

HP Virtual TapeServer

Frequently asked questions



What is HP Virtual TapeServer (VTS)?

HP Virtual TapeServer (VTS) is an appliance that combines traditional tape backup methodology with low-cost disk technology to create an enhanced backup and recovery solution. It is an intelligent disk-based library that emulates traditional tape devices and tape formats. Because HP VTS appears to a NonStop server as though it were a tape drive or an automated cartridge loader (ACL) with the performance of modern disk drives, data is deposited onto disk drives just as it would be onto a tape drive—only many times faster.

The HP VTS appliance is designed for enterprise-wide backup, restore, NonStop Transaction Management Facility (NonStop TMF), and disaster recovery activities.

Does HP VTS include server hardware and disk storage?

Each HP VTS solution includes an Intel® processor-based server or an Intel processor compatible server and the HP VTS middleware. Depending on the HP VTS model chosen (three different models are available), disk storage space for backup information may or may not be included. While each HP VTS can include disk storage, most models also offer connectivity to external disk resources, including those that are connected across a SAN network.

Can I install HP VTS on an Intel processor-based server that I already own?

No. Each HP VTS includes a dedicated server platform. For maintainability purposes, standard servers have been chosen and parts are stocked to maintain those servers 24 hours per day, seven days a week. The field service organization has also been trained on how to maintain these specific servers.

How important is the Intel processor speed in determining HP VTS performance?

Surprisingly, processor speed is not as important as you might think. The gating item for performance is commonly the hosts attached to HP VTS or the backup software running on the host.

Does HP VTS replace the need to back up data to physical tape?

It depends on the organization and application. Many organizations are subject to legal and regulatory requirements to retain a “nonvolatile” copy of their data on media, such as tape. However, your backup data may be different from the archived data that is subject to regulatory requirements. HP VTS writes (backs up) data to disk. The advantages of writing data to disk are increased performance and reduced costs; however in the event that a restore is needed, a file or data can be reloaded from disk, which is significantly faster than tape. However, a disk-based backup copy may not meet regulatory compliance requirements, and an archive copy (tape-media based) may be required in addition to the HP VTS-based copy. If an archive copy on physical tape media is required, it can be “exported” or “migrated” from HP VTS to physical tape in a manner that is bit-for-bit compatible with the native host format. Furthermore, this physical copy is created without involvement of the host(s).

What kind of cost savings can I expect to realize by using HP VTS?

HP VTS provides significant performance advantages over physical tape for both backup and restore. If backup window overruns become a recurring problem, the savings can be monumental. If current tape operations consume significant media daily, HP VTS can reduce physical tape media usage by 90 percent or more—thus producing a significant savings. For example, if you are using 18 or 36 track drives with autoloaders and are using operators to load and unload cartridges, HP VTS can eliminate the need for manual loading and unloading. With “tape stacking” (exporting multiple jobs to a single physical tape), HP VTS can increase tape utilization.

Consider common backup applications such as NonStop TMF audit trails, where 100 GB tapes are used for “small” backups. These backups are quite commonly 2 GB or less. HP VTS uses the full tape capacity, placing fifty 2 GB audit trails per 100 GB cartridge, dramatically reducing media acquisition costs. By reducing the amount of tape media generated, stored, and archived at a disaster recovery site, HP VTS can free up square footage dedicated to tape storage and reduce or eliminate offsite storage costs.

What IT benefits does HP VTS typically provide?

HP VTS benefits include

- Improved performance in backup and, perhaps, more importantly, on restore
- Consolidation and sharing of physical resources
- Centralized management
- Lower operating expenses
- True scalability and investment protection
- Streamlining of resources, including hardware, media, and personnel
- Reduction in data center space required for hardware and media

Can HP VTS improve audit trails and online dump performance?

