NetApp®
Go further, faster

NetApp Delivers Enterprise-Class Availability

KEY BENEFITS

Protect against failure and data loss

Minimize data loss and component failure with a hardware platform that provides double resiliency features, proactive monitoring, and self-healing subsystems.

Deliver increased availability

Protect against planned outages and increase availability with built-in stretch clustering, replication, and disk backup services.

Drive down cost structure

Leverage NetApp® storage efficiency technologies and reduce capacity requirements up to 90% across all HA systems.

Gain operational and staff efficiencies

Reduce management overhead up to 40%[1] and accelerate service deliveries.

THE CHALLENGE

In today's global economy, IT organizations are under relentless pressure to maintain a continuously available infrastructure while enabling the security, integrity, and confidentiality of valuable data. Loss of data, or the inability to access that data, can have catastrophic effects, including lost productivity, lost revenue, and even lost customer loyalty. Economic challenges also drive businesses to achieve greater levels of cost savings and reduced complexity.

As customers and service providers consolidate more and more applications and workloads onto shared storage infrastructures, it is challenging to maintain an infrastructure that is "always available." Increased workloads and utilization drive a higher duty cycle, putting pressure on the storage architecture. A broader group of users and applications requires increased coordination of downtime for storage management and hardware upgrades/refreshes to prevent unintended outages. And because many different users, groups, or customers with different needs may be using the shared storage infrastructure at the same time, the impact of a failure proportionally increases.

To meet expectations and eliminate the complexity of protecting businesses from outages and data loss, a highly available, cost-effective storage platform is needed.

THE SOLUTION

Reduce the cost and complexity of protecting your IT environment from downtime and data loss with NetApp. NetApp storage is designed with high availability, flexibility, and efficiency in mind. A suite of capabilities within the NetApp FAS platform protects against component failures and even entire system/data center failures to keep your critical business operations running. These functions work in tandem with NetApp storage efficiency technologies to reduce capacity and operational costs so that you can provide high availability (HA) for more of your environment.

1. *Forrester: The Total Economic Impact of NetApp's Manageability Suite, Jan, 2009*

Built-in high availability

Enabling data availability is of paramount importance to NetApp. FAS systems routinely deliver availability of 99.999% or greater (that is, just minutes of downtime per year).[2] Standard product features—some of which are unique—within every FAS system provide protection against component issues and local outages caused by power, air conditioning, and human error.

Highly resilient architecture

- HA Pair controller configuration provides data availability by transferring data service of an unavailable controller to the surviving partner. Transfer of data service is often transparent to end users and applications, and the data service is quickly resumed with no detectable interruption to business operation.

- Multipath HA (MPHA) supports multiple paths to all storage shelves, providing controller access to all shelves in a stack.

- Alternate Control Path (ACP) provides out-of-band management on disk shelves that use serial-attached SCSI (SAS) technology. ACP is completely separate from the SAS data path and enhances data availability by enabling the storage controller to nondisruptively and automatically reset a misbehaving component.

- The IOM3 and IOM6 shelf modules provide direct disk access. All disks are isolated from each other so disk errors don't propagate.

Protection against data loss and corruption

- Built-in RAID-DP® protects against data loss from disk failure. RAID-DP is an advanced, cost-effective solution that protects your environment against the impact of a double disk outage within a single RAID group and does so with no discernable performance impact.

- Lost write protection detects lost writes (for example, writes lost due to media errors), then uses RAID parity to reconstruct the data.

- Raid reconstruction prioritization enables doubly degraded RAID groups (those at immediate risk of data loss) to be reconstructed before singly degraded RAID groups (those not at immediate risk of data loss).

- Rapid RAID recovery identifies if a disk failure is imminent and begins rebuild automatically. It works just like a RAID reconstruction, but without the need to recreate data from parity, resulting in faster recovery time.

- Industry-leading NetApp Snapshot® technology provides rapid data recovery. With Snapshot, you can protect your data and achieve application recovery with minimal overhead and maximum scalability.

