Commentary

May 11, 2012

VNXe3150: Winning Storage Simplicity

Enterprises do not have to be huge to experience the pain of unbridled information growth and the impact of server virtualization on storage requirements. As a result, many businesses are turning to shared storage in the form of unified storage to meet their storage needs. EMC's VNXe3150 offers the broad range of capabilities that are up to the challenge of eliminating the pains. The VNX3150 delivers — not just claims — simplicity. The VNXe3150's simplicity delivers not only ease of use, but also benefits in performance, capacity utilization, and higher availability.

Trouble Right Here in Storage City

Surprise! The seemingly inexorable exponential ongoing growth of information is no respecter of size of company. Small-to-medium-sized (SMB) enterprises, which are the majority of all organizations public and private, find themselves with information storage demands that rival many of the storage requirements of much larger scale enterprises not that many years ago.

The IT challenge involves not only bulging storage requirements to house all that information, but server virtualization has also inserted an alluring appeal. However, one of its unexpected side effects is that, due to the need to manage random I/O from many virtual machines housed in a single physical server, it requires the use of shared storage rather than the DAS that many enterprises still feel most comfortable with.

Although SMB organizations probably have talented IT generalists, they may not possess the storage-specific skill sets to manage both unprecedented storage growth and the impact of server virtualization in a shared storage environment. Budgetary constraints today discourage hiring these skill sets, and even though existing IT people have the ability to learn, they are very likely to be overwhelmed by existing requirements.

What can be done to solve this problem? The answer is storage that does not place a lot of demands on IT administrators (i.e., is simple), is efficient in making sure that storage is not over-provisioned (as unnecessary idle space is a waste of money), and won't break the budget bank.

Enter EMC with its VNXe series of storage systems to meet these needs. EMC emphasizes simplicity, efficiency, and affordability with its VNXe Series, including its newest member, the VNXe3150, which will serve to illustrate the VNXe series as a whole.

Introducing the VNXe3150

EMC has long been known as a storage array system technology and market leader. With the VNXe series as part of the overall VNX family, the focus is on delivering the IT storage needs of small-to-medium businesses (SMB), remote offices or branch offices (ROBO) of all-sized companies from SMB to global enterprise, and departmental applications in any company.

The VNXe3150 is the newest member of the VNXe series. As a form of shared storage called unified storage, the VNXe3150 works with both block storage (often used for database-related applications, including online transaction processing and business-intelligence solutions) and file-based storage (such as file sharing). Unified shared storage has become very popular, as it enables the use of one storage strategy for all needs from the sublime — say, Microsoft Exchange — to the prosaic — say, print servers.

Unified storage — in combination with modularity (the ability to add disk drives in relatively small increments) and, under the covers, thin provisioning (which helps minimize unused disk space) — spells the end of the days of guesstimating future storage requirements. Plan-as-you-go eliminates the typical planning nightmare (because you no longer need to predict mix, volume, and application requirements for storage very far in the future) and also eliminates pay-before-you-need (or pay-but-never-need) budget drains.

The VNXe3150's architecture and storage-management software do not compromise on supporting the SMB's key storage needs, such as performance-driven user response time and high availability (in terms of at most minutes per year of unplanned downtime), nor on what IT has to provide to the enterprise, such as local data protection (snapshots), remote data protection for disaster recovery (replication tools), application protection (consistent replication), and security and compliance.

Highlighting the VNXe3150

General availability of the VNXe3150 is expected in the second half of 2012.

Modern storage arrays are really sophisticated systems that contain CPU processing, internal networking, and physical storage in an integrated package. SMBs must be confident that an array can meet their current needs, but also expand to meet future needs. EMC fully delivers the necessary performance and scalability capabilities required.

IT organizations do not want either processing power or connectivity to be bottlenecks impacting the performance of their applications. A quad-core Intel processor provides the necessary CPU power to meet the most demanding storage compute requirements. Connectivity for internal networking is critical. An optional dual-port 10GBase-T I/O Module delivers additional connectivity if required.

Storage scalability is also critical. Organizations want to be able to start small, but be able to grow gracefully (which means being able to add small increments of drives without having to do a major/expensive array upgrade).

The VNXe3150 supports either 3.5" or 2.5" drives in the familiar entry level 2U high chassis. New to this chassis are 100 or 200GB flash drives (to

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ensure no bottlenecks for storage performance sensitive applications) and larger capacity 3.5" drives for added density. The VNXe3150 will support 100 drives whereas the larger VNXe3300 will support up to 150 drives. A new add-on chassis that supports 2.5" drives, the new drives and the dual-port 10GBase-T I/O Module will be supported across all VNXe series platforms.

Value Adds EMC as a Whole Brings to the VNXe Series

All storage solutions are not created equal: Differences in architecture and storage management software matter. The VNXe3150 can well claim to differentiate itself, due both to what EMC enables it to bring to the table and its own features.