Yes. Backing up audit trails and online dumps to virtual tape drives is faster than using physical tape media or even disk drives for this process. If only a single audit trail can be written to a single physical tape, a significant percentage of the physical tape media will be unused, thereby increasing costs. For instance, if your audits are 2 GB in size and you are writing to a 20 GB tape, only 10 percent of the tape is being utilized. If there are six audits per day, the total data written is 12 GB, which is spread across six tapes. In reality, the data could fit on one tape. Instead, HP VTS writes the data to six 2 GB virtual tapes without wasting any space. Furthermore, audit trails typically have short retention cycles and are left

onsite. Therefore, writing them to removable media is not typically an automated or efficient process.

Can you explain how HP VTS saves host CPU cycles?

The use of RAID storage as a backup medium in HP VTS typically allows backup operations to run faster and to complete sooner. Once the backup to VTS is complete, the host is no longer involved in the operations, which frees up cycles for use by other applications. VTS then archives or migrates that data to physical tape without host intervention or knowledge, saving expensive host CPU cycles that would otherwise be used to archive data to tape.

What is the middleware component in HP VTS?

The application portion of HP VTS middleware is written in C and includes a Web-enabled portion for ease of management. The underlying operating system is Linux. The function of the middleware is to emulate one or more tape drives. This robust tape emulation includes accepting and responding to host commands as would be the case with a tape drive, as well as emulating various tape operations such as a recycling autoloader, sequential or random loading, pooling, multiple drives, and multiple tapes of disparate capacities.

Why is Linux used for the HP VTS operating system?

HP conducted an exhaustive study of possible operating systems. HP chose a Linux operating system because of its robustness and breadth of support for communications interfaces and command sets. Unlike other operating systems such as Microsoft® Windows®, Linux seldom requires routine security or process updates, which contributes to the robustness and stability of product.

Does HP VTS come in a “rack-mountable” enclosure or a tabletop format?

HP VTS appliances are designed to be installed in standard Euro DIN specification enclosures (19-inch wide racks). A 19-inch rack is not included with the system. Users can utilize an existing 19-inch enclosure, but it should provide at least 30 inches of front-to-back depth. Rail kits for the server are included and use nonthreaded type inserts.

Proper location of HP VTS should be based on the proximity of both the host server and any external storage devices (disk or tape). For hosts connected via SCSI, the HP VTS should be located as close to the host as possible, given that the maximum SCSI cable length is 82 ft (25 m). For Fibre Channel-attached hosts, the HP VTS supports shortwave Fibre Channel lengths of up to 310 yd (500 m).

I currently export tapes for disaster recovery purposes. Can I use HP VTS instead?

Tape has traditionally been used for disaster recovery, even though it is difficult to manage, expensive to store and transport, and slow to restore from. HP VTS can certainly perform the function of creating tapes for disaster recovery. However, in addition, the HP VTS supports a snapshot and synchronization facility called Instant/DR. Instant/DR allows multiple HP VTS systems to communicate with each other over standard communications infrastructures. With Instant/DR, there is no need to use physical tapes for disaster recovery. Because your data is already at your disaster recovery site, you can conduct your disaster recovery process remotely.

Instant/DR actually consists of two types of data replication that is usable for disaster recovery called AutoCopy and Instant/DR. Each method essentially transfers replicated copies of an entire file or specific file data in order to create and maintain identical copies of backup data at one or more locations; however, each of them has a different use and value.

Which HP NonStop servers support HP VTS?

HP VTS supports all HP Integrity NonStop NS-series, S-series, and K-series servers. Because HP VTS supports multiple series of HP NonStop servers, HP VTS has proven to be a powerful migration tool for users upgrading to new server types.

How does HP VTS attach to HP NonStop hosts?

HP VTS attaches directly to NonStop controllers via SCSI or fiber-optic cable, as do physical tape drives. When connecting to NonStop servers the preferred connections are IOMF, SNDA, PMF (for S-series servers), and RFC 3216 (for K-series servers), and FCSA (for NS-series servers). Maximum SCSI cable lengths between a NonStop server and HP VTS are limited to 82 ft (25 m) in length. Fibre Channel cable lengths for connecting to the Integrity NonStop servers is limited to 262 ft (80 m).

