DELLEMC

VMAX ALL FLASH
F and FX Software Packages

All flash arrays are accelerating the pace of business transformation as IT professionals search for the most relevant technologies to modernize their operation and drive down operational and capital expenditures. As flash prices rapidly decline and available data services grow, more organizations are evaluating, testing, and deploying all-flash solutions to tackle the most demanding workloads across the modern data center.

The VMAX All Flash products are Tier-1 highly scalable all flash arrays that solve the broadest set of modern storage challenges with two all-inclusive software packages to simplify acquisition and deliver better TCO: the F or FX package.

VMAX ALL FLASH SOFTWARE PACKAGES
ENTERPRISE SOFTWARE FOR THE MODERN DATA CENTER

"F" PACKAGE
- HYPERMAX OS
- Thin Provisioning
- Inline Compression
- Non-Disruptive Migration
- Virtual Volumes
- QOS: Host IO Limits
- Embedded Unisphere, Solutions Enabler, SMI-S
- TimeFinder SnapVX
- AppSync iCDM Starter Bundle

"FX" PACKAGE
- All "F" package items, plus:
- Data Encryption (D@RE)
- SRDF/S, SRDF/A, SRDF 3-site and 4-site
- SRDF/Metro
- Embedded NAS (File)
- Unisphere 360
- PowerPath (75 Hosts)
- CloudArray Enabler
- ViPR Suite (SRM and Controller)

VMAX ALL FLASH SOFTWARE

The F Package – Included with all VMAX All Flash arrays, the F package offers many of the trusted data services that VMAX users have relied on to provide the ease of management and unparalleled reliability for which VMAX is known including: embedded management, local replication, inline compression, and copy data management.

VMAX All Flash advanced data services are built on the industry's leading hypervisor converged operating system, HYPERMAX OS. Featuring real-time, non-disruptive storage hypervisors, every VMAX All Flash system extends high availability to services that traditionally would have run external to the array, combining high availability, I/O management, quality of service, data integrity validation, storage tiering, and data security with an open application platform.

The FX Package – As an addition to all the features of the F package, Dell EMC offers the FX package that adds many additional VMAX All Flash capabilities including: remote replication, data encryption, embedded NAS, cloud tiering, data path management and more.

THE F SOFTWARE PACKAGE

Standard on all VMAX All Flash systems, the F package includes many powerful data services required by VMAX customers including management tools, local replication and data compression including the power of HYPERMAX OS.

INLINE COMPRESSION

VMAX All Flash inline compression delivers higher utilization of capacity, reducing the overall cost per usable TB for our customers. Typical VMAX workloads, such as databases and mission critical applications are perfect for inline compression, which can greatly reduce backend drives needed for a particular front end capacity. VMAX All Flash compression also works with all VMAX software data services including: eNAS, SnapVX, SRDF and encryption.

QUALITY OF SERVICE (QOS)

VMAX All Flash offers specialized software to help prioritize host I/O performance and balance I/O's across multiple ports in the system according to customer requirements. This capability helps simplify storage management while also ensuring critical applications continue to operate at their necessary levels of performance and minimizing any additional impact to other applications and hosts.
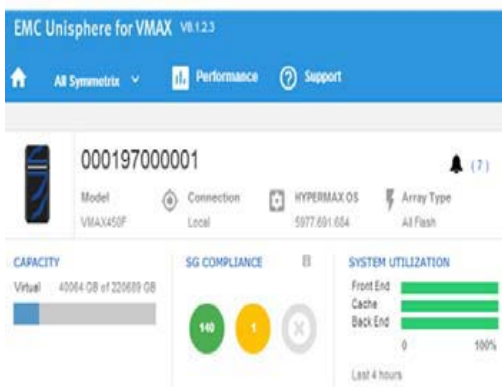
VIRTUAL VOLUMES (VVOLS)

VMware Virtual Volumes simplify management and provide per-VM storage control, and VMAX All Flash takes VVol integration to a whole new level. Not only was VMAX All Flash designed to support the scale of VVol storage – up to 64,000 virtual volumes today and many more in the future – but the VMAX All Flash management paradigm has radically simplified storage management realizes the full value of VVol storage polices. VMAX All Flash provides the highest levels of availability, data protection and performance directly to the VM. And, customers can manage VMware storage at a much more granular level (Virtual Machine) providing even greater efficiency.

EMBEDDED MANAGEMENT (UNISPHERE)

Embedded management (eManagement) leverages the HYPERMAX OS hypervisor reducing capital and operational expenses. This feature enables customers to further simplify management, reduce cost, and increase availability by running VMAX All Flash management software directly on the array. Key elements of eManagement include running embedded Unisphere, Solutions Enabler, and SMI-S management software on VMAX All Flash arrays.
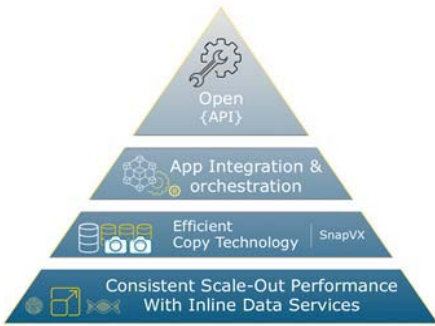
TIMEFINDER SNAPVX

TimeFinder SnapVX enables zero-impact snapshots, simple user-defined names, faster snapshot creation/expiration, cascading, compatibility with SRDF, and support for legacy VMAX replication capabilities like TimeFinder Clone, VP Snap, and Mirror (emulation mode). SnapVX reduces replication storage costs by up to 10x and is optimized for cloud scale with its highly efficient snaps and expansion of up to 16 million snaps per array. Customers can take up to 256 snapshots and establish up to 1024 target volumes per source device, providing read/write access as pointer (snap) or full (clone) copies.

