



EMC Celerra NX4

Unified Storage made affordable, flexible, and friendly

Meeting the information-sharing challenge

Start small, but think big with the EMC[®] Celerra[®] NX4 Unified Storage server. The NX4 is a dedicated network server optimized for file and block access and delivers advanced functionality in an affordable, easy-to-deploy and manage package. For the ultimate in price/performance, the Celerra NX4 leverages both the innovative EMC CLARiiON[®] storage—delivering best-in-class availability and data protection—and industry-leading EMC Celerra availability, performance, and ease of management.

Celerra NX4 delivers a single-box block and file solution offering a centralized point of management for distributed environments. This enables you to dynamically grow, share, and cost-effectively manage file systems with multi-protocol file access. Take advantage of simultaneous support for NFS and CIFS protocols by letting UNIX and Windows clients share files using the DART (Data Access in Real Time) operating system's sophisticated file locking mechanisms. Utilize the NX4 for block storage applications with the iSCSI and Fibre Channel protocols.

The advanced functionality features included with the Celerra NX4 platform (snapshots, web-based management, virtual provisioning) enable consolidation of file servers and direct-attached application storage, resulting in lower total cost of ownership (TCO) of your server and storage assets.

Flexible to meet a wide range of requirements

Celerra NX4 combines a front-end enclosure and dedicated storage in a single packaged solution. This approach offers the lowest acquisition cost along with simple implementation and management without sacrificing configurability options.

- Multi-protocol (NAS, iSCSI, and Fibre Channel) connectivity
- One or two X-Blade configurations
- SATA and SAS drive support
- Block and file I/O
- Performance/availability mode
- Tiered support options

Celerra NX4 system elements

The Celerra NX4 is comprised of one or two autonomous servers called X-Blades, a Control Station running a web server for management, and an integrated CLARiiON array. The X-Blades control data movement from the disks to the network. Each X-Blade houses two Intel processors and runs EMC's Data Access in Real Time (DART) operating system, designed and optimized for high-performance, multi-protocol network file and block access. The integrated CLARiiON disk array has two storage processors, four optional Fibre Channel ports for host access, and support for up to 60 SAS or SATA disk drives.

The Big Picture

- Gain control over a distributed environment by consolidating existing file servers and applications storage
- Experience ease of deployment and management; 15 minutes from power-up to production
- Leverage the flexibility of NAS, iSCSI, and Fibre Channel multi-protocol connectivity
- Allow your Windows and UNIX users to share the same files
- Simplify provisioning and increase utilization with Virtual Provisioning and Automated Volume Management
- Ensure no-compromise availability through integrated clustering, managed as a single device
- Improve information protection with Celerra SnapSure and Celerra Replicator
- Capitalize on industry-leading price/performance
- Experience advanced functionality such as Failsafe Networking, Link Aggregation, VLAN Tagging, and Anti-Virus integration in an easy-to-use, easy-to install offering
- Enjoy the comfort of knowing your EMC solution is serviced by the number-one-rated vendor in the industry



Your choice of high availability or maximum capacity

Depending on your operational needs, you can deploy NX4 in the Primary/Standby, or Primary/Primary operating modes. Primary/Standby is designed for environments that cannot tolerate any system downtime due to a hardware failure. In this mode, one of the X-Blades operates in standby mode while the second one manages all of the data movement between the network and storage.

Other environments that value high capacity over continuous availability can choose to operate their dual X-Blade NX4 in Primary/Primary mode where each X-Blade is actively serving files or blocks. In Primary/Primary mode, should an X-Blade fail due to a software fault, it will execute a fast reboot to come back online, typically in seconds.

Unequaled availability features

With the Celerra NX4, no-compromise availability means non-stop file access achieved through transparent, dynamic failover to a hot standby X-Blade. For information protection, the NX4 includes EMC Celerra SnapSure™ software for creating read-only/read-write copies of file systems and iSCSI LUNs. The snapshot can be used for online backups as well as quick recovery of deleted files. With the addition of VSS integration, this capability is taken a step further, enabling the end user to leverage the functionality in Windows clients to recover deleted files directly from the Windows Explorer user interface.

