

Meeting Data Center Challenges
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Today's data center managers and IT departments have more on their plates than ever before. Data centers have grown in size and complexity, characterized more by diversity than by standardization. And the value of information assets has skyrocketed.

At the same time, businesses are looking to IT to help drive growth and profitability—even as budgets and staff levels remain flat.

No wonder IT professionals view cost as the primary pain point they face in the data center, according to a recent survey conducted by Symantec Corp. With little discretionary budget left to invest in the projects, systems, and applications that support new business initiatives, IT departments are looking for a way to address a wide range of pressing challenges—while also meeting bottom-line objectives.

And their list of challenges is long, ranging from application availability to data migration and more.

The good news? Innovative tools are now available to help ease the pain of meeting data center management challenges and budgetary goals.

Application Availability

IT departments must ensure that applications are available anytime, all the time. However, there's more to application availability than simply having the ability to fail over from one server to another. Data must also be available.

In environments with one application on one operating system and one storage hardware platform, application and data availability is relatively straightforward. But in environments with several different applications running on different operating systems, running different databases, and supported by different storage hardware platforms, the challenge is greater.

The key is to use the same toolset and processes, regardless of platform. Heterogeneous online storage management together with open systems clustering provide IT a standard set of integrated tools to maximize storage capacity across heterogeneous environments, provide data protection, and eliminate the single point of failure found within a single server. This enables organizations to reduce operational costs and capital expenditures across the data center.

Data Migration

Data migration is often a one-time activity—repeated throughout the lifecycle of the server and the storage. IT must be able to get information off of an old system and move it to a new system, without impacting the business. This must be done for like-server migrations, heterogeneous migrations, and array migrations.

In addition to providing the same tool for all operating systems, a growing number of storage management solutions make the same set of data accessible to all major operating systems while obviating the need to use NFS or tape to move data between systems. Data is deported from one operating system and imported onto another in minutes, without creating a copy of the data or moving it. And, as applications are upgraded or migrated to new hardware, administrators can centrally manage host migrations and do a pre-migration check to verify that the server and storage connections are currently set up before the migration begins. Applications are not impacted during maintenance, and users remain uninterrupted.

Storage Capacity Management

The challenge with storage capacity is that as SANs and NAS are introduced into the data center, storage utilization often becomes suboptimal. Yet, IT departments are trying to drive utilization rates up in order to delay storage hardware acquisitions as long as possible and, in turn, drive down capital expenditures. At the same time, systems are continually coming off lease or are retired, arrays are being brought in, and orphaned storage becomes the norm as storage allocation is unclear.

Consequently, to maximize storage capacity management, organizations must understand which storage systems are being utilized or orphaned versus what has been allocated. To that end, organizations require an integrated toolset that provides storage resource management, performance and policy management, and storage provisioning capabilities.

These tools give IT visibility into storage and device details that are difficult to obtain using manual processes, enabling them to discern between storage that has been formatted and allocated to applications and databases and storage that is actually being utilized by the applications. With a software-centric approach to architecting a storage infrastructure, IT can enjoy increased productivity, control management costs, and ensure a solid foundation for managing future enterprise storage growth.

Business Continuity and Disaster Recovery

While many organizations have a disaster recovery plan in place, few are confident that it would be effective in the event of a real emergency. After all, testing disaster recovery plans is difficult and often disruptive.

However, tools are available today that enable an organization to test a configuration's fault readiness by mimicking a failover—without stopping the applications at the primary data center and without the need for extra hardware or storage. By using space-optimized snapshots of data for bringing applications online at a secondary site, organizations can safely test their disaster recovery plans.

Configuration Management and Server Compliance

The adage “the only thing constant is change” is especially true in the data center. Operating system patches are continually being released, software is updated, and application upgrades made available. However, in many large organizations, change management is often highly undisciplined.

To address these pressing issues efficiently and effectively, organizations can turn to automated application and server configuration management tools that discover server and software configurations, dynamically map dependencies, and track changes in real time. With reliable inventory information, organizations can ensure the integrity of their servers and software, expedite problem resolution, reduce change-related downtime, and improve data center management.

Storage Tiering

Not all information is created equal; some is suited to low-end storage, while other data is better reserved for mid-range or high-end storage. By allocating the right information to the most appropriate storage tier, organizations can see significant cost savings.

Storage management tools used in combination with volume replication solutions enable organizations to dynamically map information—rather than applications—to the storage tier that is most appropriate for that information. Information that is accessed every day, for example, can be mapped to tier 1 storage while information that has not been accessed in 90 days can be moved from one volume to another and from one storage tier to another.

Server Virtualization

In a virtualized environment, more than one application can reside on a single physical server. More applications are also susceptible to any hardware failure that might occur on that single server.

Clustering services enable organizations to protect applications at the entire server level or at the granular guest operating system level. Physical-to-physical, virtual-to-virtual, physical-to-virtual, and virtual-to-physical failover capabilities ensure that any server—whether physical or virtual—is protected.

By leveraging one or more of today's innovative toolsets for storage management, clustering, disaster recovery testing, and configuration management, organizations can find relief from the challenges of meeting data center objectives while maximizing bottom-line results.

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