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WHITE PAPER: NEXT GENERATION DATA PROTECTION WITH NETBACKUP 7

Next Generation Data Protection with Symantec NetBackup™ 7

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Next Generation Data Protection with Symantec NetBackup™ 7

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Executive summary

IT organizations today face several challenges when it comes to protecting data in their environments. The rapid growth of data volumes combined with regulatory mandates means that IT departments are now being subjected to stricter service level agreements (SLA) when it comes to backup windows, recovery time objectives (RTO), and recovery point objectives (RPO). The data protection model of yesteryear was often decentralized and primarily based on tape and physical servers. Keeping data forever is not likely to meet the data protection challenges that the IT organizations are facing today. The need for addressing these data protection challenges is driving IT organizations to explore the next generation of information management tools. These next generation tools, such as disk based backups, deduplication, virtualization, archiving, and continuous data protection, are essentially revolutionizing the world of data protection. However, additional tools often also mean additional complexity in terms of managing multiple point solutions. Therefore, taking a unified approach to data protection is a must.

NetBackup 7 provides a comprehensive yet integrated approach to protecting data in the next generation data centers. NetBackup 7 simplifies the protection of your information-driven enterprise by automating advanced technologies and standardizing operations across applications, platforms, and virtual environments. That means being able to protect completely, store efficiently, recover anywhere, and manage centrally across heterogeneous operating systems and storage hardware including tape and disk. Native deduplication, replication, and virtual machine protection helps customers improve storage efficiency, infrastructure use, and recovery times. A single console offers multi-site monitoring, analytics, and reporting, which allows customers to standardize operations and risk management. Used by companies around the world, NetBackup easily scales to protect the largest UNIX®, Windows®, and Linux® environments.

NetBackup 7 key features

NetBackup 7 comes with a long list of impressive features. However, the following features can be considered marquee for the release.

1. Native deduplication
2. Complete and simple virtual machine protection
3. Centralized management and reporting with the NEW OpsCenter (and OpsCenter Analytics)
4. Advanced disaster recovery via built-in replication and integration with real time protection

Native deduplication

With data growth reaching astronomical heights, organizations are looking for ways to cut back storage costs. In recent years, data deduplication has revolutionized the world of information management. Simply stated, deduplication is the process of eliminating redundant data. As it relates to data backup, deduplication helps eliminate the unnecessary network transmission and storage of redundant backup data.

Data deduplication can be performed in two ways: at the source or at the target. Every environment is different, and so the determination of which deduplication method is best for a given environment requires a thorough assessment of the amount and type of data that needs to be backed up as well as SLAs that govern the backup and recovery in the environment. The deduplication solutions themselves can be broadly classified into two categories: software-based and hardware-based.

In a recent survey conducted by the InfoPro Group, an overwhelming 88 percent of the respondents indicated a strong preference towards deduplication solutions that are integrated within the backup application.[1]

Keeping in mind the varying deduplication needs of customers, Symantec believes that deduplication should be made available everywhere, and should be implemented as close to the source as possible.

NetBackup 7 offers a simple yet comprehensive deduplication solution to meet the varying deduplication needs of today's enterprises. The built-in nature of the deduplication technology means no additional hardware setup. Customers can either use the commodity hardware of their choice or potentially leverage their existing hardware investment.

NetBackup's built-in deduplication can be performed in two places:

