



**Davenport University** has moved all of its business-critical applications and data onto all-flash arrays from Pure Storage. As a result, key Banner and Blackboard applications run much faster, improving the computer experience for all members of the university community.



#### BUSINESS TRANSFORMATION

End-users throughout the university community have fast, reliable access to the Banner applications they routinely use; administrators receive Blackboard Analytics reports on a timely basis; and the IT staff spends virtually no time managing storage.

#### GEO

North America

#### INDUSTRY

Education

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Joe Bliss,  
virtual infrastructure administrator

#### PURE STORAGE GOES TO THE HEAD OF THE CLASS AT DAVENPORT UNIVERSITY

Davenport University serves about 8,500 students on several campuses across Michigan, with specialties in business, technology and health professions. End-users throughout the university community rely on Banner ERP software for routinely used applications such as enrollment, class scheduling, grade entry, billing and payment.

Another key application suite is Blackboard Analytics, which draws upon a data warehouse to produce a daily report that gives senior administrators a comprehensive picture of all aspects of university operations.

The school’s IT department is charged with keeping the Banner and Blackboard applications up and running at all times. That became an increasingly challenging task when the university’s legacy spinning-disk storage system started to lag behind user demands. Latencies for key applications regularly reached as high as 20 ms, causing unacceptable delays in response times for students, faculty, staff and administrators.

#### CRITICAL APPLICATION SHOWS IMPORTANCE OF HIGH-PERFORMING STORAGE

Problems with storage performance were especially evident in the nightly run of the key report for senior administrators.

“Blackboard Analytics reports have always been a headache, because they take so long, and if something goes wrong, we miss the deadline for producing the report or it takes twice as long to run,” observed Joe Bliss, virtual infrastructure administrator for Davenport University, in Grand Rapids, Michigan.

As far back as 2013, before Bliss joined the university, the IT staff tried several steps to reduce the time it took to generate the nightly report, to no avail. “They added RAM to the server, talked with the software vendor, and looked at the storage. But it already was tagged to the fastest tier of the SAN. Everybody was unhappy with the time it took to run, but they all just accepted that was the way it worked,” added Bliss.

One option that Bliss’s predecessor considered was using flash storage for the Oracle and Microsoft SQL Server databases that underpin the Banner and Blackboard applications. The university operates two data centers — one as a primary and the other as a small disaster-recovery site — and has virtualized 98% of its 250-plus servers using VMware vSphere Enterprise.

**COMPANY:**

Davenport University  
[www.davenport.edu](http://www.davenport.edu)

**USE CASE:**

- VSI – VMware® vSphere® Enterprise
- Database – Microsoft® SQL Server, Blackboard Analytics, Oracle® Banner

**CHALLENGES:**

- Critical nightly Blackboard Analytics report took eight hours to run due to lagging storage performance.
- Users throughout the university encountered lags in system access for widely used Banner applications.

**IT TRANSFORMATION:**

- Read times for access to Oracle databases were reduced as much as 90%.
- The time needed to run a key nightly report was reduced by 25%.
- Evergreen Storage model provides certainty in budgeting for future growth.

“Pure Storage satisfies every need we have. It is super easy to set up and use. You always know it’s going to be fast and reliable. And it makes it easy to plan and budget for the future.”

Joe Bliss,  
*virtual infrastructure administrator*

At his previous job — running a 600-desktop VDI for a county government — Bliss had seen the performance gains from using all-flash arrays from Pure Storage. “So when we started talking about solid-state storage, my first thought was that I wanted to bring in Pure Storage,” said Bliss. This decision was further confirmed when consulting with their IT services provider Logicalis, who agreed.

Bliss and his colleagues evaluated a short list of storage suppliers, including Pure Storage and the supplier of its existing spinning-disk system. The offering from the incumbent supplier did not impress Bliss. “They seemed to be new to flash technology. Solid-state was just added on to their existing product. In contrast, Pure Storage is built from the ground up for solid state. And I knew from experience that a Pure Storage array would perform well all the time, not just when data were put on the right storage tier,” added Bliss.

In addition to high performance, Bliss also wanted his new storage solution to include essential features such as de-duplication, replication and simplified administration. Plus, he sought out a storage solution that offered a smooth expansion path as future needs dictate, particularly with respect to plans to build a virtual desktop infrastructure (VDI). Pure Storage checked all the boxes on Bliss’s wish list.

When Bliss presented his recommendation to buy Pure Storage, his boss was particularly impressed with the Evergreen Storage program, which guarantees non-disruptive upgrades to the latest technology — including new controllers every three years — as long as an array is on a maintenance contract. “My boss is adamantly opposed to vendors who stick you with rising maintenance costs as equipment ages, so he loves the Evergreen Storage guarantee, because it prevents forklift upgrades when the vendor makes its product obsolete,” said Bliss.

**PURE STORAGE PROVIDES FASTER PERFORMANCE, EASIER MANAGEMENT**

Once installed, the two Pure Storage arrays provided Davenport with numerous benefits. Primary among them is the improved performance of the Banner and Blackboard applications. “When we switched over to the Pure Storage array, we watched user access time in the Banner environment fall to almost zero,” Bliss reported.

“Davenport University is a great example of how today’s universities leverage IT to improve the online experience for students and staff, increase productivity, and streamline operations,” said Tom Marthens, Account Executive at Logicalis. “Pure Storage all-flash arrays were best suited for Davenport University’s workload requirements. The results speak for themselves.”

Since the Oracle databases have been moved onto Pure Storage, I/O wait states have fallen on average from 5 ms to 1 ms, a reduction of 80%. Average active session time has been reduced from 2.44 seconds to 1.56 seconds, which Bliss said directly translates into improved responsiveness for end-users of the Banner application. Sequential read times for access to Oracle have fallen by as much as 85% since installation of the Pure Storage array, and up to 90% for direct reads.

When Davenport first virtualized its servers, using the previous spinning-disk storage, “we could see that the servers weren’t utilizing all the resources they were assigned,” Bliss said. “After we moved to Pure Storage, the performance was so fast that we could actually reduce the amount of CPU and RAM assigned.”

The time taken to generate the critical Blackboard Analytics report has been reduced from eight hours to less than six hours. “That gives us a lot more flexibility in case we need to make changes, given the bigger window of opportunity we have to deliver these reports on time,” Bliss noted.

Ease of management is another benefit. “We don’t have to do any day-to-day management. I never have to check on the array, because I know I will be alerted by Pure Storage if there’s any problem,” added Bliss.

### PURE ACCELERATES APPLICATION DEVELOPMENT

While Bliss expected a data-reduction of 2:1 for the new arrays, “we’re seeing 5.1:1 across the board. Our old storage didn’t have de-duplication at all. So with the Pure Storage arrays, we can spin up new test databases whenever they are needed, and we can store more data at less cost,” said Bliss. That is important to Bliss, because he maintains the test and production environments as mirrors of each other. “With the data-reduction provided by Pure Storage, mirroring both environments puts no burden on our storage at all.”

Reliability has also proved to be a major benefit of Pure Storage. “We set the system up more than a year ago, and haven’t had to touch it once — no failed drives, no trouble tickets. It works flawlessly,” noted Bliss.

Non-disruptive upgrades are another feature of Pure Storage valued by Bliss. “With the Pure Storage array installed, we can now do application maintenance on Banner during production hours without any impact on users. And we can do the same for upgrades to the Pure array.”

With all of the university’s tier-1 applications running smoothly on Pure Storage, Bliss looks forward to getting rid of all remaining spinning-disk storage resources and converting to flash. He knows Pure Storage will be his choice for that task as well.

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