

Pagestream LLC

**Information Technology
Disaster Recovery Plan**

Revision History

REVISION	DATE	NAME	DESCRIPTION
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Information Technology Statement of Intent

This document delineates our policies and procedures for technology disaster recovery, as well as our process-level plans for recovering critical technology platforms and the telecommunications infrastructure. This document summarizes our recommended procedures. In the event of an actual emergency situation, modifications to this document may be made to ensure physical safety of our people, our systems, and our data.

Our mission is to ensure information system uptime, data integrity and availability, and business continuity. As part of doing business we rely on third party service providers to provide bandwidth and server rack facilities. A copy of their disaster recovery plan is attached as a supplement to this document.

Policy Statement

Corporate management has approved the following policy statement:

- The company shall develop a comprehensive IT disaster recovery plan.
- A formal risk assessment shall be undertaken to determine the requirements for the disaster recovery plan.
- The disaster recovery plan should cover all essential and critical infrastructure elements, systems and networks, in accordance with key business activities.
- The disaster recovery plan should be periodically tested in a simulated environment to ensure that it can be implemented in emergency situations and that the management and staff understand how it is to be executed.
- All staff must be made aware of the disaster recovery plan and their own respective roles.
- The disaster recovery plan is to be kept up to date to take into account changing circumstances.

Objectives

The principal objective of the disaster recovery program is to develop, test and document a well-structured and easily understood plan which will help the company recover as quickly and effectively as possible from an unforeseen disaster or emergency which interrupts information systems and business operations. Additional objectives include the following:

- The need to ensure that all employees fully understand their duties in implementing such a plan
- The need to ensure that operational policies are adhered to within all planned activities
- The need to ensure that proposed contingency arrangements are cost-effective
- The need to consider implications on other company sites

- Disaster recovery capabilities as applicable to key customers, vendors and others

Key Personnel Contact Info

Name, Title	Contact Option	Contact Number
Michael McIntosh, President	Work	800-204-4504
	Alternate	
	Mobile	
	Home	
	Email Address	mike@pagestreamlive.co
	Alternate Email	
	Work	
	Alternate	
	Mobile	
	Home	
	Email Address	
	Alternate Email	
Rick Lopez, Technology Director	Work	800-204-4504
	Alternate	
	Mobile	
	Home	
	Email Address	rick@pagestreamlive.co
	Alternate Email	
Support Staff	Work	800-204-4504
	Alternate	
	Mobile	
	Home	
	Email Address	support@pagestreamlive.co
	Alternate Email	
	Work	

Name, Title	Contact Option	Contact Number
	Alternate	
	Mobile	
	Home	
	Email Address	
	Alternate Email	
	Work	
	Alternate	
	Mobile	
	Home	
	Email Address	
	Alternate Email	

External Contacts

Name, Title	Contact Option	Contact Number
Landlord / Property Manager	Courtyard Properties	
	Work	954-572-6900
	Mobile	
	Home	
	Email Address	
Power Company	Virginia Power and Light	
Account Number	Work	954-581-5668
67372-67382	Mobile	
	Home	
	Email Address	
Telecom Carrier 1	Comcast	
Account Number	Work	
8495753801235689	Mobile	
	Fax	
	Home	
	Email Address	
Telecom Carrier 2	Peak 10	
Account Number	Work	954-736-2700
	Mobile	
	Home	
	Email Address	
Hardware Supplier 1	Dell Computer	
Account Number	Work	
	Mobile	
	Emergency Reporting	

Name, Title	Contact Option	Contact Number
	Email Address	
Server Supplier 1	Dell Computer	Dell Computers
Account Number.	Work	
	Mobile	
	Fax	
	Email Address	
Workstation Supplier 1		Dell Computers
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Office Supplies 1		
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Insurance – Name	Hartford Group	
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Site Security –		
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Off-Site Storage 1		

Name, Title	Contact Option	Contact Number
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Off-Site Storage 2		
Account Number	User ID	
	Password	
	Home	
	Email Address	
HVAC –		
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Power Generator –		
Account Number	Work	
	Mobile	
	Home	
	Email Address	
Other –		
Account Number	Work	
	Mobile	
	Home	
	Email Address	

1 Plan Overview

1.1 Plan Updating

It is necessary for the DRP updating process to be properly structured and controlled. Whenever changes are made to the plan they are to be fully tested and appropriate amendments should be made to the training materials. This will involve the use of formalized change control procedures under the control of the IT Director.

