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# Storage Optimization Blueprint

## Gartner's step-by-step guide to efficient storage infrastructures

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## Gartner's step-by-step guide to efficient storage infrastructures

Gartner Research :

Ten Best-Practice Steps for
Building an Effective Storage RFP

Fujitsu Report :

Ready for any challenge
ETERNUS DX – The Flexible Data Safe

## The challenges of data management

Storage infrastructure is the foundation for an effective and flexible business. Many storage administrators are familiar with the problem of overload, caused by the ongoing rapid growth of data volumes. New applications and increasing amounts of unstructured information data analysis mean that many IT systems have reached their capacity limits. In addition, the I/O requirements in today's applications are becoming more demanding. Business intelligence solutions, virtualization projects and expanding databases also call for higher levels of performance. At the same time, as the value of business data and information increases, the need for improved data security, integrity and availability becomes even more important. All of this makes data management very difficult, if not impossible, especially in environments that have grown organically, with data distributed across numerous hard disks.

## Storage Optimization Blueprint

This document outlines the best-practice steps for optimizing your storage infrastructures. In the first section, Gartner research shows **Ten Best-Practice Steps for Building an Effective Storage RFP.** The Gartner research will provide IT leaders the insight to design an effective storage infrastructure and encourage the IT organization to move from delivering infrastructure to providing better services.

In the following section, it will describe considerations and methods that will enable you to optimize your storage infrastructures. Among the metrics of measurement that Gartner research highlights, all storage system requirements are centered on two things – flexibility and data safety. With Fujitsu's report **"Ready for any challenge : ETERNUS DX – The Flexible Data Safe"**, you will find the Fujitsu ETERNUS DX storage systems is the best choice to optimize your storage.

# Ten Best-Practice Steps for Building an Effective Storage RFP

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Organizations that efficiently mobilize and reward their storage teams to create effective storage RFPs save time and money, design storage infrastructures that align with business needs and, ultimately, encourage the IT organization to move from delivering infrastructure to providing services.

## Key Challenges

- Organizations often underestimate the time and resources required to create an RFP that improves agility, efficiency and business outcomes.
- Operations and storage architects who traditionally create storage RFPs frequently fail to include inputs from outside stakeholders, such as developers, end users, and purchasing and finance personnel, which causes resistance to needed changes and the delivered services.
- RFPs need to look beyond the acquisition price, because expensive upgrades and maintenance can make low-cost acquisitions expensive on a total cost of ownership (TCO) basis.

## Recommendations

- Obtain management support, and create an effective storage RFP team that includes stakeholders from various lines of business.
- Recognize high-impact metrics, and prioritize the needs.
- Identify and quell hidden agendas that may slant the RFP to favor a certain technology or vendor.
- Consider the maturity of your organization regarding change, and plan accordingly.
- Build a project schedule, and publicize its progress and successes.

## Analysis

### Introduction

An RFP is often viewed by IT operations as a ritual that must be endured whenever an upgrade or technical refresh is required. However, when used properly, an RFP can be an agent of change that empowers storage architects to create more-extensible infrastructures. This document outlines 10 best practices in preparing to create a storage RFP and will help IT leaders implement the cultural changes required to ensure success.

### Challenge

RFPs can be complex, overwhelming and resource-intensive, and could easily derail your effort, if proper organizational resources are not mobilized. Organizations constantly struggle to link the right people, processes and technologies, which is a prerequisite for a successful RFP preparation. Storage RFPs that are too focused on technical details, and ignore the broader business objectives, diminish the value of IT by not aligning it with business goals.

### Implications

Poorly written storage RFPs often result in poor business outcomes, strained vendor relations, and IT leaders losing credibility, and these are only the short- to medium-term problems. Longer term, these problems make it difficult for the IT organization to evolve from a cost center to a business enabler.