1. At the source with client deduplication built-in to the NetBackup client.

2. At the target using media server deduplication or integration of deduplication appliances over the OpenStorage API.

1-1. TheInfoPro Storage Wave 12, 2009

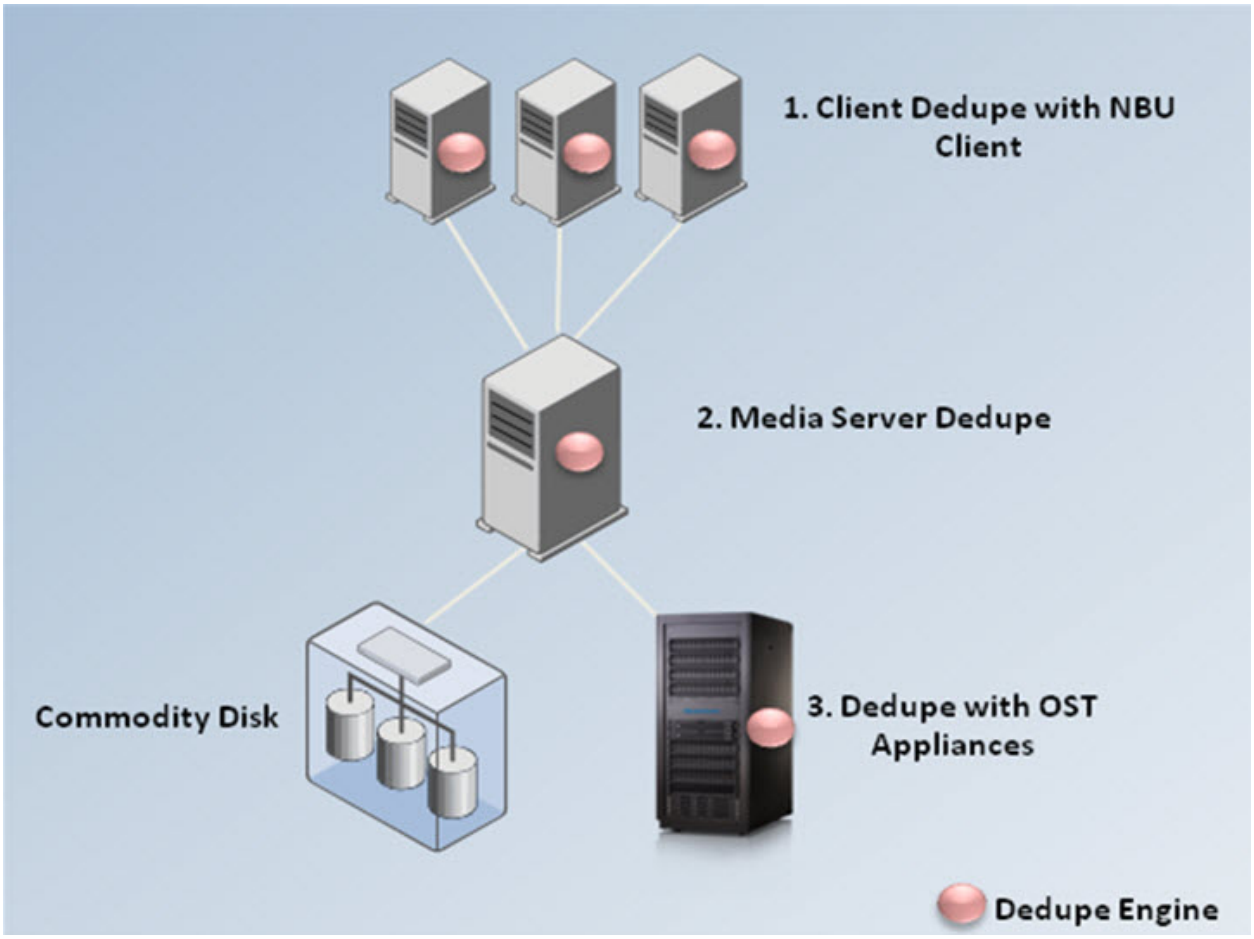

Fig 1: NetBackup Deduplication

NetBackup client deduplication

With NetBackup 7 the client deduplication functionality is built right into the NetBackup client. The data is deduplicated before it is transmitted across the network for storage. This elimination of redundant data before transmission allows for efficient utilization of bandwidth, storage, and virtual machine resources across the entire infrastructure.

Use cases typically suitable for client deduplication include virtual machine backups, remote office backups, and datacenter backups that involve datasets with low change rate.

