Disaster Recovery Plan

Overview

Jivasoft provides software and SaaS (Software as a Service) products to its customers. These customers rely on the reliability, availability and continuity of Jivasoft's services for their day to day operations. It is critical to the financial and operational success of Jivasoft and the welfare of its customers that Jivasoft be prepared to recover from any disaster quickly, smoothly and transparently.

Disasters can occur with very little or no warning. Jivasoft must anticipate the types of disasters, be they natural or man-made, that could befall the company or its infrastructure in order to ensure that it can rapidly recover and ensure continuity of its services to its customers.

This plan specifically addresses the prospect of disasters that result in the destruction or loss of access to computers, computer networks and physical facilities that are vital to the continuity of Jivasoft as a business enterprise or the continuity, availability and reliability of SaaS services provided by Jivasoft to its customers.

This document will present various types of disasters, assess what impact those disasters could have on the operation of the company and its services, identify policies and procedures currently in pace to mitigate the impact of each disaster and the steps necessary to recover and restore continuity of the company and its services.

Disaster 1: Loss of Internet Connectivity or Electrical Power at Jivasoft's Offices

Event Description

It is possible that Jivasoft could lose electrical power or Internet connectivity at its offices.

Potential Impact

Jivasoft's employees rely on Internet connectivity to perform many of their daily tasks and to communicate with one another and with customers. Jivasoft's telephone system is a Voice-Over-IP (VOIP) system, and it relies both on electrical power and Internet connectivity to operate. Jivasoft's ability to provide customer support, a critical element of its day-to-day operations, relies on the availability of telephones and email. Jivasoft's employees use desktop computers for most of their day-to-day work, and the loss of the ability to operate an Internet-connected computer would disrupt the productivity of virtually every employee of the company.

Mitigation Factors

Jivasoft's SaaS services are hosted in a secure data center in Dallas, Texas with extensive power and network redundancy. Rackspace maintains Internet connectivity through multiple Tier 1 connections to multiple carriers. A power loss or loss of Internet connectivity at the Jivasoft offices in San Antonio would be extremely unlikely to affect the availability of its SaaS services to its customers.

Jivasoft's VOIP telephone service will forward calls to cell phones of key personnel in the event that the office phones are not available.

Jivasoft's VOIP telephone service can be accessed via the Internet or a smartphone app. Employees can use Internet-connected laptops and cell phones to operate all of the essential features of the company phone system.

Jivasoft's key employees have laptop computers and Internet at home and could work from home if necessary.

Jivasoft maintains memberships for its key employees in a co-working space in downtown San Antonio (Geekdom) where employees could work in the event that the company offices and their homes do not have power or Internet.

Public Wi-Fi is available in many places, such as coffee shops, restaurants and public buildings. In the event of a brief loss of power and/or Internet, critical functions could be performed over public Wi-Fi.

Response

If Jivasoft loses power or Internet, the top-ranking person on site at the time will immediately attempt to determine the expected duration of the outage. This person will also determine if the outage creates a health or safety risk for personnel.

If the outage is expected to last for less than an hour, and there is no risk to the health or safety of employees, then employees will simply wait for the incident to end. Incoming phone calls will come to the cell phone of the person in charge. Employees will use their personal cell phones, as necessary, to communicate with customers and to access their company email.

If the outage is expected to last for more than an hour or, if there is risk to the health or safety of the employees, then employees will be given the option of going home and working from home or going to Geekdom and working from there. Employees will be required to verify that they are redeploying to a location that has power and Internet.

In the case of a widespread outage that is expected to last multiple days, it may be necessary for Jivasoft to organize a team of critical employees to travel to a remote location that has power and Internet. The method of travel would be determined based on the scope and nature of the disaster. For example, employees could be asked to drive to Houston, Dallas or some other location that is not affected by the disaster and to work from a hotel room until the outage is resolved.

Disaster 2: Destruction or Loss of Access to Jivasoft's Offices

Event Description

It is possible that Jivasoft's offices could be destroyed or rendered inaccessible for an extended period of time.

