Strategy Guide to Business Risk Mitigation for Healthcare
When you think of IT disaster recovery for a hospital, you might envision a plan for protecting critical patient data if the facility is struck by a flood or a fire. What does not immediately come to mind are events such as when a construction crew cuts a cable and brings a network down, removing the healthcare organization’s lifeline.

**However**, in today’s dynamic environment of healthcare reform—with its government mandates, funding deadlines and transformational IT initiatives—those kinds of events can be just as disastrous.

High availability, security, business continuity and disaster recovery are more important in healthcare today than ever. New regulations and reforms are dramatically increasing the amount and types of digital data that healthcare organizations of all sizes generate, share and secure. Parts of the American Recovery and Reinvestment Act of 2009 and the Health Care and Education Reconciliation Act of 2010 are jump-starting an IT revolution in healthcare. The rules are incenting physicians and hospitals to digitize health records and are promoting digital exchange of information among doctor’s offices, clinics, hospitals, labs and pharmacies—as well as with government agencies.

The ability to handle this increase in data—and to keep it constantly available and simultaneously secure—is crucial to improved patient care. But it’s also critical to the ongoing viability of healthcare organizations themselves. Any hospital that can’t reliably and securely receive, collect and store digital information from other hospitals, healthcare providers and the government and transmit it to them will be at a disadvantage in the market. Under the rules for adoption of electronic health records (EHRs), healthcare organizations that fall short after 2015 will be subject to lower-reimbursement penalties.

And yet many healthcare organizations are challenged to find the time, resources and budget to do just that. Most likely they have adopted or inherited technologies over time as IT has assimilated information systems from most major departments and as new, more specific applications were acquired to automate ERs and carry out tasks related to medication administration, radiology and other areas. This has resulted in IT’s assuming responsibility for a heterogeneous mix of equipment and technologies that is hard to manage, prone to failure, riddled with security problems, expensive to operate and vulnerable to disruption.

Although most hospitals have at least basic risk management and disaster recovery plans, they may not be prepared for this new environment. These environmental factors, combined with intrinsic data growth, often result in a data protection infrastructure that is extremely difficult and costly to manage and operate.

The good news: There is a better way. By using the right technology and applying best practices, you can significantly reduce the labor of preparing for and recovering from a disruption or a disaster (see IDC article, “How Midsize Businesses Can Simplify—and Save—on Disaster Recovery,” page 6). In fact, those two approaches can reduce IT staff time spent backing up an environment by up to 90 percent and time spent recovering from an outage by up to 87 percent.

To help healthcare organizations improve their disaster
recovery capabilities gradually and cost-effectively, HP offers its Converged Infrastructure. The solution is an integrated, validated, preconfigured platform comprising servers, storage, networking, management software, PCs and printers that helps provide high availability, data protection, network security and offsite disaster recovery. Because the platform is modular, you can start with your most important priorities and build the infrastructure over time or implement it all at once. HP’s ProLiant G6/G7 servers with Intel Xeon 5500/5600 series processors, offer greater performance and use less power than previous-generation servers, so you can get more done with less hardware and lower operating costs. Either way, HP’s Converged Infrastructure can help you manage, protect and grow your operations.

To read the whole story of this medical center’s process, challenges, and ultimate success, Click here.

These problems will be exacerbated as more and more medical data is digitized and as the sharing of that data with providers, hospitals and other members of the healthcare ecosystem becomes an operational requirement. In fact, they can create a barrier to deploying innovative technologies such as digital imaging, EHRs, telemedicine and Voice over IP (VoIP) nurse communication systems.

Virtualizing computing resources is tremendously powerful and can provide even more value when combined with technologies that can automate and

**CRITICAL ISSUES**

As healthcare undergoes an IT revolution, the ability to generate, store, secure and transmit digital data is becoming an operational imperative. Among the most critical issues:

- **Infrastructure and network reliability:**
  As electronic health records become more pervasive, doctors, clinics and hospitals will rely on the network more than ever. Any institution that has an unreliable infrastructure is at risk of being left behind in this new market.

- **High availability:**
  Data must be available 24x7 from multiple access points, including the patient, as online personal health records become the norm for consumers.

