

RELIANT TECHNOLOGY WHITE PAPER

The Insider's Guide to Purchasing an EMC Storage System

EMC² Purchasing Guide



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EXECUTIVE SUMMARY

If information is the lifeblood of any business, then storage infrastructures are the arteries that carry information to be processed, essentially supplying much-needed nourishment to the business to accomplish its mission. In today's challenging business environment that demands more resources and greater responsiveness, a healthy storage infrastructure is more essential than ever.

Why? Because corporate leaders are under tremendous pressure to expand business by improving profits, increasing revenue streams, and adding lines of business through new applications, mergers, and acquisitions. They are expected to accomplish all this while cutting costs and dodging even costlier delays.

With personnel costs rising exponentially, IT plays a crucial role in meeting all those goals by automating business processes. Businesses today can ill-afford to hire workers for every possible position and project; they need to streamline as much as possible to maximize productivity while remaining agile in an ever-changing market.

This whitepaper can help guide decision-makers in acquiring storage infrastructure components that boost asset utilization, enhance responsiveness to business changes, and improve IT operational efficiency. It also provides a roadmap for storage managers and IT professionals who want to employ EMC's "best of breed" data storage systems. It includes a complete overview of the EMC storage family and discusses specific ways to reduce the costs associated with EMC acquisitions without sacrificing availability, capacity, performance, or reliability. In short, this guide can help you make the right decision the first time.

□ Which EMC Storage System is Right for Your Business?

Making the Wrong Choice Isn't an Option

Most businesses cannot buy storage twice. In fact, something secretly (or openly) feared is the I-just-bought-this-and-it-didn't-completely-fix-my-problem-so-now-I-have-to-ask-for-more-money conundrum. Dipping into the well a second time just isn't an option.

So when it comes to mission-critical data, the failure to anticipate complications, accurately define and then meet requirements, or reduce recurring costs can cripple your data center and hamstring not just your IT budget, but the business as a whole.

Downtime Costs More than You Think

Think about your most important application. How would the business be impacted by an hour of downtime during the day? Two hours? Two days?

As companies grow and offer new products and services to their customers, information growth accelerates rapidly, and often necessitates an evolution in storage infrastructure practices in response. In today's software-defined datacenters, where multiple tenants share a common infrastructure, a single hardware failure can take down hundreds, thousands, and even tens of thousands of users, and cost upwards of millions of dollars per hour in lost revenue—not counting the cost to other less-measurable aspects of the business. And that's just the downtime.

In addition, such outages often result in a measureable loss of credibility and trust in the datacenter along with its technical/managerial staff. Outages can even cost some individuals their jobs.

As a result, senior management often mandates an outside audit via professional services to perform root cause analyses, examine the design and make recommendations—often at substantial extra cost, and implement said changes.

Making the wrong decision up-front increases the risk of data unavailability due to unscheduled maintenance, corruption, or loss, and leaves you vulnerable to surging storage costs—all because it was not done correctly the first time. In the end, businesses end up paying fifty-plus percent more than they would have if they had spent a little more money up front. So it's important to make a well-informed decision when purchasing EMC storage. In the high-stakes game of five-nines-availability for a growing set of mission-critical applications there is little room for error.

One Size Fits No One: Custom Solutions for Your Unique Environment

That not all storage systems are created equal goes without saying. But it is more than noteworthy that not all EMC storage solutions are a good fit for your business, either. Your business might be mid-range in size, but enterprise-class with regard to technology adoption, or vice versa.

What you need to keep in mind is that EMC is a for-profit company like anyone else. As such they have to design and build products to appeal to a broad range of customers at an effective price-point. This results in a more cookie-cutter approach to manufacturing, requiring the customer to take more responsibility for customization of the solution to match his or her specific business needs.