Potential Impact

Jivasoft's employees routinely work in an office. Jivasoft keeps furnishings, fixtures, corporate records, financial records, computer software source code, computers, data storage and networking equipment at its offices. The destruction of its offices would pose a challenge to the company's ability to continue developing software, operating its business and supporting its customers.

Mitigation Factors

Jivasoft's SaaS services are hosted in a secure data center in Dallas, Texas with extensive power and network redundancy. The destruction or unavailability of Jivasoft's Offices in San Antonio would have no direct impact on the availability of Jivasoft's SaaS services to its customers.

Jivasoft's VOIP telephone service will forward calls to cell phones of key personnel in the event that the office phones are not available.

Jivasoft's VOIP telephone service can be accessed via the Internet or a smartphone app. Employees can use Internet-connected laptops and cell phones to operate all of the essential features of the company phone system.

Jivasoft's key employees have laptop computers and Internet at home and could work from home if necessary.

Jivasoft maintains memberships for its key employees in a co-working space in downtown San Antonio (Geekdom) where employees could work in the event that the company offices and their homes are destroyed.

Jivasoft maintains a casualty insurance policy that is adequate to provide the financial resources to reconstitute the office in a new or temporary location.

Jivasoft maintains a corporate credit line that would enable it to immediately purchase critical furnishings and equipment to reconstitute a new or temporary location.

Jivasoft receives payments from its customers at a P.O. Box at a local post office and through electronic funds transfers to its bank accounts. Destruction of Jivasoft's offices would not disrupt Jivasoft's cash flow or financial viability.

Jivasoft maintains an offsite repository of all of its software source code that is accessible through the Internet. In the event that Jivasoft's offices are destroyed or inaccessible, Jivasoft would not lose its most vital asset, i.e., its source code.

Jivasoft maintains offsite backup of its corporate and financial records, which are maintained in electronic format. Therefore, the destruction of Jivasoft's offices would not result in a loss of critical business and financial data.

Response

In the event that Jivasoft's offices are destroyed or rendered inaccessible, employees will be given the option of working from home or going to Geekdom and working from there.

Jivasoft's executive management would immediately file a casualty claim with the company's casualty insurer.

Jivasoft's executive management would immediately contact a commercial realtor to identify an appropriate office space with immediate availability. Executive management would work diligently to arrange for the reconstitution of core office capabilities, such as utilities, local area networking, broadband Internet access, desks, phones and computers.

Employees would reconstitute their own personal work environments, restoring data and files from off-site backups and reinstalling third-party software.

Disaster 3: One of Jivasoft's Cloud Servers Crashes

Event Description

It is possible that one of Jivasoft's virtual Cloud Servers suffers an unrecoverable hardware or software failure.

Potential Impact

Jivasoft operates various Cloud Servers. Should one of these servers become incapacitated for any reason, there could be a significant loss of access to Jivasoft's SaaS services for some or all of Jivasoft's SaaS customers.

Mitigation Factors

Jivasoft's SaaS services are hosted in a secure data center in Dallas, Texas with extensive power and network redundancy.

Jivasoft creates Cloud Backups of customer databases daily. Should it be necessary to restore one or more customer databases from backup, this could be done very quickly, easily and reliably.

Jivasoft creates Cloud Backups of System Images of its servers on a weekly basis. In the event that a particular server became disabled, Jivasoft could provision a new server with the most recent viable image of the disabled server. The entire process of provisioning a new server from a backup image would take approximately 15-30 minutes.

Response

Jivasoft would contact Rackspace to determine the cause of the server outage. If Rackspace is able to recover the server quickly, no further action would be required.

Jivasoft staff would notify all impacted customers of the outage and provide an expected timeline for the resumption of service. In the case of potential data loss, Jivasoft will notify the customer of what data they can expect to recover and what data would need to be reconstituted. In no case would customers expect to lose any data prior to the early morning of the day of the outage.