## Best Practices

The preparation for generating the RFP is as important as writing it. To make preparing a storage RFP more effective and streamlined, Gartner has outlined the following 10 best practices.

### Step 1. Obtain Management Support and Funding

Building a strong business case and obtaining senior management buy-in are important first steps in preparing to write an effective RFP. The probability of creating an effective RFP without senior management support is greatly diminished, because the storage systems acquired through the RFP process will directly affect them. Many organizations enter into the acquisition process because data growth and/or maintenance costs have become unacceptably high. Building a business case for change that will be supported by senior management is vital. This business case can be built around improving agility, a response to ever-increasing capacity demands, significant and demonstrable ROI, or other changes that are occurring in the organization. However, whatever the reason given, creating an effective RFP process is exhaustive in its resource consumption and potentially strategically important, so it should only be undertaken with support of senior management.

Action Items:

- Conduct a thorough infrastructure and application assessment, from which storage requirements (current and future) should emanate.
- Investigate what you have — stranded storage is common to most organizations.
- Clearly differentiate between needs and wants.
- Articulate a compelling business case.
- Be conservative in all assumptions from agility to ROI through virtualization.
- Clearly document the overall goals of the RFP.
- Obtain senior management buy-in, and ensure there is consensus.

### Step 2. Create an Effective Storage Team

A storage RFP preparation needs involvement from many different stakeholders — it is not just the purview of storage administrators. The success of the RFP not only hinges on the caliber of the team leader and the members, but on the incentive system as well.

Action Items:

- Create a storage team with an able leader. Choose this leader based on his or her understanding of business, technical and people skills, as well as relevant expertise that adds credibility to the role.
- The leader needs to be backed by strong stakeholders. Stakeholders included in a storage RFP team should be from the operations, development, marketing, finance, and purchasing departments, as well as end users. More importantly, an RFP writer should be assigned (or various team members should be assigned) appropriate writing roles.
- The team should have unfettered access to the legal department to ensure that they are retaining their right to work with analysts or consultants before signing nondisclosure agreements (NDAs), and to review contracts.
- Monitor team members' performance by conducting periodic reviews.
- Ensure that there are proper incentive systems in place to keep morale high — possibilities include linking annual reviews, bonuses, or recognition awards to project success.
- Depending on the scope of the project and future plans, decide if it should be a standing or a project-based team.
- If there is lack of technical experience and/or product knowledge — ask for an RFI from potential vendors chosen from Gartner's Magic Quadrant, MarketScope and/or Cool Vendors list.
- If there are still gaps or no prior experience in specific areas, consider bringing in external consultants, or using Gartner inquiry.
- Evaluate a reasonable spend rate for external consultants, and set a ceiling for how much of a cost increase can be borne.

### Step 3. Recognize High-Impact Metrics

Early in the process, organizations need to clearly understand what is important, and how it will be measured. Clearly understanding and articulating the price, technology, service level and support metrics will refine the RFP process toward the desired outcome.

Action Items:

- Clearly underscore what is important and how it will be measured. You can only analyze what you can measure — both financial and operational.
- Determine the application SLAs, and select storage infrastructure that meets application and business requirements.
- Clearly define the metrics of measurement for:
  - Price — acquisition price, TCO, incremental cost per unit storage, etc.
  - Scalability — both incremental and maximum capacity
  - Reliability, availability and serviceability (RAS)
  - Data protection — e.g., type and number of snapshots supported
  - Efficiency — such as deduplication, type of compression
  - Staff productivity improvements
  - Performance — input/output (I/O) performance, aggregate bandwidth, etc.
  - Connectivity — support for Common Internet File System (CIFS), Network File System (NFS), Fibre Channel (FC), Fibre Channel over Ethernet (FCoE), Internet Small Computer System Interface (iSCSI), etc.
  - Energy efficiency and its TCO implications
  - Service level — training, maintenance and professional services
  - Support — duration and terms and conditions
  - Licensing agreements
- RFPs need to be outcome-based, and should focus on recovery point objectives (RPOs), recovery time objectives (RTOs), capacity utilization, performance, etc.

