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Meeting the Challenges of Disaster Recovery

An Acronis® White Paper

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Executive Summary

Data is widely considered to be one of an organization's greatest assets, but in recent years, the need to access data at nearly any time of the day or night has grown from a wish-list item to a must-have reality. In fact, the health of your businesses depends on it.

It's not just internal users who demand constant access to data. Many organizations place a large percentage of their data in customer- and partner-facing line-of business applications. As a result, when a server goes down, it may not affect just your organization, but customer and partner organizations as well, with the potential result of both lost revenue and a diminished reputation.

Massive increases in the volume of data being stored have caused backup windows to lengthen, often to the point where even the most efficiently organized backup window impinges on the beginning of a new day's business operations. For companies with world-wide operations, even a two-hour backup window can cause trouble on the other side of the globe when clients or internal users are in the midst of their workdays. And when it's time to carry out a recovery, uncertainties abound among IT administrators concerning how well their data protection solution will perform, particularly if they depend on tapes, with their inherently higher failure rates and higher costs.

It's time to reconsider a fresh backup and recovery strategy, one that is faster, more agile, and easier to manage than ever before.

Three major issues are driving backup/recovery and storage management vendors to dramatically re-tool the products they sell:

- **Managing data and systems costs money,** more than you might expect if they are not managed efficiently.
- **Speed no longer applies just to backups.** Recoveries, completed in minutes rather than hours, are critical to getting back to business.
- **Compliance requirements have rewritten the way companies do business.**

Backup and recovery products must address these issues without reducing productivity or increasing the cost of doing business. There are many well-known solutions that can back up an organization's digital assets successfully, with moderate to high levels of automation. Recoveries, on the other hand, are still mostly manual processes that can take hours to complete, threatening most companies' ability to set more stringent recovery time objectives (RTO); this will include remote sites that aren't staffed by IT professionals. Finally, rapid increases in the volume of data being backed up are driving storage management costs out of sight.

What is Needed to Address these Problems?

Analysts and customers substantially agree that disk imaging technology, thoughtfully applied and properly integrated, can drive down the cost of protecting data, enable faster backups and recoveries and meet a company's reporting needs. An ideal solution should include:

- Fast, smaller **backups** that are easy to organize, schedule and manage
- Guaranteed **recoveries** that anyone can carry out without training
- **Scalable** technology that works as well in a huge IT shop as it does in a remote office
- **Data deduplication** to dramatically cut the costs associated with disk storage in large organizations
- Rapid **migrations** among both physical and virtual servers
- **Deployments** that dispense with traditional system 'builds'
- Risk-free software and hardware **upgrades**

Introduction

IT managers are faced with massive data growth, a complex, heterogeneous computing environment and economic pressures to make it all work flawlessly despite the realities of tight budgets and flat staffing.

Until now, SMBs haven't had access to a backup and recovery solution equipped with the enterprise-class features they need to manage these challenges. Enterprises, on the other hand, have been forced to buy costly packages that not only require extensive training, but costly proprietary hardware as well. Given these challenges, what can an IT manager do now to:

- maintain business continuity?
- manage the recovery process?
- meet all day-to-day management needs like:
    - migrations and upgrades?
    - software upgrades?
    - virus outbreaks and zero day attacks?

This white paper answers these questions and concludes with recommendations designed to help you determine which solution is best for your environment.

Keeping Your IT Systems Operational

Internal business operations have become more information-centric. At the same time, corporate data and applications are increasingly outward-facing to customers and partners. From an IT perspective, many organizations' doors are never closed for business.

Failures that used to take a server down for a day or more were frustrating a few years ago, but today they can translate into a direct loss of hundreds of thousands of dollars of lost business and, further, tarnish reputations.

In today's shared computing environment, traditional tape backup and recovery methods actually stand in the way of "Get it back NOW" demands on IT service continuity. Failures that used to take a server down for a day or more were frustrating a few years ago, but today they can translate into a direct loss of hundreds of thousands of dollars and limit your competitiveness. At the same time, everyday IT practices like migrations, hardware and software upgrades must be managed without disrupting user productivity.

Non-Negotiable Requirements.

