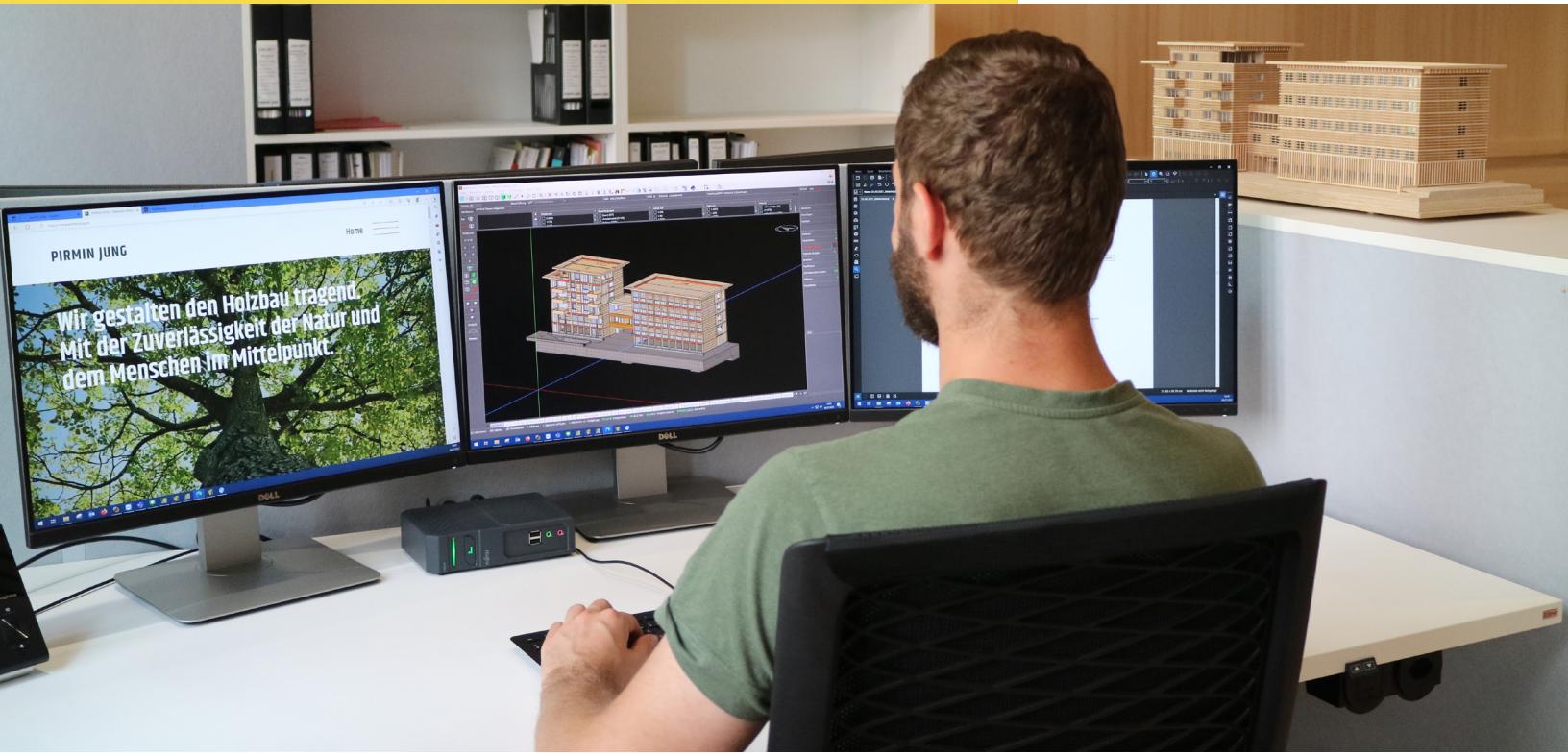
CUSTOMER SUCCESS STORY

PIRMIN JUNG plans sustainable construction in the private cloud

NetApp



PIRMIN JUNG

NetApp all-flash storage makes working with digital architecture models fast and secure.

