

# KEY TAPE STRATEGIES:

THE DECISIONS THAT CAN STOP  
THE ENDLESS MIGRATION TREADMILL

SONY®

**M**igration from legacy tape formats such as DDS is inevitable. But regardless of company size, a successful migration needs to be *well-planned and well-managed*. Find out how Sony AIT tape-based solutions can help your company get off the data-migration treadmill, *lower costs*, and address future business requirements more effectively.

More people today are using computers and other digital devices than ever before. In the home, single personal computers are blossoming into networks to share peripherals, files, and applications. Meanwhile, at the workplace, more and more data is being created, viewed, and manipulated to quench management's thirst for actionable business information. Coupled with the meteoric rise in the amount of digital content, such as images and audio to enhance presentations, even e-mail servers are bursting at the seams.

For some enterprises, government regulations such as HIPAA (the Health Insurance Portability and Accountability Act of 1996) are driving the need to keep data and records available for longer periods of time, perhaps in perpetuity. For other firms, it's just easier to add more disk storage to allow users to keep information available rather than make the effort to "scrub" old data from disk storage systems when it is no longer useful.

The fact is that, according to analysts, a typical enterprise's data storage requirements will grow between 70 percent and 100 percent per year. And soon, the basic configuration of a personal computer will include 100GB of storage—more than mainframe computers of just a decade ago. This is enabled by the dramatic decline in the price of disk storage, which is well under a penny a megabyte for most commodity disks today.

So no matter how big or small the IT environment, one thing is certain: there will be more storage to maintain tomorrow than today.

## **BUSINESS CONTINUITY THROUGH DATA SECURITY**

As the amount of data that a company generates increases, so does the problem of keeping it available. Since disk drives are inherently mechanical—with motors and disk arms constantly in motion—there is a high probability that the more disks your company deploys, the more likely it is that one or more of these devices will fail.

The problem of data security is compounded by both malicious and accidental events. These types of occurrences can include hackers trying to compromise your Web site and/or data; power outages that can corrupt disks entirely; or operator error, such as if an employee accidentally uses older files to back up and overwrites newer



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files in the process.

The desire to improve data security has driven many enterprises to create mirrored copies of their active data on another set of disk drives or on a storage area network (SAN). However, in effect, this doubles the amount of disk storage in use. Consequently, the effort required to manage and maintain the active storage systems increases exponentially.

Businesses require a degree of certainty that they will have access to their data when that data is needed. Indeed, data availability is top of mind for corporations today when mapping out a disaster-recovery strategy, since a disaster could render an entire data center—and possibly the business—inoperable.

Availability is also a key factor of a business continuity plan. Such a plan must be able to detail how a failure will be handled no matter where it occurs in an operating IT environment—through fault of hardware, software, or operator error.

As a result, secure offline storage is now business critical. In most businesses and IT shops today, the use of tape-based solutions for offline or off-site storage is considered a best practice.

## **THE IMPERATIVE FOR TAPE**

There are many business benefits that can be realized by the use of offline and near-line storage. First, businesses become more agile when they can always reach critical data quickly. Whether it's the ability to retrieve a backup copy needed due to data loss, or the ability to access archival data such as previous years' sales figures to

perform comparisons and analyses of trends and performance, having saved data only a tape cartridge away can make an enormous difference.

From a cost-control perspective, using tape for offline storage keeps storage costs from spiraling out of control as data volume grows. This is because tapes are inherently more compact than equivalent disk storage, and they require no power or cooling to maintain data integrity until used, so they can save valuable storage real estate as well.

Most importantly, if a copy of an enterprise's data is maintained safely in a location other than the primary data center, then that company is in control of continued business operations. It is not at the mercy of a hardware or software failure due to any factor, including human errors.

