CITRIX®

Achieve Workforce Continuity and Keep Your Business Running—No Matter What

In Business Continuity Planning, the Datacenter Is Only the Beginning

Executive Summary

The benefits of workforce agility—an organization's ability to move people and processes easily across locations and computing environments—aren't limited to the regular course of business. Workforce agility is also a vital element of business continuity planning, an essential component of risk management for every organization. After all, every organization faces the possibility of major and minor disruptions of all kinds, from planned events such as IT maintenance and office relocations, to looming emergencies such as hurricanes and epidemics, to unplanned events that strike completely without warning, such as earthquakes, tsunamis, tornados, terrorism and fires. Even relatively small incidents like a failed water main or a power outage can have a major impact if it makes it impossible for work to continue at a given location. Without effective plans in place to respond to such events, the business is at constant risk of significant financial losses, damaged reputation, weakened customer and partner relationships, lost productivity and other consequences.

Embedding workforce continuity into your IT strategy

The essence of workforce continuity is simple: having your datacenter up and running is only part of the picture. If workers can't do their jobs, your business is still down.

Desktop virtualization, powered by Citrix® XenDesktop™, provides a simple, reliable way to get users back to work quickly following a business disruption of any kind. Complete user resources including applications, data, personalization and entire desktops are managed centrally and delivered as a secure service to users in any location on any device.

Ensuring business continuity no matter what happens requires a well thought-out, continually updated and tested plan. While business continuity planning has traditionally emphasized keeping the datacenter up and running, it's just as important to ensure workforce continuity. If employees, contractors, outsourcing firms, partners, agencies and other personnel can't do their jobs—if they can't access the applications, data, communications and collaborative tools their work depends on—then the business is still down.

This paper discusses a comprehensive approach to business continuity planning that includes both the datacenter itself and the business that depends on it. The process begins with rigorous business analysis to set priorities, define teams and map out responses for various localized and organization-wide scenarios. Within the datacenter, this response centers on rapid, transparent and automatic failover to an alternate datacenter. For the workforce, desktop virtualization provides a way to maintain optimal productivity even under exceptional circumstances by enabling users to access centralized IT resources as a secure, high-definition service from any location on any device. In fact, the role of desktop virtualization in supporting day-to-day workforce agility—from mobile and remote workers to entire business groups which have workshifted to an alternate location—can foster a level of familiarity with such scenarios which can make the response to business continuity events even smoother and more routine.

Examples from leading organizations—including Citrix Systems, Inc. itself—illustrate how the elements of business continuity planning come together, and the resulting benefits to the business.

Introduction: Why business continuity matters

Ensuring workforce continuity with desktop virtualization

In the ordinary course of business, desktop virtualization enables a high degree of workforce agility, mobility and security as well as delivers the consumerization of IT promise, making it one of the top strategies in today's IT industry. In an emergency situation, desktop virtualization enables displaced workers to continue working from home, a hotel, an alternate corporate site, the public library, a friend's guest room or wherever else they may find themselves.

Although their customary computer may be unavailable, users can use any available device—a tablet, a rented laptop, the outdated PC in a friend's basement, a device they just purchased—to access the same familiar virtual desktop they've always used. No matter how they access it—consumer broadband, satellite, public hotspot, mobile—they get the high definition experience they need to work productively.

Business continuity has always been a top priority for both IT and the business. For companies implementing desktop virtualization, it's now simpler than ever to ensure.

Business disruptions can come in many forms. Planned events include those initiated by the business itself, such as IT maintenance, office relocations and reorganizations, as well as external events over which the business has no control, but which provide some advance warning, such as epidemics, hurricanes, snowstorms, transit strikes and public demonstrations. In situations like these, the business may have a few hours, a few days or longer to prepare for the anticipated impact. Unplanned events, on the other hand, such as sudden utility failures, tornados, tsunamis, earthquakes, fires, terrorism and environmental accidents arrive completely without warning, forcing a rapid response to a disruption which is already underway.

Such incidents happen quite often. A recent Forrester report cites data from the Centre for Research on the Epidemiology of Disasters (CRED) which shows an average of 392 disasters and $102.6 billion in resulting economic damage worldwide per year between 2000 and 2008 (Business Continuity And Disaster Recovery Are Top IT Priorities For 2010 And 2011, Forrester Research, Inc., September 2010). While only 24% of organizations surveyed by Forrester in 2010 had declared a disaster and failed over to an alternate site in the past five years, an additional 40% had experienced some sort of major disruption to their business operations (Wake-Up Call: You Aren't Ready For A Disaster, Forrester Research, Inc., February 2011).

