FlashServer™ HA "High Availability Servers" HA-4000 Series

Redundant Failover Servers Deliver Continuous Operation for Mission Critical Applications without Software Clustering

High Availability Servers for Your Most Important Applications
FlashServer HA Redundant Failover Servers provide an innovative hardware solution to address planned and unplanned downtime for your most important applications. FlashServer HA delivers continuous uptime through its fully redundant modular hardware featuring Intel Xeon E5 processors with up to ten cores each. These servers provide continuous availability through hardware redundancy in all components: CPU, memory, motherboards, I/O, hard disk drives, power supplies and cooling fans. Two servers in one unit run applications simultaneously; if one fails, the other takes over immediately with *no lost data and no delays common to cluster solutions.* Best of all, only one set of software licenses is needed, delivering big savings compared to cluster software solutions.

FlashServer HA provides High Availability without clusters and reduces the complexity of your IT environment

Hot swap servers are quickly and easily replaced - and enable live software updates.

Five 9s High Availability
Failover with the FlashServer HA is automatic and transparent to the OS, virtualization software, applications, and users. The environment can survive a drive, motherboard, CPU, RAM, bus, power supply and fan failure. The result is a realizable 99.999% uptime without clustering. For the utmost in reliability and to protect against both hardware and software failures, FlashServer HA servers work exceeding well in cluster environments—delivering a double layer of protection: fault tolerant servers and cluster failover. Plus, clustering provides load balancing and other benefits.

Availability	Total Accumulated Outage per Year	(#9s)
90%	More than a month	1
99%	Just under 4 days	2
99.9%	Just under 9 hours	3
99.99%	Just under 1 hour	4
99.999%	A little over 5 minutes	5
99.9999%	About a half a minute	6
99.99999%	About 3 seconds	7

FlashServer HA delivers 99.999% system uptime and immediate failover.

Five 9s Reliability -- Dramatic Cost Savings

FlashServer HA Advantages

Key Benefits
- Continuous Availability for 99.999% uptime
- *Transparent application failover with no data loss—applications keep running after hardware failures*
- Affordable fault tolerance
- Perfect for mission critical applications
- Deploys like a standard Intel server
- Live updates with split and resync (Windows)
- Field-proven in mission critical environments

Features
- Dual active servers, each with Intel Xeon processors up to 10 cores and 512GB RAM
- Simultaneous application execution on both servers
- Immediate server failover
- Hot swap server replacement
- Works in native and virtual environments
- Supports Windows, Linux and VMware

Cost Savings
- Cuts downtime and data loss
- Single software licensing
- Avoids professional services
- Eliminates software clustering

Overwhelming Cost Savings
To run in redundant mode, the HA Server requires only one copy of the operating system and application software; no professional services are needed to setup or configure the server. It's simple to setup, simple to use, and simple to maintain.

Simplicity
FlashServer HA installs just like any other standard Intel server, saving tremendously on professional services and reducing—or eliminating— the need for specialized staff to support complex cluster environments. FlashServer HA implements server redundancy at the hardware level, reducing failures to automatic notifications and indicator light status. This approach significantly reduces the complexity associated with other forms of high availability such as server clustering. It also simplifies system management and recovery operations, since administration and configurations are performed from a single-system view.

Uninterrupted Operation
Eliminating minutes of downtime for a cluster failover and avoiding data loss provide substantial recapture of otherwise lost revenue often measured in thousands of dollars per minute.

TCO Reduction
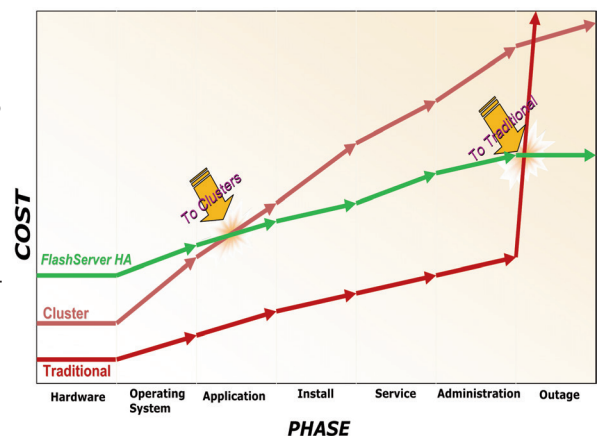
FlashServer HA servers offer lower Total Cost of Ownership when all costs are tallied.

