IDC VENDOR SPOTLIGHT

Data Protection and Recovery for Physical and Virtual Environments

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Increased interest in new data protection, backup, and recovery solutions is being driven by the need to decrease backup window time and provide faster restore and recovery times. This is particularly true for customers that need to improve performance and utilization of backup resources in environments that are rapidly becoming virtualized.

New data protection schema must integrate seamlessly with existing applications to lower operational and capital costs. In addition, accelerated adoption of virtual servers and desktops, plus explosive growth in data volumes and I/O strain on existing infrastructure, is driving adoption of new optimization technologies, such as deduplication, and driving IT organizations to review and update their data protection architectures and processes. IDC believes that data protection solutions that utilize these capabilities can provide a scalable, secure backup and recovery platform that is easier and less expensive to deploy and manage.

This Vendor Spotlight examines the major forces driving the latest technology advancements in data protection, backup, and recovery solutions — particularly those that are specifically designed to handle the challenges of virtualization and deduplication. The paper examines solutions for achieving a coherent, integrated, and more unified approach that can be applied across both physical and virtual environments. The paper also looks at Quest Software data protection and management solutions for customers that need to cross the strategically important data protection gap of moving from physical to virtual environments.

Transforming Data Protection Architectures and Processes

Data backup and data recovery are now primary challenges facing all businesses, transcending company size and industry. While the growing use of disk-based systems has alleviated many bottlenecks associated with traditional backup and recovery methods (such as tape), the systems haven't improved the speed of backups or provided faster restore and recovery times. Disk-based solutions must integrate seamlessly with existing production applications and processes to improve performance and utilization of backup resources. This is especially true for customers that manage a growing virtual infrastructure and need to reduce virtual machine I/O throughput while lowering operational and capital costs.

The accelerated adoption of technologies such as virtualization, deduplication, cloud computing, and the like, along with overall cost reduction and datacenter consolidation initiatives, is driving IT organizations to review and transform their data protection architectures and processes. IDC research indicates that investment is increasing in the data protection and recovery software market, which can be attributed in large part to the growing needs of customers. Additionally, this growth is credited to companies implementing server and desktop virtualization, data reduction methodologies (such as deduplication), and public and private cloud backup architectures.

Increased interest in protection is also a result of companies recognizing the value of data, as well as the numerous regulatory requirements to retain, classify, and protect sensitive data. Many firms now realize the consequences to an organization, such as regulatory penalties and damage to the corporate brand, when data is lost, stolen, or otherwise compromised. With smaller budgets and reduced staff, companies are more sensitive to time and cost considerations when IT has to get involved in data backup and recovery operations.

As data growth continues, organizations will continue to face data protection demands. With more data to back up, organizations require more physical infrastructure. Organizations are also under pressure to increase data recovery speed. Aggressive service-level agreements (SLAs) are now required for rapid recovery. Consequently, firms have more stringent recovery objectives, facing more aggressive recovery point objectives (RPOs) as well as shorter recovery time objectives (RTOs), all with more data under management.

Virtualization and the Impact on Data and System-Level Protection and Recovery

The proliferation of virtualization has impacted the way data and systems are protected, backed up, and recovered. Firms have increasingly embraced and adopted server virtualization because it enables organizations to run multiple applications per physical server and improves the utilization rates of existing server hardware. Thus, the need to purchase additional systems is reduced. Additional benefits include improvements in business continuity and workload performance.

Virtualization is now primarily used for production applications and houses critical data that escalates the requirement for fast, reliable, and efficient backup and recovery. Consequently, the need for comprehensive and streamlined protection and recovery processes is more vitally important than ever. However, virtualization has raised the following challenges:

- Explosion in data and the storage capacity required for backup data
- Network and/or I/O bottlenecks adversely impacting backups and, therefore, backup windows and recovery time SLAs
- Limited processing power to complete backups

Although virtualization can help ease many IT complexity issues by creating a more dynamic infrastructure, the ability to successfully manage virtualization is complicated, partly because as the growth in physical infrastructure flattens out, the number of virtual machines explodes. The overhead associated with backing up virtual systems may warrant artificially limiting the number of virtual machines per host. Another limitation with traditional backup in a virtualized environment is having to support multiple guest systems with a single backup window.

