



# Transforming operations and the student experience at a popular American university with Banner on the Oracle Database Appliance

## Key points

- 1 New Oracle-on-Oracle ODA architecture implemented for critical Ellucian Banner platform
- 2 Banner on the Oracle Database Appliance improves user experience with reporting performance increased by 45x
- 3 Oracle ODA Capacity on Demand licensing helps manage Oracle software costs while providing the flexibility to grow

Cintra designs and delivers a modern architecture for Ellucian Banner at an American university. The Oracle architecture is underpinning the university's digital transformation and future growth, which relies heavily on this critical ERP platform.

Several business-critical reports, which previously took between one-and-a-half and three hours to complete, now run in under two minutes; a transformational 45-fold improvement.

Established more than 100 years ago, the university in question is an independent and successful education institution, with a very high percentage of graduates gaining employment or entry into graduate or professional schools within six months of graduation.

The university offers a range of undergraduate and graduate courses in the arts, sciences and business, and has a total student population at any one time of several thousand, alongside an alumni community of more than 100,000. It receives tens of thousands of new applications every year.

### Critical information system

From the minute a student applies for a place at the university, their details are recorded using its enterprise resource planning (ERP) tool, Banner by Ellucian. Successful applicants' details remain in the Banner application's Oracle database throughout their time at the university and beyond, with the platform supporting almost

every business process within the organization, from enrolment, to distribution of course material, assignment submission, grade reporting and alumni relations.

Staff right across the university use Banner, most notably to access the 400+ reports that the technology team manages. These support decision-making in areas such as billing, financial aid and enrolment tracking.

Students regularly interact with Banner as well. Many applications, including the university's e-learning platform, pull details from the Banner database to ensure the correct information and material is displayed when a student logs in.

Banner and its underpinnings are therefore a critical part of operations and the student experience at the university. And Banner's importance continues to grow as the university undergoes further digital transformation, with an ever-increasing number of business processes reliant on it. It therefore

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needs to run on a robust architecture that's always available, able to scale to support the growing workload demand and deliver the best possible user experience.

### Architecture challenges

The university was previously running Banner on a traditional architecture, with servers and storage from different vendors. The hardware was reaching end-of-life and the additional demands being put on the system meant performance was degrading. Demand on the CPUs frequently far exceeded what the hardware was capable of, sometimes by up to 5x.

This was leading to poor user experiences for staff and students – some frequently used reports were taking several hours to compile, while student interactions with Banner were much slower than the university wanted. The CIO's aim was to cut reporting time from hours to minutes, add sufficient CPU headroom to support the university's continuing digital transformation and offer everyone who used Banner, directly or indirectly, a high-quality experience.

Moreover, there was a new version of the Banner application available, to which the university wanted to upgrade. However, the existing architecture was not sufficiently powerful to run it, so in mid-2015, the university started looking at replacement options. This architecture refresh would need to consider the replacement of its Oracle Database Server and the Oracle Application Server to support the Oracle Database and Oracle WebLogic respectively.

### Partnering with Cintra

The university had previously worked with Cintra, an Oracle architecture and commercial specialist, to evaluate its Oracle licensing position and ensure it was getting maximum value from its Oracle investments. In 2015, the

university asked Cintra to evaluate architecture options while managing Oracle software costs, to deliver a new platform to replace the legacy hardware and deliver the desired improvements in availability and performance.

Cintra showed the university a set of comparisons between the Oracle Database Appliance (ODA) and the other multi-vendor options it was considering, demonstrating the ODA's benefits in terms of performance, scalability, operational management and capital expenditure on the platform. The university was attracted by the performance the ODA would offer, as well as the one-box option for Banner and its database. This meant there would be no multi-vendor integration issues.

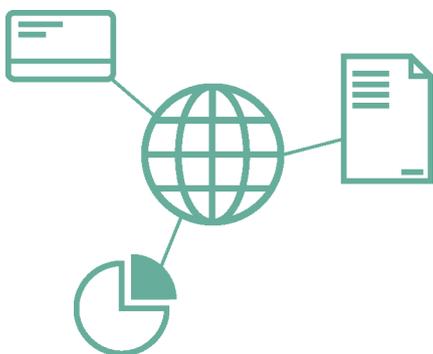
Cintra's target was to build the university a platform for Banner that was more reliable, easier to maintain and offered significantly better performance than the old one. It needed to provide new features, such as a single interface to control everything, because the university didn't want to be spending a lot of time on maintenance and patching.

Given these requirements, it decided to go ahead with Cintra's recommendation of using ODA.

### Proven architecture design

Cintra put together a comprehensive architecture design for the university's new platform that would support the Banner application and its underlying Oracle database. This used Cintra's reference architectures and blueprints, where every component of the solution had already been proven to work together by Cintra.

To manage license costs, Cintra virtualized the database and application tiers on the Oracle Database Appliance, enabling the university to take advantage of the powerful Capacity on Demand and Oracle VM licensing



containment features, where it only enables the CPU cores it requires and only provisions CPU cores at the Oracle VM server layer. As workload demands grow, the university will be able to switch on and license additional cores as part of a well-understood licensing roadmap. The architecture also provides complete redundancy at the application server and database server layers with automated clustered failover.

The architecture at a glance:

- Oracle Database Appliance X5-2
- Oracle Enterprise Linux 6
- Oracle Virtualization (OVM)
- Oracle RAC Clustering
- Oracle Enterprise Database
- Oracle Enterprise Manager 12c
- Oracle WebLogic 12c
- Banner by Ellucian

### Implementation, migration and knowledge transfer

Once the university signed off the designs and the Oracle Database Appliance was procured, delivered and installed, Cintra quickly configured the ODA platform and successfully migrated the critical Banner database to the new architecture; this went live shortly afterwards.

The application server has followed, meaning the university's critical Banner platform and its Oracle database are now benefiting from the new Oracle Engineered Systems architecture and the improved performance and capacity this delivers.

Cintra's team has also delivered a series of training sessions to the university's technology department, to help it get up to speed with managing the platform effectively.

This has ensured the university's in-house team now enjoys the benefits of managing a one-box Oracle-Database-on-Oracle-Engineered-Systems solution, including one place to manage the entire

architecture, a patching process that covers the complete technology stack, single-vendor support and phone-home functionality.

### Benefits

Soon after migration to the Oracle Database Appliance, the university is already noticing marked improvements in performance.

Several of its business-critical reports, which previously took between one-and-a-half and three hours to complete, are now running in under two minutes: a transformational 45-fold improvement.

Moreover, capacity challenges are a thing of the past. The old architecture would rapidly reach maximum CPU capacity throughout the morning registration rush, with demand sometimes 5x more than the CPUs were capable of. The Cintra-designed Oracle architecture handles this peak demand comfortably, with the CPUs rarely exceeding 20% capacity. This significantly improves the user experience, with wait times reduced and speeds increased.

It also means the university now has the capacity to continue its digital transformation, while maintaining high performance across the organisation.

Lastly, Cintra's Oracle-on-Oracle architecture design has ensured the university's licensing costs are now less than they would have been, had they adopted a traditional multi-vendor model capable of the same performance, redundancy and capacity for growth.

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