Businesses large and small have three non-negotiable requirements of their backup and recovery solution. First, backup windows can no longer interrupt a company's ability to conduct business. Second, when disaster strikes, recoveries must be completed quickly enough at both the server and workstation level to ensure service continuity. Third, its cost has to fit comfortably within increasingly tight budget allocations.

Disk imaging products must be designed to meet all three of these requirements, addressing issues of cost, speed and various regulatory requirements.

The advantages of disk imaging. When implemented properly, an image-based backup and recovery system:

- lowers overall costs of managing data and systems,
- creates a much faster response mechanism to reduce backup times and recoveries, and
- simplifies an organization's ability to meet regulatory and financial reporting needs

All of these advances have a further bottom-line benefit: they lift and protect a company's reputation and enhance its ability to do business successfully.

Disk imaging is proven to be the best path to take when you compare solutions for reducing downtime. It offers a faster recovery time than archiving or file-level solutions (either tape or disk), and delivers a more affordable alternative to true continuous data protection (CDP) and replication technologies. Disk imaging technology also meets rapid recovery time (RTO) and recovery point objectives (RPO) without additional hardware investments and it makes it much easier to protect and present data needed to meet regulatory and financial reporting requirements.

However, disk imaging is not just for backup and recovery. Just as critical are all the actions you take every day, such as migrations, bare metal restores, IT center moves, deployments and more. An imaging-based solution, combined with strong centralized monitoring and automated management, meets today's and tomorrow's data protection needs.

Managing the Recovery Process

Successful recoveries depend on guaranteed, 'bulletproof' backups. The advantages of disk imaging over tape subsystems for creating truly reliable backups cannot be underestimated. Snapshots can be conducted on a 'hot' server so it doesn't have to be removed from service. And when a server or workstation has to be restored, an imaging-based solution allows you to recover an operating system, application software, files, databases and user settings in a fraction of the time required for a traditional system rebuild.

Recovering from an image, rather than a tape, ensures that a machine can be returned to service quickly and reliably, often in minutes, with minimum interruption to users. It avoids the introduction of human error that frequently accompanies a manual rebuild. Ideally, the end user will have tools that are so easy to use, recoveries can be completed nearly immediately without calling the help desk.

The ideal, integrated backup and recovery solution will offer nearly unlimited flexibility in setting up the backup and recovery process and its locations. It will not force an organization to replicateexpensive primary resources, but rather, give it the leverage needed to reduce the cost of systems and the data that reside on them

However, imaging alone is not enough. The more centralized and automated you can make the backup process, the less time administrators will spend carrying out the backup tasks themselves. The same intuitive interface that keeps administrators out of the training room and on the job will also free them for more proactive work, including fine-tuning the server/workstation environment. An integrated backup and recovery solution will offer near-unlimited flexibility to set up the backup and recovery process. Moreover, it will not force an organization to replicate expensive primary resources for offsite recoveries. Instead, it allows IT administrators the flexibility to recover to dissimilar platforms.

Example: *consider the case of a major eastern US construction company based on Woburn, Massachusetts. Their line-of-business applications must be available on a 24X7X365 basis to support communications to various subcontractors, business partners and worksites that need access to shared project plan drawings, as SQL database, billing data and Microsoft Exchange email. The firm recently decided to protect its IT resources from the possibility of a site-wide failure by building a remote disaster recovery facility. However, they cannot afford to replicate the expensive IBM physical hosts for their 14 VMware® servers. So, they chose Acronis software to repurpose decommissioned Dell® servers at the remote site. They recreated the 14 VMware servers on a small number of the Dell servers and saved tens of thousands of dollars in hardware costs. And, they achieved the recovery speed they had long sought to protect their business from catastrophic data loss.*

Disk-based solutions begin with backup and restore and evolve into major contributors to business continuity.

