Georgia State University
Cloud Computing with IBM

Problem
Supporting student computing labs so that students and faculty have flexibility in their choices of platform, software and mobility.

Solution
Virtual Computing Lab / VCL

Goals
- Reduce recurring cost of hardware platform refresh.
- Provide flexibility in compute images and/or software versions.
- Allow students access mobility so they do not have to physically be in a lab to work.
- Increase lab efficiency for technical support, staffing hours and complexity of compute images.

Results
- Deployed IBM iDataPlex™ solution with Virtual Computing Lab (VCL) open source software.
- Reduced cost per seat, even with initial VCL ramp up.
- Changed the concept of a lab–providing on-demand computing through a cloud, "any image, anywhere."

IBM Cloud Academy

Georgia State University is one of the southeast's leading urban research institutions. It is on the list of the top 100 public universities for doctoral degrees awarded. More than 250 fields of study are offered through some 55 accredited degree programs at the bachelor's, master's, specialist and doctoral levels. Students may enroll in day or evening classes and in part-time or full-time study.

Georgia State's Cloud Initiative was an outcome of a search for cost-effective ways to meet continued demand for student computing lab facilities even as the economy challenged resources. Georgia State identified the potential of virtual computing for student labs by engaging in discussions with peer institutions in the southeast that were developing virtual computing models and working with IBM experts in smart computing solutions.

The Challenge
Georgia State University's traditional approach to student computing labs tended toward a "single-person-per-seat" environment where students physically attended specific lab locations, selected a dedicated computer platform and had exclusive use of that platform for a period of time. Such a platform, while connected to a network for Web access and perhaps print functions, served as a local, private, dedicated platform.

Such dedicated platform solutions were designed for specific, fixed profiles where the total cost of compute stations is pre-determined by estimated concurrent usage of application suites running under explicit operating system images. In addition, these configurations were managed per lab (versus per user) and offered general, one-size-fits-all images that were only available in specific locations at specific times.

"We are very pleased to be a founding member of this innovative initiative that will bring on-demand computing resources to all Georgia State students," says J. L. Albert, Georgia State's associate provost for the Division of Information Systems and Technology and chief information officer. "The IBM Cloud Academy will also expand the platform for researchers to exchange ideas and further advance the university's mission in teaching, research and service."

With this "fixed" model came the challenges of maintaining currency of hardware performance, usually accomplished by upgrading based on three- or four-year cycles. Consequently, making changes to operating systems and application versions typically required all users to move to new versions in lock step.

Based on 10 years of student technology fee data related to proposals for and funding of technology requests, we know that 33 to 62 percent of an annual $4 million in funding is used for hardware and software costs. Georgia State wanted to better manage and control these costs and looked to a virtual computing solution as a potential, more effective, way of doing so.

The Solution

Georgia State University acquired an IBM System x® iDataPlex solution for implementation of a virtual computing solution for students. The iDataPlex solution was chosen to fulfill a Student Tech Fee award for a virtual computer lab. Georgia State's Information Systems and Technology division and a team of Computer Information Systems senior class students from the Georgia State Robinson College of Business evaluated several virtual computing solutions. They determined that the IBM iDataPlex solution running Virtual Computing Lab was a cost-effective solution that also fits well with the one-time funding limits of the Student Tech Fee program. Further, by leveraging existing Virtual Computing Lab community activities lead by North Carolina State University with IBM support, Georgia State has the capability to change the way student labs are implemented.

An additional potential benefit is in considering how virtual computing might apply to research computing. At the very least, Georgia State University hopes that the virtual computing model may open up student access–virtually–to research computing images that typically are impractical if physically tied to specific, fixed hardware resources. Indeed, the virtual computing lab for students offers a rich potential for broadening student access to computational cyberinfrastructure.

"By providing virtual computing, students can access a lot of information, not only hardware but also software and applications," said Yi Pan, chair of the Department of Computer Science. "It's reducing cost and providing more computing power for the benefit of faculty, staff and students."

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