Community College Enhances Learning with Collaborative Technologies

MiraCosta College deploys virtualization technology to expand access to learning resources and applications.

Executive Summary

MiraCosta College
- **Industry:** Education
- **Location:** Oceanside, California
- **Campus Population:** Approximately 700 full- and part-time inclusive faculty; 18,500 enrolled students

CHALLENGE
- Increase students' mobile access to classroom resources
- Manage overwhelming student traffic to MiraCosta College's computer labs

SOLUTION
- Leverage VXI technology to enable a virtualized distance computer lab and virtualize server management
- Improve access to on-campus wireless Internet network

RESULTS
- Virtualized close to 95 percent of campus servers, improving IT management
- Virtualized primary computer lab, solving access problems
- Enabled flexible learning for MiraCosta College students

Challenge

MiraCosta College is located in North San Diego County, California, just 35 miles north of San Diego and 90 miles south of Los Angeles. Dispersed across three separate campuses in Oceanside and San Elijo, it serves over 18,500 enrolled students, including 12,000 full-time students.

Over the past few years, MiraCosta College has seen a substantial growth in its student body population due to the changes of the economic climate. The 2008 economic downturn created an upward surge in higher education; with fewer jobs available, more students saw the advantage of furthering their academic studies as opposed to trying to enter the workforce. In line with its student population growth and mirroring the national trend of increasing technology dissemination, MiraCosta's wireless network use has quadrupled in recent years. "Our students are really adopting the consumerization of information technology, for example, Bring Your Own Device (BYOD)," says Steve Schultz, technical services coordinator at MiraCosta College. "As an education community, we want to be able to support that."

MiraCosta College wanted to increase students' access to classroom resources, specifically by tapping into the proliferation of technology use, including mobile devices, by its student body. One particular issue was that the uptick in student numbers resulted in MiraCosta's computer labs often being at capacity throughout the day. Scheduling time on the computers proved to be a challenge for students, specifically part-time working and off-campus students, who needed to access software or class resources that were only available through on-campus desktops.

MiraCosta College administrators felt that virtualization technologies could enable them to increase access to traditionally campus-only academic resources and enhance student support services.

Solution

MiraCosta College aimed to upgrade its complete IT infrastructure by transforming its server management and desktops (specifically by enabling a virtualized distance computer lab), and improving access to the on-campus wireless network. "We've been watching the technology trends," says Schultz, "and we were hoping to adopt and keep a rich technology base here on campus." Schultz envisioned providing students with their own personalized workspace, with a consistent user experience and access to all applications, whether on campus, at home, or beyond.

In the past, MiraCosta College partnered with Cisco and was pleased with the products that Cisco integrated throughout its three campuses. So, when the time came for this significant campus IT project, Cisco was the clear choice for a vendor

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partner. "Partnering with Cisco on this project was a natural evolution of our continuous positive relationship," says Schultz. An additional draw to working with Cisco was the company's established relationship with Tegile Systems, a data storage solutions provider that implemented a metadata accelerated hybrid storage system that delivered the performance required for MiraCosta's virtual desktop implementation at a significantly lower investment for the technology.

To virtualize its desktops and servers, MiraCosta College turned to the Cisco® Virtualization Experience Infrastructure (VXI). MiraCosta wanted to learn more about Cisco Unified Computing System™ (UCS®), a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system and serves as the foundation of any VXI solution. Because Cisco UCS integrates with Cisco Unified Fabric and Cisco unified management software as the critical high-performance underpinning to Cisco VXI, MiraCosta would be able to use the solution to deliver next-generation virtual education workspaces, enabling every personally owned computer or mobile device to be an access point for academic resources. Schultz describes the appeal of Cisco UCS: "We saw the promise of UCS in terms of its ability to scale and its performance capacity."

Initially, MiraCosta College deployed UCS B-200 Series Blade Servers for a pilot server virtualization project, migrating approximately 150 servers to six blades. After the success of this pilot, MiraCosta deployed Cisco UCS throughout its campuses in late 2010, eventually expanding the system with additional blade servers.

To provide continuous uninterrupted access to on-campus wireless Internet and support the newly virtualized servers and desktops, MiraCosta College migrated its core wireless switching infrastructure to Cisco Nexus® 7000 Series Switches. Nexus 7000 Series Switches offer an end-to-end solution in one platform for data center core, aggregation, and high-density, end-of-row and top-of-rack server connectivity, improving the ability for educational instructions to collaborate and communicate with their students.

Results

MiraCosta College's infrastructure virtualization project received input from a range of college administrators and stakeholders, including Mario Valente, dean of academic information services at MiraCosta College. As a result of the new technology integration, MiraCosta has seen several benefits to its student and administrators, including facilitated IT management and increased flexibility to students needing to access learning resources.

IT Management Ease
As of March 2012, MiraCosta College virtualized close to 95 percent of its servers, reducing seven racks of servers to only half a rack. Cisco UCS led to a remarkable

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DATA CENTER SOLUTIONS
· Cisco Unified Computing System (UCS)
· Cisco UCS B-230 Blade Servers

ROUTING AND SWITCHING
· Cisco Nexus 7000 Series Switches

NETWORK MANAGEMENT
· Cisco Unified Computing System Manager
· Cisco Virtual Experience Infrastructure

DATA STORAGE
· Tegile Systems Zebi Arrays

For More Information

To learn more about Cisco VXI, go to http://www.cisco.com/go/vxi.

To learn more about Cisco Nexus 7000 Series Switches, go to http://www.cisco.com/go/nexus7000.

To learn more about Cisco UCS B-200 Blade Servers, go to http://www.cisco.com/go/ucs.

To learn more about Tegile Zebi meta data accelerated hybrid arrays, go to: http://www.tegile.com/products/.

consolidation of a number of resources required to support a virtual environment on all three of MiraCosta College's campuses. From an administrative and technology management standpoint, the Cisco technology enabled administrators to benefit from greater operational ease and efficiencies, for example, enabling quicker re-provision educational resources. "It's been a substantial change," says Schultz. "Our technology environment is more stable and consistent."

Flexible Resource Access
MiraCosta College has virtualized its primary computer lab, solving access problems and thereby allowing students to have access to various educational resources, even when off campus. One prime example of this benefit can be seen among MiraCosta College psychology and sociology students. SPSS, a computer program used for predictive analytics, including statistics and data mining, is frequently needed by students taking those courses. Prior to VXI, students had to be physically present at the campus computer labs, often filled to capacity, to access the software and complete their coursework. This requirement posed a challenge to all students, particularly part-time working students or those living off-campus.

Desktop virtualization achieved through VXI has allowed students today to access SPSS software, along with other academic resources on campus, from home or their mobile devices, enabling a flexible and supportive learning environment for MiraCosta College students.

Schultz and his colleagues are excited about what virtualization can and will be able to do for the college in the future. "This technology has really enabled us to meet next-generation student needs," he says. "We strongly feel that we are moving into a new era of technology infrastructure and computing."

Next Steps

Within the next few years, MiraCosta College plans to expand the reach of its virtualization project and move to 100 percent virtualization of servers.

Technical Implementation

Tegile Systems was a valuable Cisco partner, providing a high-quality, low-cost solution that performed well with the Cisco VXI applications.