100% digital planning is still the future for much of the building industry. At PIRMIN JUNG Schweiz AG, it's standard. The award-winning engineering firm plans and designs timber structures and focuses on structural design, building physics, and fire protection. The company uses NetApp® storage in its private cloud for data and virtualized workstations. But growing needs in CAD and Building Information Modeling (BIM), increased staff, and larger projects strained the platform and workflows. BWO Systems AG, the client's IT partner, worked with NetApp Switzerland to optimize the infrastructure. Now PIRMIN JUNG runs complex planning faster, manages growth easily, and is quickly up and running again in case of a disaster.

Create more VMs in a snap

"Powerful and performant virtual clients in the private cloud are the basic prerequisite for our employees to design load-bearing timber construction and thus excite our clients for building with wood."

Pirmin Jung
CEO, PIRMIN JUNG Schweiz AG

Building sustainably with wood and data
PIRMIN JUNG has been driving construction with wood for more than 25 years, out of their conviction that building must become more climate friendly. As a building material, wood is both sustainable and powerful. Lighthouse projects such as a 20-story building in Hamburg's Hafen City and the new Dock A at Zurich Airport demonstrate these benefits.

PIRMIN JUNG plans for these complex projects with data and digital methods. They use more than 60 software products, from CAD and dimensioning with 3D modeling to Virtual Design and Construction (VDC) with BIM. And they are constantly expanding their service scope to improve the collaboration of all project partners.

With openBIM, PIRMIN JUNG deploys a methodology that can map the lifecycle of a building from planning to operations using digital building data. Because a construction project has countless dependencies, data containers like "property" and "equipment" were developed for data consistency across all construction projects. The containers hold the target and actual values for various needs. On this basis, PIRMIN JUNG creates solution proposals for all parts of a building. Because each BIM model can be visualized, all parties to the project can immediately see and easily understand the current status and changes.

All of this project data requires graphics power and storage performance. PIRMIN JUNG replaced its Windows servers with NetApp ONTAP® systems in 2003 and virtualized servers and clients under VMware. The result was a private cloud that grew larger and larger as more offices opened in Switzerland and Germany. The platform is hosted and managed in BWO's data centers. PIRMIN JUNG's IT can fully concentrate on the application side.

For some CAD applications, thousands of files start when project data with up to 100GB is loading—daily business for NetApp storage. After years of operation and now 150 virtualized CAD clients, the load on the existing NetApp AFF A200 cluster was relatively high. Performance became an issue, for example, with graphics-intensive CAD workloads, and users experienced long wait times. Starting a large project could take up to 10 minutes. The reasons were not clear. What to do? There was no off-the-shelf solution.

Performance made to measure
BWO and NetApp jointly conducted an extensive analysis, ran performance tests, and documented in detail which settings on NVIDIA graphics cards, on VMware vSphere, and on NetApp storage delivered which performance.

The outcome: The performance bottlenecks were not caused by the storage but by a lack of CPU power on the VMware vSphere ESXi servers. The storage connection using NFS did well—as long as the compute performance was adequate.

When PIRMIN JUNG introduced Archicad from Graphisoft, 3D modeling software with BIM integration, they finally had to enhance their resources. The performance of the VMware environment increased. Two NetApp AFF A250 storage systems with NVMe technology were ideal for delivering 100GB project files to the monitors every minute.

"The before-and-after effect was strongly noticeable. With enough CPU power and the new NetApp all-flash storage, large projects load significantly faster," said Pirmin Jung, CEO of PIRMIN JUNG Schweiz AG.

"For us, it was always clear that we could only meet high-performance requirements with NetApp. The performance of the virtual CAD machines is outstanding and in no way inferior to the somewhat outdated client-server concept with physical CAD workstations and data storage on a server or NAS. It feels good to have the right systems and to be able to count on NetApp Switzerland," said Nicola Quadrelli, system engineer at BWO Systems AG.

All a matter of design and integration

Along with the storage, PIRMIN JUNG renewed its availability scenario. They depend 100% on their data. If the data is not accessible, more than 120 employees have to stop most of their activities. With deadlines for the current construction projects set, a delay can cause contractual penalties.

