The Mainframe Adds to its Versatility and Power - Luminex Provides Open Storage Accessibility

Analyst: Joe De Natale

Management Summary

Why would anyone want to hear something new about mainframes? After all, their original architecture is nearly 40 years old, and *shouldn't that fact make them the dinosaurs of the information technology world? And weren't they rapidly becoming irrelevant? And didn't the brave new world come about as a result of the client server revolution?* Hold on, now*! Isn't most of the commercial data in the world still being processed on mainframes? And aren't mainframes, now dubbed large servers, still ahead of the server competition in terms of reliability, scalability, security, adaptability, and manageability, despite the fact that they are not of the hip, "now" culture? And hasn't the architecture of the mainframe changed with the times and with the technology? And isn't it up there with the leaders in new initiatives such as utility computing, and self healing systems? If all that is true, then isn't it likely that many would not be averse to hearing something new about mainframes?* **How about the possibility of expanding mainframe access to open storage systems** – *wouldn't that be an interesting prospect?*

Luminex Software, Inc., of Riverside, California, has developed and marketed products for the IBM and compatible mainframe market for many years, fueled through the acquisition of products such as *Data|WARE* from Anacomp and the *Virtual|BLUE ESCON,* and bus and tag products from Crossroads, which provided connectivity to open system servers and devices. Its *Virtual|Blue VTS* (Virtual Tape System) provides connectivity to disks as virtual tapes. As a follow-on to these products, **Luminex has developed a virtual IBM controller that lets mainframe data centers use open system disks as mainframe DASD. This product adds to the versatility of the IBM mainframe systems, broadening its utility and functionality.**

Luminex recently introduced its *Virtual|Blue 3990 DASD Controller* for use on IBM's *System/390* and *zSeries* servers. The Virtual|Blue 3990 controller makes access to open systems disk storage a straightforward and simple approach. **Data from open storage systems can be accessed from the mainframe, effectively as direct attached storage (DAS). Now the benefits of storage consolidation can be easily achieved in the most cost effective manner, even for smaller mainframe owners.** Consolidation means lower operational costs for the IT department and is reflected in benefits for the enterprise in terms of lower costs, more efficient utility of high cost computer resources and add lower cost storage devices to the mainframe. It can also lead to greater integration of information across the enterprise. For more information on how the Luminex Virtual|Blue 3990 DASD Controller can benefit your organization, read on.

The Challenge

It is no surprise to anyone in the IT world that the escalation in the use of storage has given IT executives, and the enterprise, new challenges to consider. Although storage cost have reduced dramatically, the total capacity of installed storage devices has increased dramatically and shows no signs of slowing down. **It is not unusual for an enterprise to have terabytes of storage on their mainframe(s). The downside of this is that mainframe storage is usually identified as being that of the high-price, high-performance class.** That means that all data is treated as being of equally useful value, when, in fact, different data may widely varying, depending on its criticality to the enterprise. Many enterprises welcome the concept of tiered storage[1], which reduces the cost of ownership of storage since data is recorded on less or more expensive storage devices depending on the business value the enterprise puts on that data.

Another factor relating to storage is that it can often be found spread throughout the enterprise on different servers, each of them growing independently of the other. Many studies have shown how dramatically under-utilized storage can be in this type of enter-prise IT architecture. Virtualization can be of some help to reduce the amount of unused storage, but it is not the full answer. Even if storage utilization can be optimized, there is still the problem of how to optimally improve the accessibility of data or information be-tween servers.

The obvious answer is storage consolidation. That raises the question of how to achieve it. For the mainframe world, Luminex has a response to the question of how to achieve consolidation as well as how to implement cost-effective tiered storage, and to lower the overall cost of storage.

Luminex Virtual|Blue 3990

The *Virtual|Blue 3990 DASD controller* **eliminates the problem for mainframe,**

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[1] For more details on this concept, see **The Clipper Group Explorer** entitled *Tiered Storage Saves Money-Getting the Most Out of Your Storage Infrastructure* dated August 29, 2002, at www.clipper.com/research/TCG2002030.pdf.

where access to open systems disk storage was limited. It permits heterogeneous open systems disk storage to be attached directly to the mainframe, without any change to the mainframe operating system. Virtual|Blue supports a wide range of open systems storage vendor offerings from JBOD (Just a Bunch of Disks), RAID and SAN-based storage systems. Proof of the accep-tance of the Luminex Virtual|Blue 3990 is the recent announcement by Luminex and Mainline Information Systems, an IBM Premier Business Partner. Mainline will offer the Luminex controller product and IBM *FAStT* RAID storage system for use on IBM's low-end z800 mainframe.

Virtual|Blue 3990 Controller Features

Essentially, the Luminex Virtual|Blue 3990 is an IBM 3990 DASD emulator, which can provide communication to a mainframe with a wide variety of open system storage devices, from ATA class, JBODs to full Fibre channel RAID storage devices. The Virtual|Blue controller is compatible with the IBM *MVS*, *OS/390*, z/OS, VM, z/VM, VSE, and z/VSE systems. Compatibility with many network based storage management software products gives users the tools required to optimize open systems storage resources on the mainframe.

