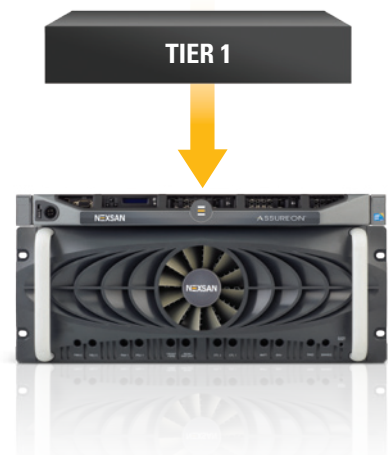**NEXSAN**

NO MORE TIERS
ASSUREON, REDEFINING WHAT ARCHIVE MEANS

Companies are faced with a wave of complexity in trying to make sense of tiered storage: complex storage infrastructures storage management and regulatory compliance requirements. Imagine a single box solution that could consolidate storage tiers, guarantee data protection, simplify storage management and lower storage costs. There's no need to imagine any more as Nexsan's Assureon Secure Disk Archive delivers uncompromised value with primary storage performance and cost-efficient management of your most infrequently accessed files. Assureon redefines what archive means.
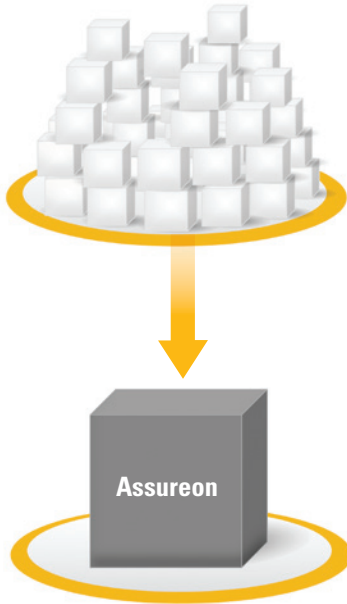
BEFORE

TIER 1

TIER 2

TIER 3

TIER 4

AFTER

TIER 1

NEXSAN

TRADITIONAL STORAGE INFRASTRUCTURE AND MANAGEMENT

Multiple Boxes.
Multiple Interfaces.
Multiple Prices.

Assureon

NO MORE TIERS

One Box.
One Interface.
One Price.

The complexities of the traditional storage infrastructure along with its management and cost combine to make an unforgiving challenge for IT. How chaotic can all of this complexity be? Administrators must be able to budget for massive storage capacity growth and plan for multiple layers of infrastructure overflowing with:

- disk arrays;
- backup servers;
- data deduplication appliances and other equipment;
- a variety of protocols and physical interfaces;
- hundreds of storage management applications, each with its own software interface, none operationally integrated with another;
- dozens of different vendors and pricing permutations

What if all this chaos of complexity could be replaced with a single, small solution that dramatically simplifies the infrastructure, automates management and improves data security while significantly driving down your storage costs?
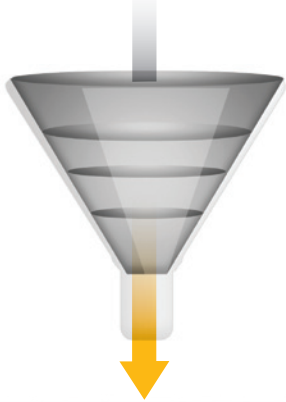
Nexsan's Assureon Secure Disk Archive redefines what archive means. With the most innovative thinking in an archive, Assureon leverages a new approach to storage consolidation and automated management that changes how an entire storage infrastructure can be deployed and managed. By combining speeds rivaling primary storage performance with the ability to manage infrequently accessed files on "deep sleep", cost-efficient drives, Assureon is the picture of uncompromised value.

Unstructured data, including files, composes about 80 percent of all information. According to the Enterprise Strategy Group, by 2012, file archiving will reach 62,000 petabytes worldwide[1].

