

Virtual Tape Support from Neartek — A Multi-Host Connection for the Enterprise

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Management Summary

Is there anything as sure in our lives as death and taxes? We go to enough doctors and take enough pills to try to beat The Grim Reaper. Some of us will even try to eat healthy just to stay around for a few more years. However, not even Ponce de Leon could figure out how to win that one. When it comes to taxes, citizens everywhere try to be more inventive. Individuals face a variety of tax forms, from the simplest filing of a 1040EZ, to more complicated submissions involving a 1040, a Schedule A, and a Schedule B, along with the mandatory W2. There is a letter and a number for everyone. The average adult can no longer keep up with the annual changes. We seek assistance. This assistance arrives from a variety of software applications, such as *TurboTax*, and personal services companies, such as H&R Block, to try to minimize the tax that we must pay. We select the solution based upon the complexity of the return and the cost to prepare. Enterprises must consider the same variables when they set about the even more involved task of filing their taxes. Additional forms and schedules simply add to the complexity. There is an entire network of Accountants, Certified Public Accountants, and Accounting Firms to provide the services needed, each competent in specific fields and specialties. For large enterprises, we have major accounting firms to handle all of the intricacies of complex filings.

For these large enterprises, however, the certainties are not death and taxes, they are Taxes and Backup – for as we have seen, enterprises must pay taxes and they certainly must do backups – daily, weekly, monthly, quarterly, etc. IT departments everywhere have hundreds and sometimes thousands of open systems servers with data that needs to be protected. There are SAN servers, NAS servers with databases, and file systems that need to be able to recover from a loss. Several software vendors provide virtual backup services for Windows and UNIX servers. Many of these work in heterogeneous environments as well as homogeneous ones. In fact, some of these solutions allow an IBM AS/400 (iSeries) into the mix. **However, there are few alternatives for a legacy mid-range or mainframe to share the backup and recovery resources, such as tape libraries and drives.**

If you have a pure IBM environment, IBM or STK will be happy to provide the solution. However, where do you turn if, in addition to an IBM *S/390* or *zSeries*, you have a Unisys *IX*, HP *NonStop* or *e3000* mainframe, or if you have a Groupe Bull *GCOS8* host in the mix? Neartek has announced that kind of solution. To find out about Neartek's *Virtual Storage Engine*, please read on.

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Managing the Existing Environment

Due to the ever-expanding nature of the IT industry, most enterprises are implementing more diverse computer networks than ever before. We have system architectures that include a greater mix of mainframes, midrange platforms and open systems servers than ever before. They co-exist in the same environment (data center) but on barely speaking terms. Each with its own infrastructure: networks, arrays, and libraries, in an extremely data-centric world. (See Exhibit 1.) **The implementation of storage networks, both SAN and NAS, enables the sharing of information between homogeneous and heterogeneous servers, however, the existence of legacy platforms and legacy applications do not always lend themselves to cooperation and sharing between server architectures.**

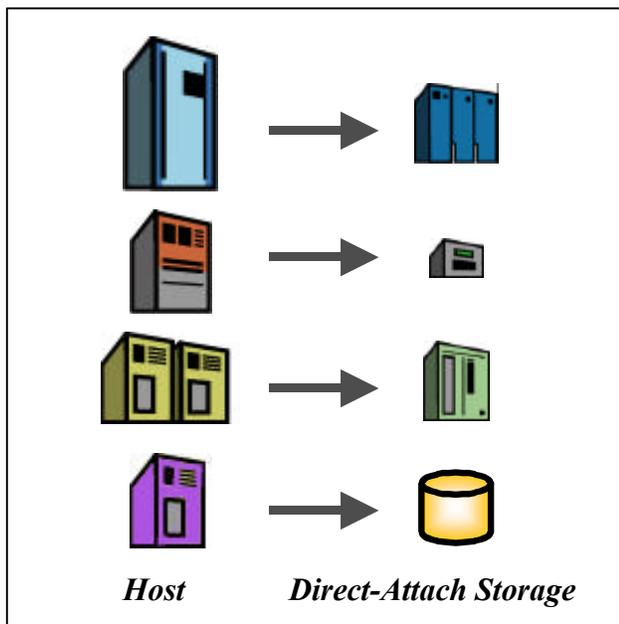


Exhibit 1 – Distributed Tape-only and Disk-only Strategies.

Each application that IT adds to the mix, regardless of platform, increases the volume and complexity of managing that data, especially with data growing at almost 50% per year. Moreover, the intrusion of state, federal, and industry regulations guarantees that the management of that data will

become more difficult and more critical to the continuing existence of the enterprise. One such application, the backup and recovery of data, has become a most difficult and expensive problem for the CIO to manage, especially with the amount of data stored on tape approaching 10 times that stored on disk. Each environment may have its own backup infrastructure, including I/O protocols and disk and tape architecture, in terms of not only devices, but also media. Furthermore, each environment may have its own technical staff to manage its fiefdom. Expanding staffs and expanding payrolls are not always consistent with the shrinking budgets of the IT organization, how about, **never** consistent with those goals! Instead of managing costs, the open systems servers implemented to save money end up increasing the storage costs. The CFO may simply be moving funds from one emergency to another.