1.2 Plan Documentation Storage

Copies of this Plan, CD, and hard copies will be stored in secure locations to be defined by the company. Each member of senior management will be issued a CD and hard copy of this plan to be filed at home. Each member of the Disaster Recovery Team and the Business Recovery Team will be issued a CD and hard copy of this plan. A master protected copy will be stored on specific resources established for this purpose.

1.3 Backup Strategy

Key business processes and the agreed backup strategy for each are listed below. The strategy chosen is for a fully mirrored recovery site at the company's offices in _____. This strategy entails the maintenance of a fully mirrored duplicate site which will enable instantaneous switching between the live site (headquarters) and the backup site.

KEY BUSINESS PROCESS	BACKUP STRATEGY
IT Operations	Fully mirrored recovery site
Tech Support - Hardware	Fully mirrored recovery site
Tech Support - Software	Fully mirrored recovery site
Facilities Management	Fully mirrored recovery site
Email	Fully mirrored recovery site
Purchasing	Fully mirrored recovery site
Disaster Recovery	Fully mirrored recovery site
Finance	Fully mirrored recovery site
Contracts Admin	Fully mirrored recovery site
Warehouse & Inventory	Fully mirrored recovery site
Product Sales	Fully mirrored recovery site
Maintenance Sales	Fully mirrored recovery site
Human Resources	Off-site data storage facility
Testing Fully Mirrored Recovery site -	Fully mirrored recovery site

Workshop Fully Mirrored Recovery site -	Fully mirrored recovery site
Call Center	Fully mirrored recovery site
Web Site	Fully mirrored recovery site

1.4 Risk Management

There are many potential disruptive threats which can occur at any time and affect the normal business process. We have considered a wide range of potential threats and the results of our deliberations are included in this section. Each potential environmental disaster or emergency situation has been examined. The focus here is on the level of business disruption which could arise from each type of disaster.

Potential disasters have been assessed as follows:

Potential Disaster	Probability Rating	Impact Rating	Brief Description Of Potential Consequences & Remedial Actions
Flood	5	4	All critical equipment is located on 2nd Floor
Fire	3	4	Suppression system installed in main computer centers. Fire and smoke detectors on all floors.
Tornado	5		Concrete reinforced building
Electrical storms	5		UPS Diesel Generator Backup
Act of terrorism	5		
Act of sabotage	5		
Electrical power failure	3	4	Redundant UPS array together with auto standby generator that is tested weekly & remotely monitored 24/7. UPSs also remotely monitored.
Loss of communications network services	4	4	Two diversely routed T1 trunks into building. WAN redundancy, voice network resilience

Probability: 1=Very High, 5=Very Low

Impact: 1=Total destruction, 5=Minor annoyance

2 Emergency Response

2.1 Alert, escalation and plan invocation

2.1.1 Plan Triggering Events

Key trigger issues at headquarters that would lead to activation of the DRP are:

- Total loss of all communications

- Total loss of power
- Flooding of the premises
- Loss of the building

2.1.2 Assembly Points

Where the premises need to be evacuated, the DRP invocation plan identifies two evacuation assembly points:

- Primary – Far end of main parking lot;
- Alternate – Parking lot of company across the street

2.1.3 Activation of Emergency Response Team

When an incident occurs the Emergency Response Team (ERT) must be activated. The ERT will then decide the extent to which the DRP must be invoked. All employees must be issued a Quick Reference card containing ERT contact details to be used in the event of a disaster. Responsibilities of the ERT are to:

- Respond immediately to a potential disaster and call emergency services;
- Assess the extent of the disaster and its impact on the business, data center, etc.;
- Decide which elements of the DR Plan should be activated;
- Establish and manage disaster recovery team to maintain vital services and return to normal operation;
- Ensure employees are notified and allocate responsibilities and activities as required.

2.2 Disaster Recovery Team

The team will be contacted and assembled by the ERT. The team's responsibilities include:

- Establish facilities for an emergency level of service within 2.0 business hours;
- Restore key services within 4.0 business hours of the incident;
- Recover to business as usual within 8.0 to 24.0 hours after the incident;
- Coordinate activities with disaster recovery team, first responders, etc.
- Report to the emergency response team.

