



# Berufsbildende Schulen Technik Chooses Tintri for Campus-Wide VDI Deployment

## Tintri's Application-Aware Storage Improves Performance and Simplifies Management of Virtual Desktop Environment

### BBS Technology

Berufsbildende Schulen Technik (BBS Technology) is a vocational school located in Cloppenburg, Germany. Founded in 1900, BBS Technology now provides training for a wide variety of jobs in the food engineering, body care, electrical engineering, metal processing, automotive engineering, wood technology, and constructional engineering industries.

### IT and Business Challenges

The BBS Technology IT team deployed a new virtual desktop (VDI) environment in 2009, using VMware ESXi. The team started by replacing approximately 50 user workstations with thin clients, then moved to zero clients, eventually expanding the VDI deployment to more than 300 zero clients and seven servers running ESXi. The first VDI users were the school's secretaries and administrators. The VDI deployment was then expanded to provide virtual desktops to one of the technical school's classrooms.

"We had been relying on MSA storage from HP," noted Andreas Loosen, IT manager for BBS Technology. "It was an iSCSI solution, and it worked fairly well for a small number of users. But as our environment grew much bigger, we started experiencing a lot of problems with storage performance. The more users we added, the longer it took for the storage to deliver data to the VMware ESXi hosts."

After struggling with performance issues for nearly two years, Loosen started looking for a more suitable storage solution that could meet the school's VDI performance requirements. "Unfortunately, there were no storage solutions on the market at that time that could help us solve all of our problems," Loosen shared. "The platforms we looked at were either far too expensive or difficult to manage."

### The Selection Criteria – Why Tintri?

Loosen then explained how he was first introduced to Tintri. "I was working on an IT project with one of Tintri's channel partners," Loosen reported. "The project actually had nothing to do with storage, but I asked them if they knew of a really fast and reliable storage solution that would solve our VDI challenges. They told me that Tintri was by far the best storage solution on the market for virtual environments."

Based on the recommendation from the Tintri partner, BBS made the decision to run a proof of concept on the storage platform. "We decided to test the Tintri solution first, but also wanted to test EMC before we made our final decision," Loosen explained. "The first difference we noticed was the ease of implementation. Tintri promised we could set up the arrays in 30 minutes. In reality, we were up and running in under 10 minutes! The arrays were incredibly easy to install. In contrast, it took over two days to implement the EMC storage, even though it was installed by a storage expert."



#### Industry

Education

#### Location

Cloppenburg, Germany

#### Virtualization environment

- VMware ESXi
- VMware View
- VMware vSphere 5.1, VMware Horizon View 5.2
- HP ProLiant DLiant DL380, boot from SSD and 144GB RAM
- Office, Autodesk Design Academy, Adobe Creative Suite, etc.
- Prior to Tintri: MSA storage from HP

#### VM profile

- 2,700 VDI users across entire campus

#### Key challenges

- Experiencing significant latency in VDI environment
- Storage management was too complex
- Lacked the ability to create persistent desktops for VDI users

#### Tintri solution

One Tintri VMstore™ T540 array

#### Primary use case

- Providing virtual desktops for the school's secretaries and administrators
- VDI deployment then expanded to provide virtual desktops to more users and classrooms

#### Business Benefits

- Reduced virtual desktop boot time to one minute or less
- Created persistent desktops for all users, increasing developer and end user productivity
- Reduced storage latency from 5 seconds to 10 milliseconds (99.8% reduction)
- Simplified storage and virtual desktop management

## Reducing Latency by 99.8%

After testing the two storage platforms, BBS Technology made the decision to purchase the Tintri T540 array in August of 2013. Loosen and his team are now supporting over 2,700 campus VDI users with 6TBs of data on one Tintri array – with better performance. “Latency would frequently reach five seconds on our old HP storage platform,” reported Loosen. “But with Tintri, it has been reduced to less than 10 milliseconds on average. The 99.8% reduction in latency was quite impressive!”

## Enabling Faster Boot Times

Loosen had been frustrated with the excessive boot times for VDI user desktops on the legacy storage platform. “It would take several minutes for users to log into their virtual environments with our old HP storage environment,” Loosen stated. “To speed access, I had to pre-start all of the virtual desktops. But I couldn’t afford to create pools of floating desktops that were ready to start when all of the users logged on. As a result, we would frequently have log and boot storms that would make it impossible to deliver desktops to users in a timely manner. Now with Tintri’s very high input/output operations per second (IOPS), even starting 25-50 desktops simultaneously doesn’t have a significant performance impact. Our users can now log into their virtual desktops in just over one minute. It would be even faster, but VMware View has to wait until all Windows services have started to launch a desktop.”

## Providing Persistent Desktops for All Users

With the old HP storage, it was impossible to create persistent desktops for all VDI users. “With the non-persistent desktops we were forced to use because of the high latency, our users would have to recreate their environments every time they logged in,” Loosen explained. “But with Tintri, our users can now start right where they left off. Tintri’s ability to support persistent desktops has really increased productivity for our CAD developers and other campus VDI users.”

## Reducing Storage Complexity and Management

BBS Technology’s legacy HP environment was also very complex and difficult to manage. “The common practice for implementing block level storage is to split it into multiple logical units (LUNs),” Loosen explained. “The LUNs are then presented to the hypervisors. However, maintaining and monitoring the LUNs is very challenging and time-consuming. The Tintri approach is so much easier because the hypervisor doesn’t have to do anything with the files underlying storage or even the file system. It simply serves the files, copies them, and does whatever the hypervisors tell them to do – for example, create a copy. That’s why storage management is so much easier with Tintri.”

## Closing Thoughts

When Loosen was asked if the Tintri storage platform had lived up to his expectations, he replied, “The Tintri arrays are 10 times better than I ever imagined! I would absolutely recommend Tintri Storage to any organization that is looking for a high performing, easy to manage storage solution for VDI.”

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— Andreas Loosen; IT Manager  
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