How 1st Basis Consulting Created a High-Speed, Cost-Efficient Virtual SAN for SAP HANA Host Environments

1st Basis Consulting is a rapidly growing SAP- and VMware-certified partner offering technical managed services and IT consulting in support of SAP and VM solutions for customers worldwide. 1st Basis provides affordable, flexible, high-quality solutions that ensure secure, high-performing and stable environments for its customers—at a typical savings of 20 percent compared with competitors or in-house staffing.

THE CHALLENGE

1st Basis was looking for a cost-effective SAN to service its SAP HANA® hosting environment; one that could run test/development servers with SAP HANA as well as several production virtual servers. 1st Basis offers a hosting service for resource-intensive SAP HANA-based systems, and to keep up with demand, more CPU, RAM and storage were required. Seeking the best of both worlds, 1st Basis required an updated SAN solution: high-speed at an optimal price.

Originally, 1st Basis planned to install a new physical SAN, but after evaluating the potential costs involved, they quickly realized this would require a substantial investment. The IT team decided to implement a virtual SAN solution instead, and the company's strategic technology solutions partner, MNJ Technologies, recommended DataCore Hyperconverged Virtual SAN software based on its flexibility.

MNJ felt DataCore would be the best fit because 1st Basis wanted a SAN solution that they could easily upgrade to their specificity, and one that was proven to work with SAP HANA for test/development. A DataCore feature that was particularly important to 1st Basis was the ability to source their own PCIe SSD drives, as manufacturer drives are often nonspecific on throughput. 1st Basis also needed to be able to source units that would perform to the standard they were looking for. Furthermore, they needed a solution that they could grow and evolve—without having to do a forklift upgrade or add another large shelf.

THE SOLUTION

1st Basis found that the DataCore hyperconverged software was ideally suited to provide the flexibility needed to cost-effectively build a custom SAN to their unique specifications—with a far better price/performance ratio than a physical SAN. The new SAN solution includes two hosts, primary and mirrored storage, with DataCore Hyperconverged Virtual SAN software running on two Dell PowerEdge R7425 servers with 512GB RAM, dual 24-core AMD EPYC™ processors, nine 1.8TB 10K hard drives in a RAID 5 configuration, and two 800GB NVMe Intel P3700 SSDs as Tier1 for hot data—all connected with 25GbE networking.

1st Basis installed two instances of DataCore in a high-availability configuration for always-on access to data, even in the event of a failure. All of 1st Basis' production databases are now running on DataCore to provide dramatically improved virtual machine performance to clients (1st Basis currently runs 100 to 120 different virtual machines).

Prior to implementing DataCore, 1st Basis had 12 separate VMware hosts running the SAP environment. DataCore has reduced this to seven total hosts, including one server that was converted into a new virtual host. 1st Basis implemented DataCore in a hybrid configuration where all hosts have access to the Hyperconverged Virtual SAN software; DataCore is running on the new Dell servers, and it is able to present storage to external VMware hosts as well. On a standard spinning disk RAID 5 array, Jeremy Schulthess, Infrastructure Administrator at 1st Basis, noted that he has routinely observed lightning-fast transfer speeds of 1GB-1.5GB from the RAID 5 to NVMe.

"Since DataCore was installed, I haven't had to worry about anything, including overloading the VM servers, networking, etc., because DataCore just works," said Schulthess. "I can load up 10 VMs with massive SAP HANA databases and it doesn't even faze the system at all."

As its environment grows, 1st Basis is also excited about the capability to easily add new disks using DataCore rather than buying expensive hardware from a large SAN provider. In the future, additional implementations may also include an expanded use of DataCore to federate and integrate other SAN products, so all storage is managed from one place.

THE RESULTS

Startup time for SAP HANA databases reduced from 20 minutes to 5 minutes max

Cost savings of almost $100,000

Freedom from vendor lock-in and the ability to seamlessly add additional storage, as well as incorporate the latest technologies

The Benefits:

High-Speed Performance:

DataCore solved significant latency issues 1st Basis had experienced with its previous SAN solution. Prior to DataCore, 1st Basis needed to block out almost an hour to provide a customer with the additional resources needed to run a demo (including shutting down the database/SAP and the VM, adding RAM and bringing everything back up) or simply to bring a system down for maintenance. Starting up an SAP HANA database could take 15-20 minutes alone. The new DataCore Virtual SAN solution provides the IOPS needed to be able to rapidly boot up and run SAP HANA databases very quickly; in fact, DataCore has reduced boot-up times to five minutes max for the largest database on the virtual SAN.

Freedom from Vendor Lock-In:

Prior to DataCore, vendor lock-in was also an issue for 1st Basis. It was difficult for IT to find components that worked with its previous SAN, particularly small form-factor pluggables (SFPs). Additionally, if the physical SAN solution originally considered had been deployed, they would have been required to put in branded hard drives from the same manufacturer. Additionally, DataCore allows the latest technology to be added without having to replace an existing SAN.

"One of the biggest advantages that DataCore provides is that it solves the problem of vendor lock-in because it's storage agnostic—it works with any storage," said Schulthess. "With DataCore, we can put anything that we want in and it will work. Furthermore, we have the ability to add storage easily at any time, as well as to migrate other components of our physical SAN to DataCore in the future."

Substantial Cost-Savings:

"In terms of the cost/benefit ratio, DataCore gave us everything we were looking for without the massive added cost of a physical SAN," noted Schulthess. The estimated cost of a physical SAN was in the range of $100,000-$150,000 with the same amount of storage. By using DataCore, 1st Basis will realize a cost savings of almost $100,000.

SAP HANA Certified Solution:

DataCore has passed the stringent requirements for SAP HANA certification. DataCore is certified for SAP HANA usage when used with certified physical SAN storage, which allows 1st Basis to use existing infrastructure alongside DataCore for management of SAPA HANA solutions. For their SAP HANA test/dev environment, 1st Basis did not need a certified SAN storage, which allowed them to maximize the 24-drive bays in the Dell R7425 servers.

Outstanding Customer Support:

Schulthess also stated that DataCore's customer support is excellent. 1st Basis experienced a minor problem early on due to a mistake in configuration, and DataCore was very quick to respond and help solve the problem. There hasn't been an issue since that time.

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- Jeremy Schulthess, Infrastructure Administrator, 1st Basis Consulting

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About MNJ Technologies:

MNJ Technologies is a technology and managed services provider that focuses on helping midmarket companies increase productivity, simplify IT systems and reduce costs through best-in-class vendor-agnostic solutions and services. The company's certified solution consultants and engineers help clients optimize operations through the use of SD-WAN, unified communications, networking, security, cloud and other technologies. MNJ was founded in 2002 and is headquartered in suburban Chicago. For more information, visit www.mnjtech.com

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