Whether planned or unplanned, business disruptions that aren't managed effectively come at a high cost. Lost revenue, missed sales opportunities and broken service level agreements can have a devastating financial impact. Disrupted partner relationships and supply chains can delay time-to-market, derail important initiatives and weaken competitive advantage. An inadequate response can harm the company's public image as well as the confidence of its customers and investors. Even after individual workers have regained access to applications and data—a potentially complex and time-consuming task—their productivity can be difficult to restore due to lost data, work in progress disruption and collaborative cohesion with teammates and management.

For IT, recovering from a business disruption can be a complex and time-consuming process:

- Bringing the datacenter back online and restoring any lost data
- Replacing lost or inaccessible workstations—and ensuring that each machine can run the software on which the user depends
- Provisioning and configuring operating systems and applications
- Designing new ways of working and communicating them to users, from alternate network access methods and addresses to workarounds for applications which can no longer be accessed
- And doing all of this in the middle of an emergency.

Business continuity planning checklist

- Secure executive buy-in
- Form core business continuity team
- Create business analysis team
- Develop disaster scenarios
- Define decision-making hierarchies
- Prioritize recovery per business considerations
- Map recovery goals to dependencies
- Develop datacenter continuity strategy
- Develop workforce continuity strategy
- Update plans regularly*
- Test recoverability of mission-critical applications*
- Perform tabletop exercises and walkthroughs*

* Annually at minimum

An effective business continuity plan greatly simplifies and accelerates this process, helping IT restore and maintain service to the organization while getting users back to work as quickly as possible. It's no wonder a recent Forrester survey of 2,803 IT decision-makers found that improving business continuity and disaster recovery (BC/DR) capabilities is the second-highest priority for enterprises, and the top priority for SMBs, for the next 12 months (Business Continuity And Disaster Recovery Are Top IT Priorities For 2010 And 2011, Forrester Research, Inc., Sept. 2010).

Elements of business continuity planning

Although each emergency is unique and many decisions will always have to be made on-the-fly, a business continuity plan provides a framework and preparation to guide these decisions as well as a clear indication of who will make them. The development of a business continuity strategy includes the following elements.

Executive buy-in

One of the most important elements of any business continuity strategy is executive buy-in. Says Michael Emerson, Director of IT Security, Governance and Business Continuity at Citrix, "We're asking people throughout the business continuity process to perform tasks in preparation for something that we hope will never happen, when they have things on their plate that are due today and revenue-based business goals to meet. Having buy-in and support from the highest level is essential for making sure they can give business continuity the time and attention it demands."

Scenario development

At a high level, a business continuity plan should identify potential business disruptions that can affect any of an organization's locations, such as power outages, epidemics and fires, as well as those that are specific to individual locations, such as earthquakes and tsunamis in a seismically active region or civil unrest in politically unstable areas. To keep the number of scenarios manageable, planning should be based on worst-case scenarios, rather than multiple graduated versions of each incident.

Team structure

One of the top considerations for a business continuity plan is the development of a clear decision-making hierarchy. In an emergency, people shouldn't have to wonder who has the responsibility or authority to make a given decision; if the designated leader is not available, their backup should be equally clear.

The organization should be able to address all business continuity tasks in every location in which it operates, both to respond to local events and to coordinate the organization-wide response for both local and broader-based emergencies. Personnel identified as key members of the business continuity

team—including the backups who will take their place if they should become unavailable—must remain focused and involved in planning and testing throughout the year, as described below. In addition to ensuring that the plan is effective and up-to-date, this helps build the familiarity needed to perform under the pressure of an actual emergency.

At Citrix, a core business continuity team for each region includes personnel from throughout the organization, including executive leaders, IT and facilities, as well as security, communications, human resources, finance and other service departments. Working within their respective areas of expertise, members are given responsibility for matters such as physical security, employee safety, campus preparation and communication with employees, customers and vendors. Rather than focusing on specific functions, the purpose of the core business continuity team is to set the strategy and direction for emergency response for the organization as a whole.

Goal prioritization

While it would be ideal to always be 100 percent operational regardless of the emergency situation, this will not always be possible, so the organization needs to identify the most essential operations, who will perform them and how work will be redirected if key people are unavailable. At Citrix, this is handled by a team primarily composed of business unit owners and the business continuity director from IT, who are responsible for conducting business impact analysis. This group works together to rank the criticality of various business processes in terms of revenue, customer-facing and image concerns, regulatory implications and other business considerations, then map dependencies onto these processes in terms of the applications, people, facilities and equipment required to support them. Once the group has agreed on this analysis, it can start to identify recovery strategies and costs around continuing each process. For IT, this data provides a framework for making sure that critical applications will be available to the business within an established recovery time objective (RTO) and recovery point objective (RPO).

