

SUNGARD

LESSONS LEARNED FROM
HURRICANE KATRINA

White Paper Series

HOW TO MAINTAIN OPERATIONS
DURING A REGIONAL DISASTER

INTRODUCTION

Hurricane Katrina: An Unprecedented Disaster

The intensity of the 2005 hurricane season was unprecedented—with storms hitting at more than twice the frequency and severity of typical seasons. The normal seasonal average is 10 named storms, six hurricanes and two major hurricanes, according to the National Hurricane Center. But from the beginning of June to the end of November, there were 27 named storms—surpassing the record of 21 set in 1933. Thirteen of these storms were classified as hurricanes, edging out the previous record of 12 set in 1969. And three reached Category 5 status with wind speeds greater than 155 m.p.h. at some point during the arc of the storm.¹

But even in the midst of this torrent of destructive storms—including Hurricane Wilma, which caused between \$6 billion and \$9 billion in insured losses*—no one could have prepared the country for the wrath that Hurricane Katrina unleashed on the Gulf Coast of the United States.

Katrina first caused fatalities and damage in southern Florida as a Category 1 hurricane on the Saffir-Simpson Hurricane Scale. After reaching Category 5 intensity over the central Gulf of Mexico, Katrina weakened to Category 3 before making landfall on the northern Gulf coast on August 29. Even so, the damage and loss of life inflicted by this massive hurricane were staggering—with significant effects extending into the Florida panhandle, Mississippi, Georgia and Alabama. Considering the scope of its impact on these already infrastructurally weak and economically challenged areas, Hurricane Katrina can be called one of the most devastating natural disasters in United States history.²

Mobilizing into action before the last clouds blew out of the area, the Red Cross quickly established shelters in eight states to house more than 130,000 displaced people. But this was not nearly enough to accommodate the hundreds of thousands of people who were now homeless with little hope for rebuilding their lives as they knew them. For these displaced persons, the days, weeks and months that stretched before them were uncertain and frightening. To this day, no one can estimate how long it will take before Katrina's victims will be able to pick up the pieces of their lives and move on. Media reports indicate that many displaced residents have moved either temporarily or permanently to other areas in the United States—in fact, at the time of this writing, half have still not returned to their pre-Katrina cities.³

*AIR Worldwide

MEASURING KATRINA'S WRATH

The damaging effects of Hurricane Katrina—which at a cost of \$200 billion was the most destructive storm to hit the Gulf Coast Region in more than 100 years—were felt in countless ways across 75,000 square miles. Here are some of the devastating effects of this disaster:

- 3,000,000 without phone service and power
- 1,000 wireless towers down
- 11,000 utility poles down
- More than 100 broadcast agencies knocked off the air
- \$400 million to \$600 million in damage to the Telco infrastructure
- 2.8 million gallons of oil spilled
- 25 hospitals closed
- More than 500,000 evacuees
- More than 40,000 military personnel responding
- Roads closed
- No water
- No lodging
- No fuel
- No security
- No sanitation

Table 1: Unemployment Rates in States Affected by Hurricane Katrina (%)

MONTH	Alabama	Month to month change	Louisiana	Month to month change	Mississippi	Month to month change
Jul-05	4.2		6.2		7.4	
Aug-05	4.2	0.0	5.8	-0.4	7.4	0.0
Sep-05	3.8	-0.4	11.8	6.0	9.4	2.0
Oct-05	3.8	0.0	11.3	-0.5	9.1	-0.3
Nov-05	3.4	-0.4	11.5	0.2	8.9	-0.2
Dec-05	3.2	-0.2	5.8	-5.7	8.3	-0.6
Jan-06	4.1	0.9	5.5	-0.3	9.1	0.8
Feb-06	4.0	-0.1	4.2	-1.3	8.6	-0.5

Sources: Bureau of Labor Statistics, Local Area Unemployment Statistics

A Blow to Businesses and the Economy

The effect the storm had on area businesses and the economy cannot be discounted. The economic effects were more severe and further-reaching than those of any other natural disaster in U.S. history— at an estimated cost of \$200 billion. The widespread devastation in the Gulf Coast region, the associated dislocation of economic activity, and the boost to energy prices set spending, production and employment back to a point from which it has still not recovered.⁴

The hurricane severely impacted or destroyed workplaces in New Orleans and other heavily populated areas of the northern Gulf coast, resulting in thousands of lost jobs and millions of dollars in lost tax revenues for the impacted communities and states. New Orleans alone was home to 30,262 businesses, including the headquarters of smaller companies and enterprises with headquarters or satellite offices there, according to the U.S. Census Bureau. Before the hurricane, the region supported approximately one million non-farm jobs, with 600,000 of them in New Orleans.⁵

Table 1 above shows the fluctuation in the unemployment rates of the states hardest hit by Katrina.