The unstructured data explosion in recent years has pushed the management and cost challenges to the limit in many organizations, demanding a new approach to cost effective management of unstructured data. Assureon is the antithesis of complexity, cost and risk as it can eliminate up to 66 percent of the traditional hardware and software infrastructure while ensuring the file you save is the file you will retrieve regardless of time.

[1] Source: ESG Research Report: Digital Archiving: End-User Survey & Market Forecast 2006-2010

File Fingerprinting
Self Auditing
Self Healing
File Access Audit Trail
File Serialization
Legal Holds
Encryption
WORM Storage
Automated Retention and Deletion
Secure File Deletion
File Versioning
Independent Date and Time Stamp

ASSUREON—FOR DATA PRIVACY, INTEGRITY AND LONGEVITY

[2] Source: IBM Information Systems Management and Automation

It is estimated that the operating expense for each layer of storage infrastructure is five times the initial purchase cost. Assureon delivers compounded cost savings by eliminating five or more layers while improving data security with a series of innovations that guarantee the privacy, longevity and integrity of your data.

The Assureon disk archive provides a single, easy-to-use solution that enables storage administrators to manage their entire protection architecture with a single, small solution: 1 box, 1 interface, 1 price. With Assureon data is safer, management is simpler and costs are dramatically reduced.

THE TIERED STORAGE PROBLEM

The complex flow of information within the data center begins with its capture, after which the challenge is storing, managing and protecting. Each is complex. IBM reported that studies[2] have shown over 70 percent of IT operations spending goes to maintaining and managing existing systems instead of developing new and innovative applications. It is therefore no surprise that 77 percent of IT managers have reported their top operational priority was improving IT efficiency.
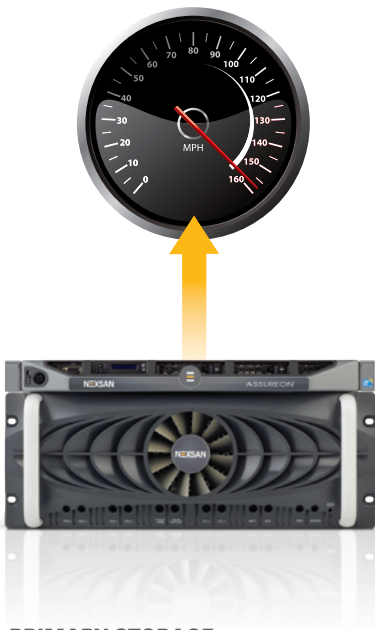
Not all information is created equal, and the value of some information changes with time. Judgments must be made around classification, protection, retention/compliance of data, so it is properly managed as it flows through multiple tiers within the protection architecture. The effort is complex, resource intensive and time consuming.

Storage administrators often adopt a monolithic approach to managing when a flexible, hierarchical approach is required. Some storage administrators simply hide the complexity of effective management behind vast amounts of capacity, rationalizing that it is an easier management task to keep shoving data into large and expanding containers than it is to clean it up.

FOLLOWING DATA THROUGH THE TRADITIONAL INFRASTRUCTURE

The broadly accepted storage management architecture adopted for many years has two major components: the first is a place to capture and manage active data; the second is the protection architecture.

**PRIMARY STORAGE
PERFORMANCE FOR FILES**
**WITH SPEEDS RIVALING PRIMARY
STORAGE, ASSUREON REDEFINES
AN ARCHIVE BY COLLAPSING
2-3 TIERS OF STORAGE INTO A
SINGLE TIER.**

Capturing doesn't sound like much of a challenge. However, decisions long before data arrives are made to classify and manage data based on its performance requirements and perceived value. Typical classification categories include mission critical, business critical, accessible online and others.

Each classification layer has a direct relationship to performance, protection and recovery objectives, relaxing as you move down.

