

Nexsan 10 Minute **White Paper**



Age-in-Place: a Unique Strategy to Eliminate Tiers with SATABeast

Quick Summary

As mid-size enterprises find themselves strapped for time, money and management resources, they have to find ways of doing more with less. Age-in-Place is a data management strategy that means no more tiers – the easiest and most cost effective way to manage the life-cycle of your data.

Migrating data between storage tiers is complex and expensive. You either spend a lot of time doing it yourself or pay a premium for a system to do it for you. With the once distinct performance separation between tier one and tier two storage now blurring, does the extra cost to purchase and manage tiered storage still make sense?

A lot of IT professionals don't think so and have made the move to a simpler and more cost effective 'no tier' life-cycle management model in which data no longer migrates between tiers, but simply 'Ages-in-Place' by leveraging powerful and cost effective Tier 2 storage.

The value of tiered storage depends on several things: distinct difference in application performance between tiers of storage; substantial savings on the cost of storage by implementing a tiered approach; and serious efforts from skilled people to implement, manage and maintain the tiered infrastructure.

Although some newer storage technologies automatically migrate data as it ages, the vendors that offer these solutions also demand a higher storage price allowing them to capture the savings that rightfully belongs to your business. In today's economy, organizations of all sizes cannot afford to waste savings - especially when there are easier, less expensive and lower risk ways of dealing with data storage.

Compounding the problem is the fact that most tiered data storage strategies are designed for large enterprises and require extensive resources to

implement and manage them. Mid-size enterprises typically don't have the time, money and management resources and must find ways of doing more with less. What they need are cost-effective storage products and strategies designed specifically for their environments.

CUTTING COSTS

Since 2000, economic conditions have caused many CIOs and IT leaders to focus on reducing expenses.

A CIO.com survey found that 26% of CIOs plan to decrease their IT budgets within the next 12 months. Another 26% of CIOs plan to freeze spending¹. The survey indicates that the slowing economy has forced IT departments to concentrate on storage efficiencies to cut costs.

26%

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As one of the major capital expenses of an IT infrastructure, storage has become a key focus of expense control. One strategy to reduce storage costs has been to map data to tiers of storage. The correct assumption is that not all

data is created equal nor does the value of data remain the same over time. A tiered storage strategy was conceived to achieve a balance between the value of data and the cost of storage by classifying data value, mapping usage characteristics and then migrating data to less expensive tiers as reference behavior diminishes.

NARROWING THE VALUE GAP BETWEEN TIER ONE AND TIER TWO

The origin of tiered migration was spawned at a time when large differences in capacity and performance could be found between the top of the storage pyramid, tier one, and the next level of the pyramid,

¹Source: October 2008 CIO Magazine IT Budget & Staffing Survey

which was seen as capacity-only disk or tier two. The once clear separation between these tiers has been blurred as performance and capacity levels for tier two storage have dramatically increased in the last two years. In fact, the performance gap has narrowed so much that many primary applications are now hosted on tier two.

