

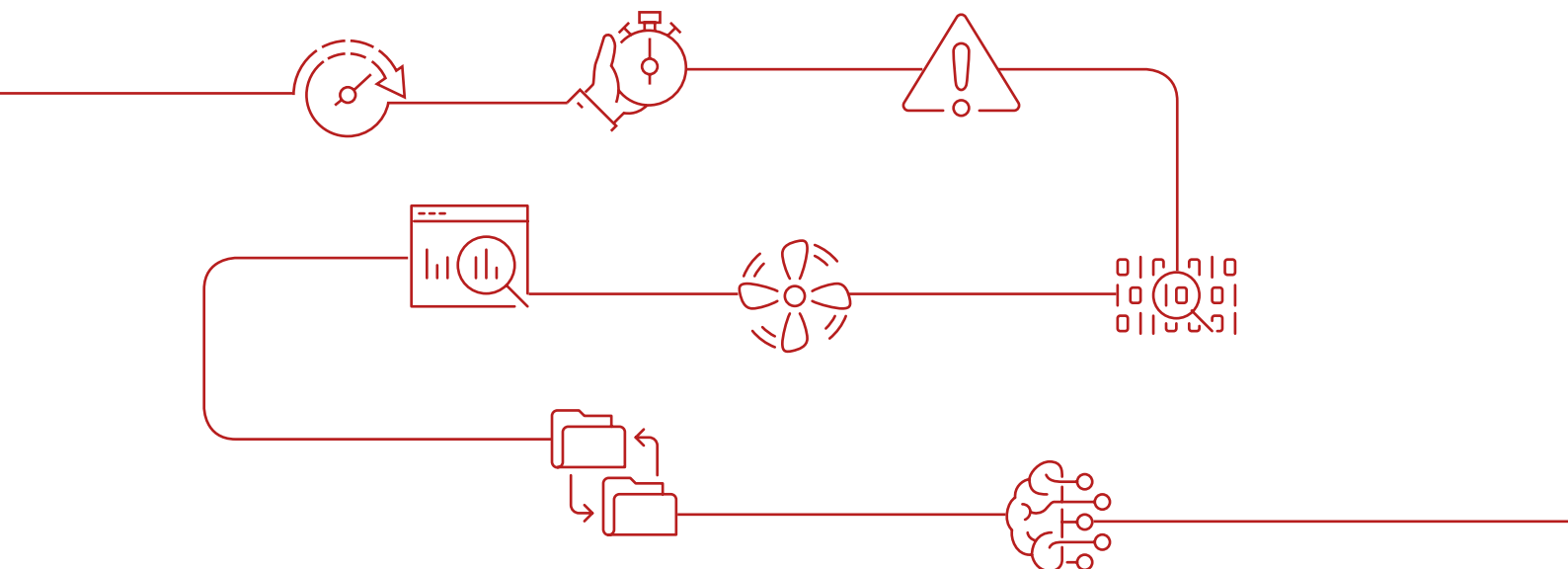


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The Enterprise storage conundrum: Replace or maintain?

Part one: 8 key assessment areas to consider when reviewing existing storage arrays

Part two: What to consider when choosing a new storage solution



PART ONE

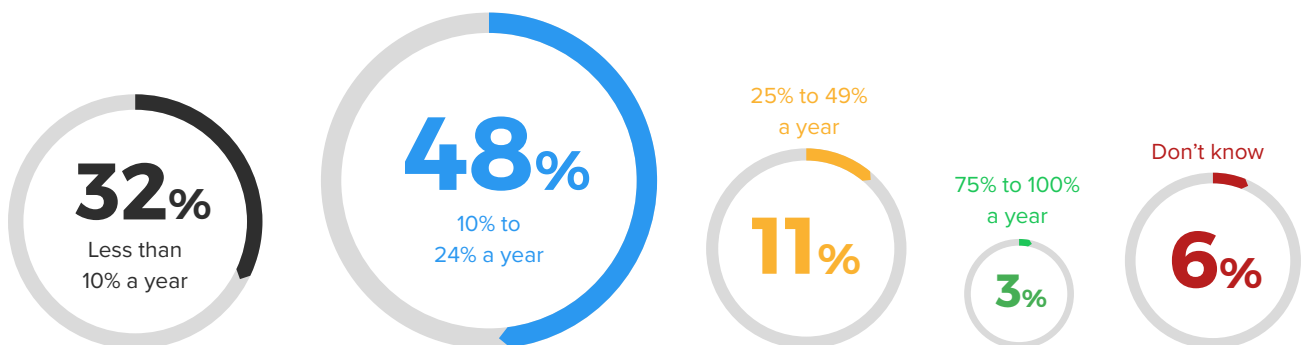
8 key assessment areas to consider when reviewing existing storage arrays.