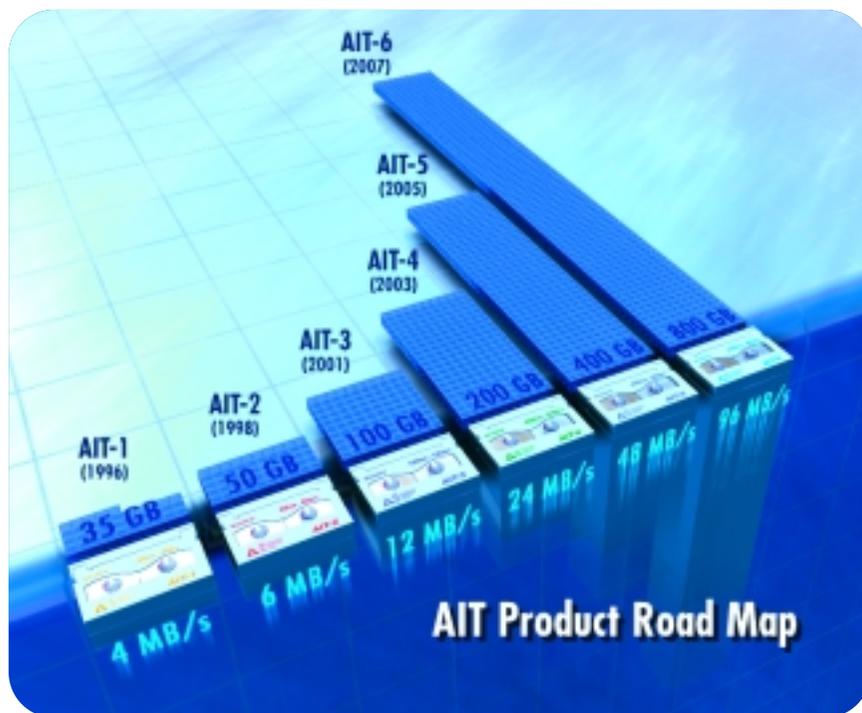
## **CHOOSING THE RIGHT TAPE SOLUTION**

Regardless of company size, there are some key factors that should be considered when determining the choice of tape format as part of a plan for offline storage management. These factors include:

- **Scalability.** Can the solution handle both small departmental or remote office as well as enterprise needs through automation solutions based on the same technology as simple tape drives? Or will multiple types of tape be required to support the needs and cost targets for the entire enterprise? Dealing with multiple tape formats and drive types can add expense in terms of the equipment, media, and training costs associated with supporting all the formats in use within an enterprise.
- **Performance.** Will the solution be fast enough (in terms of transfer rate) to safely back up all required data on a periodic basis within the allotted time (backup window) that is available for that purpose? Unlimited capacity of a tape system doesn't matter if there isn't enough time in the day to back up mission-critical information without affecting operations of key application software. Performance is also an important factor to consider when evaluating your

company's business continuity strategy, since time to restore is a critical component to a successful continuance plan.

- **Reliability.** Will the solution actually work when needed? Backup is easy, but the restore process can be a nightmare. Is the tape designed for longevity, to ensure that data is properly recorded and will have a shelf life that can support access years later, if needed? Does the MTBF (mean time between failure) of the tape drive mechanism allow worry-free deployment, even at the high duty-cycle rates required by ever-shrinking backup windows and incremental backup requirements?
- **Compatibility.** Will the solution support the variety of platforms, operating systems, and databases that a typical corporation uses today? Will it support physical connectivity to the various systems (either directly attached or via a network), and is software available to allow mainframe, UNIX, Windows, and Linux servers and workstations to read from and write to the type of tape in question?
- **Flexibility.** Does the solution provide for a variety of different capacities, performance levels, and automation capabilities to support growth and changing business requirements? If so, can tapes from the different-capacity drives be utilized in newer generations of tape



drives without reformatting or migrating data to that newer generation?

- **Archival.** Does the tape format allow the creation of tapes that cannot be altered or overwritten? Regulatory or accounting applications that call for archival of data may require guarantees that information recorded for

these purposes cannot be changed either accidentally or maliciously.

- **Cost effectiveness.** Does the solution offer competitive products that won't break the IT budget? Is the cost of the media per gigabyte of stored data competitive, as well as the cost of the drive itself?

## AIT CUSTOMER FOCUS: NORTHWEST HOSPITAL

Northwest Hospital, located in Seattle, Wash., is a 230-bed community hospital with a staff of over 2,500. This not-for-profit facility is a recognized national leader in the fields of brain, breast, and prostate cancers, neurological disorders, and cardiology. Northwest is also known for its state-of-the-art rehabilitation therapy treatments.

Backup and recovery in a patient-care environment is exceptionally critical, since lost data can cause havoc and result in delayed medical decisions. "When you're responsible for the records of patients and the facility, you have a fiduciary responsibility to safeguard that data," noted Matt Plitnik, network administrator at Northwest Hospital. "We were aware that our previous backup system had holes and all data wasn't being protected. In order to protect our valuable information assets,

we needed to implement an improved backup system."