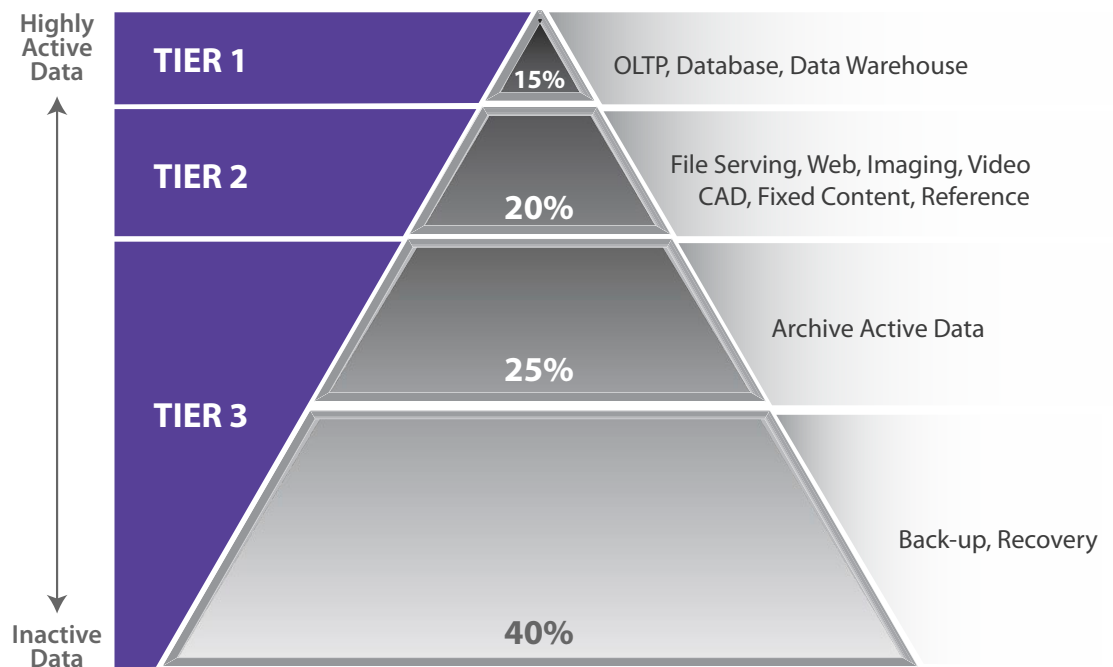
Today, the value gained from creating classes of storage tiers for active data has declined so much that it's no longer clear this storage strategy makes sense for small to mid-size enterprises. Even at the height of separation between tier one and tier two storage, the cumulative value of a tiered storage strategy was estimated by HDS to save only 15% of the storage infrastructure cost over 3 years². Achieving this meager 15% savings required a serious effort from skilled IT staff and/or adding storage technologies, which meant that only environments 500TB and greater would see a significant pay off.

IS TIERED STORAGE WORTH THE EXPENSE?

Information Life-cycle Management (ILM) was fashioned after a mainframe initiative called Data Facility Systems Managed Storage (SMS) introduced in the late 1970s. One of the four major components of SMS is DFHSM, a Hierarchical Storage Manager (HSM) that moves less active data within tiers of storage.

The open systems world has largely used HSM as the focus for ILM. In fact the ILM name implies HSM. The problem is that in the larger context of storage management, HSM represents a small fraction of the larger storage efficiency management problem. The 15% savings achieved by mapping less frequently used data to multiple tiers of storage is a small gain compared to other cost reduction opportunities available to most mid-size enterprises such as managing energy efficiency.

DISTRIBUTION OF DATA



²Source: Hitachi Data Systems, Enterprise Storage Tiered Storage Economics White Paper

This point becomes even starker when you consider that the 15% savings were achieved by large data centers with multiple tiers of existing storage, sophisticated software tools and existing, highly skilled staff or consultants to manage the project.

Mid-size enterprises should consider trying to replicate this only after fully leveraging their existing storage and trained labor. For mid-size data centers, the cost of newer, automated tiered storage systems exceeds the potential savings when compared to equivalent systems without the expensive automated feature that can be deployed more easily and cost-effectively.