Enterprises today are generating and storing more data than ever, and the trend shows no sign of slowing down. The rise of big data, the internet of things, and analytics are all contributing to the exponential data growth. The surge is driving organisations to expand their infrastructure, and particularly data storage.

Data Growth Rate

What is the growth rate for the overall data you have to store and manage?



Pros, cons and considerations when replacing your storage array

When your storage array reaches the end of its support or warranty period there are a few things you should take into consideration when it comes to assessing whether to buy extended warranty or look for a replacement.

As experts in this field, MTI has spent 25 years helping customers navigate this challenge. We thought it useful to share some of our experience and help you identify the key factors to consider.

Unique systems but common questions

When faced with assessing your current environment to determine the best course of action, it is useful to identify the status quo in several key areas. Even though most systems are unique, or configured uniquely, there are some common questions to ask regardless of your existing set up;



1. What are the current arrays limitations?

Since the original purchase of your array it may have had extra capacity added. Therefore, it's worth checking to see if your array can be upgraded further. If it's approaching its limits this is a key factor in determining if the array should stay or be upgraded.

In addition, your array may have reached the limit of its performance potential. Or one of the many components that make up your array could be causing a performance bottleneck and affecting the performance of the entire array. In our experience, overloaded disks, or disk array controllers that have run out of resources to allocate, are common causes of performance caps.

Sometimes performance issues are easy to recognise, with noticeable slowdowns being key giveaways, however this isn't always the case. Even if performance issues are not apparent, a professional assessment is always recommended as there may be issues that are not obvious and additional workload on the array may push it over its recommended utilisation.



Running out of resources to allocate, are common causes of performance caps.



2. Has the array reached end of support life?

Storage array manufacturers want to encourage organisations with aging storage arrays to upgrade to the latest storage infrastructure. A key mechanism they use is limiting the duration of support to a fixed number of years.

Some manufacturers offer longer support agreements than others. For example, DellEMC offer 5 years of support for particular systems, so this generally translates into a 7-year operational life span. This makes DellEMC storage infrastructure a good choice in terms of serviceable life.

That said, often an array can be still appropriate for an organisation even though the primary support period has ended. There are organisations like MTI that offer continued support long after primary support ends, a service which many of our clients utilise. So, if your array has expansion capability and is able to support future workloads, then continuing support could be an option.

However, if you are unsure about future workload demands, or forecasted capacity and performance requirements have a wide range of predictions, relying on an older system could be risky as it may not be suitable for your organisation as the demand grows.

MTI offers continued support long after primary support ends.





3. Reliability?

As disk arrays age, there is an increase in the number of disk failures. This risk is typically accommodated assuming you keep the manufacturers recommended number of spares in your system, and your support partner is replacing the failed drives in a timely fashion.

Other components that will start to fail are power supplies and batteries, again not usually an issue as they are never single points of failure and shouldn't stop a modern array from serving data to your attached servers.

As long as you are monitoring the array and you, or your service partner, are handling any alerts as they are generated. If however, failures are above the normal expected range this should be a concern as extending support with a 3rd party may involve increasing support costs, (above the normal range), as extraordinary failure rates need to be accommodated in the agreement.



Extraordinary failure rates need to be accommodated in the agreement.



4. Data Content

At a more fundamental level, questions about the function of the array and the kind of data that is being managed should be asked as this may have an influence on the future design of your storage environment or the suitability of existing systems.

For example; what kind of data is being managed? Is it a mixture of users file data and server block data? Could you extend the arrays life by moving old inactive data somewhere else? We work with many of our clients to help them address these questions and identify alternatives, like cloud platforms, to be efficient extensions of their storage environments.

For file data, it can be beneficial to segment your data, via a data classification exercise, to identify how data should be managed, its sensitivity or relation to compliance and governance requirements, user's access requirements and other factors which allow you to apply rules and efficiencies in where and how you store company data. This can be invaluable in identifying use cases for existing arrays as well as influence the design of future systems.

MTI is lucky enough to have a large security practice which often provides support to clients embarking on data classification projects.

Segment your data, via a data classification exercise.





5. Footprint

Compared with a modern solution, older arrays are physically larger, taking up more expensive rack space, consuming more power and requiring more air conditioning.

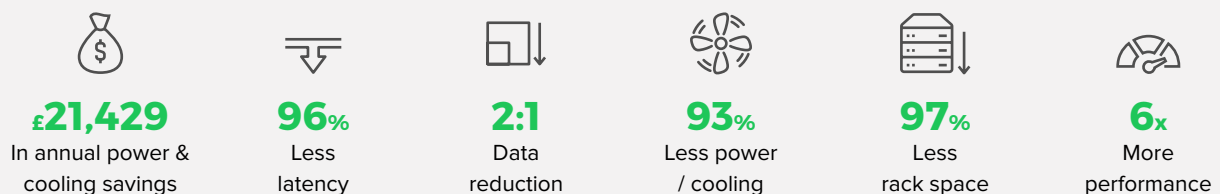
Depending on your objectives, reducing the footprint and resource consumption of your array may be an important factor in assessing whether to upgrade or maintain existing systems. When looking at the potential gain in these areas, a modern system can be quite compelling. For example a switch to all flash system can have a significant impact on the datacentre economics. See diagram below.