Step 1—Data is first captured on primary storage where it can be served to users and applications

Step 2—Mission critical data is protected by synchronously replicating to Tier-1 disk, creating a second instantaneous copy

Step 3—Mission critical and business critical data with short recovery time objectives will be moved offsite asynchronously to create a third copy

Step 4—For long-term protection, a backup server and Tier-2 disk are added to make backup copies of the data

Step 5—Data deduplication is a common practice at this point to reduce the total number of data objects held, so yet another copy is made

Step 6—For last-ditch recovery, and geographic portability of data, that deduplicated data is now copied to tape

Step 7—Because of management practices starting with a full backup, followed by incremental backups of data that have changed since the last backup, a backup routine referred to as Grandfather-Father-Son (GFS) is established. With GFS, over the course of a year, data is typically replicated 25 times

Step 8—New and ever-emerging legal governance regulations require the immutability of data, controlling who has access to it and reporting who has viewed it. To meet that need, storage administrators will implement a Write Once Read Multiple (WORM) device

Step 9—Another copy is born by storing it on optical devices

Step 10—For long-term access to data, administrators will move data to its final long-term "active data" resting place on an archive managed Tier-2 disk

Step 11—Finally, the archive has to be backed up, so it goes to disk and then to tape, resulting in even more copies[3]

[3] For details on eliminating tape, see Nexsan 10 Min White Paper, "The Digital Age Trapped in an 8 Track World. Eliminate Tape with Assureon"
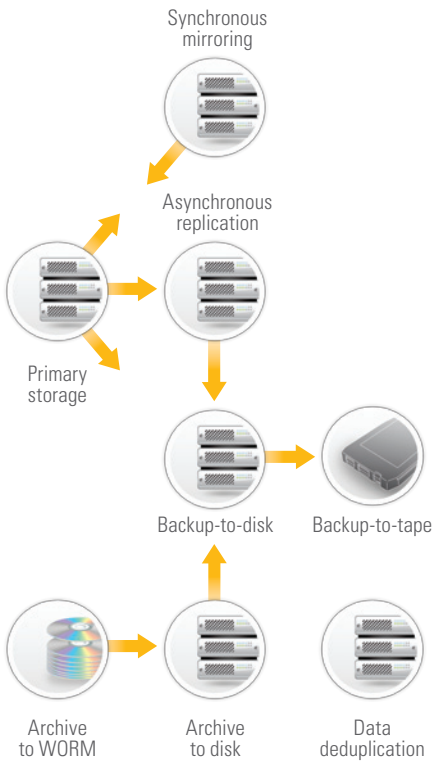
FIGURE 1
TRADITIONAL STORAGE INFRASTRUCTURE AND MANAGEMENT FLOW [4]

Labels within figure:
- Synchronous mirroring
- Asynchronous replication
- Primary storage
- Backup-to-disk
- Backup-to-tape
- Archive to WORM
- Archive to disk
- Data deduplication

[4] Source: ABC Systems AG, A/B/C Data Pooling

Over the course of a year, for each terabyte captured, there are at least five copies on hard disk, additional copies on optical disk and between 25 and 50 copies on tape; 25 copies if the data didn't go to an archive and 50 if it did. For each additional copy that IT has to manage and maintain, the cost and complexity compounds exponentially.

NO MORE TIERS

In the context of all this complexity, it seems hard to imagine a single disk archive so innovative that it can:

- consolidate all secondary tiers;
- eliminate the need for tape
- simplify management;
- reduce the amount of storage and solutions required;
- improve compliance conformance;
- increase data security;
- flexibly deliver primary storage performance along with cost-efficient management of infrequently accessed data on low cost, "deep-sleep" drives

Yet, Assureon does all that and more.

By eliminating multiple layers of hardware complexity and consolidating and automating dozens of storage management applications into a single interface, Assureon provides a streamlined approach to managing data from birth til death.

Administrators get an all-in-one platform to control all critical data protection functionality while slashing two-thirds of the traditional hardware and software infrastructure and associated costs.

The first question to consider is, "What layers or tiers of infrastructure and management demands can be eliminated or consolidated by Assureon?"