Now, every night, the hospital's critical server data is backed up to the centralized Sony AIT library solution, which replaced 30 individual DLTtape-based server backups. The new system assures tighter administrative control for the protection and archiving of confidential patient records and hospital files.

Magnetic tape, with its low cost high capacities, has long been the preferred medium for file backup by IT administrators. After initial investigations, Plitnik again found Sony to be the price-performance leader with tape solutions that are superior to other options. For sites with high-capacity requirements, Sony's AIT-3 technology offers storage capacity up to 100GB native, or 260GB compressed, per cartridge. This is nearly double the capacity of the individual

DLTtape™ cartridges Northwest Hospital was previously using.

Indeed, the benefits of AIT-3 were immediately apparent to Plitnik: "The Sony libraries ... have enabled us to reduce total backup time from over 60 hours to 27.5 hours. We've been able to reduce the number of tapes to haul offsite from 25 per night to four. We've consolidated our backup jobs, have a single point of management for all backup issues, eliminated failed backup jobs due to missed tape changes, and eliminated downtime in production servers due to backup device hardware failures."

"In other words," he continued, "we've successfully treated our storage shortfall by moving away from splintered, individual server-based backup and recovery to a true enterprise backup and recovery solution."

- **Longevity.** Does the solution have a roadmap to protect your company's investment against future obsolescence? Will the capacity of the chosen format have the ability to keep up with the expected 70 percent to 100 percent growth rate of disk storage in most enterprises? Choosing a tape drive based on technology that is near the end of its life can force not only an unplanned and unwanted tape drive upgrade, but also the migration of all archived data to a new format to ensure availability in the future.

## WHY MIGRATE NOW?

For a large number of IT shops, the Digital Data Storage (DDS) tape format—developed by Sony in cooperation with Hewlett-Packard—has been the tape format of choice, and with good reason. It has been the ideal format for direct-attached applications such as backing up PCs, workstations, and servers, where the capacity has

*So the time is coming—or has already come—for many companies to develop a migration strategy to move from DDS to another, newer format.*

matched the need and the cost was low. In fact, millions of DDS tapes are sold each year for many applications worldwide.

Users are finding, however, that DDS's utility is reaching its limits. First, DDS is not well suited to automation applications. Second, as DDS is reaching the end of its upgrade path, the format no longer can support the incredible and sustained growth in the amount of data that needs to be backed up and archived within a corporation today. According to Computer Technology Review, "The need for DDS replacement is likely as disk capacities and speeds become greater. Eventually, the need to get more on one cartridge will tax DDS beyond the breaking point."

So the time is coming—or has already come—for many companies to develop a migration strategy to move from DDS to another, newer format. Whether the decision is driven strictly by capacity and speed, or by the need to move up to a tape-automation solution that frees up employee resources used to change tapes manually during backup, the evaluation process is largely the same.

More than one IT manager has become frustrated when trying to access data archived in an older tape format. They quickly realize that even if they did have the tape drive hardware still available, a change in the software used to back up the data means that the data on the old tape

## AIT UNDER THE HOOD: TECHNICAL ADVANTAGES OVER COMPETITIVE FORMATS

Sony AIT technology has many advantages over competing tape formats. Chief among these advantages are:

- **Small Form Factor with High Capacity.** The AIT format was developed to handle the capacity requirements of data-intensive applications in a compact 3.5-inch drive form factor, making it an efficient, cost-effective storage solution that saves valuable IT real estate. As advances in recording technology are released into the market, AIT's capacity will continue to increase, reaching over 1TB per cartridge in the years to come.
- **Helical-Scan Technology Increases Recording Density and Reliability.** Unlike the linear serpentine recording technology used by DLTtape and LTO drives, the Sony AIT drive employs a helical-scan recording style in which data tracks are written at an angle relative to the edge of the tape. This provides higher-density recording, enabling Sony customers to lower media expenditures and increase efficiency by storing more data on a smaller amount of tape. Helical-scan recording also reduces the need to rewind

the tape cartridge as frequently, thus reducing wear-and-tear and increasing reliability.