In this scenario 4 racks are replaced with a 2U system. The difference in size is based on the performance output of the flash system compared to the existing requirements.

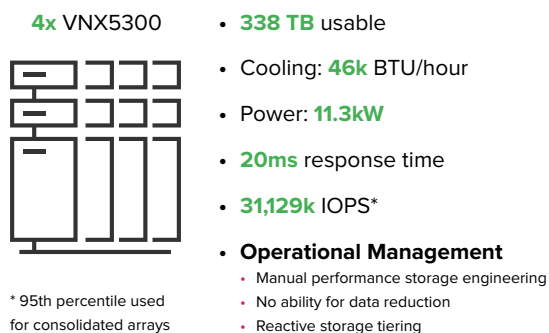
With modern flash drives typically at 3.84TB, 7.68TB and 15.36TB in capacity, it's easy to see how a new system can be configured with fewer drives. The performance potential is 20x that of the spinning disks they are replacing.

In this example we can replace 338TB with 122TB due to performance improvements. The original system was over specified on capacity to reach a performance requirement; it needed a lot of spinning disks to reach the IO requirement of the workload.

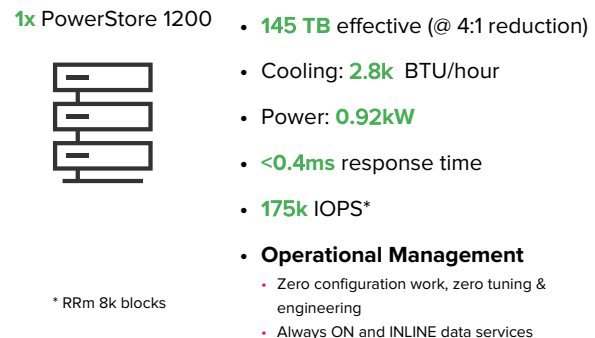
KPIs



Current environment



Powerstore All Flash Array





6. Data Reduction features

Many modern storage systems, (like all flash systems), utilise techniques to harness the performance potential available. These include data compression and deduplication.

However, these approaches are very dependent on your data sets. If you have a lot of media, pre-compressed images or other 'natural' data then these techniques may not offer you much in terms of storage reduction.

However, deduplication can be effective for specific workloads, like VDI where there is a lot of common data between system images that can be removed.

It's also worth noting that encryption at the server level will have a huge negative effect on deduplication and make it ineffective. Therefore, awareness of your data profile is a key consideration.

MTI can assess, advise and help you determine if an existing system is worth maintaining or how best to approach the design of a new system. Part of this involves checking your existing data and identifying compression and deduplication ratios available via new systems.



MTI assess, advise, and determine best approach to designing a new system.



7. Migration

Often the effort and complexity of a new storage array project can be a factor in determining whether to purchase a new array or maintain an existing one.

However, there are many tools included in modern arrays that enable the migration of data across from legacy arrays with minimal risk and often without down time.

Your storage partner should be able to help you identify the best approach to take and one that minimises the risks involved. MTI does this for a large number of our customers and can even help with data migration if internal teams are resource or time constrained.

MTI help with data migration when internal teams are time constrained.





8. Management

A modern array will be a lot simpler to manage so the complexity and time spent managing existing arrays should be a factor in your decision making.

Although tiered storage systems are still a common choice for a replacement array, the ease of use of an all flash system should be considered.

E.g. When deploying a new lun on an all flash system, concerns around ensuring there is sufficient performance capability in the current pool to service the new workload becomes obsolete.

Also the expansion of an modern array (like all flash) can be as simple as adding a single disk, the array will re-protect the data and take advantage of the extra space added, so you can expand in smaller chunks, therefore taking advantage of the ongoing price erosion of SSD's rather than buying all your capacity up front.

Upgrade or Maintain?

How best to address your organisations growing data demands, performance requirements and appetite for data storage will be based on your own unique circumstances. The approach to take should involve;



Define

Defining or clarifying the potential future demands from the organisation and it's workloads



Assess

Assessing existing systems and their suitability to meet these needs. Use the topics listed above as part of the assessment



Partner

Find a good partner that can advise you objectively and can perform any and all services that you may need to be performed during the project or as part of a maintenance extension



Design

Correctly size and design a new array solution that fits your requirements (if an upgrade is your chosen course) – see next section for guidance on new systems

PART TWO

What to consider when choosing a new storage solution

So, you have applied a thorough approach to the assessment of your existing storage environment, identified the pros and cons of maintaining or replacing your arrays, you have a good idea of business needs for now and in the medium term, and you have decided that upgrading your systems is the right approach.

