The Hitachi Virtual Storage Platform is a really successful system. Because of its modular nature it can be easily expanded, with an upgrade of storage and CPU power being both quick and inexpensive. Thanks to the VSP, we’re able to grow in a way that is needs-oriented, allowing us to meet future, as yet unknown challenges with confidence.

Colja Steinmetzler
IT Systems Administrator
BAG

The German Federal Office for Goods Transport (BAG) is responsible for multiple tasks relating to control and monitoring of transport services in Germany. The functions and responsibilities of about 1,700 employees span from the central information system that coordinates deferred toll calculation to driver registration and transport law. They also include truck tolls and oversight of multiple aspects of the transport market. As a result of this spectrum, a challenge confronting the office is, as with other agencies and private companies, the growth of data. The abundance of tasks doesn’t make the job of the planning IT resources any easier. For the BAG it was important to develop a storage system that was flexible and scalable in every sense. Thanks to Hitachi Virtual Storage Platform (VSP) from Hitachi Data Systems, BAG found a solution that fits.

The BAG, like all public bodies in Germany, is required to abide by the strict standards of cost efficiency in the planning and operation of their IT facilities. These standards include not only total cost, but also the consideration of the effective lifespan. Any purchase must be, in the best sense, economically sustainable, with an operational duration of at least 3 to 5 years. Performance can in no way be put at risk. In the fast-moving world of IT and exponential data growth, risk avoidance is a challenge, especially for storage systems.

“We could be assigned new tasks and responsibilities at any time. With a planned system lifespan of 5 years, we need a high degree of flexibility built into any solution,” explains Colja Steinmetzler, systems administrator at the BAG.
Steinmetzler is responsible for dealing with all storage-related challenges. The data stem from various sources, from email programs, to the Universal Mobile Telecommunications System (UMTS) connected mobile client for the capture of data relating to controlled hours at the wheel. For a number of years now, the BAG has successfully relied upon the storage solutions offered by Hitachi Data Systems. One solution already in service was Hitachi Universal Storage Platform (USP V), which provided storage for the approximately 140 applications serving the 12 field offices and their employees. With the Hitachi NAS Platform (HNAS) 3080 from Hitachi Data Systems, the BAG also uses a network attached storage (NAS) for its files. The HNAS system is integrated in the environment via Common Internet File System and Network File System. For server virtualization, the BAG relies on a VMware environment.

In May 2011, it became clear that a step up in storage capacity was necessary. The IT team at BAG, which has a strong working relationship with Hitachi Data Systems, began its search for viable expansion options shortly afterwards.

Data Growth: System Expansion or System Exchange?

Parallel to the considered increase from 60TB to 120TB, the BAG project team and Hitachi Data Systems analyzed the effects of a switch from USP V to its successor, VSP. It soon became clear that a system change to the higher-performance, more economical model would be the preferred, and cheaper, option. VSP was responsible for a significant portion of the cost efficiency arising from a hardware exchange, reducing electricity, cooling and special requirements. The 3-D scalability of the storage platform, which flexibly adapts for performance, capacity and multivendor storage, answered the demand for flexibility.

Once the BAG had made the decision to change its system, the project team immediately began preparations for the switch of the storage platform and the migration of data. In this process, Hitachi TrueNorth Partner Computacenter was a big help, as Colja Steinmetzler confirms: “Everyone involved in the project worked together with great success. Our requirements were fully met, with a seamless migration that was, above all, interruption-free.” A test run showed the simple viability of the planned migration process. For the migration period, Hitachi TrueCopy software made the whole process much less stressful.

The migration of the VMware environment was successful thanks to the VMware vStorage API for Array Integration interface and vMotion, equally as effortless as the database transfer. Lastly, the NAS filer was relocated from USP V to VSP, as 1 or 2 adaptations were necessary. Even in this case, the complex NAS migration was completed within the week. The migration project began in November 2011, and by the Christmas break USP V was already on its way back to Hitachi Data Systems. Since the beginning of 2012, VSP and HNAS 3080 have been in service, and making their advantages clear for all to see.
“More With Less” and Always in the Right Place

An important feature of the BAG strategy is its use of a tiered-storage combined operation. Tier 1 is statically designed, with SAS-disks, each equipped with 146GB. In the 2 lower storage classes the project team formed 2 pools that work with Hitachi Dynamic Tiering (HDT). One pool is there to provide the SAN with storage. The 2nd uses the attached HNAS nodes. Both pools provide a mix of SAS and SATA disks with 300GB or 600GB or, respectively, 2TB. The system automatically selects the appropriate storage level, so that data flows dynamically, back and forth. This feature is also known as fluid storage.

What’s unique is the granularity of the Hitachi systems: “The VSP has a page size of just 42MB. At the BAG, the system is configured in such a way, that the midvalue of the last 24 hours serves as the basis for the selection of the corresponding storage tier,” explains Dr. Georgios Rimikis, manager solutions strategy at Hitachi Data Systems in Germany. Thanks to HDT, data can always reside at the storage level where it can be stored most efficiently. Data that’s rarely used, or which demands only minimal performance, move automatically to a low-level, cheap, storage medium. On the other hand, for the resource-hungry Oracle databases, VSP generally selects the higher-performance option. “The beautiful thing is, that that we don’t have to worry about it any more. The automation functions seamlessly, increases performance, and saves costs over the long term,” says Steinmetzler.

All SAS-disks are just 2.5 inches, saving a complete rack. In the 2 remaining racks, there is still space available should additional hard disks be required. In addition to reduced space, VSP, with its 2.5-inch hard disks, ensures a reduced heat wastage. It consumes less electricity than systems with disks of a larger format, an advantage that’s backed up with numbers: The savings in relation to the previous system are calculated by Hitachi Data Systems at around 52%. This results in an amortization of the setup costs within the first 3 years of the 5-year lifespan.

Positive Results, Positive Future

After the 1st months in which VSP has seen service, Steinmetzler is extremely positive: “The VSP is a really successful system. Thanks to the VSP, we’re able to grow in a way that is needs-oriented, allowing us to meet future, as yet unknown challenges with confidence.” The BAG has no doubt that the flexibility of VSP will continue to deliver benefits. Armed with this knowledge, the agency is eagerly anticipating what the future holds in store.

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