- **Memory-in-Cassette (MIC) Architecture Enables Fast Access to Data.** MIC technology puts information about the contents and capacity of the tape in a non-volatile memory chip embedded in the tape cassette itself. Using this information, the tape drive can position the tape at high speed to write or read data in an accelerated manner. A typical load operation, for example, can be completed in half the time—10 seconds with MIC technology, compared to about 20 seconds without MIC. And unload operations, which can take up to 27 seconds with other tape formats, are reduced to 17 seconds with AIT's MIC technology. MIC also doubles search speed from 225MB per second to 450MBps, resulting in faster reads and writes overall.
- **Advanced Metal Evaporated (AME) Media Provides Increased Reliability and Capacity.** AME media represents the culmination of over 50 years of Sony innovation and experience in magnetic tape technology. Supporting higher

recording density than other types of tape media, AME also reduces buildup of debris and static electricity, further extending the useful life and reducing the chance of recording errors when using AIT tape.

- **Superior Reliability Ensures Long Drive and Media Life.** AIT drives feature a patented HyperMetal<sup>™</sup> laminated head technology, which uses unique geometry for reduced head/media pressure and provides over 50,000 hours of head life. In addition, Sony's unique tape tension-control system senses and controls tension fluctuations to reduce tape and head wear, and maintains tape tension at less than one-half that of competing technologies. Combined with Sony's cooling design and Active Head Cleaner which automates cleaning and keeps heads in an optimum condition, the result is an industry-leading mean time before failure (MTBF) of up to 400,000 hours.



Advanced  
Intelligent  
Tape

can no longer be read.

What can be done to get off this migration treadmill? The Advanced Intelligent Tape™ (AIT) format, designed and manufactured by Sony, offers a way to jump off the tape migration treadmill for good.

## BUSINESS BENEFITS OF AIT TECHNOLOGY

There are many reasons why Sony AIT tape is the ideal solution for a business' offline storage needs. First among them is scalability. There are robust AIT tape solutions for every company, regardless of size. Although every application and IT shop is unique, the inherent scalability of the AIT tape format, first introduced in 1996, provides a variety of capacities and performance levels as well as a proven roadmap. So AIT solutions can support even the smallest departmental or home office installations, all the way up to the largest multi-petabyte data centers with AIT-based automation solutions.

Business continuity is a key imperative for most enterprises' IT organizations. AIT-based solutions support every level of business continuity from simple server backups to multi-terabyte automation solutions for mirrored server backup at remote hot sites.

The first generation of AIT (AIT-1) drives supported capacities of 25GB. Today, AIT-1 drives support up to 35GB, and the third-generation AIT-3 format can store up to 100GB uncompressed on each shirt-



pocket-sized 8mm cartridge. Future versions of AIT technology on the Sony roadmap ensure that when IT managers choose AIT as the format for their tape requirements, they can feel comfortable that their investment will be protected. These versions include AIT-4, due next year, which supports 200GB native capacity; through AIT-6 due in 2007, with a capacity of 800GB and a transfer rate of 96MB per second. Given the constant increase in storage requirements faced by most corporations today (due to company growth, deployment of new applications, and the need for longer archival periods), choosing a vendor that has a roadmap for the future is imperative.

According to David Liff, Regional Vice

President of Brand Management for Computer Associates of Islandia, N.Y., "DDS had a long roadmap, but especially for those users who understand the benefits of the compactness of AIT's cassettes and tape drives, the logical extension is AIT." CA's BrightStor storage management products compliment Sony's AIT technology.

Another key benefit of standardizing on AIT technology is compatibility between generations: Any AIT-1 or AIT-2 tape can be read from and written to on an AIT-3 drive. This feature means that even when an increase in disk storage capacity demands an upgrade to faster, higher-capacity drives on the AIT roadmap, every single AIT tape created using a previous-generation drive will still be accessible—and can be re-written as well, if so desired.

When combined with tape-automation solutions from Sony and its partners such as ADIC, Overland Data, Qualstar, and SpectraLogic, AIT technology can handle virtually any backup and archival requirement. Therefore, your company can standardize on a single, common tape format from department to enterprise, thus lowering the total cost of ownership and easing the management burden of dealing with multiple tape formats throughout the business. And not only does a company-wide AIT deployment lower TCO, the initial purchase price of AIT drives is competitive with the DDS drives that they can easily replace. Moreover, with media prices for tapes currently at about \$1.00 per

## AIT TOTAL COST OF OWNERSHIP: PLANNING FOR LONG-TERM SAVINGS

How much can you save by migrating to AIT? Here are some factors that you should consider when planning your tape migration strategy:

- **Manpower costs.** An AIT-based automation solution can deliver big returns on personnel costs associated with running backup or restore operations. Allowing an automation solution to perform tape changes can save on the \$100,000 per year (including benefits) that the average IT employee charged with changing tapes costs. These costs can add up quickly for corporations that perform backups in limited timeframes after hours, when overtime costs may apply. With automation solutions starting at under \$3,000, the

payback can be significant.