Here are some questions to help guide your customization process, and ensure that you are purchasing a system that will achieve all your business requirements:

- Define your SLA. While Service Level Agreements have often been thought of as only for hosting companies and other service providers, an increasing practice among businesses of all shapes and sizes is to apply SLA-like requirements to business applications. This in turn drives requirements for storage for said applications.
e.g., "Microsoft Exchange requires 99.9% uptime; only allow scheduled maintenance windows."
e.g., "File server requires 99% uptime; allow any non-business hours for maintenance windows."
- Define business objectives and prioritize them. Business objectives include not only the applications and hardware that support business functions, but also personnel and budgetary issues. These will then help decide between good, better, and best storage options.
e.g., "Priority 1 is ease of use since we have no dedicated personnel."
e.g., "Priority 2 is uptime and availability."
- Make use of storage tiers. Storage tiers will help the business save money and provide higher levels of service with any given storage data set. By limiting some applications to top-tier storage, you ensure greater bandwidth for those applications. And by limiting low-tier applications to slower drives, you increase ROI and reduce TCO. As always, auto-tiering via FAST or FAST-VP is a great addition to just about any system.
e.g., "Microsoft Exchange should run on Tier 1 disks (15k)."
e.g., "Virtual Machines should run their OS drives on Tier 1 disks (15k), their paging files on dedicated Tier 1 datastores (15k), and their application drives should be determined by application tiers."
- Plan for product and service growth. Always be sure to plan for incremental growth of the business, not just in revenue, but also in data consumption. A great way to estimate this is to perform a trending analysis on several month's backups, and look at the change rate for week-to-week or even month-to-month. Plot that data on an excel chart and add a trending line to forecast where you will be in two, three, or five years' time.
e.g., "Require 15% growth year-over-year for Microsoft Exchange on Tier 1 storage."
e.g., "Require 30TB for growth for the next two years of virtualization consolidation across Tier 1 and Tier 2 storage."
- Plan for unanticipated growth. Inevitably, a project will be assigned for which there are little to no resources available. Typically, it is much easier to get funding for said projects lumped in with a storage system forklift replacement than it is to ask for it later down the road.
e.g., "Require 15% extra usable capacity across all storage tiers for unplanned growth."
- Determine failover performance requirements. An often overlooked business discussion is "What is the acceptable performance for our storage system during a failover event?" If you have a storage system that runs an average of 65% utilization on the storage processors, during a failover there will be significant performance degradation. Is this acceptable, or not?
e.g., "Require 100% performance during a failover event."
e.g., "Require 100% performance of mission-critical applications during a failover event; other applications will be shut down."

- Prepare a detailed requirements document. Many businesses end up with a poor storage environment because they started with poor storage requirements. Good requirements will collect and organize all the individual details above, including usable storage, redundancy, performance, and tier of storage required:
e.g., “Microsoft Exchange requires 10TB usable of Tier 1 storage at an average 10,000 IOPS across the entire tier, with 99.9% uptime and an extra 15% headroom on both capacity and performance, with no service degradation during failover.”
- Ensure future scalability. Once you have a storage system design proposal, make sure you don’t limit yourself too much. Remember that system limits are somewhat arbitrarily imposed: a storage system that supports 120 disks may not be able to actually handle a full 120 disks under 100% load. A good rule of thumb is to consider a system “full” when it has about 60–80% of the stated disk capacity, leaning more towards 60% if processor-intensive services—such as FAST file deduplication—are enabled, and more towards 80% in capacity-oriented non-performance environments.
e.g., “Require at least 35% additional headroom for disks and storage processing.”

Utilizing some of these guidelines, your business will likely avoid the pitfalls common to poor storage purchases, and more importantly, operate more efficiently/smoothly—making you an IT hero.

I. An Introduction To EMC Storage Systems

Now that you have your requirements in hand, you'll need a partner that has the expertise to help craft solutions and options across the full range of market products into a custom-fit storage system that fully achieves 100% requirements compliance.