Perhaps one of the greatest sources of economic hardship and loss came from the disruption to these businesses, along with others in the Gulf Coast region that were faced with damaged facilities, displaced employees and business interruption. The businesses hit hardest included banks, insurance companies, health care organizations, oil and chemical companies, manufacturers and government agencies.

How Disaster Recovery Could Have Helped

Katrina's economic impact leaves many questions unanswered. 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?

September 11, 2001 served as a harsh wake up call for much of corporate America—a sobering message about the importance of establishing comprehensive plans for disaster recovery and business continuity. After that tragedy, most businesses scrambled to put together plans that would hold up in the face of even the most unthinkable circumstances. However, after a few years of collecting dust, these plans had fallen to the wayside by the time Katrina hit.

A surprising number of companies were not prepared and had not tested their total plan for disaster recovery—and they still haven't. In fact, only about a third (37 percent) of treasury and finance professionals feel that their organization is well prepared to handle an event similar to Hurricane Katrina or even Hurricane Rita, according to a survey of treasurers conducted by the Association for Financial Professionals (AFP). Further, despite the fact that almost half of the respondents said their operations were impacted by Hurricane Katrina, only 24 percent said their business or organization had recently tested business continuity plans as a direct result of the hurricanes. And fifty percent had no plans to do so in the near future.⁶

A well-developed, extensively tested plan for disaster recovery could have helped the businesses of the Gulf Coast region mitigate the impact of Katrina on their systems—thereby softening the overall economic blow of the storm. Disaster recovery plans would have kept businesses running and people employed—and, in some cases, helped the community better cope in the aftermath of the storm. With a plan in place, businesses could have responded appropriately during and after the incident with effective evacuation of employees to a safe location, identified alternate areas, leveraged an infrastructure for communications recovery, and ensured business continuity for as long as necessary.

But from this senseless loss may come some gain. Many lessons were learned from the Hurricane Katrina disaster about protecting businesses and keeping them running in the face of unplanned events. This paper will delve into the logistics of these lessons. It will outline the mistakes that were made and provide concrete methodologies for establishing and testing disaster recovery plans to help ensure that businesses are prepared to continue thriving in even the most unexpected situations.

LESSONS LEARNED FROM THE HURRICANE KATRINA DISASTER

In order to learn from the mistakes made by businesses during the Hurricane Katrina disaster—and understand the importance of having a disaster recovery plan in place in the event of a similar situation—it is important to examine exactly what went wrong during the fateful hours, days, weeks and months after the storm. Following are some significant lessons learned from the failures of businesses and the best ways to apply these lessons in the future.

The Human Element: Taking Care of Employees and Their Families

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. 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. The plan should provide not just for the safety, transportation and lodging of employees, but for that of their families as well. With the knowledge that their loved ones are taken care of and all of the necessary logistics are in place, employees will be more focused on carrying out their designated roles.

Fundamental aspects of engaging employees during disaster recovery include:

- Human resources, corporate and the local government should be involved in the plan in order to cover all of the bases;
- An alternate staff at another location should be ready to transfer and assume business operations at a moment's notice;
- Safety, first aid and travel kits should be readily available;
- Cash accounts with linked debit cards should be established and travel and lodging agreements should be put into place with vendors near recovery locations.

On the Road: Make Allowances for All Conceivable Travel Obstacles

The longer residents waited to evacuate the areas hardest-hit by Hurricane Katrina, the more complicated—and in some cases impossible—travel became. In the midst of mass evacuation, no rental cars were available. And for those that could procure a vehicle, highways were closed and fuel quickly ran out. This created a frightening situation in which many were left stranded in dangerous conditions and forced to simply “wait out the storm.”

It became obvious from this situation that disaster recovery must account for all possible scenarios when it comes to evacuation. To ensure employees are able to make it to designated recovery areas, it is important to take precautions. Key team members and their families should be deployed at the first sign of trouble and businesses should make employees aware of evacuation routes and how to follow them safely. Plus, alternate routes to recovery locations should be mapped out in advance, contracts should be drawn up with area fuel vendors, and an extra supply of fuel should be available onsite.