- **Real estate costs.** Since AIT tape cassettes are only 40 percent of the size of competing formats such as DLTape and LTO, you can realize an immediate 60 percent savings in the cost of real estate required to store your growing tape archive. Since many offsite storage services also charge for square footage, the savings can be dramatic, especially in high-rent areas where space is already at a premium.
- **Power and cooling.** The average AIT tape drive consumes approximately 50 percent less power than similar-

capacity DLTape or LTO drives, and generates less heat as well. Since power and cooling costs are on an upward spiral, the operating cost advantages can be significant.

- **Cost of waiting.** With the amount of storage installed nearly doubling each year for most enterprises, the 10TB of disk storage you need to migrate today will increase eightfold to 80TB in just three years! The sooner you migrate to AIT, the less expensive and difficult it will be to move all that data to a new format, possibly saving tens of thousands of dollars—or more.

To download a TCO calculator that you can use to gauge the potential benefits of AIT for your business, visit us online at [www.storagebysony.com/tco](http://www.storagebysony.com/tco).

gigabyte uncompressed, an overall AIT implementation can be quite cost-effective. When you factor in the higher compression levels that AIT technology supports (up to 2.6X), and the reduced cleaning and maintenance requirements of AIT tape cartridges and helical-scan tape mechanisms (which offer longer read/write head and media lifetimes), AIT technology is a real data security value.

With this well-defined growth path for the AIT format in place, companies can plan for their data center and automation backup requirements knowing what kind of capacity and performance they can expect from future generations of tape solutions, without the fear of “orphaning” any of their valuable archival information. When and if a decision is made to upgrade from one AIT drive version to the

next, older drives can be redeployed in other departments or locations—even in home offices—thereby keeping the integrity of a single tape format throughout the organization.

But most importantly, a defined roadmap with a single, backward-compatible format means that never again will IT have to spend countless hours migrating existing recorded tapes onto another format. This eliminates the problems of dealing with obsolete tape drives and laborious manual operations; relieves the worries associated with finding software to read and write tapes from previous generations of drives; and assuages the fears associated with maintaining the integrity of important archival data during the transfer process from one format to another.

## LOWERING COSTS WITH AIT

Over time, most of the space requirements for a tape-backup system will be comprised of the recorded tapes—not the tape drives or library system. AIT offers the advantage of compact 8mm cassettes that can fit in a shirt pocket. And thanks to the use of helical-scan technology, which packs more data per inch than other recording methods, a 100GB AIT-3 tape offers about the same capacity as LTO or SuperDLT tapes.

Yet amazingly, AIT tapes are only 40 percent the size of other competing formats. With compression, that capacity more than doubles to 260GB, or over a quarter of a terabyte on a single tape. When future generations such as AIT-4 are introduced, the physical size of the tape cassette will remain the same, allowing your business to

## AIT TAPE AUTOMATION SOLUTIONS: DELIVERING RELIABILITY, SCALABILITY, AND INVESTMENT PROTECTION

If one factor is certain in business today, it's that change will happen. For most corporations, effectively dealing with changing business needs when it comes to technology purchase decision-making can be a daunting task. For instance, most enterprises know that their business continuance strategies must include long-term solutions for the storage, quick retrieval, and archival needs of an ever-increasing amount of critical data. Not surprisingly, they are turning to tape automation solutions to meet these needs.

When it comes to automation, however, are all solutions created equal? Many companies have found that automation solutions based on Sony's AIT technology ably exceed their business expectations.

### ENABLING SPEED AND RELIABILITY

The Survivors of the Shoah Visual History Foundation, established by Steven Spielberg in 1994, has videotaped the testimonies of more than 50,000 Holocaust survivors and witnesses in 57 countries in 32 languages. Today, the Shoah Foundation's mission is to overcome prejudice, intolerance, and bigotry through the educa-

tional use of its visual history testimonies. With an archive of more than 180 terabytes and growing, the foundation needed a powerful technology to build an infrastructure that would allow instant access and ultimate reliability. One solution met all the Shoah Foundation's requirements: AIT.