Over the past decade, EMC's storage solutions have allowed businesses to present their data across all levels of availability—even "Five 9's" (99.999%) uptime—without the exorbitant costs typically associated with each respective service level. In short, EMC has developed accessible arrays made for all levels of business without the inflated costs of "enterprise" storage.

Reliant Technology offers new and used EMC storage arrays at a cost that makes these top-notch systems even more accessible. The following chart shows the EMC storage families and includes tips and tricks for bringing these systems to your enterprise at a price point that doesn't decimate the storage budget.

	AX4/5		CLARiiON CX4		(Celerra) NS		VNXe/VNX	
Block Protocols	FC, iSCSI		FC, iSCSI		—		FC, FCoE, iSCSI	
File Protocols	NFS, CIFS		—		NFS, CIFS, MPFS		NFS, pNFS, CIFS, MPFS	
Disk Types	3Gbps SAS, SATA		4Gbps FC, SATAII		4Gbps FC, SATAII		6Gbps EFD, SAS, NL-SAS	
Auto-tiering	—		✓		✓		✓	
Drive Capacity	AX4	60	CX4-120	120	NS-120	120	3100e	96
	AX5	60	CX4-240	240	NS-240	240	3150e	100
			CX4-480	480	NS-480	480	3300e	150
			CX4-960	960	NS-960	960	5100	75
							5300	125
							5500	250
							5700	500
							7500	1000

EMC VNX Series

The EMC VNX family is the next iteration of the Clariion AX/CX product line (it is officially a CX5 that runs FLARE 31, now called the Operating Environment or OE). Here is a summary of the product line changes:

- The AXi product line is now called VNXe and is likewise NAS/iSCSI only.
- An additional entry-level product, the VNX5100, has been introduced to fill the gap of the AXf product line as a fiber-only solution.
- All VNXe/VNX disk shelves are SAS based and have been consolidated into just 3 form factors: 3U, 15-disk; 2U, 25-disk; and 4U, 60-disk.



The VNXe series provides NAS and iSCSI functionality via application-aware, wizard driven interfaces, typically employed by SMBs and customers looking for a small, dense footprint and a high ease-of-use out of the box. The VNXe scales as high as 120 drives with 24GB of cache, comparable to the VNX5300.

The VNX implements a modular architecture that integrates hardware components for block, file, and object-level storage with support for all associated protocols: iSCSI, Fibre Channel, and FCoE for block storage; NFS (v. 2, 3, 4), pNFS (v. 4.1), MPFS, and CIFS (SMB 1.0, 2.0) for file storage; and HTTP for object storage. Block functionality is standard; NAS functionality is an add-on, and delivered via one-to-eight data movers (X-blades). All storage is connected via 6Gbps 4-lane SAS, for an aggregate channel of 24Gbps throughput to each disk shelf.

EMC VNX Storage Processor Features

- Two, four, or six-core Intel Xeon 5600 CPUs (32nm) ranging from 1.6–2.8GHz.
- End-to-end 6Gbps SAS backend connection to shelves, across four lanes, for a total of 24Gbps (3GBps) aggregate bandwidth per SAS stack.
- Unified storage for multiprotocol file, block, and object storage
- Available flash-optimized auto-tiering, called Fully Automated Storage Tiering for Virtual Pools or FAST-VP, to ensure superior performance
- RAID levels 0, 1, 5, 6, 10, 50, 60 and JBOD, and global hot sparing
- The Storage-Processor Enclosure (SPE) is now 2U in size, and is available on the VNX5700 and VNX7500
- Support for up to 1000 drives

EMC VNX Hardware Component Features

- Greater density across all models
- VNX3000 base configurations start at 3U, the VNX5000 series at 4U
- UltraFlex I/O modules for block access are available in 4-port 8Gbps optical FC, 4-port 1Gbps copper iSCSI (with or without TOE), a 2-port 10GbE FCoE module, and a 2-port 10GbE iSCSI module.