Testing and updates

A business continuity plan is only as good as you make it—and keep it. Without an ongoing focus on preparedness, an organization can find in a time of emergency that its plan is no longer relevant to its business or operations, and find itself grappling with an ad hoc response made worse by a false sense of security.

Best practices call for annual updates of a business continuity plan to reflect changes in the criticality and dependency of applications, business priorities, risk management, business locations, operations and other considerations. At Citrix, business continuity personnel track and note such changes throughout the year to supplement this annual review. Full emergency simulations should be conducted at least annually as well. These guidelines should be considered the minimum; in addition to an annual review of all plans, as well as crisis communications testing, Citrix performs business continuity and recoverability testing for all mission-critical applications on a quarterly basis. Tabletop exercises introduce new twists into disaster

scenarios to ensure the flexibility of the plans in place and give team members experience responding to the unexpected. Says Emerson, "Our success rate has been phenomenal on both the disaster recovery side and the business unit side. Still, no matter how many times we go through the business continuity process—real or not—we always find something we can add or improve to make it better and smoother."

Comprehensive preparedness

There's more to business continuity than failover and disaster recovery for the datacenter. It's also vital to connect workers to the plan. In simple terms: if workers aren't back on the job, your business is still down—and losing money, customers, productivity, reputation and opportunities every moment it takes to get them back to work.

The following sections drill into these two aspects of business continuity—the datacenter and the workforce—in more detail.

Datacenter continuity: maintaining continuous IT operations

Most large organizations already have more than one datacenter for scale and redundancy. If one datacenter comes offline for any reason—planned or unplanned—users should be able to access another datacenter, either active or pure backup, until that datacenter comes back online. It's important to make sure that the associated infrastructure can support this response, from rapid, automated failover to load balancing and network capacity.

Citrix virtual computing solutions help IT ensure datacenter continuity. Citrix XenServer® server virtualization software provides tools for managing comprehensive site-wide disaster recovery, including live migration to move workloads from one physical server to another, dynamic workload allocation and provisioning to maintain optimal performance, and automated high availability, which redistributes virtual machines from a failed server to other physical servers and restarts them to protect critical workloads from localized events. For organizations using a non-active alternate facility for disaster recovery, administrators can have standby XenServer systems attached to the replicated storage of a failed server and automatically restore the associated virtual infrastructure, including network connections and settings.

Citrix NetScaler® makes datacenter failover seamless and transparent for users. If the primary datacenter goes down, NetScaler redirects users automatically to the secondary site with no need for them to change IP addresses; users are typically unaware that anything has changed at all. Capabilities such as SSL VPN, load balancing and global load balancing across multiple datacenters apply in emergency situations as well as routine operations. NetScaler also allows organizations which use a public cloud for backup to manage this outsourced infrastructure the same way they would their own backup datacenter.

Workforce continuity: enabling uninterrupted access to computing resources

Disaster recovery at CNL Financial Group

CNL, a leading private investment management firm providing global real estate and alternative investments, places a high value on the safety and security of its customers' information. Says Joel Schwalbe, CIO at CNL Financial Group, "We take very seriously the protection of our customer information. Citrix helps us address that."

CNL's Orlando datacenter replicates via NetApp technology to a disaster recovery hot site in Atlanta, Georgia, where Citrix XenDesktop virtualization software remains ready at all times to deliver applications and data on demand to workers in any location. "Desktop virtualization has really simplified our disaster recovery strategy," says Schwalbe.

The SSL VPN capabilities of Citrix provide the security needed to protect CNL's customer data and maintain compliance with industry and government regulations, even as its users switch transparently from one datacenter to another. "Citrix provides a more comprehensive security solution, because we're not allowing users to actually put the content on the device; it's being accessed through the virtual network," says Schwalbe.

Datacenter continuity can keep IT operations up and running—but what if users themselves have been displaced from their usual workplace or lost access to their usual systems? This aspect of business continuity is often overlooked or neglected. But as Michael Emerson of Citrix says, "The workforce absolutely has to be a component of any business continuity program. Protecting data is only part of the picture; you also need to make sure that business processes and customers don't suffer adverse effects because people are unable to do their jobs. After all, business continuity means just that: continuing to do business."

Citrix helps business continuity planners address the two essential considerations for users:

- Can I still access my desktop and applications?
- Does everything still work transparently, or has the device been set up differently, forcing me to find new ways to connect to the network, recreate my personalizations and try to adapt to an unfamiliar desktop environment?

