SCI StorInt™ Dispatch
EMC releases new Symmetrix-VMAX code and introduces a new VNX family of storage

EMC® recently announced a new version of Symmetrix-VMAX Enginuity (5875) microcode with significantly enhanced functionality and completely revised their midrange CLARiiON and Celerra storage product lines into one new unified storage architecture under the VNX family of storage products.

New Enginuity 5875 functionality
FAST VP

EMC's Symmetrix VMAX series now supports sub-LUN fully automated storage tiering for virtual storage pools or FAST VP that takes even more advantage of up to three tiers of storage to reduce cost while delivering high IO performance. Prior to this, FAST for VMAX was limited to full LUN level migration across multiple tiers of storage (flash, fast disk and high-capacity/slow disk). But with the new capabilities in FAST VP, data can now be split within a LUN to reside across all three tiers of storage so that hot LUN data can be moved to flash while cold data within a LUN is kept on slower disk.

FAST VP's sub-LUN migration uses variable units of granularity and can range from 768KB to 100MB of data depending on IO access patterns. It can also be configured through automated policies applied on a storage pool basis, so that more aggressive FAST VP migration can be applied to one portion of storage while less aggressive FAST VP migration can be used for other portions of application storage or virtual storage pools.

EMC displayed one comparison between IBM Easy Tier and EMC FAST VP for the same workload that showed FAST VP was quicker to determine which data to move and faster to actually move the data, resulting in an earlier improvement in IO performance with FAST VP. IBM can take up to 24 hours before it decides to move data across tiers of storage and EMC said FAST VP was 3 times faster in making this determination.

FLM or local federation of storage

Another major enhancement with this release is Federated Live Migration (FLM) used to speed up data migration and storage transitions i.e., for technology refreshes between Symmetrix DMX-4 and VMAX. Now with FLM and PowerPath, data can be moved non-disruptively from older to newer storage without application intervention or downtime and the final transition to the new storage location can be completely automated including the movement of storage named volumes from the old storage to the new storage. As such, FLM can help provide local federation for complete data mobility within a single data center.

EMC showed that a typical 240-host storage technology refresh could normally take up to 6 months to complete, requiring many application outages to perform. With the new FLM, the exact same data migration can be done in a month and a half without any application downtime resulting in a 75% reduction in migration time.

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Other Enginuity 5875 enhancements

EMC stated this was the largest functional release of Enginuity code ever and contained over 55 distinct enhancements in the area of virtualization integration, replication, mainframe support as well as significant new security capabilities. For example, the new security capabilities allow for completely carefree removal and replacement of storage and utilize new onboard encryption services as well as an onboard RSA inspired key manager for cryptographic key management. This new encryption service is at the system level and applies equally to any flash, fast or slow disk storage used by the system.

New unified VNX family of storage

In addition to their high-end storage changes described above, EMC introduced their new unified file-block storage capabilities embodied in their VNX family of storage. There are two series of products here, the entry-level VNXe and mid-range VNX series of storage products.

VNXe storage series

The new entry-level product line, the VNXe currently supports 1Gb iSCSI, CIFS, and NFS in a 2U (VNXe 3100) or 3U (VNXe 3300) rack mount configuration. This product line supports up to 96 (VNXe 3100) or 120 (VNXe 3300) SAS or NL-SAS disk drives configuration. In addition, the VNXe 3100 can be configured with a single or dual active-active controller environment. VNXe is a complete integration of CLARiiON and Celerra functionality into a single or dual storage processor configuration.

The VNXe is managed via their latest Unisphere management suite which has been specifically re-designed from the ground up to be administered by IT generalists rather than storage administrators. As such, Unisphere's VNXe new management panels avoid any use of storage jargon and utilize more application specific tasks and wizards to simplify storage administration.

Moreover, as the VNXe will be mostly sold through channel partners and other affiliates, the product has been optimized to be as simple to sell, install and maintain as possible. There is quite an extensive new affiliate web portal that provides pre-sales, sales and post-sales support. Here one can find numerous templates and other tools that simplify sales, order and configuration processing for channel partners. Also, EMC has modified their Velocity Partner Program to now support even lower levels of accreditation and no cost options to broaden the distribution channel for VNXe beyond what's available today.

VNX storage series

Above the entry level, the new VNX series has 5 new subsystems, the 5100, 5300, 5500, 5700 and 7500 systems which can utilize from 75 (VNX 5100) to 1000 (VNX 7500) SAS disk, NL-SAS or SSD drives and supports native FCoE, FC, iSCSI, NFS, CIFS, and pNFS interface protocols with EMC's Flex IO packaging. The VNX series combines the functionality of Celerra file and CLARiiON block storage capabilities into one efficiently packaged solution incorporating 2.5" drive technology.

These products support optional FAST VP that already supported sub-LUN migration of data across multiple tiers of storage and FAST Cache that can be used to extend system caching to utilize SSD devices as a more transient IO performance enhancer. FAST VP with VNX now

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also supports file level migration across storage tiers. The VNX systems also come with file deduplication, file data compression and thin provisioning capabilities which when used together, can reduce physical storage requirements significantly.

EMC showed that the new VNX products offer 3X the transactional performance for SQL server, Oracle workloads and VMware View functionality. The new VNX series utilizes the latest Intel Xeon, multi-core processors, more system memory and bandwidth to deliver these performance enhancements.

Other VNX changes

Both the VNXe and VNX series are managed using EMC Unisphere providing unified management of file and block storage. In addition to the new storage products, EMC has repackaged and rebundled their storage software functionality into now 5-distinct product bundles, which should simplify ordering, and use of these systems. Also pricing has changed which should result in less costly implementation of these services. For example, their Remote Protection Pack now includes Celerra Replicator for file replication, MirrorView for block replication and RecoverPoint replication in one product license.

Announcement significance

EMC had already announced that DELL would not be reselling/rebranding the new VNXe product line. Further discussions with DELL are ongoing but with their recent purchase of Compellent it's anybody's guess as to whether they will resell VNX. The current CLARiiON and Celerra products will continue to be sold for the time being until the base completes its transition to VNX.

As for the new Symmetrix functionality, the sub-LUN tiering is an aggressive turn of the performance knob and now meets or exceeds IBM's Easy Tier and HDS's Dynamic Optimizer capabilities. EMC believes that with FAST VP customers could see similar IO performance improvements while using less SSD storage. Also the new FLM capabilities will make upgrading storage to the new systems even easier.

Together these two announcements represent perhaps the most aggressive release of functionality for EMC that they have ever accomplished. The unified storage has been rumored for some time and probably is testament to the careful planning and training of EMC's channel in preparation for launch. Within the last 4 months, HDS has redesigned their high-end storage, NetApp has revised their entire storage hardware line, IBM has introduced new mid-range storage product, and now EMC has recreated their midrange storage family. 2011 is looking to be an exciting year in IT storage.

Silverton Consulting, Inc. is a Storage, Strategy & Systems consulting services company, based in the USA offering products and services to the data storage community.

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