Business Continuity

Added Value in daily system management

Internal testing	Pre-deployment testing of software updates	Migrations • P2P • P2V • V2V • V2P	Managing hardware refresh	Protect against virus outbreaks and zero-day attacks

Initial Investment in core technology

Physical	Virtual
Windows	**Linux**

Workstation

Server

Backup & Restore
Bare-Metal Recovery

Customers initially purchase a disk image-based backup and recovery solution to carry out workstation and server backups and restores. Some advanced solutions offer an easy-to-use method for recovering to dissimilar platforms or to carry out bare-metal restores. Once the system is in place, administrators can begin to take advantage of additional daily system management capabilities of disk imaging solutions. These include software testing programs, deployments, migrations, upgrades and providing a rapid approach to returning a virus-compromised system to a previous, uninfected state. By taking advantage of all these capabilities, IT administrators can achieve high levels of business continuity.

Managing Day-by-Day

Disasters occur rarely, but management tasks and solving small problems are everyday affairs. To support day-to-day management of your IT infrastructure, an image-based backup and recovery solution can deliver comprehensive, easy-to-use management options to carry out migrations, deployments, hardware upgrades and software updates, satisfy compliance requirements and protect against the effects of malware both known (virus outbreaks) and unknown (zero day attacks).

Migration

An image-based solution can transport a system and data onto a new or different system platform in a fraction of the time required to complete a manual system build on either a physical or virtual machine. Virtualization frees data and software from specific hardware platforms and it encourages much higher levels of system resource usage, creating an efficient path to a 'green' IT environment and maximizing IT investments.

You need a solution that supports major VM platforms.

Since recovery practices must allow restoration to both virtual and physical servers, you need a solution that supports major VM platforms including VMware®, Microsoft®, Parallels® and Citrix® XenSource™. With that in place, applications and data can be migrated within these environments:

- Physical to virtual
- Virtual to virtual
- Virtual to physical

Example: *a Canadian wire and metal products manufacturer in Quebec, Canada needed to periodically upgrade its servers to newer platforms. It sought to avoid the headaches ordinarily associated with migrating to dissimilar hardware, specifically the work required to bring a new system to a ready state and then loading the backed up data onto it before it could be used. Moreover, the company needed to be able to restore from a physical server to a virtual server regardless of what physical server was currently in use.*

The company chose an Acronis product that allows the image to be restored to dissimilar hardware, with a new server up and running in only minutes, saving many of the time-wasting steps traditionally associated with migrations. The IT department manager who completed the transition says, "With the [Acronis] toolset we can manage our backups efficiently, minimize downtime, and offer data recovery options to our users that were not even conceivable months ago."

Deployments Without Traditional System Builds

All private and public sector organizations face increasing challenges when configuring and deploying new PC's and workstations in a distributed environment. Companies and civic institutions, including governments, schools and universities, can significantly decrease support expenses by choosing a deployment solution that enables them to first create a standard configuration for each new machine, then take a snapshot of it using imaging technology, and, finally, deploy that image simultaneously to multiple systems. The same use applies to server deployments.

When reviewing backup and recovery products, be sure to look for a solution that offers:

- Complete system deployments to workstations and servers
- Ability to restore to different hardware
- Advanced media builder to prepare a machine to accept the image
- Support for both Linux and Windows operating systems, with support for new versions on, or shortly after, first customer ship of the new version
- Fully automated deployment, including Wake-on-LAN support
- Customizable deployment options like partition resizing
- An centralized, intuitive interface and
- Advanced monitoring, making it easy to spot and solve discrepancies before they become problems

Example: *a famous English university sought a more efficient method for deploying large numbers of new PCs each semester. Its existing deployment software couldn't support today's much larger drive volumes, and the time required to build new workstations was taking administrators away from other pressing tasks. After testing several solutions, the school chose Acronis software to wipe all the contents of each new machine and to construct a dual-partitioned drive that would allow the user to boot from either Windows or Linux. Once the partitions were created, they inserted a CD containing a master image that included all files and applications as well as the Windows and Linux operating systems needed to clone each hard drive. The school was able to cut deployment time by 25%. As the school's computing officer points out, "Unlike many competing solutions, [those from Acronis] are consistently dependable, creating stable and reliable partitions and images during each deployment."*

Imaging minimizes the time required to deploy new hardware and virtually eliminates user disruptions.