Besides the HP NonStop server, what other systems can attach to HP VTS?

HP VTS is designed to support any form of open systems, such as Windows- and UNIX®-based operating systems and their associated tape facilities and management systems. HP VTS can also support Unisys MCP systems. However, there are an infinite number of combinations and variables for which it is impossible to account. So, while HP VTS supports open systems attachment, HP is only supporting open systems if they are a part of a total solution that centers on the HP NonStop platform.

Storage FAQs

Is disk storage secure for HP NonStop backup?

Yes. Using RAID-protected disk storage for backup is a very secure medium, which is why it is a popular emerging standard in many operating environments. HP VTS is designed to work with standard open systems disk storage subsystems, but the highest protection is offered by using fault-tolerant RAID systems as the storage medium. Fault tolerant is usually defined as RAID 1 (mirroring) or RAID 5 (parity-based RAID), or RAID 0+1 (striped and mirrored). Disk arrays that support hot-swappable drives and the self-healing of replaced disks are highly recommended. As a result of the fault tolerance and self-healing characteristics, RAID storage offers superior data protection and is more secure than tape storage.

It is also important to note that tape has been traditionally used as a backup medium because it stands as a relatively inexpensive form of removable media, not because it is more secure than disk. Tapes wear out and are subject to environmental stress. If a tape gets dropped or mishandled, it can become unusable.

How much disk storage do I need for HP VTS?

The amount of disk storage required is based on two factors: how much data you are backing up (gigabytes or terabytes) and how long you want to retain that backup information on disk (retention period). For example, if you plan to back up 100 GB of data daily, perform seven backups per week, and retain all of these data sets on HP VTS disk storage for four weeks, you would need 2.8 TB of disk storage (100 GB/day x 7 backups/week x 4 weeks).

Disk requirements can be reduced by exporting or migrating data with longer retention cycles from HP VTS to physical tape, which is performed offline from the hosts. HP also offers an optional Data Compression feature that can effectively reduce the amount of disk storage capacity required.

Can I use existing or generally available RAID or SAN resources for HP VTS storage?

Yes. HP VTS supports industry-standard RAID and SAN environments from HP, EMC, IBM, and many other vendors. While we do not anticipate any difficulty with standard SAN or RAID environments, it is not possible to test every model produced by every vendor for compliance. Known and tested devices include HP StorageWorks Modular Smart Array 60 and 1000 (MSA60 and MSA1000), HP StorageWorks XP disk arrays, HP EVA, EMC CLARiiON, EMC Symmetrix, HDS 9xx0, IBM ESS, and IBM Fast-T.

What is HP VTS Data Compression and what can I expect it to do for me?

HP VTS Data Compression is an optional software module based on the Lempel-Ziv standard. When installed, the data compression feature compresses data from the host “on the fly” to more efficiently utilize disk storage devices. Testing has shown compression ratios as high as 7:1 and as low as 1.2:1. A 2:1 compression ratio means that the amount of disk storage utilized is cut in half—effectively doubling storage capacity for compressed data. A safe estimate for compression is to use a 2:1 ratio, but most customers experience a higher compression ratio. As an added benefit, disk array utilization typically decreases because less data is written after the data is passed through the compression algorithm.

HP recommends using the MSA1000 for external storage with HP VTS. Does the MSA1000 come with redundant controllers for failover?

The MSA1000 can support redundant controllers. The base model of HP VTS does not include the redundant controller, but it can be purchased as an option through HP. Normal operating mode is one controller Active and the second controller Standby. If the Active controller fails, the redundant controller comes online and has access to shared cache and can resume processing.

Tape backup and management FAQs

What is the difference between HP VTS virtual tape drives and physical tape drives?