- The Disk-Processor Enclosure (DPE) remains 3U in size for the VNXe, VNX5100, VNX5300, and VNX5500, and house the five-disk “Vault” that runs the Operating Environment (OE) and any optional additional disks (up to 10 more may be added without a separate DAE)
- The Data Mover Enclosure (DME) is 2U and houses 1–8 X-blades for file access
- The Standby Power Supplies (SPS) are 1U and provide enough power to commit any cache data to disk in the event of a power failure
- Control Stations (CS) are 1U and provide management of the X-blades for file system access as well as X-blade failover, and are available as a redundant pair
- All enclosure power supplies feature adaptive cooling, allowing them to operate at independent, variable speeds, resulting in higher efficiency and less power and cooling costs than the previous generation.
- PCIe 2.0 offers double the bandwidth of the previous generation.

EMC VNX DAE Features

- 3U, 15. The 3U DAE or DPE houses 15 LFF disks and can be configured with: 100GB or 200GB SSD modules; 300GB, 450GB, or 600GB 15k drive modules, 300GB, 600GB, or 900GB 10k drive modules; 1TB, 2TB, or 3TB 7.2k drive modules
 - Models: DAE15, DAE15P (Primary DAE for VNX5700/7500)
- 4U, 60. The high-density 4U DAE houses 60 LFF disks that are inserted/removed from the top (not the front) of the chassis, and can be configured with: 100GB or 200GB SSD modules; 600GB or 900GB 10k drive modules; 1TB, 2TB, or 3TB 7.2k drive modules
 - Models: DAE60, DAE60P (Primary DAE for VNX5700/7500)
- 2U, 25. The high-density 2U DAE or DPE houses 25 SFF disks, and can be configured with: 100GB or 200GB SSD modules; 300GB, 600GB, or 900GB 10k drive modules
 - Models: DAE25, DAE25P (Primary DAE for VNX5700/7500)

EMC VNX Management Features

- FLARE is now generally called the Operating Environment, or OE, with two current versions: 5 for block (5.31.x.x), and 7 for file (7.0.x.x).
- Unisphere replaces the Navisphere GUI, and comes in three flavors: Unisphere for Block, Unisphere for File, and Unisphere for Unified. Navisphere CLI remains the command-line interface for the VNX.
- Storage pools are the default configuration for all disk allocations, though traditional RAID groups are still possible.
- Unified replication to RecoverPoint for both block and file data
- Integration with VMware Site Recovery Manager to form a simple, turnkey solution for VMware disaster recovery
- Virtual (thin) provisioning capabilities that increase system utilization and simplify the provisioning of storage by allowing administrators to present an application with more capacity than is physically allocated

EMC VNX Models

	3150e/ 3300e	5100	5300	5500	5700	7500
Predecessor	AX4i/5i	AX4f/5f	CX4-120 NS-120	CX4-240 NS-240	CX4-480 NS-480	CX4-960 NS-960
Drive Count / Capacity	100(288TB)/ 150(450TB)	75/ 225TB	125/ 360TB	250/ 720TB	500/ 1.4PB	1000/ 2.9PB
Processor	2x2 Core 1.6GHz	2x2 Core 1.6GHz	2x4 Core 1.6GHz	2x4 Core 2.3GHz	2x4 Core 2.4GHz	2x6 Core 2.8GHz
System Memory	8GB/12GB	8GB	16GB	24GB	36GB	48/96GB
FAST Cache	—	1000 GB (2x1000GB)	400GB (4x200GB) or 500GB (10x100GB)	1TB (10x200GB) or 1TB (20x100GB)	1.4TB (14x200GB) or 1.5TB (30x100GB)	2TB (20x200GB) or 2.1TB (42x100GB)
Protocols	iSCSI, NFS, pNFS, CIFS	FC	FC, FCoE, iSCSI, NFS (v.2, v.3, v.4), pNFS (v.4.1), MPFS, CIFS			
Max 8GbFC Front-End Ports	—	8	16	16	24	32
Max 10GbE Front-End Ports	—	4	8	8	12	12
Enclosure	DPE	DPE	DPE	DPE	SPE	SPE
X-blades	—	—	1–2	1–3	2–4	2–8
X-blade CPU/ Memory		—	1x4 Core 2.13GHz/ 8GB	1x4 Core 2.13GHz/ 12GB	1x4 Core 2.13GHz/ 12GB	1x6 Core 2.8GHz/ 24GB
CS	—	—	1–2	1–2	1–2	1–2