- **Security and regulatory compliance:**
  HIPAA regulations require tight security for patient data. At the same time, however, data must be available to all healthcare providers in any given “community of care.”

- **Comprehensive plan for disaster recovery:**
  Hospital data is sometimes siloed. IT should pay special attention to make sure the disaster recovery and business continuity plan covers all critical data.
“With an HP Converged Infrastructure, we’ve improved performance and put in place a solid foundation for growth—all while decreasing the total cost of ownership for IT.”

— Perry Cozzone, Vice President and CIO, Colorcon

For a look at how this leader in pharmaceuticals improved availability, reliability and performance of its infrastructure, click here.

Converged Infrastructure Transforms!
Hear how HP customers streamlined their businesses by moving forward with a converged data center.

virtualize the backup process. As hospitals leverage server consolidation, it is also a best practice to review the data protection processes; they can be used to provide optimal performance with the new virtualized infrastructure. Hospitals can benefit from advanced technology such as deduplication in HP’s StoreOnce D2D and VLS platforms to streamline the data protection process and ensure that all backup-and-recovery requirements are either met or exceeded as data grows and virtualization continues.

In addition, HP has worked with key partners to incorporate vendor-neutral archiving (VNA) into the Converged Infrastructure. This enables healthcare organizations to manage storage as an enterprise resource rather than in siloed departments. You can identify picture archive and communication systems (PACs) as applications and thus share them just as you would any other application.

PROTECT
As the amount of digital health data explodes, your ability to store, protect and secure it will be crucial. In addition to coralling and consolidating your systems and processes, HP’s Converged Medical Infrastructure offers ways to implement data backup, disaster recovery and security products previously available only to large hospitals.

With the HP StorageWorks P4000 SAN, for example, you can stripe and protect multiple copies of your data across a cluster of storage nodes, eliminating single points of failure in your storage environment. Rather than risk losing valuable data between backups, you can use the HP StorageWorks D2D Backup System for rapid local restoration and continuous low-bandwidth data replication for automated disaster recovery. HP StoreOnce software, next-generation deduplication based on technology from HP Labs, deduplicates data only one time. And HP StorageWorks Storage Mirroring Software v5.2 gives you replication and failover technology that continuously captures byte-level data changes as they occur in your systems, replicating...

SOLUTION SNAPSHOT

WAKE FOREST UNIVERSITY BAPTIST MEDICAL CENTER realized that it needed to do something. This premier medical institution, which has been named one of “America’s Best Hospitals” for 15 years running by U.S. News & World Report, was experiencing big increases in data volume, leading to a proliferation of servers. IT already supported approximately 750 applications throughout the hospital. With the addition of electronic medical records, the workload was expected to skyrocket.

So in 2008 the hospital launched a server consolidation and virtualization program, using HP ProLiant DL380 G6 Servers, HP Systems Insight Manager, HP Insight Control (including Insight Control server deployment) and VMware vSphere 4.

The deployment is still under way, but the hospital has already avoided about $450,000 in hardware costs. Performance, reliability and availability have improved as well. With a clustered environment spread over two data centers, server failures can no longer stop or slow critical applications, such as operating room scheduling.

OBJECTIVE:
Reduce cost while improving availability, reliability and performance

APPROACH:
Reduce server count by virtualizing with VMware and HP ProLiant Servers; cluster servers across two data centers for high availability and disaster recovery

IT IMPROVEMENTS:
- Replaced 170 servers with 12 HP ProLiant Servers
- Improved availability with a clustered solution
- Achieved a 10-fold improvement in server performance
- Projected a 13-fold increase in server utilization, from 5 percent to 65 percent
- Saw a nearly threefold increase in virtual servers per physical server, from 7 to 20

BUSINESS BENEFITS:
- 18 months to payback for server investment
- $96,000 annual savings on data center power
- $450,000 cost avoidance for new server purchases
- $120,000 savings in software licensing
- Protection of critical operating room scheduling function in case of hardware failure

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Hear how HP customers streamlined their businesses by moving forward with a converged data center.
“Prior to our EMR system, we were increasingly unable to meet the demands of our community.”

