

CASE STUDY | OREGON STATE

ACCELERATING THE COLLEGE OF ENGINEERING AT OREGON STATE

Leveraging Citrix and NVIDIA GRID™ for
Graphics Accelerated Application Delivery
Around the World



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AT A GLANCE

Company: Oregon State University

Industry: Education

Location: Corvallis, OR

Size: 10,400 Engineering Students and Faculty

SUMMARY

- > Oregon State University has over 30,000 students and is well known for its distance education program, with more than 47% of students out of state or international.
- > The OSU College of Engineering needs to provide an on-campus, lab-like experience anytime on any device.
- > With virtualization from Citrix XenApp and XenDesktop and virtual graphics acceleration from NVIDIA GRID and Tesla M60s, the IT team accelerated heavy graphics and compute applications like Autodesk AutoCAD, Mathworks MATLAB, Dassault Systèmes SOLIDWORKS, and Cadence for students around the world.
- > Students have the modern applications and infrastructure they need to mobilize learning support their studies.

SOFTWARE

- > Hypervisor: Citrix XenApp, XenDesktop
- > Graphics Acceleration: NVIDIA GRID

HARDWARE

- > NVIDIA® Tesla M60

6 REASONS FOR NVIDIA GRID

- 1 Increased power and performance for graphic-intensive applications.
- 2 Ability to deliver an on-campus workstation experience to distance learners.
- 3 Iterative software model allows for easy upgrades and ability to grow with virtualization.
- 4 Customer support services work closely throughout virtualization lifecycle.
- 5 Reduction in cost of provisioning software to student-owned laptops.
- 6 The ability for students to use their own devices; any device, anytime, anywhere.

CHALLENGE

Accelerating the College of Engineering on and Off Campus

Oregon State University has more than 30,000 students in its world-renowned distance learning program. Called Ecampus, the distance program is ranked in the top 10 nationwide and provides more than 900 courses and 40 online undergraduate and graduate degrees. Key to the University's success on and offline is the ability to deliver a unique campus experience to students from anywhere, on any device.

For the College of Engineering, delivering on this experience presents a challenge, because the applications used in the program are graphics-intensive and require high compute power. For Todd Shechter, Director of IT for the College of Engineering, this challenge was multiplied when offering applications to students around the world. "We have a laptop requirement in our college, and it's our goal to be able to provide resources to our students anytime, anywhere. No matter if they're at home, at the residence hall, in a coffee shop, or overseas, we want them to be able to access all the different software they need to be successful in our engineering college," he explained.



“It makes us feel pretty good hearing a student in France say that he was able to open MATLAB, do his work, and have it be very fast and responsive. To me, that’s another measure of success.”

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SOLUTION

Virtualizing High-end Engineering Applications

Todd turned to Citrix and NVIDIA GRID™ to virtualize and accelerate graphics for specific applications. “We’ve provided device-agnostic access to all of our applications and desktops remotely to students via Citrix XenApp and XenDesktop for a few years now. This allows us to have a lab-like experience anywhere on campus and abroad. However, modern applications like AutoCAD, Cadence, SOLIDWORKS, and MATLAB are graphics intensive. The poor performance of these applications was hindering study. That is where NVIDIA comes in, helping us power the graphics experience for our students. We chose NVIDIA GRID with Tesla M60s for specific applications that require GPU acceleration,” Shechter explained.

Empowering the students for success is at the center of Shechter’s role. An Oregon State alumnus himself, he wants to make sure students have all the tools they need before classes start. “One of our goals is that our engineering students are well-prepared beforehand so that when they get to class, they’re able to hit the ground running. We hold required help sessions ensuring every single incoming engineer is set up in their virtualization environment. When they do meet with the faculty members, either in classes or labs or recitations, they have a leg up because basic infrastructure pieces are ready for them. I think that’s a very important part of what we do. I know that it helps students. Also, the faculty expectation is that students are ready to engage,” he said.

Rolling out virtualization to 10,000 students is no easy task. Shechter says they have had more than 400 concurrent users at any given time. “Virtualization takes care and feeding. It’s not simple—having support from Citrix and NVIDIA has been key,” he explained.



“Our distance learners are not in our computer labs. But we want them to have the exact same computational experience as if they were on campus. Citrix and NVIDIA play a big role in that.”

RESULTS

Students Measure Success

At Oregon State, the impact of graphics-accelerated virtualization is both local and global. Virtualization allows the students to work on a multitude of different devices and access applications 24/7. Recently the campus opened Johnson Hall, a new engineering building and the first without a traditional computer lab. Shechter elaborated, “Instead of a lab, we’re providing lots of open space for students to work together and collaborate on projects - just power, desks, and large tables. It’s very cool to see how students just eat this space up. At any given time, you’ll see four or five students sitting around the table with their laptops open. This place is jam-packed during the day, and it’s all students, together or independently, taking advantage of this great technology.”

With a large online presence, student experience and performance is critical to enrollment. “Our distance learners are not in our computer labs. But we want them to have the exact same computational experience as if they were on campus. Citrix and NVIDIA play a big role in that,” he explained. In the end, the team measures success from the comments from abroad. “It makes us feel pretty good hearing a student in France saying that he was able to open MATLAB, do his work, and have it be very fast and responsive. To me, that’s another measure of success.”

For Shechter and his team, the road to a completely virtualized College of Engineering is one they can be proud of. “We built up the staff knowledge, built up the training piece with our students, and built up the infrastructure—both network and server and power—to be able to do a pretty good job at supporting this. I look at the changes that we’ve made over the last three to five years, and it’s pretty impressive.”

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