### Step 4. Prioritize the Needs

Not all needs are equal, and this must be clearly understood and communicated to stakeholders. Consider the specific use case to prioritize the needs and determine what parameters need to be assigned higher ranking. These are easier to determine when procuring storage for a specific project (for example, storage for a new email system with 1,000 users) than for general storage growth over a long-term horizon.

Action Items:

- Incorporate valuable suggestions, and address the concerns of stakeholders early in the process.
- Analyze what type of weighted index would be appropriate for the given scenario, and separate weightings from rankings.
- Prioritizing is not just a technical exercise; parameters such as performance and availability must be weighed against the business and/or financial requirements and outcomes.
- Roll scores up into cost, risk and value summaries, where possible, to avoid overweighting any one aspect.
- Weigh the priorities against the budget allocated and the features available in the market, so that the RFP is realistic and not too restrictive for bidders.
- Formulate formal or informal agreements with users on scope, service delivery and support.

### Step 5. Identify Hidden Agendas

The real purpose of creating an RFP is not only to obtain the best value when procuring storage, but also to create a fair and transparent process that inhibits favoritism. An important duty of the project team is to uncover hidden agendas and maintain objectivity to avoid bias in favor of a particular technology or vendor.

Action Items:

- Recognize cultural biases in the organization, such as a reluctance to do business with emerging storage companies or with specific vendors that may or may not be current suppliers to the organization.
- Be wary of vested interests that can slant the RFP to favor a technology or vendor and produce flawed business outcomes, as well as objections from other vendors that could derail or delay the RFP process.
- Investigate and quell internal politics that could hinder the broader interest of the organization.
- Identify clearly the budget owners and seek to address their challenges to ensure there are no delays in funding.
- Look out for hidden agendas that may sometimes manifest themselves as a lack of clarity and purposeful vagueness in documentation.

### Step 6. Consider Organizational Maturity

It is important to ascertain the cultural fit of a change or a technology to the IT maturity of the organization. In areas where there is a severe shortage of skills — both inside and outside the organization — it is better to be prudent when making choices that may not be feasible to implement and support.

Action Items:

- Use external benchmarking tools, such as Gartner's ITScore for Infrastructure and Operations (ITSIO), to gauge the maturity of the organization.
- Ascertain the ability of the organization to react to change. Consider cultural, business and technological maturity. For example, storage chargeback mechanisms can only be effective if there are proper cost allocation tools, and IT acts like a service provider with standard service catalogues and SLAs.

### Step 7. Plan for Change Management

If the RFP will effect a major change, then have open discussions with affected teams on the probable and potential impacts that changes in the infrastructure may cause. Even users without hidden agendas may have unvoiced concerns about conversion costs, internal skills, the existing staff's ability to learn new technologies, the risks associated with deploying new technologies, etc. Although some of these concerns may be impossible to address completely, others can be mitigated with some creativity.

Action Items:

- Carefully evaluate conversion costs and timelines, and be conservative when estimating. Have the vendor provide a statement of work (SOW) and a price for converting a set of applications or moving data from one storage solution to another.
- Quantify the costs and benefits of changes in operational procedures and SLAs.
- Plan ahead to provide education and develop new operational procedures that enhance storage efficiency and availability.
- Change management strategies need to be comprehensive to include hardware, software, services, asset management, data ownership and integrated release management.
- Clearly define who manages the project and is responsible for the costs of any setbacks or delays.

### Step 8. Conduct a Thorough Sanity Check

By now, there is a high probability that your requirements may look different from the initial ideas that were outlined. Change isn't always bad, but, at this point, pause to conduct a sanity check on whether the current scope meets the needs of the organization and can still deliver the best business value.