The Virtual|Blue 3990 controller contains a dual CPU with 4 Gigabytes of cache, 4 ESCON and two Fibre Channel ports, completely compatible to the IBM 3990 controller. It is able to handle 64 logical connections, from 256 to 1024 logical devices, IBM 3990-3, -9, and -27 volumes, and can support up to 12 terabytes of disk storage.

The Luminex Virtual|Blue controller communicates with the IBM 3990 Control Unit via ESCON and with the open systems disk storage through Fibre Channel, or through a SCSI connection for JBOD disks. The internal software of the Virtual|Blue 3990 controller converts the protocols used by the mainframe into the protocols of the particular open system disk storage devices. **Because of this compatibility feature with the IBM 3990 Control Unit, no changes are required in the mainframe to accept the open systems disks.**

Storage Consolidation on the Mainframe

Despite the original promises that departmental servers would bring to the enterprise – and there were many, there were drawbacks to this new mode. Operationally, management of these systems required more total personnel than in a centralized IT system. Equally important to the organization, and one that can have a serious impact on the way an enterprise operates and conducts its business, are the communications and interface short-comings between differing systems. In the worst case, it is similar to having people in different organizational elements in the enterprise speaking a number of different languages. (This analogy is not far-fetched in this global economy, it actually occurs between differing cultures and languages.) Many of these IT systems do not "speak" to each other, they must have "interpreters" because of fundamental incompatibilities between systems. **The "interpreter" capabilities of the Luminex Virtual|Blue 3990 DASD controller allows enterprises to remove this barrier, permitting data from a wide variety of different types of disks to be accessed and processed by an IBM mainframe.** Unlike translation systems, where the translation takes place concurrently with the speaker, servers processing data in disparate locations often require additional post processing to prepare output in the formats and protocols required by another server. This takes time and personnel resources, both of which can be have negative impact on the business needs of the enterprise. **The Luminex Virtual|Blue 3990 brings to the mainframe and the enterprise the analogous concurrent translation that the United Nations translators provide to its members.**

Consolidation brings other benefits to the enterprise, benefits that translate into reduced disk storage costs, improved IT operations, and reduction and simplification of the management of storage. Disk storage costs can be reduced with the use of tiered, or right-sized, storage. Here, lower and medium cost open system disk drive storage can be used for less critical business applications. **In place of scaling storage by adding the high-availability storage, more** cost effective scalability of storage can be brought to the mainframe with a range of disk devices suitable to the requirements of the enterprise. Greater flexibility is given to the IT department in its choice of storage. The Luminex 3990 Virtual|Blue can be used in place of older storage, cohabitate with it or, more likely, serve as an opportunity to install less-expensive storage as part of a tiered storage strategy. Differing quality-of-service (QoS) agreements can be more easily met technically and cost effectively by matching those tiered storage devices of varying price and performance to the appropriate QoS level.

Conclusion

Despite being called a dinosaur, or the more politically-correct, but still pejorative statement, a "legacy" system, the mainframe still remains in the forefront of IT as the most flexible, scalable and technically sound computing system that can best meet the challenge of today's global enterprise. It has been and continues to be the workhorse of many companies, a workhorse, yes, but still flexible enough to be improved on as the technology changes and as the IT needs in the enterprise changes also. **The Luminex Virtual Blue|3990 adds to that flexibility by providing a means for access to a wide range of heterogeneous open storage system devices.**

For those IT enterprises with smaller IBM or plug compatible mainframes that want to add capabilities to reach open storage, the Luminex Virtual|Blue 3990 controller is a product well worth considering and evaluating.

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About the Author

Joseph S. De Natale is Director of Enterprise Systems Planning with The Clipper Group. He brings more than forty years of experience in the data processing field with particular emphasis on systems management and application development on large-scale mainframes. Prior to joining The Clipper Group shortly after its founding, Mr. De Natale was an independent consultant, first with Ropes and Gray, Attorneys at Law, where he provided expert opinion on data center management for civil cases. He later joined International Data Corporation (IDC), as a senior consultant and analyst, where he covered banking systems, data center management software, and large systems computers and storage. Formerly, Mr. De Natale spent eleven years at Citicorp Information Resources (CIR) as CIO of the Boston Data Center, where he managed the support of over 200 outsourcing contracts for thrift institutions. Earlier, he was MIS Director for the Lahey Clinic, and prior to that was a Project Manager for Computer Sciences Corporation, where he was involved with NASA and FAA outsourcing and applications contracts. Previously he was Director of AVCO Computer Services for fourteen years. At AVCO, in addition to being responsible for all internal data processing, he initiated the marketing and sales of computer services to commercial clients. Mr. De Natale began his career with Pratt and Whitney Aircraft as a programmer of nuclear physics and business applications. During his career, Mr. De Natale was involved in the evaluation, installation and operation of large-scale mainframe systems and for the development of commercial, scientific and engineering application systems. He has also had successful experience in the marketing and operation of outsourcing contracts. Mr. De Natale earned a Bachelor's and Master's degree in Mathematics from Boston College. During his period at AVCO, he was selected by AVCO to attend the Northeastern University Management Development program, a co-op program covering an MBA curriculum.

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