EMC provides three ongoing endowments to all VNXe models, affordable enterprise-class core capabilities that others may emulate in part but not offer as an integrated whole. The three endowments are:

- **Transfer of knowledge** — key architectural principles and key software capabilities that take advantage of the already amortized (i.e., no longer part of the cost) learning curve

- **Ongoing R&D —** IT organizations do not have to worry that VNXe technology will lag changing business requirements

- **Service and Support —** EMC has world-class service and support on a world-wide basis that can be applied as appropriate to the needs of VNXe-using organizations.

VNXe also distinguishes itself by VNXe-specific enhancements. Although the

details of these enhancements can get technical (such as combining EMC's original block and file oriented operating systems into one unified operating system), the key is to understanding this part of the VNXe3150's differentiation is to see how it relates to the key VNXe user benefit.

Thus, a primary VNXe technology watchword and goal is "simplicity." Let's focus what that means to the VNXe3150 user.

Delivering Simplicity is Not Easy

No product description uses the words hard, difficult, or complex. Instead, easy, ease of use, simple, and simplicity are bandied about as if saying them made it so. Claiming simplicity is far easier than implementing it. Making simplicity so is what EMC does with the VNXe3150 and the whole VNXe series. What EMC had to do to deliver simplicity was not easy (if it were easy, everybody would be doing it, and there would be no differentiation).

Simplicity in a storage array system such as the VNXe3150 is critical, because complexity may not only lead to burdensome administrative overhead and suboptimization (such as poor I/O response time performance), but also cause errors of omission or commission that could lead to serious consequences, such as permanent loss of data when an event reveals inadequate data protection.

But how does EMC simplify a function/feature-rich product where the user has many possible choices to get the best out of the product in terms of efficiency, performance, and utilization?

The two key components that turn complexity into simplicity for a VNXe storage array system are:

- **Predictability and intuitiveness of what the user knows, sees, and does** — the user is given the necessary information and knowledge gathered by the VNXe as part of his/her everyday job, understandable without specialized storage knowledge; the user can follow the GUI interface tool with the system without becoming lost, disoriented, or wondering what to do next; and the actions, decisions, and choices that the user makes lead to the desired results.

- **Automated best-practices knowledge behind the scenes** — the storage system embeds the knowledge and processes of a storage/application specialist and presents it to an IT generalist so simply that such a person can perform necessary tasks without acquiring the in-depth knowledge of the experienced specialist.

Unisphere Storage Management is one illustration of simplicity that the VNXe3150 offers.

Unisphere Storage Management

The famous Einstein quote "everything should be made as simple as possible, but no simpler" certainly applies to the Unisphere GUI that EMC uses to manage all the resources and functions on a VNXe3150 storage array. For example, the Unisphere GUI can be run from anywhere, anytime, using a simple, predictable "window to the world" that starts the user off at the main Dashboard and navigates to other windows to perform the more complex but still simplified specific storage tasks.

The interface is clear and crisp. Icons have intelligible names, and brief descriptions are available that drill down to further displays, such as a pie chart showing capacity utilized and a trend line graphic to show performance over time. All in all, quite refreshing.

One primary storage task is provisioning. For selected critical applications, such as Microsoft Exchange and VMware, the storage management software has been made application aware. Thus, in the case of Exchange, the storage management software and the storage manager focus on key pieces of Exchange-specific information: The number of mailboxes and the size of each mailbox. Also, the software embeds best practices for Exchange, which means that the person driving the GUI does not have to be an Exchange expert (such as knowing about Database Availability Groups [DAGs]). The IT generalist still has to understand basic concepts related to storage, such as what data protection is and why it is needed — because only you can determine the right amount of data protection for your organization. As Einstein recommended, in the VNXe, avoiding over-simplification is equally important.

Just Don't Break the Budget Bank

So the VNXe3150 has a breadth and depth of appealing functions and features (of which only the surface has been scratched). How can a large company, such as EMC, manage to do all this at an affordable price?

Well, market acceptance of existing VNXe series products leads to an accelerated learning curve (experience through volume) that results in such things as the amortized expertise costs mentioned above – that's one reason.

Another reason is that EMC is active in many related product markets, giving it a high product-introduction "batting percentage," because it brings in a management and professional team that understands a particular market and knows what to do – and that allows lower "supporting many failed initiatives" costs.

Take just one specific VNXe design example: Using its domain knowledge, EMC designed all main components to be Customer Replaceable Units (CRUs). Each unit can be hot-swapped with no downtime. Result: added simplicity that yields less costly service with a byproduct of higher availability.

Conclusions

No organization is exempt from the continuing rapid growth of information nor the byproducts of ever deeper adoption of server virtualization technology. And that leads to the need for shared storage, such as the VNXe3150, which exemplifies three objectives that EMC has specified for such storage — simplicity, efficiency, and affordability.

Perhaps the best way to look at the VNXe3150 is as a configuration that has properties that cannot be derived by the sum of its component parts. Simplicity, our focus — and also efficiency and affordability — are not just one thing or even many things, but more than the sum of all the constituent parts.

The VNXe3150 and additional configurations for the VNXe series as a whole continue to add to the already strong VNXe lineup. Altogether they demonstrate EMC's ongoing commitment to build upon on the VNXe success and competitive positioning.

 SMBs need to think about using unified shared storage to meet such challenges as information growth and server virtualization — and what the VNXe3150 offers.

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