HP VTS appears to any host as a typical tape drive. The HP VTS middleware emulates one or more tape drives and writes backup data to disk in tape format. Block data is written as if it were being written to physical tape, adding a small amount of metadata. The resulting data is in the same format as if it had been written to physical tape media and can be restored exactly as if it had been written to tape. However, disk is far more responsive than tape, so its performance is much higher. This is particularly true for restore operations in which the HP VTS metadata provides almost instant data availability. The HP VTS can read or write as fast as the host system will allow.

Which tape drive emulations does HP VTS support?

For HP NonStop servers, HP VTS supports 519x and 5257 emulations, which are the most common tape drives. For open systems, the default is DLT emulation. These emulations allow HP VTS to appear as these tape devices back to the attached host(s).

What is a VTS virtual tape drive?

A virtual tape drive is a software abstraction of a physical tape drive. Virtual tape drives appear to the hosts as a physical tape drive and function in exactly the same way as tape drives but with enhanced performance and functionality.

How many virtual tape drives can be defined in HP VTS for host attachment?

There is no physical limit. You can define as many virtual tape drives as needed. Each HP VTS supports between four and 20 virtual tape drives. HP VTS is scalable so that multiple HP

VTS appliances can be linked together to provide an unlimited number of virtual tape drives, creating a fault-tolerant enterprise solution.

What is an HP VTS virtual tape cartridge?

Virtual tape drives require virtual tape media and HP VTS allows for the creation of an unlimited number of virtual tape cartridges. Virtual tape cartridges appear to the host as physical tape media and are used in the same manner, except that a virtual tape cartridge is not of any specific length. A virtual tape cartridge contains only the data written to it (plus some metadata) with no wasted space. For example, assume you have a 100 GB physical (real) piece of tape media that has 5 GB of data written to it. In this example, 95 GB of the storage space on that piece of media isn't being used (only 5 percent utilized). In this same example, if 5 GB of data were to be written to a virtual tape cartridge on HP VTS, the virtual tape cartridge would be 5 GB in size (100 percent utilized). Each virtual tape cartridge also contains a small amount of metadata, which is typically no larger than 27 MB per virtual tape cartridge.

How many virtual tape cartridges can I define in an HP VTS system?

There is no physical limit to the number of virtual tape cartridges that can be defined. The number of virtual tape cartridges available is constrained only by the amount of disk storage space that is available (i.e., new virtual tape cartridges cannot be created once you run out of disk space).

What is an HP VTS tape pool or "pooling"?

Virtual tape cartridges are placed into virtual pools, which are the equivalent of a set of tapes for a physical tape drive or a magazine of physical tape cartridges in an ACL. Pooling allows virtual tape operations to be automated, which is the automatic loading and unloading of virtual tape cartridges. The difference is that a physical (real) magazine has a physical limit to the number of cartridges that it can hold, while a virtual tape pool can contain as many virtual tape cartridges as necessary for any given application.

What is an HP VTS vault?

Virtual pools are organized into vaults, which correspond to areas of the disk array that are configured according to specific user needs. Most commonly, vaults are the entire disk array, but this is not always the case. Defining several vaults might be a convenient way to separate data for different applications or different users. Because multiple disk arrays can be attached to an HP VTS, you can define multiple vaults at your convenience.

Can multiple HP VTS systems share vaults simultaneously?

Yes. HP VTS supports the Global File System (GFS) feature. Using GFS, three or more HP VTS systems can be clustered together to share disk resources. In this manner, any host can access any vault, provided that it has the permission to do so.

Does HP VTS offer similar functionality to a tape autoloader or library?

Yes. HP VTS uses an intuitive graphical user interface (GUI) to manage virtual tape drives and virtual tape cartridges. These may be pooled together to create virtual autoloaders and libraries. There is no limit to the number of virtual tape cartridges that can be assigned to an autoloader or a library. HP VTS allows tape automation with both sequential access (autoloader mode) and random access (library mode) operations. Supported modes include both a traditional autoloader mode and an enhanced "recycling" mode. This unique functionality allows for truly hands-free operation in which virtual tape cartridges are loaded

and unloaded sequentially by reloading the first cartridge after the last cartridge is unloaded. In random access mode, HP VTS may be set up to perform like a “virtual silo,” responding to EMS mount messages and completely automating the process.