Dell EMC Unisphere:
An intuitive management interface that allows IT managers to greatly reduce the time required to provision, manage, and monitor VMAX All Flash storage.

VMAX All Flash iCDM:
Built from the bottom up to support growing copy requirements while minimizing overall application impact.

APPSYNC ICDM STARTER BUNDLE

Many businesses are now struggling with large numbers of data copies as they work to support different application lifecycles. In order to help deal with the challenges of creating, storing, and accessing copies, VMAX All Flash includes integrated copy data management (iCDM) software with AppSync. iCDM builds on VMAX's efficient snapshot technology and delivers incredible performance to production AND non-production copies, *without impacting the production SLAs.*

THE FX SOFTWARE PACKAGE

For customers requiring an even larger suite of data services, the VMAX All Flash FX package provides additional management tools and functionality, including remote replication with industry-leading SRDF, embedded NAS capabilities, and cloud tiering. While users can purchase many of the data services included in the FX package on an individual a la carte basis, the FX bundle provides a single comprehensive package that bundles these items together for additional functionality at a much lower cost.

SYMMETRIX REMOTE DATA FACILITY (SRDF)

The SRDF family of software is the gold standard for remote replication in mission critical environments. Built for the industry-leading high-end VMAX hardware architecture, the SRDF family of solutions is trusted for disaster recovery and business continuity. The SRDF family offers unmatched deployment flexibility and massive scalability to deliver a wide range of distance replication capabilities. The SRDF family consists of the following options: SRDF/S – Synchronous option for zero data exposure loss, SRDF/A – Asynchronous option for extended distances, SRDF/Star – Multi-site replication option, SRDF/CG – Consistency Groups for federated data sets across arrays and SRDF/Metro for active/active data center protection.

DATA AT REST ENCRYPTION (D@RE)

VMAX All Flash Data at Rest Encryption provides hardware-based, on-array encryption, protecting block and fie storage from unauthorized access when drives or arrays are removed from the data center. This technology eliminates the need for drive erasure services and allows for rapid decommissioning and repurposing of arrays, while helping achieve regulatory compliance. Encryption offers intelligent key management that is easy to implement and maintain.

EMBEDDED NAS (ENAS)

VMAX All Flash enables embedded file data services that enable customers to consolidate islands of block and file storage, simplify management, and reduce deployment costs by up to 33%. Embedded NAS uses the hypervisor provided in HYPERMAX OS to create and run a set of virtual machines on VMAX All Flash controllers. These virtual machines host two major elements of eNAS: software data movers and control stations and are distributed based on the mirrored pair architecture of VMAX All Flash to evenly consume resources for both performance and capacity. Common eNAS use cases include running Oracle® on NFS, VMware® on NFS, Microsoft® SQL on SMB 3.0, home directories, and Windows server consolidation.

Unisphere 360
Single screen management of up to 200 VMAX arrays across the data center.

UNISPHERE 360

Unisphere 360 software aggregates and monitors up to 200 VMAX All Flash / VMAX arrays across a single data center. This solution is a great option for customers running multiple VMAX All Flash arrays with embedded management (eManagement) and who are looking for ways to facilitate better insights across their entire data center. Unisphere 360 provides storage administrators the ability to view site-level health reports for every VMAX or coordinate compliance to code levels and other infrastructure maintenance requirements. Customers can leverage the simplification of VMAX All Flash management, now at data center scale.

CLOUD TIERING

With the growth of public and private cloud solutions, VMAX All Flash provides direct integration with the cloud for simple data tiering and cloud access. As a supplement to the unmatched reliability of VMAX All Flash, cloud storage offers a more cost-efficient tier of storage that is ideally suited for moving "cold data" off of VMAX All Flash and maintaining available VMAX capacity. By combining the lower cost/scalability of the cloud with the power of VMAX All Flash customers can achieve a complete storage solution for every step of their data lifecycle.

POWERPATH/POWERPATH VE

The VMAX All Flash FX software package includes PowerPath and PowerPath/VE. With PowerPath, customers gain the power of automated data path management and load balancing for all heterogeneous server, network, and storage deployed in their environment. This streamlined data path enables more predictable and consistent application availability while providing up to three times the IOPS even during periods of high I/O.

VIPR SUITE

The FX package also includes Dell EMC's ViPR Suite for even more massive scale, automation and simplification. Dell EMC ViPR Suite includes both ViPR SRM and ViPR Controller providing both monitoring and automation across customers' IT infrastructures. While ViPR SRM provides additional metrics and reporting tools for VMAX users in heterogeneous storage environments (including non-Dell EMC), while the ViPR Controller layers policy-based automation on top of that system for a complete intelligent orchestration solution.

ADDITIONAL SOFTWARE
DELL EMC PROTECTPOINT

In addition to the F or FX software packages, VMAX All Flash customers can deploy Dell EMC ProtectPoint to provide faster, more efficient backups while eliminating backup impact on application servers. By enabling direct backup from VMAX All Flash to Data Domain, ProtectPoint reduces cost and complexity by eliminating traditional backup applications. ProtectPoint enables up to 20x faster backup, 10x faster recovery as well as instant access to backups from Data Domain for simple granularly recovery. Finally, ProtectPoint eliminates backup impact on application servers and empowers application owners to backup directly from native utilities like Oracle RMAN.

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