High Availability
Features

FlashServer HA provides a fault tolerant architecture where two servers in a single enclosure operate in parallel, running the same operating systems and applications on the same data at the same time. If either server fails, results from the remaining server are used while the failed server is restored to proper operation.

99.999% Availability
The FlashServer HA architecture is designed to provide 99.999% uptime which means less than 5 minutes of downtime per year.

Hot Swap Components
All components including disks, controllers, fans, power supplies and even an entire server are hot swappable, and replaced quickly and easily.

Parallel Servers
By running all applications on two servers in parallel, there is no downtime when a server fails—the surviving server merely continues.

Live Updates
Split & re-sync FlashServer HA server modules to update Windows systems without application downtime.

Financial
Benefits

FlashServer HA dramatically improves operations in many tangible including immediate cost savings:

High Availability without Clusters
Eliminate the cost of cluster software and hardware, avoid the costly professional services needed for installation and training—plus avoid the long term maintenance of the software and overall environment.

Software License Savings
FlashServer HA runs applications in parallel on two servers yet requires only one software license since it appears as a single server. The parallel operation is transparent to the outside world—but protects your applications and data continuously.

Eliminates Lost Data
Immediate failover eliminates the potentially high costs of lost data during the cluster failover period—*because applications continue running.*

Eliminate Planned and Unplanned Downtime
FlashServer HA can split the two servers, update one and then quickly resynchronize the other server—avoiding downtime for routine updates.

Vastly Simpler than Clusters
Easier, Lower Cost and Faster Failover

FlashServer HA servers automatically failover to a duplicate server running in parallel—immediately and automatically—perfect for any mission critical environment.

Faster Failover
Transparent failure detection occurs automatically and failover is immediate since the redundant server is processing the same data in parallel.

No Data Loss
Unlike cluster failover, which attempts to restart and recover applications from a failed server, FlashServer HA parallel operation prevents application disruption—eliminating a source of data loss or corruption.

Transparent Restoration
After replacing a failed component, FlashServer HA automatically resynchronizes the two servers and gets them running in parallel again.

Standard Software
Run your standard software like any other server - load it once and it runs in parallel on both parallel servers—with only one license. Best of all, no cluster software or complexity is required.

Continuous Processing
for Business Critical Applications

Now you can run business critical applications and key virtual servers in a high availability environment without the complexity, cost and maintenance of clusters. FlashServer HA servers are ideal for:

eCommerce Servers
Keep web-based and other transaction processing servers in continuous operation—avoid the revenue penalty of down systems.

Call Center Servers
Keep commercial and emergency call centers up and running at all times.

Surveillance Servers
Maintain constant vigilance without interruption.

Database Servers
Do not miss a beat with your database updates, analysis and reporting.

Virtual Servers
With many virtual servers on one hardware platform, the platform needs to perform at all times.

FlashServer HA - High Availability Models				
Models	**HA-4501**	**HA-4502**	**HA-4601**	**HA-4602**
Number and Type of Processors	1 six-core E5-2620 v2	2 six-core E5-2620 v2	1 ten-core E5-2670 v2	2 ten-core E5-2670 v2
Processor Speed	2.1 GHz	2.1 GHz	2.5 GHz	2.5 GHz
Memory Capacity (DDR3)	16GB expandable to 128GB	16GB expandable to 256GB	16GB expandable to 256GB	16GB expandable to 512GB
Memory Speed	1,600 MHz	1,600 MHz	1,600 MHz	1,600 MHz
Network Interfaces	4 x 1GbE (RJ-45, 2 per module) 2 x Management LAN (RJ-45, 1 per module)		4 x 10GbE (RJ-45, 2 per module) 4 x 1GbE (RJ-45, 2 per module) 2 x Management LAN (RJ-45, 1 per module)	
Windows Versions	Windows Server 2008 R2, Windows Server 2012 R2 (including Hyper-V on each)			
VMware Versions	VMware ESXi 5.1 and 5.5			
Red Hat Linux Versions	Red Hat RHEL 6.4 and 6.5 for Intel Servers			
Fibre Channel Support	FC8 Host Bus Adapters			
Internal Disks	Up to 16 SAS HDD or SSD Disks (8 per module, mirrored across modules)			
External Storage	FlashDisk® and/or FlashNAS™ ZFS Storage with Snapshots, Mirroring, Replication, Thin Provisioning and more			
Standard Warranty	Three year factory warranty and toll free hotline during business hours			
Additional Service Options	On-site install; 24x7 hotline; On-site service, spares; Advance parts replacement; Custom programs for classified sites.			

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