Since the snap is not a mirror operation, you also save disk space and time. For an even higher degree of information protection, EMC Celerra Replicator™ creates a point-in-time, read-only/read-write copy of a production file system on either a local or geographically remote Celerra system. Celerra Replicator provides multi-site protection, simplifies administration with easy-to-define business policies including recovery-point objectives (RPOs), and utilizes standard IP-based networks for maintaining consistent replicas between the sites. In the event of an X-Blade failover, DART uses a metadata logging facility to recover within seconds or minutes. The advanced clustering capabilities allow the hot spare to take over the full workload, running at the same performance and service levels as before the failure.

Hardware-based RAID controllers mean there is no performance degradation during a rebuild. Other high-end file servers can take hours to reboot and recover large-capacity file systems and will run at reduced performance and service levels until the failing component is replaced during a RAID rebuild. The Celerra NX4 defines entry-level high availability, delivered with X-Blade failover, hardware RAID protection, non-disruptive component replacement, storage processor battery backup, and advanced volume management. In addition, EMC Celerra Replicator supports application-consistent iSCSI replication for Windows. Managed by EMC Replication Manager, only the changed data is sent to the replica, improving network efficiencies. The copy can be made read/write in the event of a failure of the primary or for other purposes such as testing. iSCSI replication offers an efficient, safe means of protecting LUNs via asynchronous replication.

Failsafe networking interfaces for failover of network ports

The Celerra NX4 system can be configured to tolerate both internal and external failures, such as the failure of a switch or router. Failsafe networking allows network ports to have a dedicated backup port on a separate network card take over in the event of a failure in either the primary adapter or an external switch or router. Applications requiring higher availability and bandwidth than any single network port can deliver are candidates for industry-standard Link Aggregation (IEEE802.3ad) or Ethernet Port Trunking. Multiple network ports can be aggregated and transmitted using a single logical address, providing greater link availability and potentially higher network bandwidth.

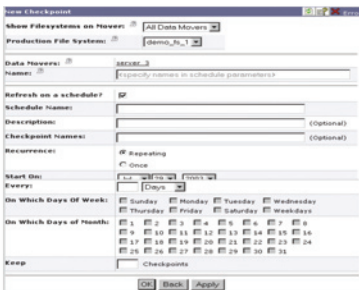


Celerra Startup Assistant
15 Minutes from Power-up to Production

Ease-of-use features, functions, and management

Deployment, management, and performance monitoring of the Celerra NX4 is accomplished in a variety of ways to accommodate the skill set and preference of the administrator.

- **Celerra Startup Assistant** performs the software initialization—15 minutes from power-up to sharing files on the network.
- **Celerra Manager/Basic Edition** supports the most common functions for configuration and management of a single device including wizards, “at-a-glance” statistics, and phone-home capabilities.
- **Celerra Manager/Advanced Edition**, an extension of the Basic Edition, simplifies the tasks of configuration, reconfiguration, ongoing operation, data migration, and monitoring of multiple Celerra environments.
- **Celerra Automated Volume Management** lets you quickly and painlessly provision file systems by workload in only four clicks.
- **Celerra Virtual Provisioning** allows file systems and iSCSI LUNs to be logically sized to required capacities and physically provisioned with less, so storage does not sit idly in a file system or LUN until it is used. Automatic File System Extension and Dynamic iSCSI LUN extension allow the physical allocation to be increased on the fly, as needed.
- **Microsoft Management Console (MMC)** snap-ins provide a Windows “look and feel” in managing the NX4; for example, a snap-in for managing shares and quotas.
- **Command-line interface (CLI)** is present for administrators preferring to work with UNIX-like commands and scripts.
- **EMC Replication Manager** provides application integration with Exchange and SQL Server and leverages Microsoft Volume Shadowcopy Service for iSCSI snapshots and replicas.
- **EMC ControlCenter®** can discover, monitor, and launch native management applications for any member of the Celerra NS Series as part of an enterprise infrastructure.
- **EMC Celerra SnapSure** software creates read-only/read-write copies of file systems and iSCSI LUNs for backups and quick recovery of deleted files or file systems. Since SnapSure isn’t mirroring your data, it saves disk space and time.
- **EMC Celerra Replicator** creates a point-in-time, read-only/read-write copy of a production file system or iSCSI LUN on either a local or geographically remote Celerra system. Celerra Replicator provides multi-site protection, simplifies administration with easy-to-define business policies including recovery-point objectives (RPOs), and utilizes standard IP-based networks for maintaining consistent replicas between the sites.
- **Celerra File-Level Retention** provides disk-based WORM functionality.
- **Celerra FileMover API** allows automated policy-based movement of files between tiers of storage.
- **Celerra Anti-Virus Agent (CAVA)** provides on-demand anti-virus support through tight integration with industry-leading anti-virus vendors, such as Symantec, McAfee, Computer Associates, Trend Micro, and Sophos.
- **Celerra Event Publishing Agent (CEPA)** provides on-demand, event-driven functionality via tight integration with industry-leading quota management vendors, such as Northern Parklife and NTP Software.
- **Celerra Quotas** let system administrators allocate disk space on a per-user, per-group, and per directory tree basis, leveraging DART’s extensive support for byte, block-level, and directory quotas.