These approaches may not provide for image-level recovery of an entire virtual machine. Firms may need to utilize a service console, consolidate backups, or use another solution altogether to gain any benefits in a virtualized environment.

Data Deduplication and the Impact on Data and System-Level Protection and Recovery

The use of data deduplication is increasing in both midsize and enterprise-level environments as firms look for ways to keep pace with unabated storage growth. Data growth is fueled by new applications, virtualization proliferation, electronic document stores and document sharing, requirements to retain digital records, and other factors. As IT budgets tighten, the need to curb data growth is heightened as firms look for ways to reduce capital and operating costs. Deduplication not only aids storage efficiency by reducing cost but also eases the workload of physically constrained IT environments.

Data deduplication addresses the challenges of data management, backup, and network inefficiency. As data volumes grow, there is an increasingly disproportionate relationship between the number of IT personnel and the amount of storage requiring management. Deduplication reduces the data footprint, allowing firms to keep their staffing and budgets in line. Similarly, as the gap between server processing power and disk space widens, firms will need solutions that help them improve performance throughout their environment and networks.

Data deduplication technology optimizes the available physical and virtual infrastructure by sending less data over local or remote network links. It also improves service-level response times and helps meet shrinking backup windows.

Additional benefits of deduplication are as follows:

- Resource efficiency and cost savings, which include a reduction in power and cooling demands, storage capacity, network bandwidth, and IT staff
- Ability to leverage random-access disk storage to improve recovery performance
- Disk-based backup that becomes feasible for a wider set of applications because the price per gigabyte declines for disk when used with deduplication, thereby making the cost of disk equal to or less than the cost of tape

Nevertheless, despite the many benefits, there are still costs associated with deduplication, some of which may be unforeseen. Initial costs for replication engines can be expensive. What's more, in light of growing regulatory and compliance requirements to archive and retain data, companies will need larger amounts of storage and/or multiple copies of the data, thereby raising deduplication costs.

Considering Quest Software

Headquartered in Aliso Viejo, California, Quest Software has grown to more than 100,000 customers worldwide since its founding in 1987. Initially known for Windows and database management products, Quest has extended its portfolio to include data protection software products for virtual, physical, and application environments with continuous data protection, object-level application recovery, and data deduplication.

Quest continues to invest and innovate in its data protection portfolio, most recently by acquiring BakBone Software in January 2011. The acquisition, coupled with Quest's existing backup and recovery products (including vRanger, LiteSpeed, and Recovery Manager), delivers application-centric data protection solutions that provide real-time data protection, deduplication, replication, and disk-based and tape backup and recovery. Quest has also established multiple partnerships with market-leading storage vendors to complement and extend its portfolio to support, for example, cloud backup appliances.

The acquisition of BakBone Software complements and enhances Quest's suite of protection and storage management solutions by adding greater scope and scale to its portfolio so that the company can compete with larger, well-entrenched storage software competitors. The companies' combined revenue places Quest near the top 10 of data protection vendors. Quest is now well positioned for future growth in the data protection market.

Quest's broad portfolio of data protection solutions targets the following critical customer initiatives:

1. Implement a flexible, scalable backup and recovery solution that supports a set of diverse platforms (operating systems, databases, virtual, physical, applications, cloud, etc.)

Supporting products for this initiative include Quest's data protection suite, NetVault, which delivers a broad enterprise backup and recovery solution that comprehensively covers multiple applications running across a diverse set of platforms. The specialized point products (vRanger, LiteSpeed, Recovery Manager) in Quest's portfolio, which provide a deep level of platform expertise, have competed on their own merit for years.