The Shoah Foundation is using an ADIC AIT automated library to archive survivor and witness stories and provide worldwide access to them. AIT technology delivers unsurpassed data storage density to minimize space requirements, and access to the archived testimonies at a fast and efficient throughput rate. Using AIT, the Foundation can ensure that its educational message will be delivered reliably to anyone, anywhere.

### DELIVERING SUPERIOR SCALABILITY

BYU-Idaho is an independent sister campus of Brigham Young University. When server manager Kort Black charted the university's storage growth for the past several years, he discovered that the amount of data needing to be backed up had essentially doubled each year: from less than 10GB in 1995, to more than 600GB in 2001. With 1.2TB projected for 2002, Black

convinced the institution to purchase an enterprise-class tape library.

In evaluating capabilities it wanted in a highly scalable tape library, Black's team began at the core—the drives and media. The group looked at automated tape libraries designed to use AIT drives and media. For sheer capacity and scalability, an obvious choice was the Spectra Logic Gator 64000. Scalable up to 640 slots and 32 tape drives, the 64000 offers 64TB native and 166.4 compressed capacity using AIT-3 cartridges.

Sony's blueprint for future generations of AIT gave Black confidence that the purchase of the Spectra Logic 64000 in early 2001 would be its last tape library purchase for eight years. “We factored in Sony's ability to live up to its blueprint for development. AIT-2 came out when they said it would. So did AIT-3,” he explained. “If the next generations follow as planned, we can maintain a six-week retention period without running out of space on the 64000 until 2009.”

As these installations show, automation solutions based on AIT technology deliver the reliability, speed of access, scalability, high capacity, and long-term investment protection that business demands today.

plan for effective use of precious real estate even as the amount of data stored on the tapes continues to increase over time.

The savings in real estate are even more evident in the data center itself. Within these environments (which can cost in excess of \$300 per square foot per month in a hosting facility), rack space is at a premium. The expense is further amplified by required cooling and power-redundancy systems. According to CA's Liff, "If physical density is important, then AIT is the format of choice."

AIT drives are a compact, half-height 3.5-inch form factor, currently the smallest in the storage industry. And for enterprises whose needs demand rack-mount automation systems, those based on Sony's AIT format offer libraries that occupy only 1U or 2U of rack space, which leaves plenty of room in the rack for servers, disk storage, and UPS systems. Current AIT-3-based automation solutions support capacities over 30TB per square foot of floor space—and with a transfer rate of over a terabyte per hour, even the most demanding and mission-critical tape applications and environments can be supported.

Along with the smaller form factor comes lower power consumption, which



again can act to lower the total cost of ownership over the life of the AIT tape drive. For remote or departmental applications, the ability to contain all of the IT infrastructure within a single rack—including tape automation—can ease both the real estate and administrative burdens shouldered by dispersed enterprises.

AIT technology's speed can also help a business to lower costs by enabling faster media loads and data restores. Every AIT tape uses a Memory-In-Cassette (MIC) chip to help keep track of what data is recorded where on each tape. This unique feature allows much faster media loading, and allows the tape to be positioned where the data is located before reading begins, eliminating much of the "shoe-shining" that occurs when tapes have to be read from end

to end to find a specific file or database.

This capability translates to faster restores: In some cases, media load time can be four times faster than competing technologies such as DLTape. In retrieval-intensive applications such as image banks, customer account record access, or reference material access, these seconds can make the difference between frustrated users and satisfied customers. And in a disaster-recovery situation, the ability to retrieve data quickly is crucial to continued healthy business operations.

AIT may also make it unnecessary to maintain other types of storage devices. For instance, for some applications, data must be archived in an unalterable format—without fear of it being modified or overwritten—due to regulatory or auditing requirements. This task has often been performed by expensive optical WORM (write once, read many) disk or tape systems designed specifically for the purpose. "Customers like to standardize on as few types of technologies as possible, and AIT supports installations from a single server up to larger enterprises, which reduces overhead expense," noted CA's Liff.

Sony plans to shortly introduce WORM functionality, which will be inherent to the

## AIT TECHNOLOGY MIGRATION CHECKLIST

Migration to any new tape format can be a daunting task. When planning your AIT technology migration, here are a few points to keep in mind to ensure a smooth transition.