Figure 2 is a composite of all the steps and components that are easily eliminated. To make this simple to visualize, compare Figure 2 to Figure 3. Figure 2 illustrates what can be eliminated when the infrastructure is optimized, and Figure 3 illustrates how much less complex it can be with Assureon. Assureon sits behind primary storage, eliminating multiple storage tiers and the associated complexity. Policies are easily implemented to determine how data is managed from capture to destruction.

Synchronous
mirroring

Asynchronous
replication

Primary
storage
Greatly reduced

Backup-to-disk

Backup-to-tape

Archive
to WORM

Archive
to disk

Data
deduplication

FIGURE 2
LAYERS OF INFRASTRUCTURE
ELIMINATED BY ASSUREON [4]

[4] Source: ABC Systems AG, A/B/C Data Pooling

Data arriving in primary storage is automatically moved to Assureon, which eliminates the need for overt backup and restore operations. This feature alone is a major contributor to infrastructure simplification as it removes the need for a dedicated backup server, backup application software and the associated backup storage, whether on disk or tape.

Because it is a Content Addressable Storage (CAS) array, Assureon eliminates redundant data, just as data deduplication does. By reducing the data set, Assureon replication and other data movement windows are shortened dramatically.

Since Assureon is implemented with highly-available yet low-cost and energy efficient disk storage, the need to have the archive on optical jukeboxes or tape is also eliminated. Nexsan's exclusive AutoMAID® (Automatic Massive Array of Idle Disks) technology places drives into deeper and deeper levels of sleep based on usage policies while uniquely delivering sub-second response times.

In an Assureon environment, the amount of expensive primary storage required is greatly reduced. Assureon sits behind primary storage and acts as a Hierarchical Storage Manager (HSM). Assureon transparently monitors Tier-1 data for low-usage thresholds at which point a file is automatically migrated to low-cost, energy efficient disk storage. In its place, a pointer is left on primary storage so whenever a file is required, Assureon knows exactly where to retrieve it.

As noted by Figure 2 & 3, storage complexity is radically simplified. It boils down to this: Tier-1 disk acts as a front-end cache for capturing and serving information for high performance applications (e.g. databases), and Assureon is used to manage EVERYTHING else to include archive, migration, protection, availability, deduplication, regulatory compliance and cost containment. Dozens of third-party applications formerly needed for replication, backup, e-discovery, data protection and other requirements are contained in Assureon. By collapsing all your tiers and storage management into a single system and interface, Assureon is an all-in-one solution for your entire storage infrastructure. It's that simple. It's that safe.

NEXSAN

CONTINUOUS
ARCHIVING
AND HSM

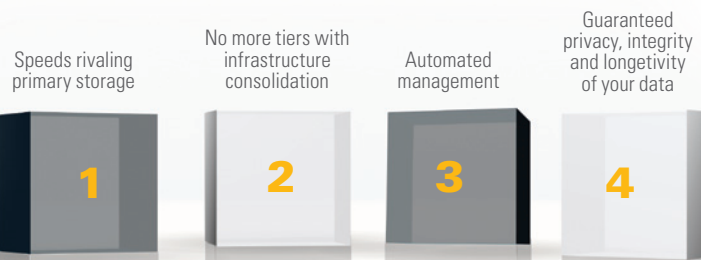**FIGURE 3
AN ENTIRE INFRASTRUCTURE
IN ONE SMALL SOLUTION**

- Data Deduplication
  (performed in archive)
- Backup
  unique offsite replication
  eliminates backup
- Restore
  zero-recovery time architecture
- Online archive
  fast WORM disks, ILM, HSM, CAS,
  compliance, encryption, audit trails, etc.
- Archive Mirror
  local or remote replaces tape backup