2.3 Emergency Alert, Escalation and DRP Activation

This policy and procedure has been established to ensure that in the event of a disaster or crisis, personnel will have a clear understanding of who should be contacted. Procedures have been addressed to ensure that communications can be quickly established while activating disaster recovery.

The DR plan will rely principally on key members of management and staff who will provide the technical and management skills necessary to achieve a smooth technology

and business recovery. Suppliers of critical goods and services will continue to support recovery of business operations as the company returns to normal operating mode.

2.3.1 Emergency Alert

The person discovering the incident calls a member of the Emergency Response Team in the order listed:

Emergency Response Team

- Michael Macintosh
- Rick Lopez
- _____

If not available try:

- Linda Jenkins
- _____

The Emergency Response Team (ERT) is responsible for activating the DRP for disasters identified in this plan, as well as in the event of any other occurrence that affects the company's capability to perform normally.

One of the tasks during the early stages of the emergency is to notify the Disaster Recovery Team (DRT) that an emergency has occurred. The notification will request DRT members to assemble at the site of the problem and will involve sufficient information to have this request effectively communicated. The Business Recovery Team (BRT) will consist of senior representatives from the main business departments. The BRT Leader will be a senior member of the company's management team, and will be responsible for taking overall charge of the process and ensuring that the company returns to normal working operations as early as possible.

2.3.2 DR Procedures for Management

Members of the management team will keep a hard copy of the names and contact numbers of each employee in their departments. In addition, management team members will have a hard copy of the company's disaster recovery and business continuity plans on file in their homes in the event that the headquarters building is inaccessible, unusable, or destroyed.

2.3.3 Contact with Employees

Managers will serve as the focal points for their departments, while designated employees will call other employees to discuss the crisis/disaster and the company's immediate plans. Employees who cannot reach staff on their call list are advised to call the staff member's emergency contact to relay information on the disaster.

2.3.4 Backup Staff

If a manager or staff member designated to contact other staff members is unavailable or incapacitated, the designated backup staff member will perform notification duties.

2.3.5 Recorded Messages / Updates

For the latest information on the disaster and the organization's response, staff members can call a toll-free hotline listed in the DRP wallet card. Included in messages will be data on the nature of the disaster, assembly sites, and updates on work resumption.

2.3.7 Alternate Recovery Facilities / Hot Site

If necessary, the hot site at SunGard will be activated and notification will be given via recorded messages or through communications with managers. Hot site staffing will consist of members of the disaster recovery team only for the first 24 hours, with other staff members joining at the hot site as necessary.

2.3.8 Personnel and Family Notification

If the incident has resulted in a situation which would cause concern to an employee's immediate family such as hospitalization of injured persons, it will be necessary to notify their immediate family members quickly.

3 Media

3.1 Media Contact

Assigned staff will coordinate with the media, working according to guidelines that have been previously approved and issued for dealing with post-disaster communications.

3.2 Media Strategies

1. Avoiding adverse publicity
2. Take advantage of opportunities for useful publicity
3. Have answers to the following basic questions:
 - What happened?
 - How did it happen?
 - What are you going to do about it?

3.3 Media Team

- _____
- _____
- _____

3.4 Rules for Dealing with Media

Only the media team is permitted direct contact with the media; anyone else contacted should refer callers or in-person media representatives to the media team.

4 Insurance

As part of the company's disaster recovery and business continuity strategies a number of insurance policies have been put in place. These include errors and omissions, directors & officers liability, general liability, and business interruption insurance.

If insurance-related assistance is required following an emergency out of normal business hours, please contact: _____

Policy Name	Coverage Type	Coverage Period	Amount Of Coverage	Person Responsible For Coverage	Next Renewal Date
01SBMUX9330	General/Bus	12/2012/12/2013	1,000,000		

5 Financial and Legal Issues

5.1 Financial Assessment

The emergency response team shall prepare an initial assessment of the impact of the incident on the financial affairs of the company. The assessment should include:

- Loss of financial documents
- Loss of revenue
- Theft of check books, credit cards, etc.
- Loss of cash

5.2 Financial Requirements

The immediate financial needs of the company must be addressed. These can include:

- Cash flow position
- Temporary borrowing capability
- Upcoming payments for taxes, payroll taxes, Social Security, etc.
- Availability of company credit cards to pay for supplies and services required post-disaster

5.3 Legal Actions

The company legal department and ERT will jointly review the aftermath of the incident and decide whether there may be legal actions resulting from the event; in particular, the possibility of claims by or against the company for regulatory violations, etc.