Communication is Key: Define Roles and Provide the Resources Necessary to Carry Them Out

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. Various business units—and in some cases the corporate headquarters—were not aware of expectations or requirements and thus failed to participate in recovery. Further, with vendor contacts out of date and local and federal agencies disengaged, it was impossible for available employees to ensure business continuity.

An effective crisis and communication plan must be put into place far in advance of a disaster. All business units and key personnel, including the corporate office, must be engaged early and made aware of their roles. Local agencies, such as fire and police departments and even the Red Cross should be on a list of contacts to be alerted early on in the process. Further, key vendors should also be contacted. It is absolutely critical to have up-to-date (quarterly, at least) contact information for each. Some additional communication steps that can be incorporated into a disaster recovery plan include:

Consider alternate communication tools, such as extra cell phones and batteries, satellite phones, wireless cards for laptops, VPN, text messaging, direct connect and a back-up corporate email address;

- Augment staff from alternate business locations;
- Establish an external communication plan;
- Update local radio stations with reports;
- Establish an employee crisis bridge for updates.

Available Data is Useful Data: Without Access to Data, Key Steps Cannot Be Carried Out

The level of physical damage caused by Hurricane Katrina left businesses with destroyed tapes, DASD and paper documents—and no way to access the data that was not destroyed. Further, travel restrictions, including enforced curfews and government occupancy, made it impossible to transfer resources to a safe recovery facility in a timely and effective manner. Without access to data, businesses had little hope of continuity.

An effective disaster recovery plan must not only protect employees and physical resources, but account for data that is confidential, sensitive and critical to business continuity. Businesses should begin by exploring the need for electronic media and creating redundancy, such as disk-to-disk backup of all data. Further, off-site locations should be established, possibly through a third-party storage vendor, and all scripts should be stored there in an electronic format. These scripts should be updated and tested regularly to ensure accuracy and availability. And, rotating technical staff in testing the plan will ensure that it is not halted due to the absence of key personnel.

Staying Above Water: Be Prepared for Business Continuity

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. In many cases, equipment configurations, documentation and technical scripts were outdated, so vendors could not properly assume remote control of networks and environments. And in some cases, no contracts were in place at all.

A disaster recovery plan should be documented and tested, then tested again. This is not the first time this point is mentioned—nor will it be the last. The importance of not just developing, but testing a disaster recovery plan cannot be stressed enough. Leads need to be designated and every employee should know who these leads are and how to get in touch with them—and their backups.

Key technical personnel, with backups, should be designated to keep scripts, configurations and vendor contracts up to date.

The Aftermath: Picking Up the Pieces

The impact of Hurricane Katrina was felt long after the last storm clouds cleared. Businesses found themselves at a loss—not only for how to keep the business running, but how to rebuild

SPECIFIC LESSONS LEARNED FROM KATRINA

- Assign back-up roles in case key players are unavailable or missing
- Plan for all possible communication issues, including the use of satellite phones, hotlines and web alerts
- Establish accessible spending accounts for employees, make standing lodging arrangements near the recovery site, and account for other logistics
- Plan for extended recoveries, in case business is displaced for longer than expected
- Keep documentation and scripts up to date
- Provide an alternative method of accessing tapes, data and documentation
- Be sure all vendor contracts are complete and up-to-date, including those with providers of media storage, insurance and fuel
- Plan for business continuity

what was lost. Many businesses could not even accurately identify their losses, because insurance coverage and entitlements were hazy, inventory was not current and rebuilding locations were not defined.

This is why disaster recovery requires a business to understand its insurance policy and keep inventory current—establishing a standing contract with an independent reviewer and testing a wide array of different disaster scenarios will help ensure preparedness. The recovery and business continuity plan should be followed for the duration of stay at the hotsite. It is here that plans need to be made to re-establish “business as usual.” Executives should begin assessing damages and planning for the procurement of new equipment and facilities, if the former location was destroyed. Human resources issues, such as the relocation of employees and their families and the establishment of new contact lists, should be addressed immediately.