TIERED STORAGE: COMPLEXITY AND COST

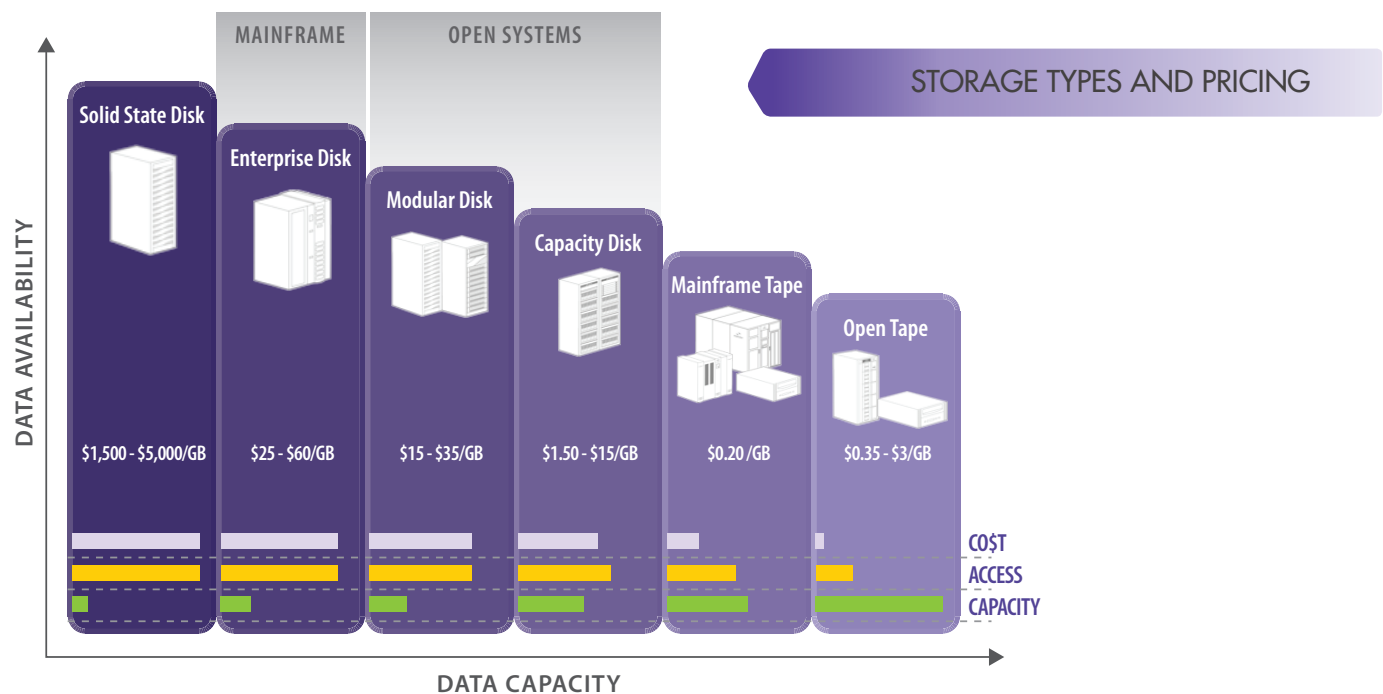
Tiering storage has come to mean complexity; and complexity adds cost. As Albert Einstein once said, "The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

One of the underlying assumptions of a tiered storage strategy is the distinct performance difference between tiers. Historically, high-demand applications were always mapped onto the more expensive tier one storage that can cost from \$25 to \$60 per gigabyte. Now the so-called lower tiers are close to or matching the performance and capacity of higher tiers, and their cost is dramatically less. The average cost of tier two storage ranges from \$2 to \$15 per gigabyte.

We must also bear in mind that customers gained only 15% in savings from a tiered storage strategy. Moreover, these savings assumed the organizations were taking advantage of technology, people, training and skills already in place. In contrast, most enterprises today have IT administrators who are busy supporting applications and have little time left to train, plan, implement and manage a tiered storage strategy. This means outside consultants are often required.

ECONOMIC ADVANTAGES OF AGING IN PLACE

Today enterprises of all sizes can purchase highly reliable, very high performance storage systems



priced at less than \$2 per gigabyte. Some of these highly reliable, very high performance and low-cost storage systems are energy efficient as well allowing enterprises to save dramatically on energy costs - not to mention the high density to save space. These additional advantages reduce storage costs even further without adding to the management burden.

With reliability and performance so high and pricing so low, does it make economic sense to employ a storage strategy that is complex to plan, implement and manage versus just letting the data age in place and add capacity as needed?

AGE-IN-PLACE MEANS NO MORE TIERS

Age-in-place simply describes the idea that economics don't justify the capital expense of additional storage tiers and the operating expense for an effort to classify, migrate and manage data within tiered storage. Age-in-Place means no more tiers – no migration to lower tiers as reference behavior diminishes.

By leveraging the power and cost of a storage system like the SATABeast, Age-in-Place is the simplest and most cost effective life-cycle management technique