Action Items:

- Conduct a thorough audit on potential hardware, software and services — ensure that the chosen parameters meet the goals outlined and that they are realistic for suppliers.
- Investigate carefully for storage features that can create lock-in (snapshot, remote replication, etc.), and ascertain your level of preparedness for the lock-in.
- Ascertain whether the RFP accurately reflects the financial and operational needs that were outlined in the initial goals.

### Step 9. Build a Project Schedule

Organizations should give themselves enough time to negotiate effectively with potential suppliers, allow operations to gain a sense of the proposed system's ease of use, and conduct due diligences as appropriate. Treating an acquisition as a storage project encourages the storage team to identify critical paths to the project's success and to build negative float into the project to accommodate unplanned delays caused by critical resources being temporarily assigned to other projects.

Action Items:

- Plan well in advance. Budget at least three to six months for preparation after securing management sponsorship.
- Allow enough time for the negotiation of a competitive price and for doing a proof of concept or, if practical, a test to scale: often three months for a simple storage system acquisition to a year or more for complex infrastructure refreshes.
- Include key milestones and measure periodically how well you're doing against them.
- Always allocate buffer time for unforeseen events.

### Step 10. Publicize the Results/Failures

Although the preparatory process is often exhaustive and tiresome, it results in valuable learning that should be documented so that it can help during future preparatory processes. Any learning organization should communicate the results and failures internally, so that the process becomes transparent to the users, and it improves future outcomes.

Action Items:

- Communicate the process to stakeholders — how the results were achieved, what to expect — and present a clear timeline to the users.
- Suggest areas of improvement and lessons learned.

## Common Pitfalls to Avoid During Storage RFP Preparation

- Don't short-circuit the RFP process, because it provides an opportunity to:
  - Bring IT closer to developers and users.
  - Review past decisions and existing SLAs.
  - Learn about new technologies that are entering the market or gaining market share.
  - Identify opportunities to improve agility and operational efficiency.
- Don't let operations dominate the RFP process, because there is a natural inclination to avoid the risks that are inherent in changing vendors and architectures, even when new technologies better meet business needs.
- Don't let acquisition price alone dictate the RFP, because high hardware and software upgrade costs, coupled with expensive maintenance, can make low-cost acquisitions expensive on a TCO basis. Request pricing and price protections for all these items upfront.
- Don't take ownership of problems that aren't yours, because this inevitably leads to problems, such as schedule delays, missing functionality and capacity shortfalls.
- Don't overpromise and underdeliver, because this increases the risks of acquisition being labeled a failure, even when it's a success.

### Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Toolkit Sample Template: RFP Process Diagram and Checklists"

"Infrastructure & Operations Maturity: How Do You Compare?"

"Lower Storage Ownership Costs by Maximizing the Value of Storage Vendor Relationships"

"Innovations in Storage Technologies Are Not Enough to Reduce Storage Costs"

"Forecast: External Controller-Based Disk Storage, Worldwide, 2012-2016, 1Q12 Update"

### Evidence

Information growth is relentless. Through 2016, Gartner is forecasting annual raw-capacity growth of 39.6% in external, controller-based disk storage driven by content digitization and regulatory compliance. Thus, procurement of storage software, hardware and services will continue to witness a significant increase in the coming years.

This research is based on end-user verbal and written inquiries that Gartner handles.

## Identify high-impact metrics and prioritize needs accordingly

Based on the research, Gartner indicates that the first step for any organization is to clearly understand what is important, and how it will be measured. Gartner recommends the organization to then prioritize the most important needs, and determine what parameters should be assigned to those higher ranked requirements.

