Hitachi Vantara rolls its high-end storage into the midrange

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Summary

Hitachi Vantara launched a major rework to its Virtual Storage Platform primary storage system in 2019, beginning at the high end of the VSP family. The rework was major, and now the company is extending it to the midrange of the VSP lineup, beginning with a new system called the VSP E990. The E990 has impressive claimed performance and scalability, but for datacenter storage systems, the management of the systems is as important as their speeds, feeds and data services. The E990 is bundled with the same suite of AI-enhanced management software that Hitachi launched with the VSP rework. It offers cloud-based management and analytics functions that are similar to the management tools offered by rival storage systems, but Hitachi highlights its 'end-to-end abilities,' in terms of both diagnostics and the automation of administrative tasks. The continuing message from Hitachi is that, although AI is highly useful in infrastructure management, its value is heavily boosted by automating the complex manual tasks that are needed to implement its recommendations. Hitachi has also launched EverFlex, a program that it says rationalizes its existing range of payment schemes and other pricing models and services.

451 TAKE

The E990 is a good example of the long-running industry process in which the midrange inherits features from the high end of the storage market. This is especially so because Hitachi's stronghold has always been at the top of the storage market, even though its lineup has always reached down into to the midrange. Alongside the performance and availability of the E990, we think midrange customers will take note of Hitachi's automation. For IT infrastructure management, automation (like AI) is the application of IT to itself, and its results are not just greater IT agility and productivity, but also greater availability through elimination of manual errors.

Background

Hitachi Vantara was created in 2017 as the combination of three previously separate Hitachi organizations: the Hitachi Data Systems storage subsidiary, the Pentaho data integration and analytics business, and the Hitachi Insight Group, which developed Hitachi's Lumada IoT platform, edge intelligence and industry solutions. Hitachi Vantara's goal to facilitate the use of analytics and data storage is a major part of that plan.

The company sells a range of block, file and object datacenter storage systems. The VSP series consists of block-level systems that provide high levels of performance and availability, and score strongly in customer ratings. In a recent 451 Voice of the Enterprise (VotE) survey of major vendors' primary storage products, Hitachi Vantara edged out its rivals to take the number one slot overall, and was rated especially highly by enterprises for resiliency, uptime and customer support. More than 80% of the Fortune 100 use Hitachi storage, according to the company.

The VSP rework covered both hardware and software, and introduced NVMe support in a new series of VSP 5000 storage systems. Hitachi said then that other VSP variants supporting NVMe would follow. The VSP E990 is the first of those midrange follow-up devices.

The new system

The E990 is a dual-controller, 4U device that, when fitted with expansion shelves and 15TB drives, provides up to 16PB of effective capacity. The device is powered entirely by NVMe flash drives internally. Like the larger 5000 systems, it does not yet support NVMe over Fabrics, but is 'NVMe-oF ready.' That means NVMe-oF support (32GFC initially) will be delivered via a future software update, as will support for Intel Optane NVMe drives. In 2019 the company said support for QLC flash was not set to be a priority in 2020.

Hitachi says the E990 can handle almost six million IOPS, with read latencies as low as 64 microseconds. That latency is lower than the 70-microsecond average claimed for the VSP 5000, and Hitachi says it achieved this by tuning and streamlining the cache mechanism in the SVOS RF operating system, which was developed for the VSP 5000 and now powers the E990. Hitachi does not declare any supporting parameters for these IOPS and latency claims, and the numbers are only very approximate indicators of potential real-world performance. For the record, Hitachi says 5000 owners regularly see read latencies of 70 microseconds.

However, the company says sales conversations with customers about performance are more about what an architecture can potentially deliver than they are about 'hero' marketing numbers. Although the transition from disk to flash has made slow storage performance a far smaller problem for IT organizations than it was five years ago, Hitachi says performance is beginning to regain some of its former importance due to the rise of IO-intensive applications such as analytics. According to the company, the E990 can cost as little as $0.03 purchase price per IOPS. Hitachi claims this is the lowest price in the industry, and makes an interesting comparison with AWS-provisioned IOPS, which costs $0.07 per IOPS-month, plus another $0.13 per GB-month for the storage capacity.