— David Kempson, VP and CIO, Maricopa Integrated Health System

Learn the details of how the hospital moved off of a paper-based medical record system and replaced it with an EMR system as part of a technology modernization effort.

these changes to one or more servers in any location. In fact, with the P4000 virtualization bundle, HP is the only vendor that offers a low-cost, high-availability solution that does not require an external storage area network (SAN), making it extremely cost-effective.

Every hospital faces a range of protection challenges and needs a range of options. For example, the most-critical applications may require frequent intraday snapshots to provide the most-granular recovery options. HP can meet these needs with an advanced disk-based portfolio solution such as the P4000. In other instances, hospitals may prefer to leverage a traditional backup infrastructure and look for ways to improve the performance, reliability and ease of use of the data protection process. HP offers solutions that deliver high-speed data protection and recovery, and the reliability and ease of use that healthcare professionals need.

// GROW

No matter how good your disaster recovery strategy is, it should never be a set-it-and-forget-it plan.

Research shows that the average hospital stores roughly 60 terabytes of data onsite. As your organization grows and handles more data of different types, your plan can become outdated and inadequate. One of the biggest benefits of HP’s Converged Medical Infrastructure is that it helps an organization improve holistically as it develops, protecting its investments while ensuring effective disaster recovery. The technology enables an organization to expand gradually as its facilities expand, upgrading to more-sophisticated technology as needed, with no forklift upgrade. Regardless of an organization’s size or growth trajectory, HP has scalable solutions based on industry standards to fit the need.

HP’s ability to offer a range of solutions to address the power of convergence in storage, networking, software and data protection is unmatched in the industry. In fact, HP’s EHRReady program is just one example of an end-to-end solution designed to meet the HITECH criteria for meaningful use, and with the help of this program healthcare has never been more ready to realize the power and potential of EHR adoption.

Investing in new technology is a big step for healthcare organizations, but in most cases it pays off quickly in substantial operational savings (see “Solution Snapshot”). The most important payoff, however, is the assurance over the long term that unplanned interruptions—whether they are due to major acts of nature or minor day-to-day disruptions—won’t have an impact on your services, patient care or reputation.

// Suggested Reading

These additional resources include business white papers and previously published articles from IDG Enterprise.

- The Forrester Wave: Disaster Recovery Service Providers Q2 2010
- HP Business Continuity Recovery Services Web Site
- Maximizing Server Uptime: Best Practices
- HP upgrades SANs, management software
- Healthcare IT: How Reform Is Giving CIOs A More Strategic Role in Delivering Patient Care
- From Green Screen Apps to the Cloud: One CIO’s Challenge
- Cost of Regulatory Security Compliance? On Average, $3.5M
- Only 10% of doctors using complete eHealth records systems, surveys find
- Business Risk Mitigation Solution Brief
How Midsize Businesses Can Simplify — and Save — on Disaster Recovery

Adapted from Business Risk and the Midsize Firm: What Can Be Done to Minimize Disruptions?, by Raymond Boggs, Jean S. Bozman and Randy Perry, IDC #223794

Prepared by HP

Disaster Recovery (DR) is a business-critical consideration for all companies, but it may be even more important for midsize businesses. Interruptions in operations can be more disruptive, and hence more dangerous, for smaller companies. A problem that might be a hiccup in a big company’s business could be devastating to a small or midsize company.

Business interruptions can come from many sources — not just floods, storms and other natural disasters. A construction worker accidentally cuts your power line, or a possible security breach causes you to lock down your network. IDC calls this “IT risk” — the probability that applications, systems, networks or data essential to business operations will fail. The most important and critical dimension of IT risk relates to the reliability and continuity of the infrastructure itself — the “dial tone” resilience of your information technology.

Why is IT risk particularly challenging for midsize businesses? Many firms have few IT employees, and if they have any at all they have little specialized experience. Yet midsize companies cannot afford to experience IT outages. Moreover, many midsize companies have a hodge-podge of computer systems, old technology and no standardization. They may have multiple sites, but these often are heavily location-dependent — i.e., if one location goes down, it can impact the entire company.

Preparedness Pays Off

The good news is IDC research indicates that a combination of technology and best practices (including planning for potential disruptions throughout the organization) can help midsize companies boost their preparedness. For example, the application of best practices across a company can reduce unplanned downtime by up to 85%. Best practices include the consistent use of management software, which can reduce network and system downtime by 65%. Upgrading servers/storage/network equipment reduces downtime by 50%.