In the next section of this paper, Fujitsu will highlight specific considerations for evaluating key storage challenges, priorities and needs, and how they relate to flexibility and data safety. The paper will take a detailed look into Fujitsu's ETERNUS DX storage systems and how it delivers value across the following metrics:

- **Scalability**
- **Efficiency**
- **Data safety**
- **Performance**
- **Reliability**
- **Connectivity**
- **Affordable price**
- **Optimize operations**
- **Energy saving**
- **Service level**

# Are you ready for all the challenges of data management?

### More data per storage system

To minimize the costs and complexity of IT operations, many IT decisionmakers have been focusing on storage system consolidation. But as more data is consolidated in one system, high performance and quality are an absolute must. Generally speaking, when two-thirds of the available storage capacity has been utilized, system performance tends to decline, and there are often issues related to limited bandwidth. In addition, there is a higher risk of data loss or data corruption stemming from read and write errors. It is essential that a storage system always ensures data integrity and data availability, even during unexpected system failures.

The following points are important when choosing a storage solution:

- Performance for "Big Data"
- Storage operations under maximum loads
- Flexible storage capacity
- Efficient storage management

### Server virtualization heavily impacts storage

Virtual servers are nothing more than files on a storage system, and in essence these server images are stored as data. This means that storage is crucial for efficient and reliable operation of virtual servers.

Considerations for storage managers:

- Performance matters
- High availability is even more crucial, but new options are possible
- Integrated server and storage management

### Disaster recovery concepts have become a must

Recently there has been a wave of natural and man-made disasters, which have increased the awareness of how important disaster recovery concepts are.

Considerations for storage managers:

- Care for data copies at more than one site
- Check flexibility
- Focus on affordable and more efficient technologies

### One system, but different applications with different requirements

The more consolidated a storage environment is, the more varied the requirements a storage system must fulfill.

Considerations for storage managers:

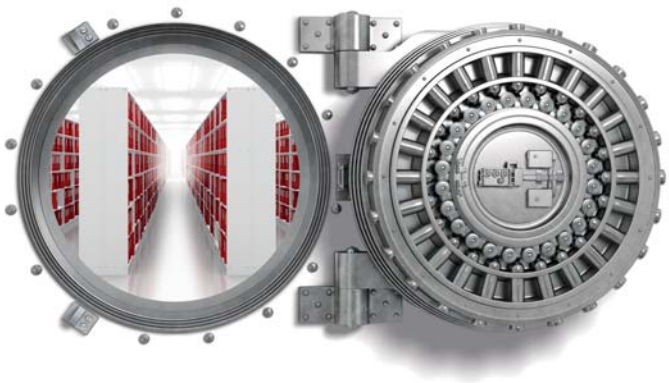
- Balance speed, capacity and costs
- Automate service levels
- Service quality

### Cloud-like infrastructures

The short time needed for provisioning IT infrastructure resources – servers, storage and network connections – have made the concept of cloud computing very attractive. Traditional provisioning is a long and complex process, whereas provisioning from the cloud delivers specific configurations more or less instantly via the Internet. Larger organizations are also currently building their own internal cloud infrastructures for their own core data and applications – this is known as a Private Cloud.

Considerations for storage managers:

