**Hitachi releases new Virtual Storage Platform G1000 & new O/S**

Silverton Consulting, Inc. StorInt™ Briefing

Hitachi® released a new version of its high-end Virtual Storage Platform (VSP), the G1000 and a new Storage Virtualization Operating System (SVOS) which will become common software across Hitachi storage platforms.

**New Hitachi VSP G1000 hardware**

The VSP G1000 now supports up to 8-Virtual Storage Director (VSD) pairs, double the previous generation system which maxed out at 4 pairs. Each VSD also has double the CPU cores of the previous generation. Moreover, both the data and control bandwidth of the system has increased substantially. For instance, the old, VSP system dual-controller chassis, supported 128GB/sec of cache data path bandwidth and the G1000 in a one-controller chassis, with 4-VSD pairs, supports up to 384GB/sec and the G1000 dual-controller chassis with 8-VSP pairs supports 768GB/sec. The new G1000 supports a maximum of 2TB of cache in the dual controller chassis, double the previous version.

With all the new processing power one G1000 can now support up to 384 SSDs or flash modules, an increase of 50% over the prior generation system. The number of local and remote copy pairs has been increased to 32K and 64K respectively, also doubling the prior system. The VSP G1000 also supports up to 2304-2.5” disk drives, a 12.5% increase over the previous system. There was a slight decrease in the maximum number of 3.5” disk drives supported, which is now 1152 vs. the VSP’s 1280.

Other major hardware changes include: full data-at-rest, controller based encryption is now supported on day one; maximum power consumption has been reduced by ~10%, from 41.4 KVA to 37 KVA for dual controller G1000 chassis and to 18.5 KVA for the single controller chassis; one can now separate the storage controllers by up to 100M; and the released G1000 product ships with single phase power with a 3-phase power version coming soon.

In addition to the block storage changes listed above, the Hitachi NAS (HNAS) frontend for VSP G1000 unified storage has been doubled, from a maximum of 4-HNAS nodes to 8-HNAS nodes. This should theoretically double the number of NAS operations the system can perform as well as double the file data throughput.

**New Hitachi VSP G1000 performance**

The G1000 gets ~4 times the number of the IOPS and ~3.5 times the throughput of the previous system. For example, the G1000 has demonstrated in internal testing ~3.9M 8KiB read IOPS and ~1.2M 8KiB write IOPS as well as ~48K 256KiB sequential reads and ~26K 256KiB sequential writes.

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New Hitachi SVOS, Command Suite, & UCP software

The SVOS software is being re-packaged as a separate item and will become the standard storage system software for future Hitachi storage offerings. This new packaging signals a change of direction for Hitachi high-end storage systems and indicates a broadening of high-end systems functionality beyond Hitachi Unified Storage (HUS) VM and VSP G1000. Also, SVOS introduces the concept of a Virtual Storage Machines (VSMs). VSMs provide multi-tenancy capabilities that now own LUNs and their data. VSMs provide a new framework to be used for adding future storage functionality to new Hitachi storage.

Some additional recently added software functionality includes:

- **Hitachi SVOS global active device functionality** – this feature, expected to be available about 6 months after the launch, can be enabled to allow two systems to share a virtual storage machine’s “global active device”, providing simultaneous read/write capability across two physical systems. This will be supported for systems that are up to 100KM apart.

- **Hitachi Nondisruptive Migration** - this allows a synchronously replicated volume to be non-disruptively migrated to another SVOS storage system, assuring continuous availability for these LUNs. These types of volumes are typically mission-critical and the ability to migrate them online, without breaking replication pairs is quite a change.

- **Hitachi Command Suite v8 REST API and new application awareness** – the new Command REST interface allows for more automated management of SVOS storage systems and the new application reporting capabilities help ensure that users have access to the app-specific performance and capacity information that can simplify service-level related management tasks.

- **UCP Director 3.5 entry level UCP, enhanced DR with better snapshot integration** – a new entry-level UCP for VMware vSphere is now supported and UCP has enhanced DR management with integration of snapshots on replica disks with Hitachi Thin Image.

Also, UCP Director 3.5 provides G1000 support for Hitachi’s Unified Compute Platform (UCP) using Hitachi compute is supported at G1000 GA and UCP Cisco UCS compute support for G1000 will be coming soon.

**Significance**

We always like to see new storage hardware. Hitachi included in their briefing a comparison of commodity hardware required to match the IOPS and bandwidth of the new G1000. To match just the processing power of the new G1000 would require 128 cores but to match the overall frontend, backend and cache data bandwidth would need 960 cores with over 2.5 racks of servers, not to mention the storage itself.
The new global active device or data-at-a-distance (DaaD) as we like to call it, comes with pairs of the base G1000 system and will not require any additional hardware or other appliances. Moreover, the non-disruptive, synchronously-replicated, volume migration will be a great benefit to mission-critical application administrators forced to move data due to technology refresh or other reasons.

HP® is also marketing the G1000 under the XP7 name as a replacement for their XP10000. The XP7 includes some new HP unique firmware functionality and will be enhanced over time to introduce even more HP specific capabilities.

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