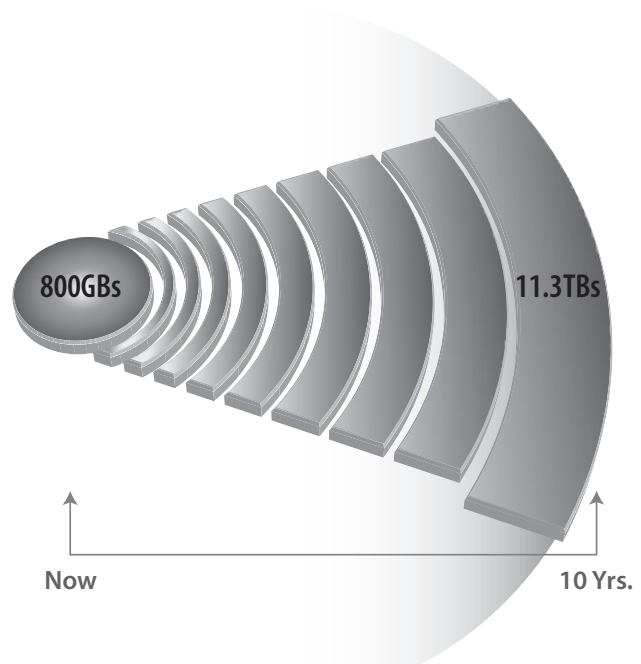
for small and medium size organizations. Data simply remains on the storage tier it was created from creation to deletion. When more capacity is needed, there is no need to migrate, just add capacity and allow new data to Age-in-Place on the new storage system.

NEXSAN CAPACITY AND PERFORMANCE

An example of storage with all the benefits listed above is Nexsan's SATABeast, which comes in a 4U package and stores 84TB using 2TB drives. Performance levels in a RAID 5 or RAID 6 environment provide impressive capabilities and scale with every Nexsan SATABeast added.

Here is an efficiency example: an average open systems database is 800GB. With an average growth of 30% per year over 10 years, the database would grow to consume 11.3TB. At that size, you could store 7 databases (with some spare capacity) on one Nexsan SATABeast and still never have to migrate data by using an Age-in-Place strategy - no management

EXAMPLE: DATABASE SIZE WITH AVERAGE GROWTH OF 30% OVER 10 YEARS PERIOD



headache or additional cost. Even if you did exceed the capacity of a Nexsan SATABeast, you can simply add another one and double capacity and performance. Plus, you benefit from reduced power and cooling expenses because of the outstanding power efficiency of Nexsan's unique AutoMAID technology. The longer you Age-in-Place, data is accessed less frequently which results in even greater energy savings from AutoMAID.

What about performance? The average open system database needs about 5,000 IOs per second. A Nexsan SATABeast can scale to match that performance level easily.

When you compare this level of simplicity to the enormous challenge and expense required to classify and migrate data in a tiered storage model, the advantages are clear. An Age-in-Place strategy based on Nexsan storage makes far more sense for most enterprises than a tiered infrastructure does.

BOTTOM LINE

Tiered storage is here to stay, and it holds a rightful place in large enterprise data centers and for storage administrators who want to optimize their infrastructure costs. But, it is only one strategy among many.

With the largest enterprises realizing an average savings of only 15% after implementing a tiered infrastructure, it is doubtful whether small to mid-size enterprises will gain any value from it. For the mid-size enterprise, tiering storage for active data addresses a minor optimization opportunity. Tiering is justified only when the business realizes enough savings to outweigh the added capital and management costs

necessary to implement it.

A much easier and more cost-effective way to deal with the problem of expensive storage is to use a simple Age-in-Place storage strategy that eliminates the complexities of classifying and migrating data to multiple tiers. Having a storage system as powerful and cost effective as Nexsan storage is what allows IT professionals the flexibility to implement an Age-in-Place solution.

Although tiered storage no longer makes economic sense for most mid-size enterprises, Nexsan storage does. To learn more about Nexsan performance, capacity and energy savings, please call

866.4.NEXSAN or email sales@nexsan.com. □

500TB

- The necessary size of an environment to see a significant payoff from a tiered life-cycle management strategy

Presented by Nexsan

About Nexsan

Nexsan Corporation is a leading provider of energy-efficient, long-term storage systems. Nexsan delivers secure storage appliances and modular, capacity-optimized disk-storage systems for a broad range of applications including fixed content storage and archiving, email, medical imaging, compliance and litigation support, disk-based backup, digital video security, and rich media.

Nexsan's solutions are the choice of small and medium-sized companies as well as large global enterprises and major governmental agencies around the world who are seeking cost-correct, high density storage solutions. Founded in 1999 and based in Thousand, Oaks, Calif., Nexsan sells its products exclusively through a select global network of VARs, OEMs and system integrators. For more information, please see the company's website at www.nexsan.com.



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