



HA-AP Appliance (HA8x4) Product Brief



High Availability, Enterprise SAN Appliance with guaranteed data access and complete transparency.

Key Features

High Availability

- Provide synchronous data mirroring between two separate, independent FC storage systems to improve data availability.
- Clustered, dual active-active appliance design, enables enterprise-grade storage solutions for business-critical applications.
- When one of two mirrored FC storage systems fails, the other one is unaffected and continues to provide data access.
- Instantaneous, hardware-based failover and failback can take place in less than one second, with zero downtime and no human intervention. Prevent system downtime caused by any single point of failure.
- Provide high-availability storage access and protection for VMware infrastructures.

Continuous Data Protection

- Embedded hardware mirroring protects data continuously with no overhead on hosts or storage.
- Optional point-in-time “frozen” copies of volumes provide immediate, disk-based restoration in the event of failure.
- Mirrored data can be accessed by host systems via direct connection, if necessary.

Simple, Open, and Scalable

- Universal Fibre Channel compatibility, works with any mix of OS drivers, switches, and SAN third-party storage systems.
- Appliance-based design allows data access by user applications without installation of host software or proprietary device drivers.
- Modular scalability allows multi-node clustering of HA engines, or distributed configuration in different chassis.
- The HA engines takes only 10 seconds to restart. Administrator can use Telnet and Scripts to execute CLI for all

The Loxoll High-Availability Appliance HA8x4 is designed expressly for adding continuous, high-availability access and mirror protection to enterprise SAN.

HA8x4 is easy operation and fully transparent to host systems. No additional host software or drivers are required, which reduces administration and eliminates host CPU overhead. Mirroring and failover are managed automatically by HA8x4. To connected hosts, HA8x4 protected RAID storage appears as an unbreakable volume, impervious to component outages, which also supports online “hot” SAN/storage maintenance without requiring application downtime.

Two models of HA8x4 are offered:

- HA8x4-1, the single-engine version appliance, and
- HA8x4-2, the dual-engine version appliance.

Guaranteed data access

The HA8x4 appliance makes it easy to build a high-availability, enterprise-grade storage solution that provides no downtime storage access. HA8x4 installs easily with inexpensive standard Fibre Channel RAID units and switches and, optionally, with VMware software, and others, to create a high-performance HA storage system with instantaneous recovery on any single point of failure.

Embedded hardware mirroring protects data continuously, while clustered HA engines manage redundant data paths between host systems and SAN storage. If a component outage occurs, access is instantly switched to alternate path; ensuring applications continue to run without interruption. Depending on specific data protection and application needs, HA8x4 can be used to mirror entire user data set or just for mission-critical portion.

Twice the read performance – and more

HA8x4 offers the ability to optimize read from two identical mirrored members, which presents a large performance advantage in multi-client SAN environments. High-speed mirroring, combined with up to eight high-speed 8-Gbit Fibre Channel ports per appliance, provides the connectivity, bandwidth, and uninterruptible performance needed to support commercial environments. Each appliance can support multiple hosts and RAID systems, there is no theoretical limit on the actual number and configuration.

For business applications such that require both continuous data protection and quick volume restoration, HA8x4 offers split-mirror feature to create point-in-time copy of volumes and provides immediate access to those “frozen” volumes for tape archiving, or for disk-to-disk rapid restoration.



HA-AP Appliance (HA8x4) Product Brief

HA8x4 Specifications

Models	HA8x4-1, Single-engine 1U appliance with 4x 8Gb/s FC ports HA8x4-2, Dual-engine 1U appliance with 8x 8Gb/s FC ports
Host OS Support	Any host operating system with multi-path driver that is compatible with standard SCSI-3 storage devices and configured to round-robin mode.
Storage System Support	Any FC storage system that is compatible with standard SCSI-3 host devices, also active-active or ALUA compatible, and is connected to HA-AP through FC switch. For storage device that requires host-type designation, assume a Linux-based host.
Fibre Channel Specifications	Quad 8Gb/sec Fibre Channel ports per engine module Protocol/Topology Standards: ANSI Fibre Channel (FC-PH, FC-PH-2, FC-PH-3, FC-PLDA, FC-FLA) ANSI Fibre Channel Arbitrated Loop (FC-PLDA, FC-AL, FC-AL-2) ANSI Fibre Channel Fabric (FC-FLA, FC-GS-2) Classes of Service: Class 3 Data Transfer Rate: 2, 4, or 8 Gb/sec; Port Type: N(L) Port
Serial Port Connectivity	Protocol: Serial Transmission Speed: 115200 baud Connector: DB-9
Ethernet Port Connectivity	Dual 1Gb/sec Ethernet ports Protocol: Transmission Control Protocol – Internet Protocol (TCP/IP) Speed: 10/100/1000 Based-T Connector: RJ-45
Operating Environment	Operating Voltage 100 to 240 VAC; 50 to 60 Hz 1.5A at 110 - 120 VAC and 1A at 220 – 240 VAC per engine module
Mechanical	Weight HA8x4-1: 8.9 pounds (4.04 Kg) HA8x4-2: 12.8 pounds (5.81 Kg) Dimensions 1U rack-optimized 1.75 inches (4.445 cm) high 17.7 inches (44.96 cm) wide 12.80 inches (32.50 cm) deep Dual Integrated power supplies with dual fan per engine module Front-to-back air pattern
Maximum Throughput	HA8x4-1 – 2000 MB/sec, 50K IO/sec HA8x4-2 – 4000 MB/sec, 100K IO/sec
Safety Standards	EN 60950-1
Emission Standards	FCC Part 15B, Class A EN 55022 Class A, EN 55024 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11