Celerra SnapSure
Snapshot Scheduling

Network capabilities

Celerra NX4 supports Gigabit Ethernet and 10/100BaseT for network or iSCSI connections and optional 4 Gb/s Fibre Channel ports for host connections. VLAN support allows network administrators more flexibility in creating logical workgroups, which, in turn, benefits overall network efficiency by localizing broadcast traffic at the workgroup level. DART supports NFSv2, v3, v4, CIFS, and options for standards-based local and network backup. To eliminate any single points of failure, the Celerra NX4 offers N+1 redundant load-sharing power supplies, battery backup, environmental controls, Auto-Call remote maintenance parameter monitoring, and redundant storage and network components.

Flexible, fast backup and recovery

The Celerra NX4 features industry-standard Network Data Management Protocol (NDMP v1, v2, v3) for better-than-network speeds with no multi-protocol attribute concerns and no impact on existing network traffic. The NX4, through its support for both SAS and ATA drives, can serve as a fast, reliable target for distributed backup-to-disk deployments.

Maximize the benefits of Celerra NX4 with services and support

Celerra NX4 support options deliver choice and flexibility. Count on EMC's world-class support paired with maintainability and usability features to keep information available and operations running. The NX4 includes a standard three-year warranty with 5x9 coverage (Enhanced support) for next-business-day onsite response. Customers can also choose to upgrade to a premium level of maintenance (Premium support) which includes 7x24 coverage with four-hour onsite response.

EMC and its Authorized Support Network (ASN) Partners deliver the full complement of services for Celerra products to ensure they perform as expected in your IP storage environment while minimizing risk to your business and your budget. Expert planning, design, and implementation services help you quickly realize the value of your investment in your environment, no matter how simple or complex.

EMC Global Services for the IT lifecycle

EMC Global Services delivers results to our customers throughout the IT lifecycle: Plan, Build, Manage, and Support. Strategic storage consulting services from EMC Consulting help companies achieve the maximum value from their information, at the lowest total cost, at every point in the information lifecycle. EMC delivers product-specific point solutions in addition to comprehensive custom planning, design, implementation, and integration services for EMC technology—everything from consolidation of your current resources to a transformation of your environment to achieve information lifecycle management.

EMC Customer Service—six-time winner of the SSPA STAR Award for outstanding mission-critical support—helps you keep your information available 24/7 to deliver competitive advantage and drive revenue. And EMC Education Services drive the value of your investment with a comprehensive portfolio of customer courses. Ask your EMC sales representative about the full spectrum of services from EMC that can benefit your organization.



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Take the next step

For more information on how the EMC Celerra NX4 can meet your networked information sharing needs and bring increased value to your business, contact your EMC sales representative or authorized EMC value-added systems integrator. Or visit our website at www.EMC.com.