Desktop virtualization: Enabling full productivity wherever displaced workers go

The goal of workforce continuity is as simple as this: ensuring that users can do their work the same way as if nothing had happened at all. This dovetails perfectly with one of the main value propositions of desktop virtualization, which makes it possible for workers to access the same consistent desktop environment from any location on any device at anytime. Desktop virtualization already enables workforce agility during routine operations by allowing users and work groups to move easily from place to place and from device to device as needed for optimal productivity; for organizations using this strategy, a business continuity event can be as simple and smooth as any other relocation.

Desktop virtualization is powered by Citrix XenDesktop, which allow applications, data, personalization and entire user desktops to be managed and secured centrally and delivered anywhere, over any kind of connection in high-definition, to any kind of device on-demand. To the user, a virtual desktop looks, feels and acts like the traditional desktop on their PC no matter how they access it or what kind of device they access it on. Citrix ensures a high definition user experience regardless of location or network connection, enabling displaced workers to become productive no matter where they end up. As described above, NetScaler redirects traffic automatically and transparently, so users don't even have to know they're accessing a different datacenter.

Citrix customers have long made Citrix virtualization solutions a core part of their business continuity strategy. As desktop virtualization continues to transform enterprise IT architectures, business continuity can increasingly be seen as an inherent aspect of the same strategy used to support users for routine operations, rather than a separate, alternate scenario used only under exceptional circumstances. This close correlation between emergency and routine operations also enhances the effectiveness of the business continuity plan; instead of having to get used to "disaster mode" as an entirely different way of working, users are always working the same way and accessing the same experience regardless of their circumstances. All that changes is their physical setting.

Desktop virtualization also provides a solution to the remote access aspect of workforce continuity. Instead of having to worry about special access methods, IT can allow people to access their applications and desktops over any available connection—company LAN or WAN, consumer broadband, satellite, public hotspot or mobile—with full security, access control, and compliance monitoring and tracking provided by Citrix. The same applies for the user's device. Because virtual desktops are device-independent, displaced workers—who often lose access to their work device, and sometimes even a personal device used under a bring-your-own program—can access their familiar desktop environment using any available device, from a rented laptop to an outdated desktop PC borrowed from a friend to a tablet such as an iPad to a newly purchased device.

On-demand access to virtual desktops on any device is complemented by Citrix GoToMeeting® and Citrix GoToManage®, which provide rich tools for real-time online collaboration, communication and technical support. This helps dispersed co-workers keep in close touch with customers, co-workers and partners to keep ongoing projects on track and ensure uninterrupted productivity, service and responsiveness.

An alternative to the alternate workplace

While business continuity has traditionally often revolved around a designated alternate workplace or recovery unit, desktop virtualization makes this much less necessary. Unless there is a regulatory or government mandate requiring people to work at a specific location, the organization can simply have them work wherever it's most convenient and effective, such as at home, in a hotel ballroom or in a different corporate location. People who need to work at the disaster site itself, such as business continuity team members, emergency response workers, critical service workers and insurance adjustors, can be housed in any available structure or mobile unit, without the need for special infrastructure or connectivity.

The same flexibility applies to user endpoints. Rather than having to buy, configure and maintain workstations which add to IT overhead and may never be used, IT can allow workers to use a PC in a public library, a hotel business center, a friend's guest room or any other convenient location. When additional devices are needed, any off-the-shelf laptop or zero client will do.

Said Michael Emerson of Citrix, "Instead of having to get a lot of PCs that meet certain specifications, then load them, provide access to the application and so on, we can shut down an office, move people to another location and

Independent Bank keeps employees working during an interruption

Independent Bank is an Ionia, Michigan based bank holding company with total assets of approximately $3 billion and about 1,300 employees. The firm uses Citrix® Access Gateway™, Enterprise Edition to provide secure application delivery to users in the event of an interruption, and to simplify remote access versus a traditional VPN connection.

In addition to providing a simpler experience for users than the firm's previous VPN, the Access Gateway SSL VPN, which has a downloadable web client, provides stronger data security to help meet regulatory requirements governing the financial services industry, even when users are working outside their customary location and network environment.

This solution not only supports ordinary remote connectivity, but also provides a critical piece of the firm's business continuity plan. Ben Kohn, senior system architect for Independent Bank, said, "If there's a pandemic and everyone is at home on whatever computer is handy, we can deliver a desktop securely over Access Gateway and allow them to function." XenServer also plays a key role in recovery by rapidly provisioning XenApp servers at the backup site.

get them back to work in the same familiar environment quickly. For them, the experience is exactly the same as they're used to. For IT, we don't have to worry about trying to image dozens or hundreds of different machines, then guide people through a long list of changed processes."