Proactive monitoring and maintenance

- Maintenance Center helps to lower support costs and improve productivity by predicting and alerting about drive defects so the drives can be replaced before they cause problems.
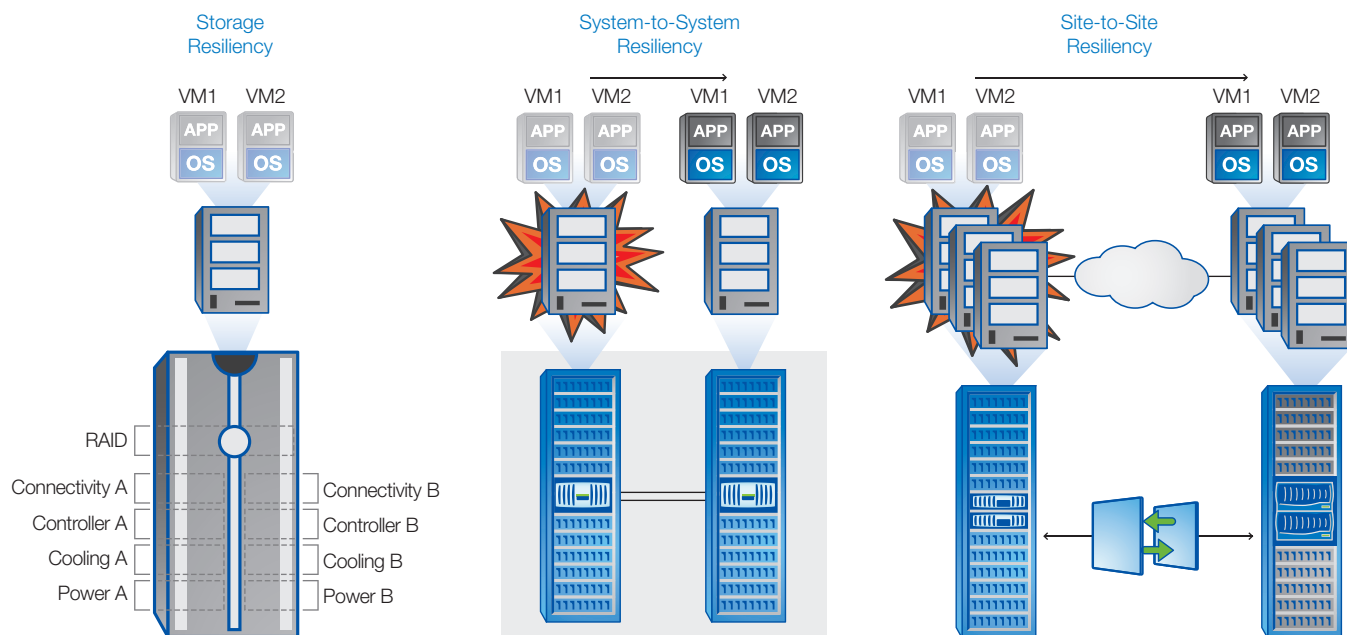
Figure 1) NetApp: building continuous data availability for your virtualized environment.

- AutoSupport™, a "call home" and built-in system monitoring tool, proactively monitors hundreds of system parameters with the ability, in most cases, to resolve issues without customer intervention.

Continuous availability

Get continuous data availability for your business-critical environments inside and outside the data center with a high-availability system configuration. With an HA pair, each controller services its own workload while monitoring the other controller. If a controller fails, the surviving controller assumes the workload of both. The transfer is seamless to users and business operations. Storage administrators have continuous data service during scheduled maintenance and upgrades by manually initiating a failover operation.

For extra protection, NetApp MetroCluster™ delivers increased resiliency with storage-level clustering to extend your HA pair across distance inside a data center or across campus and metropolitan environments. MetroCluster is a unique solution that combines array-based clustering with synchronous mirroring for continuous data availability and zero data loss. MetroCluster simultaneously writes the data on two independent arrays that can be up to 100 km apart. Automatic transparent recovery from environmental failures beyond the array, such as those caused by power, cooling, and network issues, highlights the value of MetroCluster. Additionally, MetroCluster provides automated single-command recovery for site-wide failures, making it much easier to administer because it does not rely on host-based clustering mechanisms compared to other vendors' solutions. It also provides up to 80% read performance improvement to speed up access to data.[3]

EXTEND COVERAGE WITH NETAPP INTEGRATED DATA PROTECTION

While high availability is a critical component of every data protection strategy, it isn't the only one. To protect against other events that can cause downtime and data loss you need to include backup, disaster recovery, as well as archive and compliance in your plans.

NetApp understands this and embeds these functions directly into the Data ONTAP® operating system so you can use a single platform—not multiple specialty appliances that can increase cost and management complexity—to store and protect data. With the NetApp Integrated Data Protection (IDP) portfolio, you can fine-tune the level of protection needed to meet application workload requirements. IDP enables you to minimize costs by leveraging storage efficiency technologies like deduplication across availability, backup, disaster recovery, archive, and compliance to reduce capacity requirements by up to 90%.[4] When IDP is used in conjunction with NetApp policy-based provisioning and protection, SLAs can easily be automated further, reducing complexity. The NetApp Integrated Data Protection portfolio includes:

Disk-based backup and recovery

NetApp SnapVault® provides centralized disk-to-disk backup for NetApp FAS systems and requires no external servers for moving data. For backing up and restoring from heterogeneous

storage devices, Open Systems SnapVault leverages the block-level incremental backup technology found in SnapVault to protect Windows®, Linux®, and VMware® systems running on mixed storage.

Disaster recovery

NetApp SnapMirror® delivers disaster recovery with capabilities for distances beyond 100 km while reducing band-width utilization by up to 70% with native network compression.[5] Leveraging the NetApp Unified Storage Architecture, SnapMirror simplifies the management of data replication with a single solution that works across all NetApp storage arrays and protocols.

Disaster recovery testing

NetApp FlexClone® extends the value of data protection by creating instanta-neous, space-efficient cloned copies of your DR data. This enables you to conduct DR testing in addition to development/test and business intelligence without impacting your production environment.

Archive and compliance

NetApp SnapLock® turns NetApp FAS disk volumes into secure write once, read many (WORM) volumes, so you have nonerasable, nonrewrit-able disk volumes to satisfy strict regulatory requirements.

Partner for success

When you partner with our Professional Services and Global Support teams, you gain access to our extensive storage expertise, innovative technologies, and best practices. You can accelerate the return on your infrastructure investments and get the most business benefit from them. We respond quickly to your problems, no matter where in the world they occur. And because we offer one of the most flexible support programs in the industry, you always get just the support you need to enable your business to go further, faster.

ABOUT NETAPP

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate performance breakthroughs. Discover our passion for helping companies around the world go further, faster at *www.netapp.com*.

NetApp®

www.netapp.com