

# EMC SYMMETRIX VMAX 10K STORAGE SYSTEM

Symmetrix VMAX 10K—powerful, trusted, smart, and efficient



The EMC® Symmetrix® VMAX® 10K storage system is a new class of enterprise storage purpose-built to provide leading high-end virtual storage capabilities to a growing number of IT organizations and service providers with demanding storage requirements and limited resources. The Symmetrix VMAX 10K utilizes the same powerful and revolutionary scale-out Virtual Matrix Architecture™ as is delivered on the EMC Symmetrix VMAX 20K and VMAX 40K. VMAX 10K delivers scalable performance, simplified management and provisioning, automated tiering, local and remote replication, and the ability to simultaneously support thousands of virtual machines from VMware® and others.

## POWERFUL

- Built using the industry proven VMAX architecture
- Unparalleled performance, reliability, and availability

## TRUSTED

- Over 20 years of industry leadership delivering mission-critical storage solutions
- With integrated RSA® access controls to EMC SRDF® for VMAX 10K and native RecoverPoint support, VMAX 10K does not compromise when it comes to protecting your information assets

## SMART

- FAST VP automated storage tiering automatically tunes array performance
- Optimized hardware and software delivers failure-mode performance
- End-to-end management that is intuitive and easy to use

## EFFICIENT

- 100 percent virtual provisioning maximizes storage resources
- Integrated local and remote replication
- Four hour install—four minutes to first I/O

## OPERATIONAL EFFICIENCY WITH VIRTUAL PROVISIONING

The Symmetrix VMAX 10K is designed for a 100 percent virtually provisioned environment. Virtual provisioning presents a host, application, or file system with more storage than is actually physically allocated. Your organization benefits from reduced TCO by decreasing initial allocation of storage capacity, further reducing labor costs by simplifying data layout and eliminating the steps required to accommodate capacity growth.

Virtual Provisioning also provides automated pool rebalancing, helping expand thin pools in small increments while delivering high performance, and non-disruptive re-organization of thin pools to help reuse space to improve capacity utilization. Virtual provisioning also benefits an IT environment by automatically reducing power and cooling costs by cutting down on the amount of idle storage devices in the array.



#### Fast VP

EMC Symmetrix VMAX FAST VP for virtually provisioned environments automates the identification of thin device extents for the purposes of re-allocating application data across different performance tiers within a single array.

## SMART AUTOMATION WITH FAST VP

The Symmetrix VMAX 10K is available with EMC's Fully Automated Tiered Storage—Virtual Pools. FAST VP enables your business to optimize system performance while reducing cost. This software optimizes array performance across drive types (Solid State Disk, SATA, and Fibre Channel) and across all engines in the array. With FAST VP for VMAX 10K, tiering is automatically optimized by dynamically allocating and relocating application workloads based on service-level agreements. FAST VP non-disruptively moves workloads across storage types, optimizing the overall system performance.

FAST VP reduces your overall TCO by moving the most active parts of your workloads to high-performance solid state disk to deliver the lowest dollars per input/output operations per second. FAST VP also moves unused/un-accessed data to lower cost SATA drives, leveraging the lowest dollar per Gigabyte. Compared to a traditional single-tier Fibre Channel solution, FAST VP further reduces acquisition costs and requires fewer drives which translates to lower power, cooling, and footprint requirements.

## EMC VFCACHE—INCREASED SERVER PERFORMANCE

EMC VFCache is an available server Flash caching solution that reduces latency and increases throughput to dramatically improve application performance by leveraging intelligent caching software and PCIe Flash technology. VFCache accelerates reads and protects data by using a write-through cache to the networked storage to deliver persistent high availability, integrity, and disaster recovery. VFCache, coupled with array-based EMC FAST software, creates the most efficient and intelligent I/O path from the application to the data store. The result is a networked infrastructure that is dynamically optimized for performance, intelligence, and protection for both physical and virtual environments.