6 DRP Exercising

Disaster recovery plan exercises are an essential part of the plan development process. In a DRP exercise no one passes or fails; everyone who participates learns from exercises – what needs to be improved, and how the improvements can be implemented. Plan exercising ensures that emergency teams are familiar with their assignments and, more importantly, are confident in their capabilities.

Successful DR plans launch into action smoothly and effectively when they are needed. This will only happen if everyone with a role to play in the plan has rehearsed the role one or more times. The plan should also be validated by simulating the circumstances within which it has to work and seeing what happens.

Appendix A – Technology Disaster Recovery Plan Templates

Disaster Recovery Plan for <System One>

SYSTEM	
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OVERVIEW	
PRODUCTION SERVER	Location: 5301 NW 33 rd Avenue, Fort Lauderdale, FL 33309 Server Model: DELL SC1425 Operating System: Ubuntu Linux, Microsoft Windows Server 2003 CPUs: Intel XEON Memory: 4GB Total Disk: 15 TB System Handle: System Serial #: DNS Entry: IP Address: Other:
HOT SITE SERVER	
APPLICATIONS (Use bold for Hot Site)	Apache TOMCAT, Custom Services
ASSOCIATED SERVERS	

KEY CONTACTS	
Hardware Vendor	Dell
System Owners	
Database Owner	MySQL, Microsoft SQL
Application Owners	Pagestream LLC
Software Vendors	Microsoft, Dell, Linux
Offsite Storage	

BACKUP STRATEGY FOR SYSTEM ONE	
Daily	Full Mirror
Monthly	Full Mirror
Quarterly	Optical Disc

ADDENDUM

CONTACTS	

Disaster Recovery Plan for Voice Communications

SYSTEM	
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OVERVIEW	
EQUIPMENT	Location: 5121 NW 108 Ave Device Type: Cisco Model No.: Technical Specifications: Network Interfaces: Power Requirements; System Serial #: DNS Entry: IP Address: Other:
HOT SITE EQUIPMENT	Comcast
SPECIAL APPLICATIONS	
ASSOCIATED DEVICES	

KEY CONTACTS	
Hardware Vendor	Comcast
System Owners	Comcast
Database Owner	
Application Owners	
Software Vendors	
Offsite Storage	
Network Services	

BACKUP STRATEGY for SYSTEM TWO	
Daily	
Monthly	
Quarterly	

Appendix B – Suggested Forms

Damage Assessment Form

Key Business Process Affected	Description Of Problem	Extent Of Damage

Management of DR Activities Form

- During the disaster recovery process all activities will be determined using a standard structure;
- Where practical, this plan will need to be updated on a regular basis throughout the disaster recovery period;
- All actions that occur during this phase will need to be recorded.

Activity Name:
Reference Number:
Brief Description:

Commencement Date/Time	Completion Date/Time	Resources Involved	In Charge

Disaster Recovery Event Recording Form

- All key events that occur during the disaster recovery phase must be recorded.
- An event log shall be maintained by the disaster recovery team leader.
- This event log should be started at the commencement of the emergency and a copy of the log passed on to the business recovery team once the initial dangers have been controlled.
- The following event log should be completed by the disaster recovery team leader to record all key events during disaster recovery, until such time as responsibility is handed over to the business recovery team.

Description of Disaster:
Commencement Date:
Date/Time DR Team Mobilized:

Activities Undertaken by DR Team	Date and Time	Outcome	Follow-On Action Required

Disaster Recovery Team's Work Completed: <Date>
Event Log Passed to Business Recovery Team: <Date>

Disaster Recovery Activity Report Form

- On completion of the initial disaster recovery response the DRT leader should prepare a report on the activities undertaken.
- The report should contain information on the emergency, who was notified and when, action taken by members of the DRT together with outcomes arising from those actions.
- The report will also contain an assessment of the impact to normal business operations.
- The report should be given to business recovery team leader, with a copy to senior management, as appropriate.
- A disaster recovery report will be prepared by the DRT leader on completion of the initial disaster recovery response.
- In addition to the business recovery team leader, the report will be distributed to senior management

The report will include:

- A description of the emergency or incident
- Those people notified of the emergency (including dates)
- Action taken by members of the DRT
- Outcomes arising from actions taken
- An assessment of the impact to normal business operations
- Assessment of the effectiveness of the BCP and lessons learned
- Lessons learned

Mobilizing the Disaster Recovery Team Form

- Following an emergency requiring recovery of technology infrastructure assets, the disaster recovery team should be notified of the situation and placed on standby.
- The format shown below can be used for recording the activation of the DR team once the work of the damage assessment and emergency response teams has been completed.