DATA PRIVACY, INTEGRITY AND LONGEVITY

With Assureon, your data has never been in safer hands. Typical storage arrays
provide some protection with RAID and replication but cannot guarantee the
privacy, integrity and longevity of your data. Nor can they meet the rigors of
regulatory compliance. If data protection risks within your current environment
have ever kept you up at night, Assureon will ensure that you never worry about the
risk of data loss or tampering again. Assureon offers a full suite of data protection:

- Access Audit Trail—For critical compliance requirements, Assureon establishes
  an unalterable audit trail for the life of a file. Every time a file is accessed, a
  record is kept of who accessed it and when.
- Digital Fingerprinting—When a file is 'born,' it is assigned its own unique
  fingerprint that will stay with the file until 'death.' Revolutionary safeguards
  ensure that a file will retain its exact fingerprint through its life cycle.
- Data Encryption—Assureon incorporates AES256 encryption, the highest level
  of commercial encryption available.
- Replication—For the physical safety of data, Assureon safeguards data through
  backup copies, automatically replicating data locally and/or remotely.
- Data Separation—The privacy of data is assured with virtual or physical
  separation as every user or group is given their own separate digital safe
  deposit box within the Assureon vault.
- Governance—Assureon meets rigid compliance requirements ensuring users
  can retain and delete files according to retention periods.
- For a more in-depth view of Assureon's next-generation, data
  protection capabilities, review the Assureon product brochure at
  www.nexsan.com/assureon.php.

Speeds rivaling
primary storage

No more tiers with
infrastructure
consolidation

Automated
management

Guaranteed
privacy, integrity
and longetivity
of your data

1   **2**   **3**   **4**

STORAGE CHALLENGE

Primary Storage is Expensive

- Assureon performance rivals primary storage ultimately reducing the amount of Tier-1 capacity required
- Assureon automatically and transparently migrates data to archive eliminating the need to purchase more
- Assureon's built-in replication eliminates the need for costly Tier-1 to Tier-1 synchronous and asynchronous mirroring

Backup is Expensive

- Assureon eliminates the need for costly and complex backup by replicating all unstructured data on primary storage

Restore is Expensive

- Assureon eliminates the need for an overt restore with instantaneous availability to all data

Data Security is Expensive

- With a full suite of automated security features, Assureon delivers 'lights out' management with regulatory compliance at no additional cost

Deduplication is Expensive

- Assureon eliminates the need for special deduplication add-ons with a single-instance feature built-in

CONCLUSION

Storage administrators fight against complex storage infrastructures, juggling multiple boxes, multiple interfaces and multiple prices. Assureon eliminates all that cost and complexity with 1 box, 1 interface, 1 price.

Moreover, Assureon meets all your simplicity and cost targets while dramatically lowering risk with the most secure archive available in the market today.

This level of innovation can eliminate and/or consolidate secondary and tertiary tiers into a single solution that is made possible by Assureon's uncompromised ability to deliver primary storage performance with cost-efficient, long term retention of archived files. That is how Assureon redefines what an archive means.

Growing a storage environment with less infrastructure and management is not viewed as realistic by many companies who struggle with the complexities of their protection architecture. However, Assureon establishes a new blueprint with rule-changing technology guaranteed to reduce the complexity, cost and risk in your current environment. For more on Assureon's highly efficient capabilities, visit **www.nexsan.com** or call **866.4.NEXSAN** for a free consultation.

ABOUT NEXSAN

Nexsan® is a leading independent provider of disk-based storage systems purpose-built and priced for the mid-market, offering industry-leading reliability, space and power efficiency. Nexsan storage systems provide scalability, integrity and security for growing volumes of unstructured data and are ideal for virtual storage, data protection, secure online archiving, bulk and cloud storage applications. Overcoming the challenges of traditional storage, Nexsan delivers a different kind of storage experience with easy-to-use, efficient and enterprise-class solutions that reduce the complexity and cost of storage. Nexsan delivers its storage systems through a select global partner ecosystem of solution providers, OEMs and system integrators. Nexsan is based in Thousand Oaks, Calif. For more information, visit the company's website at **www.nexsan.com**.