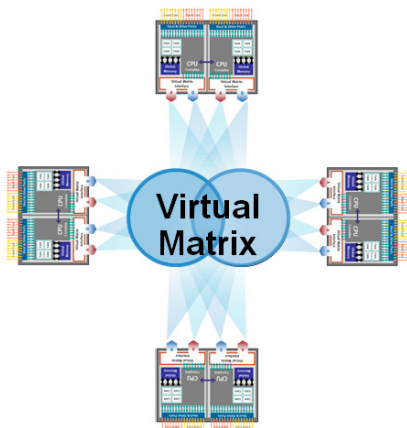


## BUNDLED SOFTWARE FOR GREATER EFFICIENCY

VMAX 10K is purpose-built to provide just the right level of performance, automation, and data protection. The Symmetrix VMAX 10K Advanced Software Suite bundles include all the necessary software most organizations need for daily operations: storage management, performance optimization, automation, and backup. The core and bundled software includes:

- EMC Symmetrix Engenuity for VMAX 10K—The intelligent operating environment running in every Symmetrix, delivers more than 20 years of industry leadership running mission-critical applications
- Virtual Provisioning—Simplifies the provisioning of additional storage with “just-in-time” capacity allocation and flexibility
- FAST VP—Automatically optimizes system performance
- Dynamic Cache Partitioning—Maximizes cache resources across applications
- Symmetrix Management Console—Simple, web-based management
- Symmetrix Performance Analyzer—Advanced monitoring of Symmetrix environments
- TimeFinder® for VMAX 10K—Full clones and snapshots for high-performance local data protection
- SRDF for VMAX 10K—Industry-leading disaster recovery protection
- EMC RecoverPoint Integrated Splitter—Enables continuous data protection and remote replication
- PowerPath® SE—For single HBA only, active/passive failover capabilities
- Open Replicator/LM and Open Migrator/LM—For non-disruptive migrations to VMAX 10K

Because no two environments are alike, customers requiring more customized configurations to support more challenging environments have a full suite of Symmetrix VMAX 10K software titles from which to choose. Please visit [www.emc.com](http://www.emc.com) for the details and capabilities of each Symmetrix title.



## THE MOST POWERFUL INDUSTRY STORAGE

The EMC Symmetrix VMAX 10K system features the same revolutionary Virtual Matrix Architecture delivered on the Symmetrix VMAX 20K and VMAX 40K systems. The core element of the Virtual Matrix is the VMAX 10K engine. The VMAX 10K engine, which includes the latest Intel XEON™ quad-core processors, cache, front-end connectivity, redundant controllers, and back-end connectivity, is the foundation of the Symmetrix VMAX family of arrays. The Virtual Matrix in VMAX 10K scales by aggregating up to four (4) VMAX 10K engines with a total of eight (8) redundant controllers (aka directors).

This multi-controller architecture delivers the highest performance, availability, and consolidation at a price point that fits today's limited IT budgets. The scale-out architecture of the Symmetrix VMAX 10K system provides the foundation to scale up to 1.5 petabytes of usable capacity, supporting thousands of servers and millions of IOPS. In addition, to minimize administration, the entire Symmetrix VMAX 10K array and array software can all be managed through a single pane of glass using the intuitive, web-based Symmetrix Management Console application that is included with the array.

## THE MOST TRUSTED INDUSTRY STORAGE

Symmetrix is the brand that the most demanding enterprises have relied on to protect their data for more than two decades. VMAX 10K delivers business continuity with our trusted replication solutions, end-to-end data integrity protection, and SRDF for VMAX 10K or RecoverPoint for disaster recovery. Securing mission-critical enterprise data is of paramount importance to today's enterprise. Engineuity for VMAX 10K provides the highest levels of data integrity with integrated technology from RSA, the Security Division of EMC, to deliver built-in security capabilities that make it easier to reduce risks to sensitive data and improve compliance efforts. The Symmetrix Service Credential, Secured by RSA, prevents unauthorized service actions on the array. Integration with RSA enVision® provides automated, policy-based audit log management across the enterprise. The enhanced Symmetrix Audit Log provides a comprehensive, tamper-proof view of management and support actions.

Add to this non-disruptive upgrades of EMC software applications, storage configuration changes, and serviceability—all designed to ensure your access to vital information is never in doubt—and your service levels are never compromised.

## PERFORMANCE, SCALABILITY, AND FLEXIBILITY WITH SYMMETRIX VMAX 10K

The Symmetrix VMAX 10K array provides both scale-up and scale-out capabilities supporting large-scale consolidation with the added benefits of being easy to configure and manage. You get all the benefits of tiered storage on one platform, as well as the flexibility to rapidly address the changing needs of your business.