What do modern Storage systems have to offer?

Storage technology has advanced significantly over the last few years. Capabilities and features that were previously eye wateringly expensive to buy or too complex to implement can now be acquired as standard features and options. Modern systems, especially all flash arrays, can be part of a solution that is fast, efficient, easy to operate, and provides a future proof platform on which your organisation can grow.



Performance

Fast multi-core processors, low-latency flash options, the latest high-speed networking, and sophisticated caching translate to inherently high performance and scalability. Self-tuning features then ensure continuous optimisation.

Flexible architecture means you can mix flash and disk to your needs, then add/replace media to enable growth or exploit new media options. Automated tiering and quality of service management enables support for any mix of workloads.

Flexibility



Availability

In-built snapshotting, replication, mirroring and rapid recovery options, including between different combinations of flash, disk and hybrid systems, protects data from loss, while minimising downtime.

Intelligent automation greatly reduces admin time and effort, while continuous compression and de-duplication boosts physical space utilisation (subject to the correct data sets). Operational overheads are then further reduced through better energy-efficiency.

Efficiency



Security/Legal

Advanced processing allows data encryption/decryption with no impact on performance. This reduces the risk of data loss if a drive is removed from an array as all data is encrypted at AES 256-bit level.

Priorities to consider

Even though modern storage systems offer compelling advantages over older systems, it is important that your storage solution aligns with your business needs.

The following areas should be at the forefront of the decision making process:



The secure and continuous running of the business

There's no question, businesses today are data dependant, which is why when undergoing any sort of IT modernisation, minimising downtime and keeping your data safe is imperative.



Resources and costs associated

Avoid unnecessary costs by managing resources effectively, making maximum use of cash, capital, time and expertise. Be sure that any investments you make, add value and help meet your objectives.



Business growth and development

As your business develops, ensure minimal cost and disruption by making sure your IT infrastructure can cope with an increased volume of data.

Let's not forget the IT team.
What is it that these individuals care about?



Ability to be reactive to changing business needs

Older systems will impede migration and configuration, therefore IT departments require policy-driven tools and integration with application stacks.



Mitigate risks associated with unforeseen issues that arise

No one likes unplanned upgrades and the same can be said for failures. Expandability is the key to avoiding costly and disruptive surprises.



Ability to allocate time where is needed most

IT departments don't want to spend their time lumbered with admin. A reliable automated system can help remedy this, freeing up precious time.

The factors listed here are by no means exhaustive, but they are the kind of things we hear time and again from our customers during IT transformation projects.

Matrix for decision making

With so much to consider, there are three simple baseline categories that can be used to influence your decision making process; Business growth, risk mitigation and cost reduction.

You can use each of these categories as a framework to judge how key features of modern storage solutions addresses organisational objectives. Your particular circumstances will enable you to apply a weighting to these categories vs features and include them (or not) in your business case.

- ★ Capability makes a significant and direct contribution to the business objective
- ☆ Capability makes a worthwhile and/or indirect contribution to the objective

Support for managing...

	Business growth		Risk mitigation		Cost reduction	
	Performance and scalability	Versatility and expandability	Business continuity and rapid DR	Data security and compliance	Minimisation of IT overheads	Reduction of CAPEX and OPEX
Extensible, hybrid architecture enabling growth & modernisation	★	★			☆	★
Unified storage to support file & block access on the same system	☆	★			☆	★
Fast networking and advanced caching for speed & scalability	★	☆	☆			
Storage clustering, transparent fail-over & fast rebuild capability			★	☆	☆	
Automated tiering based on actual data access patterns	★	★			★	☆
Automated quality of service to support mixed workloads	★	★			★	★
Snapshots, system-to-system replication and fast recovery			★		☆	
Selective, continuous de-duplication & compression	☆			☆	★	★
Selective, continuous data encryption & decryption				★	☆	☆
Integration with VMware & Microsoft virtualisation stacks		★			★	☆



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MTI takes the time to understand client challenges, goals and aspirations. Experienced consultants are on hand to provide support and guidance, helping to ensure that the right strategic decisions and investments are made.

Recommended by 98% of its clients, MTI currently provides over 2,600 organisations with exceptional pre and post sales delivery, alongside unrivalled response time/an average response time of less than five minutes.

About MTI

At MTI, our team of experts have 25 years of experience in dealing with storage arrays and storage assessments on projects of extreme complexity. We pride ourselves on making sure we understand the customer's needs while continuing to work alongside them throughout the project and into system lifecycle support. Speak to one of our experts here.

Data Centre



Cloud



Security



Managed services