NetBackup media server deduplication

In the case of media server deduplication, the data is deduplicated at the NetBackup media server. The backup data is moved to the NetBackup media server by the NetBackup client. The deduplication plug-in built into the media server deduplicates the data flowing into the media server and sends only the unique data segments to the back-end storage. Ultimately this leads to savings in the utilization of the back-end storage and the bandwidth utilized between the media server and the back-end storage. Media server deduplication is suitable for use cases such as off-host virtual machine backups, network data management protocol (NDMP) backups, or data center workloads with high transaction databases (which tend to have high data change rates).

OpenStorage deduplication appliances

The OpenStorage initiative is an exciting disk-based innovation which allows NetBackup to take advantage of the new technological advances of intelligent storage devices, including: storage reduction, backup image duplication, synthetic backups, replication, and energy efficiency. The OpenStorage API provides NetBackup with visibility into the properties and capabilities of the appliance, and control of the backup images stored in the appliance. The appliance storage can then be treated by NetBackup as disk devices rather than tape devices, as in the case of virtual tape libraries (VTL). Through the OpenStorage API, NetBackup controls when backup images are created, duplicated, and deleted. The OpenStorage appliances control how the images are stored in and copied between appliances. The OpenStorage option is a great fit if there is an existing investment in deduplication appliances that you wish to leverage.

Benefits of NetBackup native deduplication

Built-in, easy to use: The deduplication option is fully integrated and built into NetBackup and requires no additional hardware setup. Setup is wizard driven and is a part of the backup policy.

Use commodity hardware: No proprietary hardware required. Use commodity hardware of your choice.

Low cost of ownership: Up to 50-70 percent less than appliance solutions (assuming replication for DR).[2]

Proven product line, proven technology: Part of market-leading backup solution- Symantec NetBackup. Based on Symantec NetBackup PureDisk™ deduplication technology.[3]

Investment protection: Leverage multiple deduplication approaches in one single solution. Repurpose existing hardware for leveraging NetBackup deduplication.

Complete and simple virtual machine protection

Virtualization has created both new opportunities and challenges in the data center. The challenges most commonly faced when dealing with virtualized environments are slower backup and recovery, increased storage consumption, and yet another technology to learn and manage. NetBackup 7 delivers simple and comprehensive data protection for virtual environments by building on the successful foundation of NetBackup 6.5's award-winning VMware® support[4]. Virtual machine protection is simplified by centralizing the backup across both Microsoft Hyper-V™ and VMware, speeding up backup times through hypervisor integration (for example, vStorage API), deduplication, and incremental technologies, as well as delivering highly efficient single file restore.

NetBackup 7 supports client and off-host virtual machine protection.

- Client backups: NetBackup client with built-in deduplication is directly deployed within the virtual machine that needs backup.
- Off-host backups: This approach allows low impact off-host backups of virtual machines. The backup processing is moved away from the virtual machine host to an alternate location. As a part of the off-host backups, customers can now also benefit from the block-level incremental backup technology which helps in shortening backup times and reducing storage costs.

2-2. Price comparison with DataDomain 690 and PureDisk 6.6 (with replication) April 2009
3-3. Symantec NetBackup 27.5% Gartner Enterprise Distributed System Backup/Recovery Market, October 2009
4-2007 and 2008, best of VMworld, TechTarget