What is the difference between an HP VTS autoloader and a recycling autoloader?

Virtual pools can be defined as an autoloader. Virtual tape cartridges are loaded sequentially from first to last just as they are with a physical autoloader (ACL). By specifying the Recycling Autoloader mode, HP VTS will cycle back to the first virtual tape cartridge after the last virtual tape cartridge in the autoloader has been unloaded.

Can HP VTS create or export physical tapes?

Yes. HP VTS offers simple export and migrate features, where the data on virtual tape cartridges is essentially copied to physical tape. Using the export feature, virtual tape cartridges are bit-for-bit identical to tapes created natively on the host. Tapes exported from HP VTS can be restored directly to any host running the same operating system, whether or not another HP VTS is present.

A great advantage of the HP VTS export feature is the potential performance improvement. HP VTS can stream data to tape drives at their fully-rated speed. Because the operation is performed “offline,” there is no host involvement or overhead involved in the process.

The migrate feature utilizes a backup management application (BMA) to write physical tapes to tape libraries using an automatic policy from the BMA. Using the migrate feature enables users to integrate HP VTS into an existing tape management scenario and helps to consolidate tape management and reduce tape usage.

For export, which physical tape drives does HP VTS support?

HP VTS can attach to any HP NonStop or open systems tape drive, as long as it has a standard SCSI or Fibre Channel interface.

For migrate, which physical tape drives does HP VTS support?

HP VTS can attach to any tape drive that has a standard SCSI or Fibre Channel interface, as long as it is supported by the BMA that is being used. For a listing of the supported tape drives, please refer to the Interoperability or Compatibility Matrix from your independent software vendor (ISV).

Can HP VTS import physical tapes?

Yes. HP VTS allows users to import data from physical tape. Generally, the tape that will be imported is inserted into a tape drive connected to an HP VTS. Using the HP VTS GUI, the operator selects the tape drive and imports the data into a virtual tape cartridge under the control of HP VTS.

What is “tape stacking”?

Tape stacking is the process by which numerous virtual tape cartridges can be consolidated and written onto a single physical tape cartridge. Stacking increases tape media utilization by filling up tape media more effectively, thereby decreasing total media investment. However, while HP VTS supports the stacking of virtual cartridges on a single physical tape, this feature may or may not be natively supported on the host operating system. For NonStop Open System Services (OSS) users, restoring the cartridge as a native tape is supported. Users without OSS environments will need to restore these tapes to HP VTS prior to restoring

the data to a NonStop server. While this process may sound cumbersome, the efficiencies of HP VTS actually make the process fast and seamless.

If HP VTS is SAN attached to a physical tape device, can multiple hosts share access to that device?

Yes. By simply attaching any SAN-enabled tape drive or library directly to HP VTS via one of the Fibre Channel ports, the tape device can be dynamically shared by one or more of the attached hosts (even if they are of different type and operating system).

Do I need to change tape management software, labeling processes, or conventions to use HP VTS?

No. HP VTS is completely compatible with existing software, utilities, and practices. While HP VTS reduces the amount of effort and management required for data protection and security, it does not increase complexity or require process change by the user. Your BMA will view HP VTS as a tape drive or library, and, although data will be written to disk rather than to physical tape, operations will be unchanged.

Can VTS work with an ACSLS-controlled library such as a StorageTek silo?

Yes. The HP VTS can manage an ACSLS-controlled physical tape library or silo. A statement of work (SOW) engagement with HP Services is required for installation and configuration of the feature.

Disaster recovery FAQs

What is HP VTS Instant/DR and AutoCopy?

