigning employee roles and testing them on these roles frequently." (Computer Economics, 2006) Employees should know exactly which area of recovery on which they are expected to focus—and back-ups should be assigned in the event that employees critical to the plan are missing. One company shared its personnel communication experience during Katrina's aftermath. They admitted that their plan did not go deep enough. They had everyone's home and cell phone numbers. "Those numbers were not sufficient when power outages occurred during Katrina." (Mehling, 2006)

It is now recommended that emergency contact numbers extend not only to family and friends but contact numbers that are located in a different region are necessary. Some companies now provide their employees with toll-free emergency phone line access and/or externally hosted websites for those can find access to the net. Some companies created an employee registration process after Katrina because they cared about their employees and wanted to know where there were and more importantly, that they were safe.

Once it is established that employees are safe from harm and have the needed

personal resources to survive, the task of getting back to work must be addressed. Because of the widespread failure of voice and data networks in the Gulf Coast region, some companies are utilizing satellite communication networks and temporarily relocating their offices. Satellite communication is not telephone line dependent but must be located in area that has a power source. "Without the communications leg of it, no matter which data center we worked out of, we were going to be dead in the water." (Thibodeau, 2006) After initiating contact with employees, companies need to derive a plan of resuming their business. Some companies were located in areas that were not flooded and had power restored. Other firms were still under water or did not have access to power or roads. If an employee has the desire and ability to return to work, where do they go? A good disaster plan will have an option for the company to relocate its office to a useable location. Many companies had to relocate their offices in Katrina's aftermath. Some rented office space in the region and purchased or leased equipment. There has been an increase in the need for entities that provide temporary office space and resources for displaced companies. Some of the same outfits that will store your data backups at their remote location also will rent out, temporary office space. Comprehensive disaster plans will provide an option for relocation of the business. Those plans will need to communicate to employees where to go and how to get there.

8. CONCLUSION

This paper was not intended to provide a comprehensive method of how to plan for disaster. We have discussed some basic concepts such as disaster planning, backups, power sources, and human communications. A major lesson that IT people should learn from Katrina is knowledge of geography. Regional disasters demand the need for dispersed resources to be allocated and utilized. All companies should include the IT department in their disaster plan. Katrina taught businesses that if that plan is not tested regularly, it may be useless when it is needed. The extent of the devastation from Hurricane Katrina could not have been fully predicted. And while the human element of

the disaster is certainly most significant, the impact the storms had on businesses was widespread and extensive. This damage cannot be undone, and the financial losses will not be easily recovered. But there are certainly lessons to be learned with regard to proper planning for disaster recovery and business continuity. Applying these lessons to preparing for the future will make the difference between recovering from the next disaster or not.

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