■ EMC CLARiiON CX4 Series



Comparable to the EMC VNX in performance, the EMC CLARiiON CX4 series with UltraFlex technology allows for the combination of multiple protocols within a single storage system. The CX4 architecture is based on PCI Express (PCIe) technology, enabling EMC CLARiiON CX4 systems to provide high bandwidth with low latency. As your requirements and storage usage change, you can use CLARiiON's to dynamically move data from one tier to a higher or lower tier within the same CX4 storage system, or purchase an available Fully Automated Storage Tiering (FAST) license and have the process automated for you.

If the feature set of the EMC VNX is attractive to you, note that the CX4 and Celerra product lines offer nearly all of the functionality of the VNX at a fraction of the cost. Continue to the next page for more information.

EMC CLARiiON Storage Processor Features

- Two- or four-core Intel Xeon CPUs ranging from 1.2–2.33GHz.
- Unified storage via optional gateway for multiprotocol file and block storage
- Available flash-optimized auto-tiering, called Fully Automated Storage Tiering or FAST, to ensure superior performance
- Available enterprise flash drives (EFDs), offer 30 times the IOPS of a 15k drive module.
- RAID levels 0, 1, 5, 6, 10, 50, 60 and JBOD, and global hot sparing
- Support for up to 960 drives

EMC CLARiiON Hardware Component Features

- UltraFlex I/O modules for block access are available in 4-port 8Gbps optical FC, 4-port 1Gbps copper iSCSI (with or without TOE), a 2-port 10GbE FCoE module, and a 2-port 10GbE iSCSI module.
- All Storage Processor Enclosures (SPEs) are 2U in height.
- The Standby Power Supplies (SPS) are 1U and provide enough power to commit any cache data to disk in the event of a power failure
- PCIe offers much greater backend bandwidth of the previous generation.

EMC CLARiiON DAE Features

- 3U, 15. The 3U DAE or houses 15 LFF disks and can be configured with: 73GB or 200GB SSD (EFD) modules; 73GB, 146GB, 300GB, 450GB, or 600GB 15k drive modules, 300GB or 600GB 10k drive modules; 500GB, 750GB, 1TB, or 2TB 7.2k drive modules
 - Models: DAE3P, DAE4P

EMC CLARiiON Management Features

- FLARE is the Operating Environment, or OE, with the current version being 4.30.xxx.xxx
- Navisphere GUI and Navisphere Setup Utility for graphical management. Navisphere CLI is the command-line interface for advanced or automated management
- RAID Groups (16 drives max) are the default storage configuration, though storage pools and MetalUNs are also options
- Integration with VMware Site Recovery Manager forms a simple, turnkey solution for VMware disaster recovery
- Virtual (thin) provisioning capabilities increase system utilization and simplify the provisioning of storage by allowing administrators to present an application with more capacity than is physically allocated

EMC CLARiiON Models

	CX4-120	CX4-240	CX4-480	CX4-960
Predecessor	CX3-10	CX3-240	CX3-480	CX3-960
Drive Count/ Capacity	120/235TB	240/459TB	500/939TB	1000/1.9PB
Processor	2x2C 1.2GHz	2x2C 1.6GHz	2x2C 2.2GHz	2x4C 2.33GHz
System Memory	6GB	8GB	16GB	32GB
FAST Cache	100GB	200GB	800GB	2000GB
Protocols	FC, FCoE, iSCSI (NFS, MPFS, CIFS with CX gateway)			
Max 10Gbps Front-End Ports	4	4	8	8
Max 8Gbps Front- end FC Ports	8	12	12	16
Enclosure	SPE	SPE	SPE	SPE

EMC Celerra NS Series

Each EMC Celerra unified storage system (NS-120, NS-240, NS-480, and NS-960) delivers high-end storage features in a scalable package. The Celerra unified storage platform leverages best-in-class EMC Fiber-channel RAID storage via a robust offering of both block-level and file-level protocols. And each EMC Celerra comes backed by EMC's strong record of highly- available and highly-performing storage arrays.