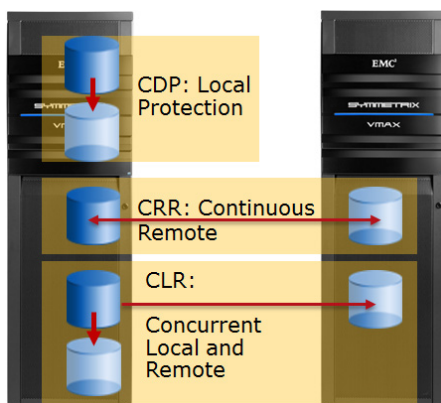
A single-engine Symmetrix VMAX 10K can start with as little as 24 drives, scaling up to four engines supporting 1,080 drives for a maximum usable capacity of up to 1.5 petabytes. VMAX 10K engine one and VMAX 10K engine two can support up to 240 drives per engine. VMAX 10K engines three and four can support up to 300 drives per engine. A fully configured 1,080-drive system is comprised of four integrated system bays and three storage bays. Each integrated system bay houses an engine and 150 drives, storage bay 1 and bay 2 house 180 drives and storage bay 3 houses 120 drives. A four-engine array provides up to 512 GB (128 GB per engine) of cache memory and up to 64 Fibre Channel ports or 32 1/10 Gb/s iSCSI or 10 Gb/s FCoE ports.

## ENSURING BUSINESS CONTINUITY WITH SYMMETRIX VMAX 10K AND INDUSTRY-LEADING LOCAL AND REMOTE REPLICATION

EMC TimeFinder for VMAX 10K, SRDF for VMAX 10K, and EMC RecoverPoint software are the most powerful applications for local and remote storage replication available in the industry. The TimeFinder, SRDF, and RecoverPoint families are widely deployed in the industry and are installed in tens of thousands of demanding environments worldwide. These applications enable business continuance volumes for parallel processing activities like backup, testing, and development, and local high-performance disk-based restore. EMC RecoverPoint guards against primary site disasters and outages using the Symmetrix-based RecoverPoint remote replication application. The Symmetrix VMAX 10K introduced the first integrated RecoverPoint splitter on an EMC Symmetrix, which is included with every VMAX 10K array.

With tens of thousands of SRDF technology licenses shipped, SRDF for VMAX 10K protects against local and regional disruptions and increases application availability by reducing downtime. This minimizes or eliminates performance impact on applications and hosts. SRDF for VMAX 10K supports SRDF connectivity between any combination to Symmetrix VMAX 10K, VMAX 20K, and VMAX 40K; DMX-3 and DMX-4 in STAR or three-site configurations.

### RecoverPoint Family



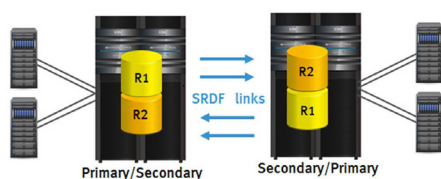
## EMC RECOVERPOINT—HETEROGENEOUS LOCAL AND REMOTE REPLICATION

RecoverPoint provides integrated, continuous data protection (CDP) and continuous remote replication (CRR) as well as concurrent local and remote (CLR) data protection. RecoverPoint, optional disaster recovery software suite for the Symmetrix VMAX 10K, protects data at a local site and/or at a remote site with minimal impact on production application processing.

RecoverPoint provides synchronous local replication, enabling organizations to roll back to any point in time for effective operational recovery from events such as database corruption, viruses, faults, and user errors. RecoverPoint provides dynamic synchronous and asynchronous remote replication for disaster recovery—with the ability to switch between synchronous and asynchronous replication based on user-defined policies for throughput and latency. Bandwidth reduction technology such as write folding, data compression, and deduplication reduce replicated data traffic over the network by as much as 90 percent. RecoverPoint CLR provides both operational and disaster recovery for the same data. RecoverPoint supports EMC and non-EMC storage environments.

RecoverPoint for Symmetrix VMAX 10K offers:

- Local and remote replication to protect any host and any application, on any array: EMC VNX®; Symmetrix VMAX 10K, VMAX 20K, and VMAX 40K; or third-party storage.
- Low total cost of ownership, including savings through bandwidth reduction, journal compression, and snapshot consolidation technologies.
- Instant recovery of applications to any point in time with DVR-like roll back.



## EMC SRDF for VMAX 10K—HIGH-END REMOTE REPLICATION

EMC SRDF for VMAX 10K is the industry's most powerful suite of remote storage replication solutions available for disaster recovery and business continuity. EMC SRDF for VMAX 10K offers unmatched deployment flexibility including site-to-site, three-site, and STAR configurations with massive scalability. It delivers a wide range of distance-replication capabilities, helping you meet mixed service-level requirements with minimal effect on operations.