- Determine capacity and performance level (AIT-1, AIT-2, AIT-3) based on the disk storage involved. Take into account data center and satellite offices, which may have differing requirements. AIT drives offer the ability to read and write any generation tape on higher-generation tape drives, so you can pick and choose the performance level you need while maintaining interoperability and backward compatibility throughout the enterprise.
- Plan for automation now. As data center capacity increases, a backup job handled today with manual tape changes may exceed your staff's ability to complete a job during business hours, or divert IT staff from business-critical issues. If you need

automation within the year, better to invest now and save manpower and management time. With AIT technology, you can provide automation in as little as 1U of rack space.

- Choose an automation level that provides growth in the space constraints of your data center. Rack-mounted autoloaders now dominate the tape automation market. If your storage growth warrants, plan now for library systems which can support multi-petabyte environments.
- Choose your backup software vendor to ensure that tapes written at one site can be read at another. When possible, utilize common tape-management software throughout the enterprise for ease of management and to allow maximum data transportability.
- Develop or update a best-practices plan for backup and tape management. With disaster recovery and business continuity as business

priorities, it's important to ensure that backups are stored off-site in case primary storage becomes unavailable. Consider use of a service that will pick up and drop off generations of backups to ensure viability of your data.

- Test your restore capability on a regular basis. It's best to know what you'll need to do in case of data loss. Although restore may never be necessary, if it is, you'll be ready to act, not react.
- Migrate your old archives to AIT cartridges if you're concerned about the longevity of your former tape format. It will conserve space in the data center, as both the AIT tape drives and cassettes are smaller than most other formats, and you won't have to maintain older equipment and potentially obsolete software to access archival data. This one-time effort will pay for itself the first time you need access to the old archives.

AIT-3 drive. When used with special AIT WORM cassettes, any AIT-3 drive or library system allows an enterprise to create tapes that contain a permanent record of the required data without the need for any other special hardware or software. This capability not only increases the usefulness of the AIT system, but can also lower costs over time, since fewer devices will need to be serviced by IT.

### **MIGRATION PLANNING**

When planning to migrate from DDS or other tape formats, your company should first review its application needs to determine the impact of moving to a new tape format. Prioritizing goals expected to be achieved from the migration—whether it's driven by obsolescence of the existing format, required increase in capacity, need to automate tape processes, or to lower the total cost of tape ownership and management—will help decide what path to



*No matter if the application is a single-server tape drive with a view to future tape automation, or a large data center struggling with growth and management issues, there is an AIT solution that can help.*

take when making the leap from one format to another.

Your business must also consider whether to migrate existing archives to the new format. There is risk involved with keeping old-format tapes, however—if your organization changes backup software, for instance, it may lose the ability to read old tapes.

Physical and environmental issues will become more important over time, so you

should take into account the amount of space that will be required to store recorded tapes as the amount of archived data grows. Understanding the capacities of future generations of the chosen tape format can help alleviate these worries and allow proper planning for storage, both on-site as well as off-site where storage costs are more visible.

Once technical staffs understand the major issues to focus on for tape migration,

they can develop effective strategies that anticipate future needs and growth.

No matter if the application is a single-server tape drive with a view to future tape automation, or a large data center struggling with growth and management issues, there is an AIT solution that can help. With AIT technology, your company can relieve the stress of change today, and safely scale to accommodate future business needs as well. □

## **RESOURCES**

### **[www.storagebysony.com](http://www.storagebysony.com)**

For more information on AIT tape-based solutions—including AIT tape autoloaders, drives, and StorStation® AIT libraries—visit us online at [www.storagebysony.com](http://www.storagebysony.com). Here, you can find comprehensive product information, technical details and competitive comparisons for each generation of AIT tape, as well as FAQs that will help you determine which solution is right for your business.

### **[www.mediabysony.com](http://www.mediabysony.com)**

To learn more about Sony data media, visit [www.mediabysony.com](http://www.mediabysony.com). At this site, you can join the Sony Storage Rewards Program, which allows you to earn points each time you purchase qualifying Sony data media products, including AIT tape. Points earned can be redeemed for consumer electronics devices, recording media, and more.

### **[www.aittape.com](http://www.aittape.com)**

To learn more about Advanced Intelligent Tape, visit the AIT Technology Forum Web site at [www.aittape.com](http://www.aittape.com). Here, you can download a number of different whitepapers on AIT tape, including a profile of Sony AIT-3 by market research firm Aberdeen Group. Also, click on “S-AIT” for information on Sony’s upcoming S-AIT format for enterprise-class data center storage.

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