- **NetVault Backup.** This cross-platform software solution delivers the breadth of coverage organizations need by providing a complete enterprise backup and recovery solution for applications such as Oracle, SQL Server, and Exchange across a diverse set of operating platforms, including Windows, Unix, Linux, Hyper-V, Mac OS, and VMware — all from one intuitive console.
- **vRanger.** A VMware backup and recovery solution for small and medium-sized businesses (SMBs), vRanger delivers integrated backup and replication with recovery that's simple, fast, and affordable, enabling organizations to optimize use of critical resources in virtual environments and fully protect real-world virtual machine deployments.
- **LiteSpeed.** Quest's LiteSpeed Engine for Oracle provides advanced compression and encryption for Oracle Recovery Manager (RMAN) backups, while LiteSpeed for SQL Server enables intelligent, configurable database backup and recovery.
- **Recovery Manager.** The Quest Recovery Manager family provides extremely granular, fast, and easy discovery of business-critical data for Microsoft Exchange, SharePoint, and Active Directory.

2. Implement tiered recovery programs that align RTOs and RPOs with application and data SLAs

Supporting products include the Quest suite of data protection tools that enable organizations to implement a strategic plan that classifies information by business value, prioritizes backup and recovery of mission-critical data, and makes even the most aggressive RTOs and RPOs attainable.

- **NetVault FastRecover.** Delivering continuous data protection for Exchange, SQL Server, and Windows file servers, NetVault FastRecover enables instant data recovery after corruption or data loss, to any point in time, in as little as 30 seconds.
- **vRanger.** Quest vRanger allows the creation of customized data protection routines that meet SLA requirements. It also delivers up to 33% faster backup and up to 90% faster restores than traditional SMB backup solutions.
- **NetVault Bare Metal Recovery.** This solution significantly reduces the time required to recover a complete system after a catastrophic failure, such as a failed disk drive, by automating system recovery to new hardware or virtual machines.

3. Cut storage costs by deduplicating enterprise-level data

- **NetVault SmartDisk.** This hardware-independent deduplication technology enables organizations to lower costs by reducing their data protection storage footprint by up to 90%.

Quest has paired vRanger with StorSimple's Hybrid Cloud Storage Appliance and Riverbed's Whitewater technology to give vRanger users simpler and more advanced data backup and disaster recovery capabilities using cloud storage with automated cloud archiving.

Quest is targeting some of these new backup and recovery products specifically for use by SMBs. The company acknowledges that backup and disaster recovery for virtualized systems requires specialized skills, along with sufficient bandwidth and storage capability. SMBs frequently do not have either the skills or the time to perform regular backups.

Challenges

One of the main challenges for Quest is to raise awareness in a crowded field of well-entrenched data protection software vendors, especially during tough economic times. Quest needs to raise its visibility as a key player in the data protection software market to differentiate itself and demonstrate its value to potential new customers and partners. This will be critical to Quest's success in the coming years as it seeks to penetrate the marketplace and grow its share. Quest and its channel partners will be competing directly against established storage providers that have forged high-level relationships. We believe it is prudent and advisable for Quest to brand its data protection offerings at the solution level while highlighting its depth in VMware, database, and Exchange backup and recovery.

Quest also needs to articulate its cloud strategy to its customers and partners alike. This is particularly true for private cloud vendors that will serve as the conduit for Quest's future expansion. However, this should not be detrimental to Quest's long-term growth in the cloud data protection market. Quest will need to be judicious in its choice of cloud partnerships and initiatives. The downside is that competitors are also aggressively pursuing cloud infrastructure partnerships.

Conclusion

In light of the numerous changes and regulatory requirements related to protecting and preserving data, firms are rethinking their existing data protection architectures and processes. At the same time, they are encountering increasing requirements for faster, more cost-effective backup, restore, and recovery processes. Businesses will also want to derive the benefits of optimization technologies such as virtualization and deduplication.

Despite numerous advantages, virtualization and deduplication are not without challenges. Their proliferation and use have impacted the way data and systems need to be protected, backed up, and recovered. One way to achieve the benefits of these technologies (without the expense and overhead of purchasing and integrating new products or rearchitecting existing data protection, backup, and recovery solutions) is by leveraging the benefits of cloud backup and recovery services, which are specifically designed to handle virtual as well as physical environments.

IDC believes that the market for simpler, more automated and advanced cloud-based solutions — such as data backup and disaster recovery — will grow in importance. To the extent that Quest can address the challenges described in this paper, the company has a significant opportunity for success.
