CZECH TECHNICAL UNIVERSITY | PROBLEM SOLVED

Czech Technical University's Faculty of Civil Engineering brought its data platform to the next level, deploying a NetApp MetroCluster All Flash FAS solution.

CTU's Faculty of Civil Engineering Accelerates Virtual Classrooms with NetApp ONTAP 9 on All Flash FAS

Highly available IT services are a must for the Faculty of Civil Engineering (FCE) at the Czech Technical University (CTU). Software- and Internet-based learning and virtual classrooms are well-established standards. And the academic community takes for granted the ability to access digitized information anytime and from anywhere. NetApp solutions play a vital role in delivering on these expectations.

Reclaimed
60%
of storage capacity

Load time reduced from
3 mins.
▶ # 20 secs.

> "NetApp helps us deliver. Efficiency and robustness of the solutions are outstanding, and the all-flash performance has already paid off."
>
> Peter Ivančík
> Head of Servers, Storage, and Networking, Czech Technical University, Faculty of Civil Engineering

"By teaming with NetApp, we enjoyed very efficient and flexible data storage and backup operations," says Peter Ivančík, head of servers, storage, and networking at FCE. "After four years, however, we definitely needed more performance. It was time for a refresh." The faculty's growing VDI environment for staff and students was a major driver in this process. The plan was to grow the existing 150 virtual desktops on the NetApp storage to 500 virtual desktops.

FCE runs its VDI based on VMware Horizon and its routines. When a user starts a desktop session, empty desktops connect to a fully equipped virtual desktop master. At the session's end, all connections are closed down, and the desktop gets cleared and ready to serve the next user. Such a deployment model requires both always-on conditions across all infrastructure levels and a data platform providing sustained high throughput rates. Replacing the traditional disk storage by hybrid storage was the team's first thought, but the implicated performance was not sufficient. An all-flash solution was definitely the better choice.

ENTERING THE FLASH ERA WITH NETAPP ALL FLASH FAS

Ivančík and his team not only entered the flash era. They also revamped the storage setup and started with separating VDI and user data. A two-node All Flash FAS system with 5TB now serves the VDI. The new NetApp MetroCluster FAS systems with a total of 55TB store the user data. For the all-flash implementation, FCE relied on NetApp SupportEdge Premium services. The professional services team, including engineers from NetApp Germany, completed the installation across two sites on the campus within two days.

In a second step, the team will turn its previous FAS MetroCluster systems into backup storage to be used with NetApp data protection software. "Reusing the old storage for the backup is a very good point and helps us protect our investment in NetApp," says Ivančík.
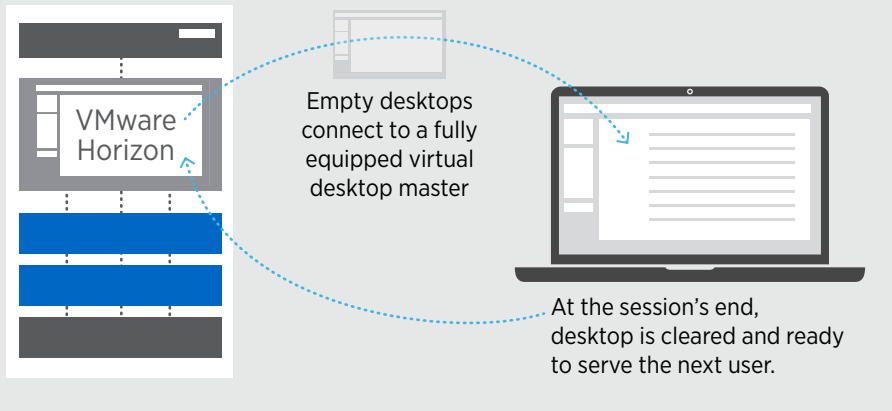
NetApp has helped FCE relieve the help desk from restore tasks. Based on several Snapshot® copies per day, the users can restore their files easily themselves. In fact, within four years there has been no

BUSINESS BENEFITS

- Enjoyed four years of smooth storage operations
- Accelerated virtual desktop turnaround with Horizon VCAI
- Reduced application load time from minutes to seconds
- Improved users' service experience
- Reclaimed about 60% of total storage capacity
- Continues to lead IT innovation at CTU

NetApp®

need at all to touch backup data for recoveries.