- Scalable architectures with predictable performance
- More than storage



## In essence, all storage system requirements are centered on two things – flexibility and data safety.

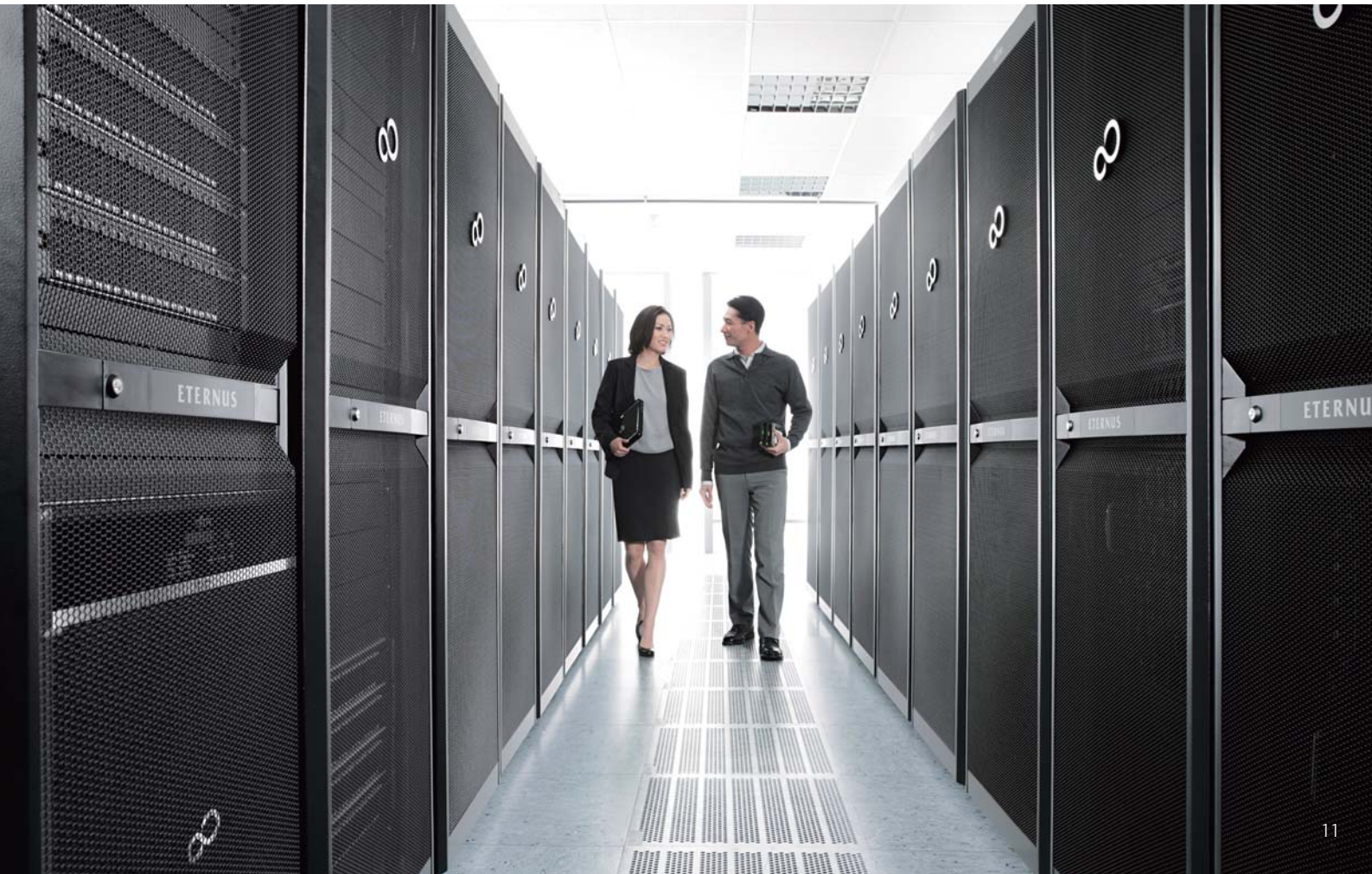
**Flexibility**

- Scalable capacity within a system. Easy upgrade and migration to bigger systems. Uniform system management.
- Mechanisms to increase utilization of disk capacity.
- Performance architecture with predictable response times enabling growth.
- Flexible configuration of disk types. Automated balancing of speed, capacity and costs for optimized service levels.
- Integration in server virtualization management. Integration in (cloud) infrastructure management.

**Data safety**

- Comprehensive functionality to prevent data loss or to repair data corruption.
- Flexible support of disaster recovery concepts.
- Efficient data encryption. Robust system design.
- Strong quality assurance processes from the system vendor.