SRDF for VMAX 10K offers:

- **Performance**—Massively parallel high performance delivers unsurpassed RPOs and RTOs, with minimal effect on servers.
- **Flexibility**—Zero data loss exposure, extended long distance capability lets you optimize your resources while meeting mixed service levels.
- **Multi-site**—Site-to-site, three-site (cascaded and concurrent), and STAR configurations are supported.
- **Consistency**—Coordinated processing across multiple sets of data and systems enhances enterprise-wide application restart.
- **Integration**—Seamless integration with dozens of industry-leading enterprise, storage, and backup applications enables faster time to deployment and simpler management.
- **Manageability**—SRDF for VMAX 10K provides flexible, automated, and easy-to-use management options to ensure continuous protection of your data.
- **Results**—Deploy SRDF for VMAX 10K with confidence using the world's most widely used high-end remote replication technology.

## EFFICIENT FOUR HOUR INSTALL; FOUR MINUTES TO PROVISIONING 1 TB OF STORAGE

Symmetrix VMAX 10K arrives pre-configured with your custom configuration and array-based software applications already installed to get you up and running quickly. Each system is custom-built and pre-configured by the EMC factory. Your specific configuration—from drive types and tiers to RAID types—is pre-configured and loaded on the system before it's shipped to you, reducing your time-to-production—no experts or storage gurus required. You are now provisioning storage in a matter of minutes after power-up.

## MORE EFFICIENT DATA CENTER LAYOUTS WITH DISPERSED ARRAY TECHNOLOGY

The Symmetrix VMAX 10K introduced a new capability called dispersed array. System bays and their associated storage bay can be separated as a unit by up to 10 meters of rack-to-rack distance using optical cables. This technology provides installation flexibility when data center facility requirements require working around physical constraints like building columns or other immovable objects, or simply when IT components must be in different areas of the data center.



Dispersed array technology allows system bays 3 and 4 and their associated storage bay to be separated as a unit by up to 10 meters of rack-to-rack distance allowing deployment in space constrained data centers.





## VCE VBLOCK 700LX INFRASTRUCTURE PLATFORM

Formed by EMC and Cisco, with investments from VMware and Intel Corporation, VCE, the Virtual Computing Environment Company, leverages best-in-class technology and service capabilities to meet the business and IT needs of customers. The Vblock® 700LX Infrastructure Platform integrates compute, network, storage, virtualization, and management components from trusted, industry-leading vendors—Cisco, EMC, and VMware—to deliver a tightly unified infrastructure that the business can rely on while simplifying IT operations. To see how your business can leverage the power of an integrated Vblock 700LX solution, visit [www.vce.com](http://www.vce.com), or contact your EMC or VCE sales representative.

## EMC GLOBAL SERVICES FOR SYMMETRIX VMAX 10K

VMAX 10K is designed with the highest levels of reliability with end-to-end management that is easy, intuitive, and quick. However there may be times when support services are needed—EMC Customer Service is there to help. EMC provides the strategic guidance and technology expertise organizations need to address their business and IT challenges and accelerate the journey to the private cloud. Our 14,000+ service professionals and support experts worldwide, plus a global network of alliances and partners, leverage proven methodologies, industry best practices, experience, and knowledge derived from EMC's 30-year information-centric heritage to address the full spectrum of customers' requirements across the information lifecycle.

All Symmetrix VMAX 10K platforms include a three-year Premium Hardware support warranty, providing customers with 24x7 onsite coverage. VMAX 10K software includes a 90-day defective media replacement policy with optional Premium Software maintenance plans available.

EMC Customer Service—six-time winner of the SSPA STAR Award for outstanding mission-critical support—helps you keep your information available 24x7 to deliver competitive advantage and drive revenue. Ask your EMC sales representative about the full spectrum of EMC services that can benefit your organization

\* Warranties may vary outside the United States. Contact your EMC representative for local warranty and service terms and conditions.

### CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, contact your local representative or authorized reseller, or visit us at [www.EMC.com](http://www.EMC.com).

EMC<sup>2</sup>, EMC, the EMC logo, CLARiiON, Direct Matrix Architecture, E-Lab, Enginuity, PowerPath, RSA, RSA enVision, SRDF, Symmetrix, TimeFinder, Virtual Matrix, Virtual Matrix Architecture, VMAX, VNX, and Vblock are registered trademarks or trademarks of EMC Corporation in the United States and other countries. VMware is a registered trademark or trademark of VMware, Inc. in the U.S. and/or other jurisdictions. All other trademarks used herein are the property of their respective owners.

© Copyright 2011, 2012 EMC Corporation. All rights reserved. Published in the USA. 05/12 Data Sheet H8816.2