FCE relies as well on NetApp services for monitoring system health around the clock and prompting immediate actions. "The NetApp support staff is fantastic. Once on a Friday evening they called from California to report a system outage at one site that had just occurred," says Ivančík. "However, the second system kept the data services going, the users were fine, and we could resolve the situation comfortably the next day."

> "By teaming with NetApp, we enjoyed very efficient and flexible data storage and backup operations."
>
> Peter Ivančík
> Head of Servers, Storage, and Networking, Czech Technical University, Faculty of Civil Engineering

SPEEDY VIRTUAL DESKTOP TURNAROUND

The deployment of All Flash FAS is already a success. "Users reported that logging in became much faster," says Ivančík. "A complex application containing a myriad of small files now loads within 20 seconds instead of three minutes."

There is even more potential to make the most of the new all-flash solution. Ivančík wants to speed up the refresh process of the virtual desktops. Its length is a limiting factor because the desktops are

restricted from use as long as the refresh process is active. This especially affects peak times such as the closing and timely beginning of virtual classes.

Ivančík is well prepared to solve this challenge because NetApp provides superior VMware Orchestrator support and is VMware certified for the Horizon View Composer API for Array Integration (VCAI). Thus, Ivančík can apply NetApp rapid cloning technology to the golden image in each virtual machine pool. "NetApp cloning used with VCAI will shorten the refresh time definitely.

We expect to save up to five minutes per desktop, which would be close to instant," says Ivančík. "We will need fewer desktops, will reduce IOPS and costs, and can serve our users more quickly."

INNOVATING WITH NETAPP ONTAP 9

Storage efficiency is generally a big topic at FCE. In fact, it was a major reason for initially choosing NetApp. By using, for example, deduplication, the team could reclaim 80% storage capacity just for the VDI. With NetApp ONTAP® 9, FCE can save even more. The latest version of the NetApp operating system is optimized for flash and offers new features, including an innovative web management interface and inline capabilities for data compaction, zero deduplication, adaptive compression, and deduplication. As soon as ONTAP 9 was available, FCE evaluated it and saw

■ NetApp®

at once opportunities for further optimization in the environment.

"The new features were so exciting that we wanted to migrate to ONTAP 9 as soon as possible," states Ivančík. "It was really easy, and everything worked fine right away." The results are impressive. All new features together save approximately 60% of the total capacity. 🐦

"At CTU our IT team is a true early adopter of innovative IT. We are dedicated to state-of-the-art solutions and want to offer our more than 6,000 users the very best teaching and learning conditions," says Ivančík. "NetApp helps us deliver. Efficiency and robustness of the solutions are outstanding, and the all-flash performance has already paid off. I am looking forward to our next steps in the data management arena."

SOLUTION COMPONENTS

NETAPP PRODUCTS

NetApp All Flash FAS8020 2-node MetroCluster (VDI)
NetApp FAS8200 2-node MetroCluster (user data)
2 NetApp FAS3240 systems (backup)
NetApp ONTAP 9 operating system
AutoSupport®
MetroCluster software
OnCommand®
SnapManager®
SnapRestore®
Snapshot
SnapVault®

Storage efficiency tools
SupportEdge Premium

PROTOCOLS

CIFS
NFS

THIRD-PARTY PRODUCTS

Linux
Microsoft Windows Server
VMware App Volumes
VMware Horizon
VMware Orchestrator
VMware vSphere

LEARN MORE

netapp.com/us/products/storage-systems/all-flash-fas

✉ **NETAPP.COM/CONTACT**

+1 877 263 8277

NetApp®

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future. To learn more, visit **www.netapp.com**.