INCIDENT MANAGEMENT CHECKLIST

The following checklist suggests high-level tasks that should be considered in threat or response mode. Topics range from assessment and plan activation factors to safety issues, security, communications and personnel notification guidelines. While not a substitute for a comprehensive incident management plan, the checklist provides a concise overview of key areas to address. It does not contain recovery procedures specific to any particular organization. An expanded version of this checklist can be obtained on request from SunGard Availability Services.

1. Threat Response:

If there is a high probability of an event occurring, consider the following:

- Identify Incident Management Team members, including an Incident Manager, and alternates.
- Identify Business and Information Technology Recovery Team Leaders and alternates.
- Update all critical internal and external contact lists. Include home address, home telephone, cellular phone, pager, Blackberry and email address.
- Establish a conference bridge. Provide all Incident Management Team Members the conference bridge number and pass code.
- Establish a voice mailbox for employees to monitor for status updates.
- Determine if you should place SunGard on alert if you are a subscriber (see SunGard Alert and Disaster Notification Procedures).
- Ensure that monitoring service vendors (e.g., alarm company) have current contact information.
- Develop procedures to account for employees.
- Provide employees with threat response procedures, if appropriate (e.g., bomb threat, evacuation).
- Create backup tapes and ship off site.
- Identify a Crisis Command Center outside of the anticipated impact area.
- Top off emergency generators and arrange for additional fuel deliveries.
- Acquire battery operated radios with spare batteries.

2. Incident Detection and Preliminary Assessment:

- Follow Company Emergency Response Procedures
- Conduct a preliminary damage assessment, if it can be done safely. No recovery activities should be undertaken if personnel are placed in danger.
- Notify the Incident Manager and provide a detailed report.

3. Activate Incident Management Team:

The Incident Manager will determine if the Incident Management Team should be activated and if necessary:

- Notify Incident Management Team Members to provide a description of the event and request that they assemble at the Crisis Command Center or participate via a conference call.
- Activate the Crisis Command Center.

4. Evaluate Disaster Impact:

- Determine if the severity of the impact requires implementation of the recovery plan.
- Determine recovery objectives, including priorities, recovery strategies, action plans and assignments.

5. Activate Recovery Plan:

- Notify recovery team leaders and members (See Personnel Notification Guidelines below).
- Brief recovery team leaders and alternates regarding priorities, strategies, action plans, assignments and reporting and communications procedures.
- Declare a disaster with SunGard if you are a subscriber.

6. Implement Support Procedures:

- As directed by the Incident Manager, Incident Management Team support personnel will provide recovery support to all affected business units. Checklists for individual business units can be obtained from SunGard Availability Services.

7. Track Incident Status and Recovery Progress:

- Conduct periodic debriefing sessions with recovery teams to monitor progress and determine problem areas.
- Reallocate and/or provide resources.

CRITICAL ELEMENTS OF DISASTER RECOVERY

Based on the lessons learned from the Hurricane Katrina disaster, it has become increasingly apparent that the following elements are critical to an effective disaster recovery plan:

- Develop and test disaster recovery plans regularly
- Have a crisis communication and response plan
- Enforce change management and control
- Detail system procedures for recovery scripts
- Assign backup roles
- Document plan, methodology and ideas
- Utilize offsite storage media
- Augment staff with professional organizations
- Engage corporate and external agencies while testing
- Test the way you recover, recover the way you test

HELP FROM A THIRD PARTY

A third-party disaster recovery service provider will offer a range of business continuity services to help ensure preparedness for any unplanned event that impacts a company's profitability. This range of services may vary between providers, so it is important to consider experience, size and success rates in the selection process. Seeking third-party support for developing, testing and executing a disaster recovery plan will provide many benefits, including the following:

Improved Revenue Protection

A solid business continuity plan supported by the right resources helps reduce revenue losses that may occur following a disaster. Working with an experienced third party mitigates the risk of such losses, thereby helping to ensure the ongoing viability of the business.

Support From a Stronger, Vaster Infrastructure

A third party with extensive experience and proven recovery success will help ensure that a tailored disaster recovery plan is developed, put in place and tested—and that it executes successfully when and if disaster strikes. Well-established providers of substantial size can support the plan with a strong disaster recovery infrastructure, which may include facilities, mobile resources and local access.

Reduced IT Capital Expenditures

Leveraging the infrastructure mentioned above eliminates, or at least substantially reduces, the need to build and maintain a redundant environment, dramatically reducing capital expenses. Business continuity costs can be further reduced if the provider's facilities house around-the-clock support.