For the VSP 5000, Hitachi claims eight nines (99.999999%) availability. For the new E990, the company only claims six nines. However, the eight nines claim for the 5000 is extremely strong, even by tier one standards. For midrange to high-end primary storage, the industry norm is the same six nines as for the E990. (Caveat: availability ratings are based on vendors' own calculations and assumptions.) Hitachi also offers a '100% data availability' guarantee.

Hitachi offers both 'storage efficiency' and 'effective capacity' guarantees. The effective-capacity guarantee supports a sight-unseen 4:1 data reduction ratio as a result of deduplication and compression only. The total-efficiency guarantee yields storage savings up to 7:1 and includes the effect of thin provisioning and incremental snapshots, alongside dedupe and compression.

All of Hitachi's VSP storage systems are interoperable with each other and with the previous generation of VSP systems, and can replicate data for DR, including replication in high-end three-datacenter configurations.

AI-enhanced and automated management software

Hitachi Vantara's Ops Center has multiple roles, covering management, automation, performance analysis, and anomaly detection and diagnosis. As well as the storage itself, this involves monitoring and analysis of data collected from third-party infrastructure, including VMs, servers, network and storage, and delivers what Hitachi Vantara describes as an 'end-to-end understanding of data paths.' Ops Center incorporates AI or machine learning, and uses storage profiles and performance analytics to recommend the best location for data.

The suite comprises four modules: Analyzer, Administrator, Data Instance Director and Automator. A base edition comprises the first three modules and is included for free with all VSP systems, including the E990. An Advanced edition adds the Automator module, which includes 60 workflow templates that cover tasks such as VM deployments, QoS settings and data protection configurations for storage. Those templates work with a range of third-party infrastructure products and, for example, support VMware, KVM and Hyper-V hypervisors, as well as Brocade or Cisco SANs. Hitachi says Ops Center can reduce manual provisioning tasks by up to 70%. According to the company, in some cases storage provisioning can involve up to 54 steps – only eight of which directly involve the storage system – and all these steps can be replaced by a single Automator command.

Automator can also work with custom templates, and can be linked to ServiceNow or other ticketing systems via a standard API, to enable manual approval of requests before they are fulfilled using the automation. Other storage vendors offer similar management platforms promising cross-vendor diagnostics and analytics, but Hitachi claims that they collect data at a less granular or detailed level, and don't match the level of automation in Ops Center, instead relying on third-party tools such as Ansible or VMware vRealize to fulfil that need (although Ops Center does support vRealize, and support for other third-party tools is planned). A Hitachi consulting service costing less than $8,000 identifies for customers the best processes to start automating, and within 90 days can automate two workflows, according to Hitachi.

EverFlex

Hitachi Vantara already offers a range of payment schemes, including outright purchase, leasing and consumption-based pricing. It says its new EverFlex program streamlines and ties together these choices across hardware, software and services. Previously, consumption-based pricing was offered only with the option for what Hitachi describes as outcome-based services, involving, for example, fully managed storage, data protection and cloud services that can be based on the company's converged infrastructure.

Competition

The E990 and the rest of the VSP family face competition from multiple rival systems. The VSP has traditionally been categorized as a tier one storage system, and although the label is not tightly defined, it has generally been applied only to the trio of the VSP, Dell EMC's VMAX and PowerMax variant, and IBM's DS8000 because of their high availability and mainframe support. However, mainframes represent only part of the market for tier one storage systems, and other rivals include HPE's Primera (formerly 3PAR), NetApp's FAS and Pure Storage's FlashArray storage systems.

SWOT Analysis

STRENGTHS
The E990 should bolster Hitachi Vantara's position in the midrange to high-end storage market.

WEAKNESSES
Hitachi Vantara's traditional strength has been at the top of the storage market, and the company is less well known as a storage supplier among midsize IT organizations.

OPPORTUNITIES
E990 sales should help boost the return on Hitachi investments in developing the features for the high-end members of the VSP family.

THREATS
The biggest threat facing all suppliers of on-premises infrastructure is the increasing use of public clouds.