Information is the fuel of today’s enterprise, and in a global, 24/7 environment, it is more abundant than ever before. However, the infrastructure required to store, protect, and access large volumes of data efficiently and securely can be not only a valuable asset, but also a significant challenge.

Although the demand to consolidate data is felt at enterprises of all sizes, this need is particularly pronounced in midsize businesses. Restricted by limited budgets and staffing resources, IT managers at these organizations must still cope with rapid data growth and an increasing range of users, while simultaneously implementing new technologies and maintaining and enhancing existing ones. In these businesses, adding even one new administrator to help ease the burden can put an unacceptable strain on IT budgets. These businesses require technology that can not only help them overcome the growing challenges of data storage, but also allow them to take advantage of existing resources to do so.

Advances in IP-based networked storage technology such as network attached storage (NAS) and Internet SCSI (iSCSI) have created an opportunity for organizations of all sizes to cost-effectively build, maintain, and manage sophisticated storage networks. These systems enable these organizations to achieve similar results as large enterprises, but in a simple, cost-effective way.

Understanding storage challenges in midsize businesses

Networked storage, which enables enterprises to consolidate and store massive amounts of data in a centralized storage system, can be a highly effective way to meet the challenges of rapid data growth. It can provide enhanced reliability, high availability, and high performance while helping ensure efficient and predictable data protection, backup and recovery, and long-term archiving.

Networked storage is very common in large enterprises, who have typically deployed high-bandwidth Fibre Channel–based storage area networks (SANs) as the foundation for critical large-scale applications. NAS offers a cost-effective supplement to dedicated Fibre Channel–based SANs, and is primarily suitable for file-sharing and file-serving applications. In combination, these two approaches can help create a powerful and reliable storage environment.

But while large enterprises typically have the resources to build and maintain these environments, small and midsize businesses may lack not only the budgets to invest in the technology, but also the staff resources to deploy and support it. Instead, they typically purchase and deploy storage as needed using either internal server storage or direct attach storage (DAS).

However, as the environment changes and data requirements grow, these separate servers and storage systems can
“Rapid data growth is both an asset and a challenge.”

proliferate, creating a complex, inefficient, and difficult-to-manage environment with its own set of challenges:

- **Underutilization:** Distributed storage environments rarely maximize use of overall capacity, reducing return on investment in storage hardware.
- **Increased management costs:** The complexity of managing a large number of decentralized servers can quickly drive up management costs and overburden administrators.
- **Reduced reliability:** Spreading data and storage across the organization makes maintaining a reliable environment difficult, increasing the risk of data loss or unavailability and costly downtime.
- **Complex backup and recovery:** Because distributed storage does not offer a consistent, common, or simple way to perform backups, it can slow business continuity and disaster recovery processes—or render them ineffective.

**Meeting storage challenges with IP-based networked storage**

IP-based networked storage offers a simple, cost-effective way for midsize businesses to achieve the advantages of storage consolidation previously available primarily to large enterprises. And because many of these organizations already have an IP network in place, their administrators typically have the skills necessary to deploy and manage IP-based storage.

IP-based storage offers multiple advantages over the distributed storage common to midsize businesses, including the following:

- **Increased utilization:** Consolidated IP-based storage enables servers to access and share storage, helping maximize utilization of these resources.

  **Reduced management costs:** Consolidated storage enables centralized management, helping simplify administrative tasks and reduce management costs.

  **Increased reliability:** A shared set of dedicated IP-based storage systems can help significantly increase the reliability and availability of application data.

  **Simplified backup and recovery:** IP-based networked storage enables administrators to easily implement consistent, common, and simple backup and recovery processes.

When planning and deploying an IP-based networked storage environment, midsize businesses may have questions about costs, ease of transition, application support, and the capacity for growth. For more information on such factors, see the “Considerations when transitioning to IP-based networked storage” sidebar in this article.

**Building simple, cost-effective storage environments**

Rapid data growth is both an asset and a challenge, and for midsize businesses, meeting that challenge with limited budgets and IT staff can be difficult. By deploying IP-based networked storage such as NAS and iSCSI, these organizations can gain the same IT advantages as large enterprises—including increased utilization, reduced management costs, increased reliability, and simplified backup and recovery—in a simple, cost-effective way.

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**Considerations when transitioning to IP-based networked storage**

Compared with internal server storage or DAS, IP-based networked storage offers a highly efficient, cost-effective way to handle rapidly increasing data. But before planning and deploying this type of storage, midsize businesses may have questions such as the following:

- **Does deployment require a major budgetary investment?** Because IP-based storage can utilize existing networks and cost-effective IP connectivity, it is typically even within the reach of organizations with limited budgets.

- **Will the transition be difficult?** IT staff at midsize businesses are often already handling a wide range of administrative duties and other IT initiatives, making simple deployment a critical factor. IP-based networked storage utilizes technology typically already familiar to IT staff, helping provide a seamless, simple transition.

- **What types of applications can it support?** Effective storage must support a wide range of applications. NAS is well suited for file sharing and file serving, while iSCSI is well suited for e-mail and online transaction processing applications, providing sufficient performance for typical applications with small-block, random I/O loads.

- **Is it flexible enough to support changing needs?** Storage requirements can change as organizations evolve. When choosing an IP-based storage system, organizations should take into account not only the initial deployment and consolidation, but also the system’s scalability and additional functionality that may be required in the future. In planning their storage environments, midsize businesses may want to include the flexibility to offer IP and Fibre Channel to support a variety of application requirements, as well as the ability to support advanced backup, recovery, and archiving systems.