Institute of Aircraft Cabin Systems

Aviation Technology

Challenge
Upgrade storage infrastructure. Performance.

Benefits
High I/Os for fast virtual environment. Ease of management and hardware neutrality. Reliable OpenStorage-based system.

Solution
NexentaStor™

System Configuration

- NexentaStor SC846 Unified Storage (V2.1)
- 24 TB NexentaStor Enterprise Edition with 60 months Support
- Supermicro chassis
- 2x Intel Xeon 4-Core E5620 2,40GHz 12MB 5.86GT/s (Westmere)
- 24 GB ECC Registered DDR3 RAM 2 Rank ATP (6x 4096MB)
- 2x 147 GB SAS II Toshiba/Fujitsu 2,5" 10k (incl. 2,5" kit)
- 19x 1000 GB SAS II Seagate Constellation ES 3,5" 7.2k
- Intel PRO/1000 PT Dual Port Server network card
- 36-month Premium Express Service

BUSINESS OVERVIEW

The Institute of Aircraft Cabin Systems at Hamburg University of Technology researches solutions that enable companies to overcome limits of existing technologies. Founded in 2008 and funded by Airbus Operations GmbH, the Institute is in a growth phase and cooperates with the aircraft manufacturer and its suppliers in research and development. For education of next generation of engineers in aircraft industry the institute relies on professional and modern IT solutions.

Current research activities of the Institute are focusing on concepts for a next generation cabin management system with wireless and advanced information and communication technologies.

Today, cabin process chains, with passengers, cabin crew, baggage, catering, and freight are strongly interlaced with ground services and maintenance on airports. The Institute investigates these interfaces with the aim of an improved and more seamless link into the aircraft cabin.

CHALLENGES

The Institute is an independent entity within Hamburg University of Technology. The building is located close to Airbus Operation in Hamburg-Finkenwerder and is remote to the university's main campus in Hamburg-Harburg. When funded in 2008, the Institute had the challenge to set up a new IT infrastructure at its site, meeting various demands of administrators and the growing numbers of research assistants, and students, as well as the nature of the research and education itself, which is heavily reliant on state-of-the-art computing services.

Before the upgrade, the only common storage device at the Institute was a SOHO NAS, which served as a central storage point for files. This device would not work as the storage back-end for a new virtualization platform. To fit the Institute's needs, a new storage solution was planned, based on an NFS/iSCSI-SAN that would not only give superior performance, but would also provide budget friendly scalability with no vendor lock-in or over-priced upgrades.

To keep costs low from the beginning and to allow for flexible access to the system, Thorsten Windrath, who is responsible for the Institute's IT, planned to have a completely virtualized environment, including server and desktop virtualization. Since funding for new equipment was limited, and new funds through the university could only be acquired ever five years, a storage system was needed that provided a cost-effective, stable, and long lasting, yet high-performing solution for the new virtualized environment.

"Overall an easy decision to go for Nexenta. OpenStorage gives us the best of both worlds – high performance and great features at an affordable price."

Thorsten Windrath
IT
Institute of Aircraft Cabin Systems, Hamburg University of Technology

TUHH
Technische Universität Hamburg-Harburg

Prof. Dr. Ralf God, head of the Institute explains: "As nearly every educational institution, our budget isn't as large as we would like it to be. This is nothing new, and thus isn't much of a surprise. Major hardware renewals are granted every five years. In computing terms this is a long time and, with current data growth, it was clear from the start that future upgrades had to be made using whitebox hardware we could afford. So vendor locking is almost a no-go."

NexentaStor provides the Institute with a cost-effective, high performance storage solution that includes enterprise-class features, such as hybrid storage pooling, unlimited snapshots, deduplication, and thin provisioning.

SOLUTION OVERVIEW

The Institute opted for a solution based on NexentaStor from Thomas-Krenn AG for a number of reasons. Not only did the solution come in budget, but the appliance, based on a Supermicro SC846 system also ensured that future investments would be reasonably more cost-effective than solutions based on competing legacy systems from established proprietary vendors. An OpenStorage system based on a standard chassis also meant that if the need for data migration ever arises, this could be done without any problems. Furthermore, as NexentaStor is based on open source software, the Institute was benefiting from the large user- and developer-base, which was a major plus of the solution.

The new system was deployed in a single day, only a few weeks after initial contact. Three IBM host servers running VMware vSphere 5, each featuring two Intel Xeon quad-core processors now host virtualized applications and services, including Microsoft Windows 2008R2-based domain controllers, Microsoft SharePoint® Server, Microsoft SQL Server®, Microsoft Visual Studio Team Foundation Express, and a lot of other systems, mostly related to research projects.

Florian Hettenbach, Product Manager Storage & Virtualization at Thomas-Krenn adds: "With the requirements for performance and reliability in an all virtualized environment, and with a relatively small budget, a solution built on NexentaStor was clearly the best option for the institute."

BUSINESS BENEFITS

As NexentaStor is based on open source technology, the Institute of Aircraft Cabin Systems is not locked in to buying more expensive products from a particular vendor or paying unnecessary mark-ups for standard features. It is a very flexible solution that can grow and keep up with the institute's data growth without any costly upgrades.

In addition, ZFS offers massively scalable storage environments with high granularity of data protection. With Nexenta's reliable OpenStorage-based system, the Institute now feels comfortable with its data storage solution knowing that it can expand, as needed, without legacy roadblocks.