Every attempt, so far, to consolidate these diverse storage environments has failed due to the incompatibilities between them. However, that does not mean that you should give up hope. **A consolidated configuration is critical to managing the costs associated with standard backup/recovery processes, not to mention the cost of disaster recovery.** (See Exhibit 2, on next page.) Without a strategic backup process, costs may continue to rise to the point that you are out of business.

Many Enterprises really need a consolidated solution, one that will interface with diverse legacy platforms as well as mission-critical open systems servers. They need a solution that will enable the sharing of a single storage environment between all of its processing resources. It needs a storage software solution that will help organizations to consolidate its data storage in order to improve the efficiencies of tape operations, reduce the tape infrastructure costs, enable common media and improve productivity. The question is: *from where?* If you have a homogeneous IBM environment, then IBM or STK will be more than happy to talk to you as a captive audience. **However, even if you are “all blue”, you**

may be looking for a more open solution, or you may have other legacy products installed and you may need to find that more open answer.

Another option has surfaced from Neartek. Founded in France a decade ago, Neartek was responsible for the development of the first heterogeneous tape virtualization product, *VSE* for *Virtual Storage Engine*, in 1996. Since relocating to the U.S. in 2002, Neartek has announced the second generation of its *Virtual Storage Engine*, *VSE2*, to **provide cost-effective, mainframe class tape storage solutions for heterogeneous environments including mainframe hosts, midrange systems, and open systems servers.**

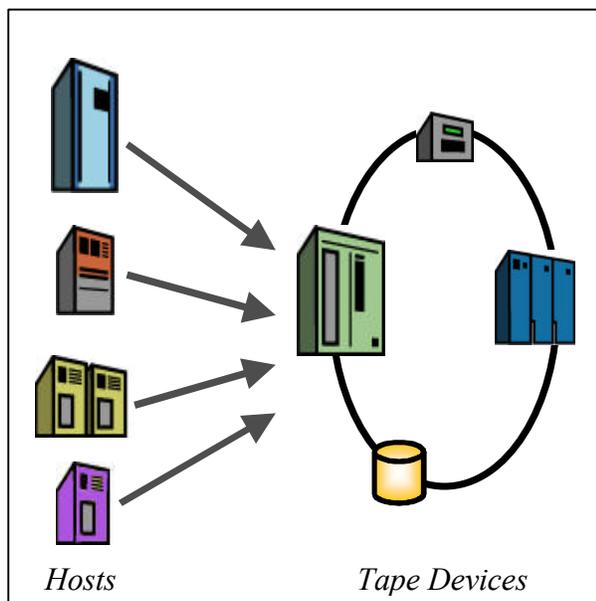


Exhibit 2 - Consolidation

What is Tape Virtualization?

As storage architectures evolve from traditional point to point relationships (Exhibiy 1.) into storage-centric solutions, such as SAN and NAS, opportunities are created for greater flexibility in the manner in which the data is used and managed. Not the least of which are the economies created by storage consolidation (Exhibit 2.), and the reliability achieved. **With tape virtualization, all of the systems served by the**

virtualization server acquire a logical view of storage, independent of the physical devices, enabling the introduction of new storage technologies. This, in turn, enables the IT organization to deliver price/performance gains without affecting the heterogeneous hosts.

How does tape virtualization work? Basically, **it inserts a software layer that enables different hardware and software architectures to work together.** It allows a host to access a logical tape drive, on a disk cache, that is independent of the physical device that actually contains the data. It enables the stacking of multiple logical volumes onto a single physical tape, thus reducing media costs by improving tape density. It permits data written to cache disks to be transferred to tape asynchronously. A classic example of this is the backup/restore process where virtualized staging to disk and then tape allows the server to resume mission-critical application processing more quickly, thus reducing the length of the backup window, while ensuring business continuity. This eliminates two significant areas of contention: writing data to tape and restoring from that medium.