Description of Emergency:
Date Occurred:
Date Work of Disaster Recovery Team Completed:

Name of Team Member	Contact Details	Contacted On (Time / Date)	By Whom	Response	Start Date Required

Relevant Comments (e.g., Specific Instructions Issued)					

Mobilizing the Business Recovery Team Form

- Following an emergency requiring activation of the disaster recovery team, the business recovery team should be notified of the situation and placed on standby.
- The format shown below will be used for recording the activation of the business recovery team once the work of the disaster recovery team has been completed.

Description of Emergency:
Date Occurred:
Date Work of Business Recovery Team Completed:

Name of Team Member	Contact Details	Contacted On (Time / Date)	By Whom	Response	Start Date Required
Relevant Comments (e.g., Specific Instructions Issued)					

Monitoring Business Recovery Task Progress Form

- The progress of technology and business recovery tasks must be closely monitored during this period of time.
- Since difficulties experienced by one group could significantly affect other dependent tasks it is important to ensure that each task is adequately resourced and that the efforts required to restore normal business operations have not been underestimated.

Note: A priority sequence must be identified although, where possible, activities will be carried out simultaneously.

Recovery Tasks (Order of Priority)	Person(s) Responsible	Completion Date		Milestones Identified	Other Relevant Information
		Estimated	Actual		

1.					
2.					
3.					
4.					
5.					
6.					
7.					

Preparing the Business Recovery Report Form

- On completion of business recovery activities the BRT leader should prepare a report on the activities undertaken and completed.
- The report should contain information on the disruptive event, who was notified and when, action taken by members of the BRT together with outcomes arising from those actions.
- The report will also contain an assessment of the impact to normal business operations.
- The report should be distributed to senior management, as appropriate.

The contents of the report shall include:

- A description of the incident
- People notified of the emergency (including dates)
- Action taken by the business recovery team
- Outcomes arising from actions taken
- An assessment of the impact to normal business operations
- Problems identified
- Suggestions for enhancing the disaster recovery and/or business continuity plan
- Lessons learned

Communications Form

- It is very important during the disaster recovery and business recovery activities that all affected persons and organizations are kept properly informed.
- The information given to all parties must be accurate and timely.
- In particular, any estimate of the timing to return to normal working operations should be announced with care.
- It is also very important that only authorized personnel deal with media queries.

Groups of Persons or Organizations Affected by Disruption	Persons Selected To Coordinate Communications to Affected Persons / Organizations		
	Name	Position	Contact Details
Customers			
Management & Staff			
Suppliers			
Media			
Stakeholders			
Others			

Returning Recovered Business Operations to Business Unit Leadership

- Once normal business operations have been restored it will be necessary to return the responsibility for specific operations to the appropriate business unit leader.
 - This process should be formalized in order to ensure that all parties understand the change in overall responsibility, and the transition to business-as-usual.
 - It is likely that during the recovery process, overall responsibility may have been assigned to the business recovery process lead.
 - It is assumed that business unit management will be fully involved throughout the recovery, but in order for the recovery process to be fully effective, overall responsibility during the recovery period should probably be with a business recovery process team.
-

Business Process/Function Recovery Completion Form

The following transition form should be completed and signed by the business recovery team leader and the responsible business unit leader, for each process recovered.

A separate form should be used for each recovered business process.

Name Of Business Process

Completion Date of Work Provided by Business Recovery Team	
Date of Transition Back to Business Unit Management <i>(If different than completion date)</i>	
<p>I confirm that the work of the business recovery team has been completed in accordance with the disaster recovery plan for the above process, and that normal business operations have been effectively restored.</p> <p>Business Recovery Team Leader Name: _____</p> <p>Signature: _____</p> <p>Date: _____</p> <p><i>(Any relevant comments by the BRT leader in connection with the return of this business process should be made here.)</i></p>	
<p>I confirm that above business process is now acceptable for normal working conditions.</p> <p>Name: _____</p> <p>Title: _____</p> <p>Signature: _____</p> <p>Date: _____</p>	