Hardware Upgrades with Less Effort

The same imaging discipline used for system recoveries can be applied to hardware upgrades. Disk cloning allows a standardized configuration to be cloned and used for rapid deployment to another system or environment. Imaging minimizes the time required to deploy new hardware and virtually eliminates user disruptions. A full system image can be taken in seconds and restored onto one or many new physical or virtual machines. Look for a solution that can restore an image to dissimilar hardware for additional flexibility in carrying out hardware upgrades.

Example: *a high-ranking executive's workstation motherboard has just failed, and the pressure is on to get the computer up and running as soon as possible. If you were to use Microsoft's own system restore feature, you would need an absolutely identical system to restore to. That's a near impossibility if the system is more than a year old, and unlikely even from one system to another having the same model number. With an Acronis imaging product, you can rapidly complete an upgrade without any of the traditional, time-consuming work once required to 'build' a new workstation and load all the applications, settings and data needed to return to duty.*

Software Upgrades with Less Risk

Prior to deploying software upgrades or software patches, the IT manager must be confident that the changes will be compatible with all applications. But testing these changes can be time-consuming: setting up a test environment, introducing live data, checking the results and then deploying the changes. The IT manager needs to be able to carry out these tests rapidly and conclusively before proceeding with an implementation. If an upgrade causes problems, there must be an easy way to roll back to the previous state for the machine.

Example: *consider the case of a U.S. specialty baking company with two large Pennsylvania bakeries and five sales offices throughout the United States. With only one location fully staffed with IT personnel, the company needed to provide software updates to workstations in all locations. And they wanted to be certain the systems would still work once the updates were completed. When the company evaluated a well-known image-based backup and recovery application, testing revealed that even though it could complete a backup, it could not restore a machine reliably. The company was also frustrated by a user interface that required considerable training to understand and use.*

They evaluated Acronis software with a user-friendly interface that made it easy to set up a backup schedule for all of its servers and workstations. A "secure zone" partition allowed a user to recover a workstation without boot media simply by pushing a function key. Recently, an automated software update was pushed to the company's workstations, but administrators soon found that the update interfered with some legacy applications. The IT staff was able to restore each affected workstation from the secure zone in a matter of minutes without bootable media or network connectivity.

Disk imaging technology can be used to effectively turn back both traditional viruses and zero-day attacks.

Protecting Against Virus Outbreaks and Zero-Day Attacks.

As hackers become more sophisticated, they look for new and creative ways to punch holes in IT infrastructures. Traditional virus attacks are being frequently supplanted with zero-day attacks, in which previously unknown and therefore un-patched application vulnerabilities are exploited with a virus assault. Businesses can rarely be protected from zero-day attacks by security vendor offerings or outsourced services. Instead, it is up to the IT team to apply a remedy. Disk imaging technology can be used to effectively turn back both traditional viruses and zero-day attacks.

Example: *one morning you notice your network is unusually congested and that your domain controllers are responding much more slowly than normal to client requests. You soon determine that two servers are infected with the Win32/Conflicker.B worm virus. To return the machines to their last known good states, you use Acronis software to restore them from backups completed two days earlier. Fifteen minutes later, the servers are up and running normally.*

Managing in an Increasingly Cost-Sensitive Environment

If You're a Small- or Medium-Size Business...

Today's SMBs look to an imaging-based methodology to simplify and automate backup and disaster recovery for both physical and virtual environments. More than ever, they ask for enterprise-level features like centralized monitoring and control, but at a price that is appropriate for a smaller organization. At the same time, they seek a system that is easy to install, configure and use. And, they always demand initial cost savings from the purchase accompanied by indications that the same purchase will continue to lower costs well into the future.

A modern image-based backup and recovery solution can reduce costs associated with protecting servers, workstations and laptops. For instance, many solutions still require IT administrative intervention to carry out a system recovery, pulling staff away from more proactive tasks and effectively increasing IT overhead costs. This intervention is no longer necessary if the user has access to wizard-based recoveries that that anyone can complete without formal training. Image-based deployments and upgrades can now be heavily automated, even when restoring to dissimilar hardware. Such features permit an organization to stretch administrative spending much further than was previously possible.