PIRMIN JUNG followed BWO's recommendation to split productive operations 50:50 between BWO's data centers in Schenkon and Lucerne. There is geographically separate redundancy between the systems and connections of the data centers. If one side or system fails or a spare parts delivery takes longer than expected, the second side can take over. Either way, business can continue.

The prerequisite for fast switching is mutual asynchronous mirroring of the two AFF A250 systems. BWO uses NetApp SnapMirror® for Storage Virtual Machine-Disaster Recovery (SVM-DR). In a disaster case, pressing a button activates the mirrored NFS stores on the opposite side and boots the affected VMs. Operations are up and running again within a few minutes. Connecting the NFS stores by using IP further simplifies access management for multiple sites, also in a disaster case.

According to Quadrelli, "The migration during operation was quick and unnoticed by the users. NetApp SnapMirror helped to transfer 30TB of file service data. Access stopped for only a few minutes to add any missing, changed data. VMware vMotion moved the VDI. NetApp and VMware build the scalable and high-performance foundation for this platform. Both interact very well. Thanks to NetApp integrations with the VMware environment, the NFS stores stay under control and deliver the space needed."

A plug-in that is fully integrated with VMware vCenter enables consistent VM backups at the storage level. It simplifies backup handling significantly and works without any additional software. Another example of the excellent collaboration between NetApp and VMware is the Rapid Cloning feature, enabled by the VMware vSphere API for Array Integration (VAAI) as

an NFS plug-in. NetApp Rapid Clones only reference a cloned VM to the original blocks of the template, similar to VMware Linked Clone, but at the storage level.

"With NetApp Rapid Cloning, one clone or even 100 clones are created in a fraction of a second. The storage footprint only grows as the cloned VMs start up. We can react very quickly, test updates and new software, or produce new VMs for the customer on the fly," said Quadrelli.

More data security and cyber resilience

A fast-paced business with many dependencies requires its data to be secure and quickly recoverable. Therefore, PIRMIN JUNG invested in additional backup capacity and data monitoring.

The previous production systems now serve as long-term backup storage distributed across both data centers. A FAS2720 system completes the scenario. NetApp SnapVault® manages creating Snapshot™ copies and retaining long-term backups. With Snapshot copies now made hourly, the recovery time objective is a maximum of 1 hour.

PIRMIN JUNG has increased cyber resilience with ProLion CryptoSpike. The software, developed for NetApp ONTAP file systems, monitors data access nonstop on NetApp storage. CryptoSpike responds to anomalies and can quickly detect, isolate, block, and analyze ransomware attacks. If data has been made unusable, Snapshot copies help to restore a clean data state within minutes. The NetApp backup systems at PIRMIN JUNG are equipped with NetApp SnapLock® for write once, read many (WORM) protection. The Snapshot copies on the backup side are therefore not deletable.

What comes next?

Thanks to BWO and NetApp, PIRMIN JUNG benefits from an infrastructure that meets the highest demands and whose flexibility easily supports the company's growth.

"Powerful and performant virtual clients in the private cloud are the basic prerequisite for our employees to design load-bearing timber construction and thus excite our clients for building with wood," said Pirmin Jung.

The infrastructure is constantly being renewed and expanded in parallel with the company's evolution. PIRMIN JUNG's IT staff can calmly face tasks such as adding branch offices, evaluating new software, or planning a complete client rollout.

Why NetApp AFF A-Series all flash arrays?
Learn more

NetApp products	NetApp ecosystem
AFF A250 storage systems	Graphisoft
AFF A200 storage systems	NVIDIA
FAS2720 system	ProLion
SnapLock	VMware
SnapMirror	
Snapshot	
SnapVault	

BWO Systems AG

+1 877 263 8277

About NetApp

In a world full of generalists, NetApp is a specialist. We're focused on one thing, helping your business get the most out of your data. NetApp brings the enterprise-grade data services you rely on into the cloud, and the simple flexibility of cloud into the data center. Our industry-leading solutions work across diverse customer environments and the world's biggest public clouds.

As a cloud-led, data-centric software company, only NetApp can help build your unique data fabric, simplify and connect your cloud, and securely deliver the right data, services and applications to the right people—anytime, anywhere. To learn more, visit www.netapp.com