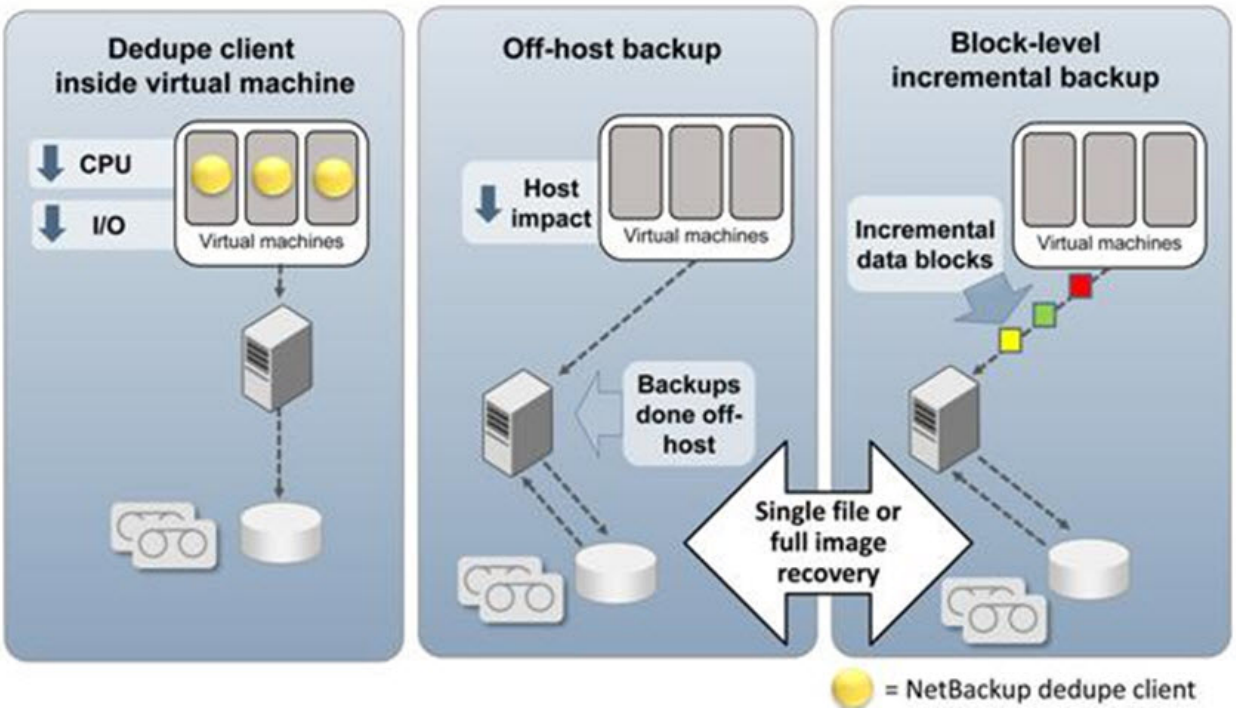

Figure 2: NetBackup Virtual Machine Protection

Benefits of NetBackup virtual machine protection

Shorten backup windows: File level incremental backups of Hyper-V and VMware virtual machines are now possible with NetBackup 7. Incremental backups are far faster and more efficient than full backups as they copy less data.

Reduce storage requirements: With the NBU 7 built-in deduplication technology you can now efficiently deduplicate Hyper-V and VMware backups. Leveraging deduplication technology makes backups faster, reduces resource impact on virtual infrastructure, and reduces overall storage utilization.

Transaction consistent backups of databases: The NetBackup client deduplication feature helps achieve transaction consistent backups of complex databases such as Microsoft® Exchange, SQL, and Oracle®.

Low impact off-host backups: NetBackup 7 supports off-host backups for both Hyper-V and VMware environments. The off-host backup option offers a low impact alternative to client based backups.

Flexible restores: Single file restores are the most commonly requested type of restore. However, virtual machine administrators need to be prepared for virtual machine disaster recoveries as well. NetBackup 7 can restore either an individual file or the entire virtual machine from a single backup pass.

Comprehensive hypervisor support: Within a single backup application, NetBackup 7 provides complete support for Hyper-V and VMware environments. There is no need to purchase and maintain separate applications to protect different hypervisors.

Centralized management and reporting via OpsCenter and OpsCenter Analytics

As data grows, backup and archive operations are becoming increasingly complex, and customers are finding it difficult to centrally manage backups. This often creates operational overhead for the IT staff. Added to data growth and complexity are government regulations and corporate governance projects that force backup and archive administrators to prove backup and archive service-level compliance. Another challenge is that backup and archive operations typically run as "silos" that have little or no alignment with business needs or understanding of how much backup recovery and archive operations cost the business.