Maximized Resources

Partnering with a third party to secure business continuity services frees IT and network staff to support employees and focus on strategic objectives.

SUNGARD DISASTER RECOVERY

Helping Clients Through the Storm

SunGard is one of the leading third-party providers of disaster recovery services to businesses of all sizes—with a complete line of solutions and services for protecting networks and systems and keeping businesses up and running during and after unplanned interruptions. SunGard came to the aid of hundreds of businesses during the Hurricane Katrina disaster.

As per the instructions under their disaster recovery plans, 128 clients in the Gulf Coast called SunGard's 24x7 disaster hotline in advance of the storm to issue alerts. SunGard's disaster-alert-certified experts asked them targeted questions to gauge the severity of the situation and reviewed test plans and necessary contract information. Then, SunGard logged the alert, helped clients put the necessary business continuity plans in motion, and followed up with each client throughout the disaster. During the entire 2005 hurricane season, affected clients ran part or all of their business operations at SunGard hotsites for an average of 22 days each, and utilized mobile equipment for an average of 18 days—until reaching the point where they were able to resume normal business operations at their own facilities.

SunGard's Philosophy: Proactive Disaster Recovery Minimizes Damage

SunGard's proactive crisis management philosophy has proven to be a leading strategy for aiding an entire customer base in identifying and managing potentially disastrous situations. During an event, SunGard's crisis management experts contact the entire customer base in the affected area by phone—reviewing a series of questions designed to remind each customer of tasks that may need to be performed according to their specific disaster recovery plan. During the 2005 hurricane season, SunGard specialists made more than 600 such calls. A checklist of topics reviewed with each customer includes:

- Communication tools and protocols
- Contracts and Disaster Declaration Authorization (DDA) form review
- Damage assessment team assignment
- Recovery plans/last test
- Logistics/travel/evacuations
- Roles and responsibilities
- Tape availability, vendor availability
- Timeline
- Corporate and external agency activation

SunGard's Disaster Recovery Resources

SunGard offers its disaster recovery clients a world-class infrastructure that includes a 25,000-mile, platform-independent global network backbone and more than three million square feet of operations space with advanced HVAC controls and security systems—as well as advanced hardware and software, reliable tape and disk storage, and sophisticated networking services. SunGard's ready-to-use, alternate work sites have highly specialized functionality to get employees back to work quickly, and fully equipped mobile recovery units are ready for delivery. SunGard's staff is comprised of advanced technical specialists and consulting professionals.

In addition to its physical resources, SunGard offers a wide range of professional services to help businesses develop a disaster recovery plan that works for them. These services provide:

- Clear, concise overview of the processes, people and technologies within an organization and the complex relationships among them
- Evaluation of current information availability strategies and the objective insight necessary to refine and enhance them
- Analysis, review and update of business continuity plans with regard to meeting most major financial and healthcare regulatory and compliance objectives, even those that are industry-specific
- Analysis of business continuity requirements and thorough solution design that covers operating procedures, staffing needs, technical/business interfaces, network connectivity and more
- Building of a plan that protects information systems, people and business processes during disasters;
- Comprehensive solution for helping to ensure continuous access to mission-critical information, despite changing internal or external conditions.

CONCLUSION

The extent of the devastation from Hurricane Katrina—as well as the other major storms of the 2005 hurricane season—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. And applying these lessons to preparing for the future will make the difference between recovering from the next disaster or not.

In order to prepare for unplanned events that can cause disruption to the business, organizations must develop concrete plans for disaster recovery and test them over and over again. These plans should include provisions for overcoming every thinkable obstacle—from the failure of traditional communication and travel methods to the absence of key personnel and the complete destruction of facilities. Further, employees must be made aware of these plans and their roles therein so they know exactly what is expected of them during an emergency situation.

The recommendations made in this paper are meant to serve as a guideline for businesses to recover quickly from a disaster and maintain operations. But the most effective plans are individualized, based on the operations of each specific organization. An experienced third-party provider of disaster recovery and business continuity services will be able to tailor an individualized plan that meets the needs of an organization and provide the external resources necessary for data protection, business continuity and proper testing.

Authors

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About SunGard Availability Services

SunGard Availability Services provides disaster recovery, managed IT, information availability consulting services, business continuity management software to over 10,000 customers in North America and Europe.

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