When most people think of the EMC Celerra, they think of it as a NAS box. But in truth, the Celerra was EMC's first attempt at a fully unified platform for NAS and SAN host connectivity. Supporting virtually every current protocol, the Celerra is a great choice for those looking for VNX functionality without the VNX price. Compare the specifications below with those of the CX4 and VNX series and see for yourself.

EMC Celerra NS Features

- Multiple file-level protocols: NAS (CIFS (v.1, v.2), NFS (v.2, v.3, v.4), MPFS) connectivity
- Native block-level connectivity as well for Fiber-channel and iSCSI Connectivity
- 1-8 X-blade configurations
- EMC DART for Celerra OS
- Same hardware specifications as the CLARiiON CX4 product line models

EMC Celerra NS Models

	NS-120	NX-240	NS-480	NS-960
Processor	2x2C 1.6GHz	2x2C 1.6GHz	2x2C 2.2GHz	2x4C 2.33GHz
Drive Count / Capacity	120/235TB	240/459TB	500/939TB	1000/1.9PB
System Memory	6GB	8GB	16GB	32GB
FAST Cache	100GB	200GB	800GB	2000GB
Protocols	FC, FCoE, iSCSI (NFS, MPFS, CIFS with CX gateway)			
Max 10Gbps Front-End Ports	4	4	8	8
Max 8Gbps Front-end FC Ports	8	12	12	16
Enclosure	SPE	SPE	SPE	SPE
X-blades	1-2	1-2	2-4	2-8
X-blade CPU/ Memory	2x2.8GHz/2GB	2x2.8GHz/4GB	2x2.8GHz/4GB	2x4C 2.3GHz/4GB
CS	1-2	1-2	1-2	1-2

II. Reduce Costs by Purchasing Used EMC Storage

Deploying used EMC storage systems can save you 50–70 percent over comparable new systems. And because they have been tested in production, you can bank on their reliability. IT departments that deploy used storage solutions can purchase 150–200 percent more, whether that be in terms of capacity or performance, enabling them to add infrastructure to optimize their projects and stay under budget without compromising performance, reliability, and functionality.

Used storage arrays and used storage capacity upgrades for EMC systems are readily available from Reliant Technology. The following EMC storage systems are readily available for new-to-you systems and upgrades.

- EMC CLARiiON CX3 Series
- EMC CLARiiON CX4 Series
- EMC Celerra NS4
- EMC VNXe/VNX
- EMC Connectrix SAN equipment

Working with the right storage partner, storage managers can find warranty-backed equipment with guaranteed compatibility for their existing storage infrastructure.

TIP: Don't risk purchasing used equipment that is not backed by a reliable warranty or sold by consultants without in-depth storage resources.

Choosing the right storage partner is important, so make sure used equipment is backed by a Next Business Day warranty and the company has an established RMA process.

III. Reduce Costs by Extending the Life of Your Current CX4 or NS Series Storage System

Are your budgets tighter than ever? Are your users and managers requiring more data storage than ever to meet growing business requirements? You are not alone. And there are at least two ways that you can gain an extra couple or more years of life for your storage before you repurpose it.