NetBackup 7 includes a new offering--NetBackup OpsCenter. OpsCenter is the monitoring, reporting, and administrative solution designed to centrally manage one or more NetBackup installations from a web browser. OpsCenter replaces NetBackup Operations Manager and Veritas™ Backup Reporter from Symantec by combining the features and capabilities of both products into a single product of significant improvement in performance and usability. OpsCenter is available in two options: OpsCenter and OpsCenter Analytics.

OpsCenter is included in the core NetBackup product and gives you the ability to monitor, alert, and do operational reporting on NetBackup, Symantec Enterprise Vault™, Symantec Backup Exec™, and NetBackup PureDisk. OpsCenter server is part of NetBackup and can be deployed on master servers for managing a single domain, or independently for managing multiple NetBackup domains. It also allows you to do management tasks such as “upping” tape drives, restarting failed jobs, freezing/unfreezing, and other tape functions, restarting services/daemons, etc.

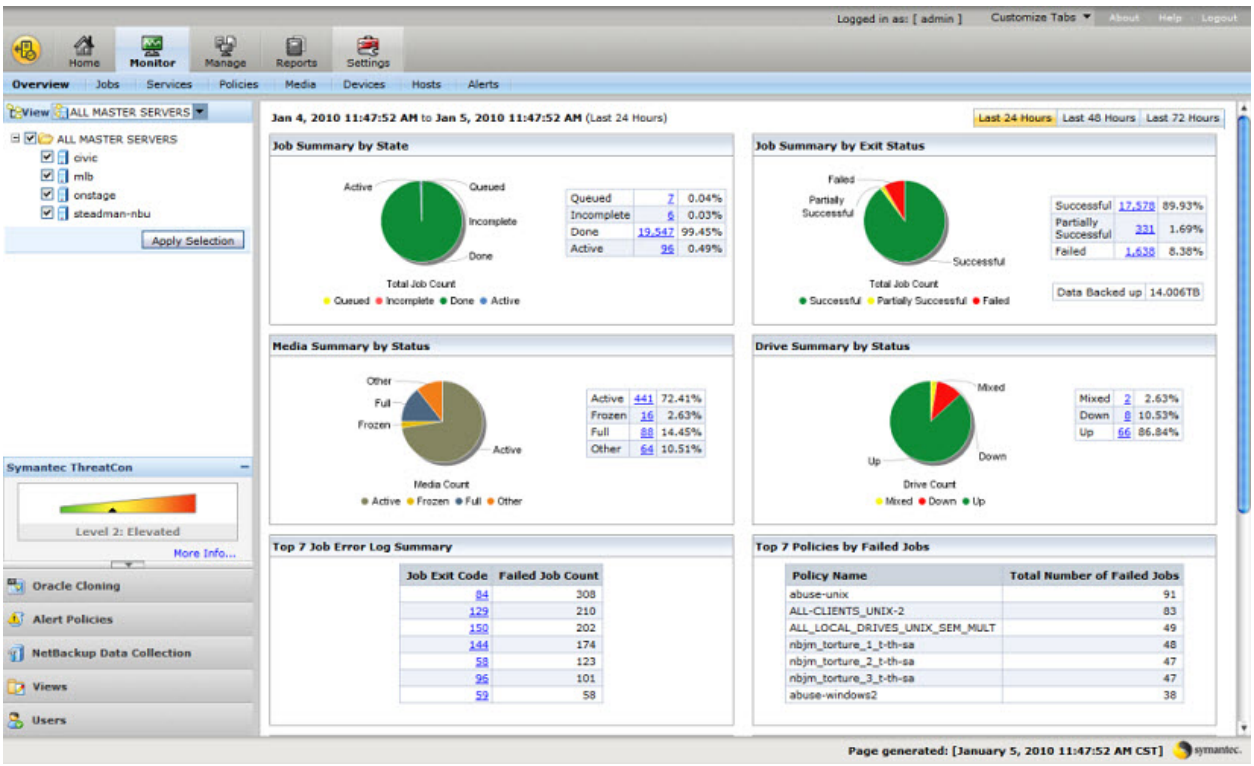

Fig 3: NetBackup OpsCenter

OpsCenter Analytics is a licensed option that is unlocked with a key. This gives the customer the ability to display customizable, multi-level views of backup and archive resources and customizable reports for tracking service usage and expenditures. It also contains tools defining cost metrics and chargeback formulas, handling alerts, and reporting beyond 60 days.