Effective disaster recovery implementations — those that ensure multiple sites can run key applications and production data — not only reduce the likelihood of long business outages in a disaster but also can help midsize firms save money through workload consolidation throughout the organization.

Tuned, pretested disaster recovery support capabilities and services are now helping midsize businesses reduce the risk of an extended business outage due to disaster and at more reasonable costs than ever before. Today it’s possible to put in place DR technology and practices that may cost less per user supported than older technology that did not support DR.

These new DR implementations have provided some midsize companies with the means to avoid shutdowns when and if their networks go offline — reducing expected disaster-induced outage hours (downtime) per year. Importantly, research shows these implementations can reduce costs by more than 35% compared with older technology.

For example, advanced processes and technologies can ease the backup process, introduce more automation into the data replication process and enable IT staff to protect more applications with restart and recovery capabilities. IDC research found that IT staff time associated with backup and recovery procedures could be reduced by 85% to 90% when automation and new technologies were applied.

Midsize-Business Priorities: Save, Simplify, Sustain

IDC research with midsize firms shows that DR is one of many goals. Midsize companies consistently strive for three primary goals:

• Reduce IT costs (save)
• Simplify operations
• Sustain operations (high availability and DR)
Given current economic conditions, midsize businesses are paying careful attention to IT spending across the board. They control large expenditures and continually seek efficiencies in server, storage, software, networking and services costs. They also need to be aware, however, of the opportunity costs associated with leaving aging technologies in place.

While carefully controlling costs, midsize-company managers must still keep systems up and running due to the potential losses to the business associated with downtime. Assured uptime for applications and production data has become increasingly important, not just for acknowledged business-critical applications but also for less-critical IT components of the business.

For example, email messaging, desktop applications and Web sites — usually not considered “mission-critical” aspects of IT infrastructure — often act as critical junctions for other, remote business-critical applications and servers. As a result, these seemingly less-critical IT assets potentially become single points-of-failure for crucial applications if organizations fail to provide DR plans for them.

As mentioned earlier, because midsize firms have fewer IT staff and lower IT budgets, they cannot support as much redundancy in their DR as a larger organization would. Therefore, companies must establish an ability to recover from disasters more efficiently. They must combine new and already installed systems, and then incrementally build on that infrastructure to support business continuity.

// Solution: Best Practice + Technology

A more simplified approach can work. IDC’s research with more than 25 midsize organizations in the U.S. implementing DR over the past four years shows measurable improvements not only in disaster preparedness (to sustain IT operations), but also in cost reduction (save) and simplification of the systems environment (by standardization of IT infrastructure).

Interviews with firms that had refreshed aspects of their infrastructure and improved IT processes revealed a markedly improved readiness for disaster. “Best of breed” organizations (the 25% of surveyed organizations with the lowest failure rates) experienced less than half the outage hours of the average organization at 5.3 hours per year probability of failure or better.

// Baseline for DR: Simplified Infrastructure

Leading firms began their move toward better DR by initiating some of the following key best-practice initiatives:

- Extending management technologies that automate the process of asset management, system configuration and software distribution (This reduces the number of steps that require hands-on intervention and reduces IT staff time.)
- Constraining their environment to a finite number of standard processors, operating systems and database products — making it easier to maintain and update
- Consolidating servers over a long-term roadmap, reducing the number of server “footprints” that had to be maintained and updated
- Standardizing IT practices, especially management of settings and configurations
- Providing protected storage space within the organization’s storage resources and establishing rules for backup of mission-critical data (This ensures adequate capacity for backup and recovery procedures and for restart of applications.)

// Conclusion

DR best practices, combined with selective technology solutions and improved systems management, can reduce business risk for midsize organizations. The combined efficiencies and new technologies can reduce the labor of preparing for and recovering from a disaster — up to a 90% reduction in IT staff time spent backing up an environment and up to an 87% reduction in time spent recovering from an outage.

As a result, these combined approaches extend disaster preparedness to a wider range of organizations and increase the likelihood of rapid recovery should a disaster occur. In short, these approaches to DR solutions enable improved disaster preparedness and reduced DR-associated costs across the board.