One of the best values in storage arrays is realized by extending the life of an existing system by adding disk spindles, especially solid state drives (SSDs). A single SSD can provide up to 30 times the performance of the highest-speed rotating drives (15,000 RPM) available today. For example, if a rotating drive can deliver 175 IOPS on file system reads, a SSD can deliver up to 5,250 IOPS for the reads, depending on the workload. There are two ways to integrate SSDs into your existing CLARiiON or Celerra:

- FAST Cache is a SSD-based caching system that provides a second “level” of system memory for caching functions. The system monitors for frequently accessed blocks of information—they need not necessarily even be entire files—and copies them in 64KB chunks into cache for rapid responses to storage requests. FAST Cache is ideal for burstable, highly intense workloads such as virtual desktops (VDI) and other I/O storms.
- FAST-VP is a SSD based tiering system that provides a “Tier 0” for data with high sustained IO. In this scenario, the storage system analyzes storage placement every 24 hours and then promotes data up a single tier at a time in 1GB chunks. This promotion actually moves the data, and it will reside on that tier until promoted up again, or demoted after 3 consecutive days of decreased activity, should such a decrease occur. Often, FAST-VP represents a significant value-add to a performance-constrained storage system.

An unplanned benefit that comes with multiple SSDs is the performance increase you receive with a corresponding increase in power consumption and HVAC cooling costs. Flash drives are far more energy efficient since they have no moving parts, and consume 385% less energy per TB and 95% less energy per single I/O operation, according to EMC. But what if you don’t have any room for any more disks? EMC’s Online Upgrade feature provides another avenue to extend your system life. For each CX4 and NS model, there is a non-disruptive upgrade path to increase system capacity and performance, updating the core files and other essential system software, without downtime. During this process, the upgrade reboots one storage processor, while all LUNs and connections fail over to the other, and then the process is reversed. And don’t worry—write cache remains enabled the whole time.

IV. Use Third-Party Maintenance to Reduce Costs Across the Enterprise

How much do you currently spend on maintenance for your IT infrastructure? Is the answer “Too much?”

Depending on the size of the company and industry, maintenance and support can consume almost two-thirds of an IT budget. Deploying third-party maintenance for your EMC systems can significantly reduce the portion of your budget earmarked for recurring maintenance. When arranged correctly, third-party maintenance can allow for a flexible maintenance contract tailored to the specific needs of the enterprise, providing an appropriate level of service while reducing the cost of maintenance by 40–80 percent. Third-party maintenance gives you added flexibility, allowing you to extend the life of systems to reduce total cost of ownership and purchase a more affordable solution with confidence that you’ll be supported well into the future.

Moreover, by having a single point of contact, you can consolidate your maintenance for SAN and server equipment to reduce TCO for your entire data center, as well as simplify your procedures for making a service call. Reliant Technology offers third-party maintenance that helps you simplify and save money. With third-party maintenance from Reliant, there is no more finger-pointing or costly professional service charges. Reliant fixes first, and asks questions later.

□ Next Steps

Review this checklist to see if it makes sense to call Reliant today for a storage consultation:

- Are you seeking an EMC storage solution that fits the needs of your unique environment?
- Are you struggling to handle the 20 to 50 percent capacity increases in your storage environment?
- Do you need to work within budget constraints and maximize your investment in IT infrastructure?
- Is service and consultation an important aspect of your partner relationships?
- Do you need a storage solution that not only meets your needs but prepares you for future growth?

If the answer to any of these questions is Yes, give us a call today and Reliant Technology will provide you with logical, cost-saving solutions that meet your requirements and prepare you for the future. Reliant Technology provides unique service contracts to fit all your data storage needs.

Talk to a Reliant Storage Consultant today to see what strategies make the most sense for your team and environment. Growth is coming, so get in touch with a Reliant consultant and get ready now.



**Call us at 877.227.0828
or email SANStorage@Reliant-Technology.com**

Reliant Technology offers SAN storage solutions, upgrades, trade-ins and rentals in the form of new, used, overstock and pre-owned SAN storage hardware from EMC, IBM, HDS, NetApp, Brocade, Data Domain, Cisco MDS, Emulex and QLogic.

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