Instant/DR and AutoCopy are both included as part of the HP VTS software module called Instant/DR, which can be used to create and maintain identical copies of backup data on physical RAID storage at one or more facilities. If a catastrophic event takes place at one or more facilities, the surviving facility (or facilities) can quickly restore its copy of backup data to a surviving host or disaster recovery system.

Instant/DR uses Byte Level Synchronization with a delta difference engine that effectively isolates byte-level changes in the data set and synchronizes these changes between the local and remote HP VTS. Instant/DR operates in a batch mode that can be scheduled to execute when desired.

AutoCopy is an on-demand feature that replicates data to the remote HP VTS immediately after a backup is completed. Unlike Instant/DR, AutoCopy does not compare data, it simply replaces the existing data with the new data from the source HP VTS.

In the event of a disaster recovery, operations can begin immediately and take place remotely because the data is already there and available. While Instant/DR does not provide instant online capabilities (like active-active business continuity solutions), it does provide a prompt and cost-effective solution for useable recovery of critical business data to a live system.

You can choose to use Instant/DR, AutoCopy, or a combination of both to provide a disaster recovery solution that best fits your needs.

Can Instant/DR and AutoCopy be implemented locally (at the same site) or remotely, and which interconnect topologies do they support?

Instant/DR and AutoCopy can be deployed locally in the same data center, in a campus, or remotely to any location worldwide where the appropriate interconnect topology is available. Ethernet networking protocols are used to connect multiple HP VTS systems together. Moving

outside of a business campus requires the use of a wide area network (WAN). The WAN link speed depends on many factors, including distance and cost. A successful Instant/DR or AutoCopy installation requires an interconnect that is robust enough to not impact performance. Therefore, an important variable to consider is the bandwidth available with the connection versus the amount of data required to move between sites.

Do Instant/Dr and AutoCopy negate the need to send tapes to an offsite provider such as Iron Mountain?

It depends. Instant/DR and AutoCopy respond to the need to provide cost-effective backup data copies remotely. They typically provide a faster time to recovery than remotely stored tapes, which take time to be gathered and delivered to a remote site.

Implementing Instant/DR and AutoCopy and maintaining copies of backup data remotely can provide a cost-effective way of navigating through a catastrophic disaster—depending on the survival of the data. If the disaster recovery site is located in the same geographic area as the primary data center, it can be affected by the disaster as well. If the disaster recovery site is remote, which is recommended, the chance that a single disaster will affect both sites is low, potentially relieving the need for storing tapes offsite.

What are the differences between HP VTS Instant/DR or AutoCopy and HP NonStop Remote Database Facility (NonStop RDF) software?

HP NonStop RDF software provides an always-identical version of a NonStop SQL database at a remote location. The data resides on internal disk resources on both the local and remote HP NonStop servers. Data is usually backed up to physical tape as well. NonStop RDF software provides the fastest possible way of recovering a database for use, as it is always online and is always available to the user application. It is a costly business continuation strategy due to the expense of duplicate servers, duplicate storage resources, and the high-speed communications facilities necessary for prompt operation.

HP VTS Instant/DR and AutoCopy are not an online business continuation strategy. They do, however, provide a new and extremely efficient approach to disaster recovery. Instant/DR stores block-level (tape format) data on physical RAID disk at one or more alternate facilities and allows this data to be restored to disk on a live system very quickly. HP VTS Instant/DR does not require the full-time use of an expensive broadband data link, as it only creates a full backup once and then makes updates with only the changed data (not the entire file) on a daily basis. AutoCopy only utilizes the broadband link after a specified backup completes keeping network usage low. Therefore, while they do not provide instant online and available databases on disk, Instant/DR and AutoCopy can quickly allow the useable recovery of critical-business data to a live system.

Administration and operation FAQs

How long does it take to install HP VTS?

