The Hitachi USP: A new release, milestone, and market validation

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Abstract: The Hitachi TagmaStore Universal Storage Platform (USP), an Enterprise-class storage system that also provides best-in-class storage virtualization technology, started shipping in September 2004. Twenty months later and Hitachi is still alone in providing this combined functionality in this class of product. With over 3,000 units shipped (and that number continues to grow), the market continues to validate Hitachi's strategy, products, and technology.

The Hitachi USP started shipping in September 2004, providing the first of its kind Enterprise-class storage system that also provided external storage virtualization. ESG was impressed with this combination because it offered a best-in-class high-end storage system that was competitive on every level, including features, scalability, reliability, and performance. However, with the addition of the native USP storage virtualization technology to support external storage systems for their own and other vendors' products, the USP created a new category of storage and continues to provide unique value that its major rivals did not. Twenty months later and Hitachi still is the only vendor that provides an Enterprise-class storage system and external virtualization solution in one integrated package.

The latest iteration of the Hitachi USP is primarily a software revision that enables the following:

Significant Performance Increase. Hitachi eclipsed the market by providing 2 million I/Os per second (IOPS) with its initial USP solution. This release of the new Hitachi USP software, which is field upgradeable, and new 4 Gb/s Fibre Channel blades, boosted this performance measurement to 2.5 million IOPS. This is a 25 percent increase over an already extremely impressive number, and approximately 2-3 times greater than the competition.

New iSCSI Blade. The Hitachi USP supports different blades, including FC, FICON, ESCON, NAS, and now iSCSI. The new iSCSI blade supports 8 Ethernet interfaces. The Hitachi USP is a multi-protocol storage system (the "U" does stand for Universal, after all) that enables companies to provide consolidation using different methods. ESG is aware of companies that are using FICON for mainframe applications, FC for high-end Unix, NAS for file storage, and iSCSI for Windows and Linux applications. iSCSI can be used by large organizations to connect the dozens, hundreds, and even thousands of stranded Intel-based servers that have internal storage. Companies can leverage the investment in time and capital they have in their Hitachi USP by putting all of these servers on the SAN using iSCSI.

4 Gb FC Interconnects. 4 Gb FC provides two main benefits for customers. The first is that more servers can be attached to a single host port on the storage system. Hitachi provides the ability to connect dozens of servers to a single host port on its USP storage systems. With 4 Gb FC, companies can provide even greater fan-out and increase the ratio of servers to storage ports. The other benefit is that it improves the performance of bandwidth-intensive applications such as streaming I/Os, including video and backup to disk.

Security Enhancement. Storage security is emerging as a core issue in the data center. The Hitachi USP supports an audit trail of any administrative task performed on it. ESG categorizes this as system-level security and it's an important place to start. The audit log indicates time/date, operation performed, function that was performed, and the end result of these actions. This capability is important to security-oriented investigations and also is useful for troubleshooting.

New Hitachi Universal Replicator (HUR) Functionality. The Hitachi USP can provide remote mirroring to support heterogeneous storage systems. The new HUR functionality is targeted at the highest end of the market. The first capability creates a triangle between the primary data center, the hot standby site, and the remote data center. If the primary site fails, then the hot standby site and remote data center establish a

remote mirroring link. The HUR intelligently synchronizes both sites and transfers only the delta data to ensure rapid recovery and data integrity.

The second HUR enhancement is for mainframe environments supporting 64,000 volumes in a single consistency group. If you don't know what a consistency group is than you probably don't care about this enhancement. For those of you who do care, the support of 64,000 volumes in a single consistency group might just be what the doctor ordered. Hitachi supports up to 16 consistency groups (4 per USP controller) and all are synchronized and managed as a single consistency group container.

ESG's View

The improvements in this latest release of the Hitachi USP are useful advancements for an already compelling and competitive product family. This release also represents a milestone in the maturity of the Hitachi USP, both technologically and through its increased customer implementations.

Hitachi still has a long way to go. For example, they need to offer better NAS. Additionally, Hitachi is missing the boat on the CAS and VTL markets and I know that their customers would love to buy these solutions from them. Hitachi must also pursue the mid-market with greater fervor because it is the fastest growing segment of the SAN storage market. And they should increase their sales force and market awareness, and continue to accelerate their channel growth. Having said all of that, the Hitachi USP and Network Storage Controller (NSC) solutions are innovative (who says large vendors don't innovate?) and provide unique value. Hitachi's largest competitors have failed to respond even though there is now clear market validation with over 3,000 USPs implemented to date.

What you may have missed is that storage virtualization is more than just a product or a feature. It is ESG's view that storage virtualization will be foundational and core technology for all storage environments in the not too distant future. As each day goes by, Hitachi gains greater insight, knowledge, experience, and customer footprint, and is becoming a leader in storage virtualization while leveraging its flagship USP storage system solutions. It is a brilliant strategy and visionary in scope. One day, the rules of the game WILL change and Hitachi will be well-positioned. At that point, its competitors may very well be rubbing their heads wondering what the heck happened.