Tape virtualization provides a buffer between the server and the tape device that makes the type of media transparent to the host. It enables the data center staff to create mirrored drives, or even a Redundant Array of Independent Tapes, to provide security against data loss due to a damaged media, thus improving reliability. **Tape virtualization allows IT organizations to add storage and to reassign existing storage without impact on any of the host software.**

Neartek's Virtual Storage Engine 2 Solution

VSE2 is a software-only tape virtualization solution that runs on Windows platforms and interfaces with proprietary as well as commodity servers to manage a variety of disk and tape devices via a single point of control. It provides the data center

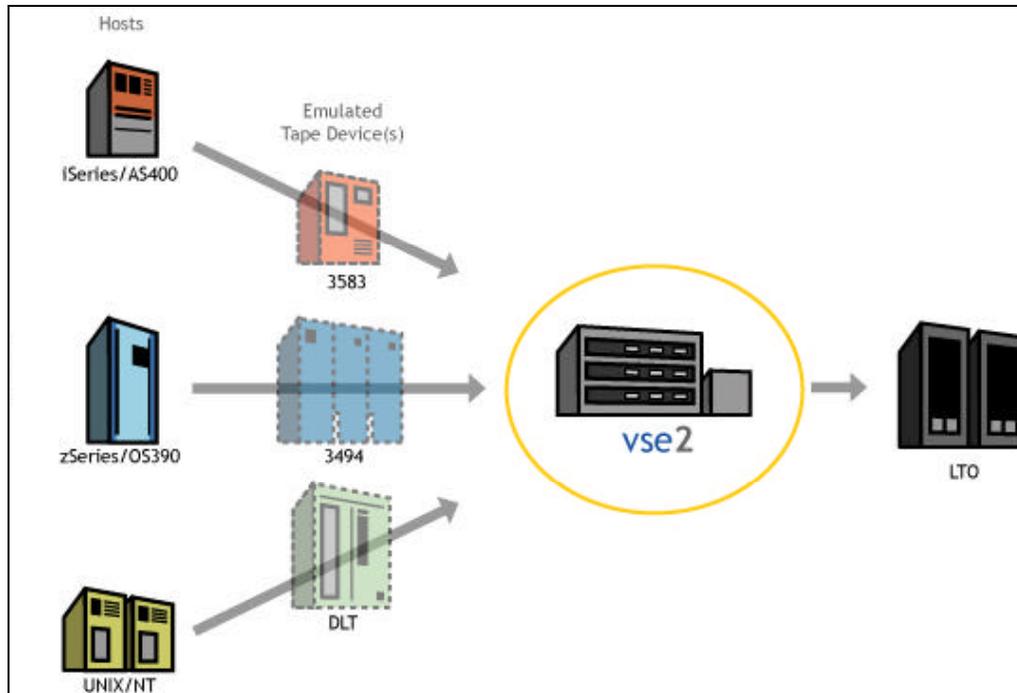


Exhibit 3 – VSE2 – How It Works

with a high-performance virtual tape environment for backup, recovery, and archiving. As such, it supports all popular backup software application. Introduced in 1994 to support the tape virtualization requirements for Group Bull's GCOS mainframes, VSE2 is the only virtual tape solution that is independent of host, storage, and backup software applications and is highly scalable. As such, VSE2 is attractive for enterprises that operate in a heterogeneous environment that includes mainframes as well as open systems servers (see Exhibit 3, above) and demand 7x24 availability.

VSE2 consists of two components, a Controller and one or more Logical Transfer Units (LTU), which run on one or more Windows servers. Controller functions are:

- Interpreting commands from the host to mount and dismount media;
- Managing media to allow for capacity planning and mapping the relationship between virtual and physical drives.

The tools provided for configuration and management can include rules for policy-based management.

The LTU manages all data transfers from the various hosts to the proprietary and commodity storage devices managed by VSE2. The functions of the LTU include:

- Managing the physical interface between host and peripherals;
- Emulating tape drives and libraries; and
- Managing the physical data transfer from host to peripherals, including the disk.

Due to the scalable nature of its architecture, VSE2 may employ more than one LTU. As more hosts or peripherals are needed, additional LTUs may be configured. In fact, several LTUs may manage a single data path, if redundancy is required.

The recent announcement of the availability of Tributary Systems' *Virtual Tape Solution*, powered by VSE2, as a turnkey solution on the Hewlett-Packard (HP) *Non-Stop* server is an example of the heterogeneous capabilities of VSE2. HP customers with transaction-intensive environments and legacy tape storage infrastructure can reduce costs (see Exhibit 4 on

**Exhibit 4 –
HP Non-Stop Cost Reductions**

- Tape hardware and management cost through consolidation;
- Media costs and off-site storage costs;
- Operator intervention and operational overhead;
- Saving time through performance improvements; and
- Access to newer, more efficient technologies.

above) and improve tape capacity, performance, and fault tolerance for backup, restore, archiving and Transaction Management Facility audit trail operations with Virtual Tape Solution.

Summary

As we look at the benefits of VSE2, the importance of host and storage independence is foremost. **To be able to include your legacy mainframe in your storage environment is key.** The ability to consolidate your storage environment, protecting your existing investment, is critical to reducing your device and media costs. This does not discount the importance of performance enhancements which are key to reducing the backup window and restoring mission-critical applications to the fore. As data continues to grow, the challenge to implement cost-effective solutions to address backup and recovery grows. **The flexibility and scalability of VSE2 appear to be the proven tools required to maintain business continuity in any heterogeneous environment, even if you don't have a mainframe.**



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