The most important phase of the installation process is the preparation stage. To prepare a site for installation, develop a plan, have sufficient power, assign the IP addresses, obtain Ethernet cables, connect SCSI or Fibre Channel cables from the host to the HP VTS, and have a keyboard and monitor available for configuring the system. If this is done in advance, basic installation can typically be done in a matter of hours. After the installation is complete, the installer then provides training on how to use the system to complete the installation process. Configuring optional modules such as EMS Mounts and Locks, ACSLS Library support, and Instant/DR or AutoCopy requires additional time.

How does an administrator manage HP VTS?

HP VTS is managed through an intuitive and integrated Web browser. The browser presents drop-down menus and help instructions on most pages. This subject is covered in detail in the *HP VTS Operations and Administration Guide* (HP part number 529509-006). Typically, once the HP VTS is installed and configured, there is no need to routinely access the GUI or administer the systems, because operations can be automated.

Do I need Linux experience to administer HP VTS?

No. Linux experience is not necessary to use or maintain HP VTS. Because HP VTS is an appliance-level product, administration of the operating system and server is not necessary, as would be the case if it were a typical application server.

Can I expect to receive either periodic operating system or HP VTS updates?

HP will provide normal administrative updates as part of scheduled releases, relieving our users of typical administrative functions. The HP VTS administrator will apply these updates using the HP VTS GUI.

Does operating an HP VTS look different to a tape operator who is used to physical operations?

No. If properly configured, HP VTS is transparent to operations staff (other than not having to deal with physical tape media). Most NonStop users use Mediacom or DSM/TC and HP VTS EMS Mounts and Locks to automate the process. Without Mediacom/EMS Mounts, an operator would need to use the HP VTS GUI to mount and otherwise control the backup process.

Does HP VTS integrate and work with Mediacom or DSM/TC?

Yes. EMS Mounts and Locks is an optional facility within HP VTS that is configured during installation. EMS Mounts and Locks software monitors any mount requests generated by the NonStop server. When a mount request is detected, the HP VTS middleware checks to see whether the requested virtual cartridge resides on RAID storage. If it does, that virtual cartridge is mounted on the device name specified by the mount command. The backup process then proceeds.

Can HP VTS be integrated into my enterprise-wide backup management application (BMA)?

Yes. HP VTS is designed to be integrated into standard enterprise backup management systems such as Legato, NetBackup, Tivoli, and many others. HP VTS allows NonStop server backups to be managed by a centralized backup and recover strategy that is consistently administered throughout an organization. In addition, there are enhanced integration features that provide communication between HP VTS and the BMA to allow for triggered and automated events.

Is HP VTS designed to work in a lights-out environment?

Yes. Local administration is not generally required. All operational and management activities can be performed and monitored remotely through the GUI. HP VTS can be ideal for lights-out operations using the Integrated Lights-Out (iLO) port on the back of all current HP VTS systems.

What are the warranty, service, and support options for HP VTS?

There are two components of HP VTS; each has its own warranty. The middleware is warranted by HP for a period of three months. Software Maintenance Agreements are available (through HP) following the initial three-month period. The hardware warranty is passed along per HP's policies; Hardware Maintenance Agreements are available.

What "best practices" are recommended for HP VTS operations?

The following best practices are recommended:

- Using consistent naming conventions on HP VTS and HP NonStop servers to avoid confusion
- Using names with a maximum of 32 characters for Web browser display when creating libraries
- Limiting virtual tape libraries to fewer than 50 virtual tape cartridges
- Collapsing libraries when they are not in use
- Checking that no cartridge is mounted on the HP Virtual Tape Drive when starting an HP NonStop tape device
- Taking process priorities into account; backup is set to 20 by default (the range is 1 to 190; 190 is highest)
- Considering all processes that will be running and apportion jobs correspondingly
- Keeping in mind that block size 52 has proven to be the most efficient
- Making backup copies of the HP VTS database and configuration files

Who do I contact for more information about HP VTS?

HP VTS products are available directly from HP on a worldwide basis and are profiled on the HP Web site at: <http://h20223.www2.hp.com/NonStopComputing/cache/106249-0-0-225-121.aspx>

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June 2007

Document available in electronic format only.