Headquartered in Ft. Lauderdale, Florida, Citrix has ample firsthand experience with business continuity events. Says Emerson, "We've relocated people to hotel conference rooms, shifted our workload around the world based on facilities closing, rapidly increased capacity in other areas based on potential disasters—we've done it all many times, especially when it's hurricane season in Florida. The service we provide both internally and externally to our customers has never been affected. It's a real credit to the workforce agility and flexibility enabled by desktop virtualization."

Key benefits of supporting workforce continuity through desktop virtualization

Efficiency and cost savings. Desktop virtualization is already a top priority for many or most IT organizations. Making it a core element of business continuity planning lets you increase the value of this investment while eliminating many formerly separate business continuity processes and costs, from the maintenance of a dedicated disaster recovery site and hardware to the creation of alternate remote access methods for displaced workers.

Resiliency and rapid recovery. Capable of provisioning virtual desktops in seconds, and allowing users to access their own virtual desktop on demand at any time, on any device, desktop virtualization minimizes the user downtime resulting from an emergency. There is no loss of data, application access or even personalization, ensuring that displaced workers can be just as productive as if they were still in their customary workplace.

A seamless experience for workers. Because everything in the user's desktop environment looks and works exactly the same way it always has, there is no need for alternate procedures to be learned or remembered. This familiarity helps users adjust more easily to the exceptional circumstances that can follow a disaster, providing welcome continuity that is both reassuring and productive. After all, when users are already accustomed to working wherever and whenever, on whatever device they choose, being relocated as part of a business continuity plan is far less disorienting and disruptive.

Security and compliance. During a business continuity event, virtual desktops are delivered using the same infrastructure as for routine operations, with the same inherent security. All data and applications remain under IT control in the datacenter, where automation and centralized management enhance policy enforcement, regulatory compliance and antivirus protection. Even data delivered for offline use to the local desktop remains encrypted at all times so there is no risk to corporate assets regardless of the device being used—even a public access terminal in a library or the business center of a hotel.

The City of High Point achieves cost-effective business continuity

High Point, North Carolina, population 104,000, faced the same kind of budget challenges familiar to many cities. While the city's desktop virtualization initiative was primarily designed to decrease costs while improving IT capabilities and effectiveness, the city has cited enhanced disaster recovery capabilities as one of the top benefits it has provided.

Glenn Hasteadt, Assistant Director IT Services at City of High Point, said, "Desktop virtualization represents the backbone of our disaster recovery plan. Now our mobile employees have immediate access to legacy applications from wherever they are. Based on the bandwidth this requires, we could never have provided this to them before."

High Point City Hall houses many city departments—not only the mayor's office, but also finance, human relations, IT and others. "If people can't work at City Hall, I can put some thin clients wherever we have space in another location, set up a conference room somewhere or just commandeer public access terminals at the library, and continue business as usual. If there's an epidemic and people don't want to leave the house for fear of their own lives or safety, they can just stay home and work."

The ability to provide this capability without having to invest in and equip an alternate disaster recovery site enables High Point to meet its business continuity planning goals and ensure uninterrupted service for its constituents without additional strain on its budget.

More practical, lower-risk execution. Desktop virtualization makes it possible for organizations to invoke their business continuity plan with less disruption to users and the business. As a result, the organization is often more willing to take this measure proactively—to move people offsite in advance of a hurricane or snowstorm, or to have users work at home during an outbreak of illness—rather than taking its chances and hoping the disaster will pass without impacting the business. The plan becomes much more effective when it is seen as an acceptable adjustment to circumstances rather than a last resort to be invoked only in the most desperate times, or at the last possible moment.

Ensuring continuity for your business and your workforce

While organizations embrace desktop virtualization for many reasons, from workforce agility to security to cost efficiency, every such implementation delivers one key benefit in common: a solid foundation for business continuity planning. As you incorporate desktop virtualization into your IT strategy, be sure to pay close attention to its implications for keeping your workforce up and running no matter what happens. Please visit **www.citrix.com/businesscontinuity** to learn more about the role of Citrix virtual computing in business continuity.

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About Citrix
Citrix Systems, Inc. (NASDAQ:CTXS) is a leading provider of virtual computing solutions that help companies deliver IT as an on-demand service. Founded in 1989, Citrix combines virtualization, networking, and cloud computing technologies into a full portfolio of products that enable virtual workstyles for users and virtual datacenters for IT. More than 230,000 organizations worldwide rely on Citrix to help them build simpler and more cost-effective IT environments. Citrix partners with over 10,000 companies in more than 100 countries. Annual revenue in 2010 was $1.87 billion.

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