If Rackspace is not able to recover the server or if there is likely to be an extended outage, Jivasoft's staff would provision a replacement server through the Rackspace Control Panel using the most recent, viable system image for the disabled server. If customer databases reside on the disabled server, Jivasoft staff would attempt to recover the databases from attached storage from the disabled server. If the databases could not be recovered from attached storage, then they would be recovered from Cloud Storage.

Jivasoft will with Rackspace support to attempt to transfer the IP address of the failed server to the newly re-provisioned server. If Rackspace is not able to configure the new server with the same IP Address, Jivasoft staff will update the DNS entries for the affected server to point to the newly re-provisioned server.

If there were changes to the server environment since the image was backed up, staff will document and re-create the changes.

Once the server has been reconstituted, Jivasoft will notify customers that the services are once again available.

Jivasoft staff will meet to review what, if any, changes were made to the server environment that may have contributed to the crash. Staff will document the cause of the crash and what steps should be taken in the future to avoid repetition of the failure.

Disaster 4: Rackspace's Dallas Data Center Goes Offline

Event Description

It is possible that Rackspace's Dallas Data Center becomes inaccessible due to loss of power, loss of Internet connectivity, or destruction of equipment or facilities.

Potential Impact

Jivasoft operates its various Cloud Servers through Rackspace. All of Jivasoft's Cloud Servers are physically located in Rackspace's Dallas Data Center. Should the Rackspace Dallas Data Center go offline, all of Jivasoft's SaaS services would become unavailable.

Mitigation Factors

Rackspace operates a physically secure data center with extensive power and network redundancy.

Jivasoft creates Cloud Backups of customer databases daily. On a weekly basis, customer databases are backed up to Cloud Storage located in a Rackspace Data Center in Kansas City, Missouri.

Jivasoft creates Cloud Backups of System Images of its servers on a weekly basis. These images are stored in a Rackspace Data Center in Kansas City, Missouri. In the event that a particular server became disabled, Jivasoft could provision a new server with the most recent viable image of the disabled server. The entire process of provisioning a new server from a backup image would take approximately 30-60 minutes.

Response

Jivasoft would contact Rackspace to determine the cause of the data center going offline. If Rackspace anticipates that the data center will be operational and available within 8 hours, no further action would be required.

Jivasoft staff would notify all impacted customers of the outage and provide an expected timeline for the resumption of service. In the case of potential data loss, Jivasoft will notify the customer of what data they can expect to recover and what data would need to be reconstituted. In no case would customers expect to lose any data prior to the early morning of the day of the outage.

If Rackspace is not able to recover the server or if there is likely to be an outage longer than 8 hours, Jivasoft's staff would provision replacement servers through the Rackspace Control Panel using the most recent, viable system images for the disabled servers stored in the Rackspace data center in Kansas City, Missouri. Customer databases would be recovered from Cloud Storage and customers would be notified of the extent of any data loss.

It is unlikely that Rackspace would be able to transfer IP addresses from the servers in the Dallas data center to the newly re-provisioned servers in the Kansas City data center. Therefore, Jivasoft staff would update the DNS entries for the lost servers to reflect the addresses of the newly re-provisioned servers. It can take several hours

or longer for DNS entries to propagate completely through the Internet. As a result, Jivasoft should prioritize the task of updating the DNS and do so as soon as the IP addresses of the newly provisioned servers are known. Due to delays in DNS propagation, some Jivasoft customers or users could experience difficulty accessing the SaaS services for as long as a day.

If there were changes to the servers' environment(s) since the images were backed up, staff will document and re-create the changes on the newly re-provisioned servers.

Once the servers have been reconstituted, Jivasoft will notify customers that the services are once again available.

Once services are fully restored, Jivasoft staff will review its new environment and fine-tune any changes that are necessary to reestablish appropriate levels of redundancy and recoverability. For example, if new servers are operating from the same data center where the "off-site" backups were stored, those backups are no longer "off-site," but rather are co-located with the new servers. Jivasoft staff will reconfigure backups to be stored off-site at another Rackspace data center that is fully operational.

This plan was reviewed and last revised on August 15, 2018