OpsCenter Analytics can also provide reports on the following third-party products in addition to those covered by OpsCenter:

- EMC® Legato Networker
- IBM® Tivoli Storage Manager

Benefits of NetBackup OpsCenter and OpsCenter Analytics

Reporting across heterogeneous backup and archive applications: Centralize and normalize reporting across disparate backup and archive environments.

Reporting on Microsoft Exchange archiving from Enterprise Vault: Multi-site capability for Enterprise Vault reporting across all archiving deployments.

Long-term data retention for trending and analysis: Better predict backup and archiving storage consumption by looking at your growth rates over time. Whether you need to analyze your trends year over year, or even further back, you can do so with the wealth of data OpsCenter Analytics retains with a configurable time range.

Analyze risk and quantify exposure: Assess recoverability of business critical clients and applications.

Verify Compliance: Verify compliance with internal and external business-level regulations.

Perform business-context reporting: Tailor content to your intended audience by line of business, geography, or application.

Advanced disaster recovery

With the stringent data recovery SLAs that enterprises must meet today, IT organizations are looking to find better ways to protect against data loss and improve recovery times for critical applications while also creating disaster recovery plans that they are confident in. Recent advances in both storage and backup technologies have incrementally improved the performance and ease of local backup and recovery, as well as longer-distance disaster recovery; but despite these advances, many organizations struggle to use them since they come from multiple products and multiple vendors, making them complex and expensive. Many of these critical applications use methods such as array-based snapshots with replication in combination with backups to tape and deduplicated disk. Businesses need a solution that allows them to combine all of these techniques and improve service levels without increasing complexity or cost in the data center.

NBU 7 offers two new options in terms of disaster recovery:

1. **Built-in replication of deduplicated backup data:** NetBackup provides the means to electronically replicate data securely over the WAN and manage it centrally from the NetBackup graphical user interface (GUI). Bandwidth and back-end storage are optimized because only unique data is replicated.
2. **Live block-level replication:** NetBackup RealTime provides live block-level asynchronous or synchronous replication with NetBackup. NetBackup Realtime also offers the option of replicating NetBackup catalog data at no additional cost.

The replication options allow customers to implement a completely tapeless data protection strategy. However, if tape storage is needed, data can be migrated to a tape device at the DR location.

Other notable features in NetBackup 7

1. **Support for New Windows platforms and applications:** NetBackup 7 offers full support for Windows 2008 R2 and Exchange 2010.
2. **Simplified deployment (Windows platform):** Parallel client install to multiple clients and the ability to import client list from a file are featured.
3. **Simplified security deployment:** Run commands once only on the master server. There is no additional setup required at media server or clients.
4. **LiveUpdate improvements:** LiveUpdate configuration can now be done at any time. The user also has the option of specifying multiple LiveUpdate servers.

Conclusion

It is clear that the historical approaches of data protection are not likely to meet the demands of the next generation data centers. In order to solve the problem of data growth, and to meet the aggressive SLAs laid down by regulatory mandates, organizations will continue to adopt new technologies such as disk based data protection, deduplication, virtualization, snapshots, and replication. Adoption of new technologies is bound to increase complexity, and therefore organizations need a comprehensive, yet integrated approach to data protection.

With native deduplication, effective protection for virtual machines, advanced disaster recovery options, and a unified management interface, NetBackup 7 from Symantec is best positioned to solve the data protection challenges of the next generation data centers.

NetBackup's hardware agnostic nature and scalable architecture helps meet the data protection needs of the largest enterprise environment while still allowing customers to keep the costs down by leveraging commodity hardware of their choice.

About Symantec

Symantec is a global leader in providing security, storage and systems management solutions to help consumers and organizations secure and manage their information-driven world. Our software and services protect against more risks at more points, more completely and efficiently, enabling confidence wherever information is used or stored.

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