Flexibility and data safety are the key principles that guided the design of the Fujitsu storage portfolio. Find out how the ETERNUS DX online disk storage family from Fujitsu fully embraces these principles. **ETERNUS DX – The Flexible Data Safe**



# ETERNUS DX
## The Flexible Data Safe

### The highest degree of flexibility

ETERNUS DX is the strategic block-level storage system family in Fujitsu's Dynamic Infrastructures portfolio. This fully harmonized portfolio includes IT products, infrastructure solutions, cloud services and managed services that complement each other to give customers precisely the flexibility they need for their particular IT environments.

The ETERNUS DX design is consistent across all models, from entrylevel to midrange and high-end systems. For example, central elements in the family concept include compatible product components and functions in all models, system interoperability, and the same system management software for deployment in all ETERNUS DX models. Thanks to their excellent scalability, the systems can be enhanced easily, allowing users to upgrade from one model level to the next. Data replication and data copies are also possible among the various system models – these are all advantages that support flexible data management (central and decentral), data protection and data recovery concepts. ETERNUS DX is also an ideal choice for those who want to reduce the complexity of their storage environments while optimizing operations and maintenance processes at the same time. The consistent concept behind this product family is much different from various other market offerings that simply bundle diverse technologies in one portfolio. And that is the reason why more and more enterprises are choosing the efficient and reliable ETERNUS DX storage systems.

### Maximum data safety

ETERNUS DX uniquely combines the greatest possible flexibility with maximum data safety. The product family supports uninterrupted operations at all levels – from the physical systems to the realization of flexible disaster recovery concepts. Thanks to a wide range of guard and protection functions, the system family is like a bank safe for the reliable and uninterrupted management of enterprise data.

Even the entry-level ETERNUS DX models offer the design and functionality normally expected of much larger systems. All key system components are redundant so that they can be replaced during running operations – upgrades can also be carried out without interrupting any processes.

### ETERNUS DX reduces storage costs dramatically

- Three times more capacity with Nearline SAS disks
- 50% savings in energy, cooling and floor space with 2.5 inch disks
- 20% and more energy savings with the Eco-mode feature
- Capacity utilization can be doubled thanks to Thin Provisioning
- Ideal performance at low cost with automated storage tiering

## Did you know?

- Fujitsu is the world's third-largest IT service
- Fujitsu is among the world's top five server vendors.
- Fujitsu builds on 40 years of experience in storage development.
- Fujitsu customers include nearly half of the Fortune Global 500.
- Fujitsu Group holds about 102,000 patents worldwide.

## Trouble-free IT for five-star hotel "Stanglwirt"

Fujitsu set up comprehensive IT support for all hotel functions and implemented a reliable IT environment with central ETERNUS DX data storage.

The results were:

- 24x7 IT operation
- Highly satisfied hotel guests
- The luxury hotel has established itself as a technical trendsetter in its industry

*"I aim to make my guests' stay as memorable as possible. I can't afford to have an IT breakdown. That's why I rely on top technology from Fujitsu."*

***Richard Alois Hauser***
*Director*
*Stanglwirt*

## DLRG reduces risks and costs while increasing efficiency

DLRG, the world's largest voluntary lifeguard organization, wanted to reduce risks and costs while increasing efficiency. DLRG also wanted to have a reliable IT environment with central data storage and server virtualization.

Our proposed solution was server virtualization with VMware running on PRIMERGY servers, with two ETERNUS DX90 disk storage systems providing high performance and storage-based mirroring, to give DLRG extensive reserves for future growth.

*"Thanks to virtualization and Fujitsu's stable storage systems, our IT runs securely and smoothly – and the performance is exceptional. We felt that we were in good hands during the consulting process."*

***Frank Rabe***
*Acting National Chief Executive*
*DLRG*

# ETERNUS DX
## ready for any challenge

Benefit from Fujitsu's extensive competence as one of the world's leading partners for optimizing IT infrastructures. The ETERNUS DX series delivers outstanding performance for meeting the challenges posed by any application scenario. Would you like to put us to the test? We are ready.

www.fujitsu.com/eternus

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