



Snapshot

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EMC and the Mainframe: The Evolution Continues

By Charles King

Mainframe computing occupies a curious position in enterprise IT ecosystems. In an industry where product validity, let alone leadership, is often measured in months or even weeks, the mainframe's decades-long reign at the top of the IT food chain is unequaled. Moreover, that situation is likely to continue. Industry surveys suggest that mainframes play key roles in the data centers of virtually all Fortune 2000 companies, many governmental agencies, universities, and other organizations. According to IBM, 180 billion lines of legacy code exist on zSeries systems, and it has been estimated that well over half of the world's data resides on mainframes.

IBM continues to invest in the zSeries. The company's expansion of mainframe capabilities via Linux, development of mid-market mainframe solutions with its z800 product line, and introduction of the new z990 "T-Rex" earlier this year which effectively doubled the capacity and performance of the company's previous high-end mainframe systems all reflect this point. The claims by some industry pundits and competing vendors that the mainframe is an increasingly outdated, essentially moribund technology seem misguided or myopic at the very least.

Mainframes: The Background

Mainframe solutions have always been and continue to be central to the EMC equation. On October 6, 2003, EMC and IBM announced an agreement that EMC will license key mainframe software technologies from IBM to extend and enhance interoperability for customers using IBM mainframes with EMC storage. These technologies include:

- Peer-to-Peer Remote Copy
- Extended Remote Copy (XRC)
- Total Storage Enterprise Storage Server
- FlashCopy
- Multiple Allegiance
- Parallel Access Volumes (PAV)

As a result of this agreement, customers who have invested in EMC storage and IBM mainframe technology can be assured of continuing complete compatibility within their mainframe environments.

EMC's New Mainframe Solutions: An Overview

EMC's newest mainframe offerings include enhancements to the DMX product family, Centera Mainframe Fixed Content Applications, Fast Mirror Migrator, and AutoSwap, all of which demonstrate EMC's continuing commitment to mainframe storage.

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EMC Symmetrix DMX

The new Symmetrix DMX product family was announced in February 2003, and further enhanced in September 2003. Employing a fundamentally new point-to-point interconnect architecture, the Symmetrix DMX offers more flexibility, higher performance, and increased availability compared to traditional bus- and switch-based architectures.

The DMX800, now with FICON connectivity, is the first rack-mount Symmetrix system, scaling from 1.2 to 17.5TB of raw capacity and from 4 to 32GB of global cache. The DMX800 does not require a traditional raised floor for deployment. This is particularly significant given that IBM eServer z800 mainframes shipped after October 2002 can be configured to operate outside of traditional raised-floor datacenter environments. In other words, the IBM eServer z800 and EMC DMX800 collectively offer affordable, scalable mainframe-class computing and storage capabilities that can be deployed virtually anywhere.

EMC recently announced DMX-based implementation of IBM's XRC Version 3 replication software, enhanced support for IBM's Geographically Dispersed Parallel Sysplex (GDPS) clustering and failover solution, support for the TPF operating environment, and 2GB FICON connectivity. EMC also announced new replication capabilities that enable mainframe customers to leverage SRDF in asynchronous as well as synchronous modes to handle extended distance and campus distance connectivity. These enhancements, as well as advanced replication through SRDF/A (asynchronous remote replication) and EMC Snap software, address serious requirements for mainframe customers.

EMC Centera Mainframe Fixed Content Applications

EMC's new Centera Mainframe Fixed Content Applications bring the capabilities of the company's Centera Content Addressed Storage (CAS) solutions to mainframe fixed content management. Centera is a disk-based alternative to tape and optical technologies that eases content authenticity processes and provides customers online access to their information at potentially lower TCO than traditional solutions. Traditionally, mainframe-fixed content has been stored on tape and optical media that are not optimized for today's fixed content archiving needs. Tape and optical technologies are slower than disk-based solutions, and are more expensive to manage and maintain. Tape can also suffer from media degradation resulting in unpredictable performance and unsettling, even disastrous consequences. The mechanical complexity of automated optical solutions requires expensive initial investments and often painful management and maintenance costs. Taken in sum, tape and optical archiving solutions tend to reduce the value of the fixed content assets because they essentially "lock up" content by making it difficult to access by "locked out" enterprise owners.

EMC's Centera mainframe solutions feature a mainframe gateway that offers Bus-Tech tape emulation solutions, and ESCON/IP, along with a SystemWare application that connects directly to Centera via IP. Why is this important? Centera's utilization of cost effective ATA drives means enterprises can maintain ready access to archived information, along with assured document authenticity that meets both regulatory and internal business policy requirements.

EMC Fast Mirror Migrator

Fast Mirror Migrator is a new EMC mainframe software utility designed to provide non-disruptive data migration and upgrades between Symmetrix systems. Fast Mirror Migrator passes data from one Symmetrix to another through mainframe channel connectivity to both control units and is administered through an ISPF interface. While Fast Mirror Migrator competes with FRDPAS and TDMF, its purpose is to provide a flexible data migration solution across Symmetrix subsystems. It can also be utilized in circumstances where the rebalancing of loads and/or a migration to larger disks is required. Fast Mirror Migrator consists of software that runs in a host OS390

or z/OS system, and requires EMC ResourcePak Base for OS/390 and z/OS, as well as Symmetrix systems for both base and target. Notably, SRDF is not required.

EMC ControlCenter

EMC ControlCenter is an integrated family of storage management applications designed to simplify and automate end-to-end management of multi-vendor networked storage environments, including mainframe and distributed storage, from a single console. For mainframe environments, ControlCenter provides storage management functions from discovery of mainframe resources to SRM reporting and alert management. ControlCenter proactively alerts on the status of HSM, SMS Control Data Sets, and tape resources, and can report on mainframe based storage allocation, utilization, capacity, and performance. ControlCenter can also view DASD and tape in their environments, as well as DB2 database structures and resources.

What Does It All Mean?

EMC's new products and applications offer customers mainframe compatibility and innovative solutions. IBM and other mainframe vendors have extended the vitality of these solutions by continually developing new or improving existing mainframe technologies. As IBM mainframe systems have maintained their enviable position in enterprise IT ecosystems due to their unmatched dependability, availability, security, and performance, customers can be assured of choice and compatibility in enterprise storage solutions. This is great news for mainframe customers who would do well to investigate and consider EMC's mainframe storage solutions.