Further savings come from reducing the size of the data store through compression technologies or – in the case of larger SMBs – the use of data deduplication.

SMBs should look for a system that can save money on several fronts:

- **Data protection** with integrated system recovery to meet or exceed RTO (Recovery Time Objectives) with recovery in minutes, not hours or days,
- Integrated data **deduplication** for larger organizations tasked with reducing both storage costs and network bandwidth utilization
- **Wizard-driven interface** to reduce training requirements and speed administrative tasks
- **Live backup** and restore for the highest possible user productivity

If You Run an Enterprise...

Enterprises need to simplify and automate backup and disaster recovery for local and remote systems to control costs in both virtual and physical environments. To support multiple-building and multiple-site environments, you'll need policy-based, centralized monitoring and management, broad scalability, heterogeneous platform support, deduplication, enhanced security, and much more. Administrative dollars can be much more effectively allocated through the use of automated, policy-based management and grouping arrangements. Also the latest software-based solutions can free larger organizations from purchasing costly proprietary hardware bundled into hardware/software solutions while protecting their investments in existing technologies, particularly tape.

Look for a solution that delivers the following:

- Data protection with integrated system recovery to meet or exceed Recovery Time Objectives (RTO) with recoveries completed in minutes, rather than hours or days
- Data deduplication to reduce storage costs and network bandwidth utilization
- Role-based administration that enhances security and data confidentiality
- Easy-to-configure backup and recovery policies that work across firewalls
- Recovery to dissimilar hardware to maximize flexibility and improve availability
- Dashboard monitoring all backup and recovery activities
- Faster recovery times to save time and money
- A single solution for both physical and virtual environments that operates across Microsoft Windows and Linux operating systems, and VMware, Microsoft, Parallels and Citrix platforms
- Wide support of hardware profiles and configurations, including tape devices, to meet IT continuity requirements
- Scalability for distributed network infrastructures

How Acronis Can Help

Five years ago, IT operations were markedly more insular than they are today: a day-long recovery from a server failure might once have inconvenienced a company, but wouldn't necessarily stop it from doing business with its partners and its customers. Now, near-instant RTOs are a top priority, and failures lasting much longer than an hour can stop businesses in their tracks. As the speed of business accelerates, and more of your data faces toward customers and partners, there is new pressure to make it continually available.

As the speed of business accelerates, and more of your data faces customers and partners, there is new pressure to make the data continually available.

Not all disk imaging-based backup and recovery solutions are created equal. Only a comprehensive, imaged-based backup and recovery solution can respond quickly enough to support today's burgeoning computing needs. With that in mind, Acronis has developed **Acronis® Backup & Recovery 10.** This offering takes the well-regarded imaging performance of the Acronis True Image Echo product line and enhances it with a combination of enterprise-class centralized monitoring and automated management. Add to that a fully-integrated deduplication solution, advanced compression technology and enhanced support for tape, and you have a recipe for reducing data storage requirements to much *lower levels*.

Summary

The next generation of backup and disaster recovery product from Acronis – Acronis Backup & Recovery 10 – is targeted to assist employees responsible for the implementation and management of Microsoft and Linux IT infrastructures as part of an organization's disaster recovery and IT continuity planning. Acronis addresses the data availability needs of organizations of all sizes.

Acronis addresses the data availability needs of organizations of all sizes

Small- and medium-size organizations will find that Acronis Backup & Recovery 10 is especially *easy to implement and use* when compared to alternative solutions. They will be able to back up and recover systems faster than before. And, they will be able to carry out a broad array of proactive projects designed to manage all resources with increased efficiency, using a powerful, yet enabling user interface that simplifies overall administration and encourages cost efficiencies.

Enterprises will find Acronis Backup & Recovery 10 well-suited to address *scalability and data availability requirements* across distributed environments with its policy-based management, agent-less clients, and a well-designed dashboard monitoring system that doesn't require you to scroll down to see all of your assets. These features, along with money-saving features such as simplified mass deployments, optional deduplication software and the industry's most responsive customer service organization, make it easy to choose Acronis.

For more information on how Acronis Backup & Recovery 10 can help your organization, please download our new **product guide.**

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