CUSTOMER CASE STUDY:
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WCU Modernizes Digital Ecosystem for Educational Opportunities

Western Carolina University (WCU) confronted an aging IT infrastructure and the pressing requirement to reduce technology costs for students. By implementing a virtualized solution portfolio built on VMware vSphere, WCU succeeded in offering flexible, cost-effective computational resources to its community of students, faculty and staff members. With the support of VMware Technical Adoption Management Services, WCU could maximize its technology's potential, resulting in enhanced network flexibility and an improved student experience.

Founded in 1889, Western Carolina University is a unit of the University of North Carolina system. As the fifth-oldest four-year institution in the 16-campus UNC system, its original mission was to provide education to the inhabitants of the mountainous western regions of North Carolina.

Industry

Education

VMware footprint

- VMware vSphere®
- VMware Professional Services

Making education affordable in rural Appalachia

Higher education faces a set of unique business and IT challenges, from supporting enrollment and student outcomes to workforce and technology modernization, physical infrastructure needs, and, above all, affordability. In the face of budget constraints and rising costs, universities must allocate resources wisely to maximize the greatest value from tuition and taxpayer dollars.

No stranger to these challenges, WCU found itself at the crossroads of modernization and cost constraints as it struggled with outdated IT infrastructure and the pressing need to reduce student technology expenses.

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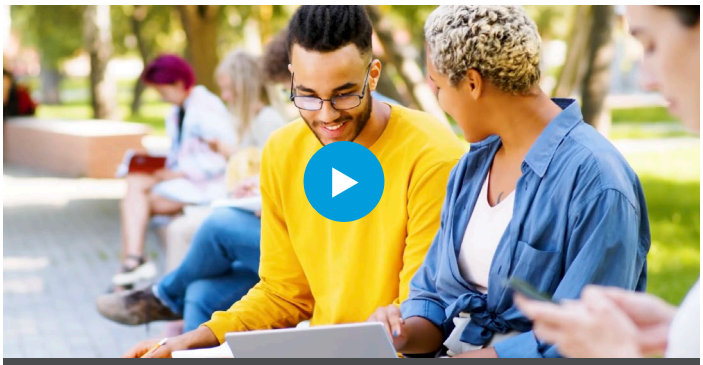

WATCH HOW WCU ENHANCES LEARNING WITH DIGITAL ECOSYSTEM

WCU provides high-quality, affordable education to 12,000 graduate and undergraduate students. The university prides itself on being one of the top providers of distance and online education in the U.S., offering a wide range of degrees and professional certifications. WCU participates in the NC Promise Tuition Plan, a state-supported initiative designed to make quality higher educational education affordable and accessible to all students, both in and out of state.

"In the rural Appalachian area of North Carolina, many of our students may not have all the resources they need," says Patrick McGraw, senior systems administrator, WCU. "One of the things we're trying to do with technology is make it as easy as possible for students to afford college. We're trying to lower the cost of those resources and provide them with any means to help them succeed. Keeping education accessible at the state's westernmost rural campus is a top priority for WCU, requiring modern, secure technology systems to deliver digital services and instruction efficiently.

"We're moving away from a traditional data center into a more virtualized environment and network," says McGraw. "It gives us a lot more flexibility in what we can do around our servers and our networking as well." WCU turned to VMware for a virtualized solution portfolio built on VMware vSphere that could deliver flexible, economical computing resources to students, faculty and staff. Initially facing skepticism from university leadership, the IT team showed how virtualization would enable the university to deliver better educational experiences while cutting costs for both the institution and students.

"First, we had to get our IT leadership to agree to invest in this kind of technology because there's a good outlay of money required to put this environment together," says McGraw.

"So, we wrangled people together, got everybody on board, and our leadership agreed that this would really benefit our students." From there, the IT team launched a proof of concept (PoC) to demonstrate to faculty that the proposed solutions would support their curriculum goals. With the university's on-premises infrastructure virtualized, the WCU IT team implemented a remote workforce solution to deliver secure virtual desktops to students, faculty and staff.

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Virtualizing educational technology to enhance learning

When faculty understood that a virtualized desktop infrastructure could extend the reach of the classroom beyond traditional hours, they were convinced. "Students now have access to software and computing resources 24x7," says McGraw, "so the faculty enjoy that aspect of the system since it allows students to be more productive."

Once this solution was up and running, the IT team began readying its digital resources for a hybrid cloud infrastructure transformation. Recognizing that a comprehensive migration to the cloud may be too fast and costly for an institutional environment, the IT team needed to move incrementally. Moving forward with application hosting and cloud-based disaster recovery proved a prudent first step.

"We adopted disaster recovery in the cloud, first of all, to make our backups immutable so that if we do have a ransomware attack, we know we're going to get clean data back when we're ready to recover," says McGraw.

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Once again, the team leaned into their longstanding association with VMware to design and implement a cloud solution centered on a Microsoft Azure solution. The team aligned infrastructure and fiscal demands smoothly by adopting an incremental approach, beginning with solutions that ensured data protection and integrity.

WCU worked with VMware for infrastructure operations management. "One of the challenges we were having concerned capacity planning. We need to make sure we aren't wasting state resources," says McGraw. "With VMware, we can right-size our servers. If an application indicates it needs 32 gigabytes of memory, we can analyze that consumption over a span of weeks, months, even years, and determine that we can cut this figure in half. And by doing that, we save those resources, save our capacity, and that's a better use of the taxpayer's money."

VMware Aria Operations, now a component of VMware vSphere Foundation, uses artificial intelligence to automate IT operations management, predict potential issues, and streamline problem resolution. "We've been able to reduce our problem resolution time by probably around 30 percent," says McGraw. "In a sense, it's like having a virtual IT assistant constantly monitoring our systems for us. We can proactively manage and troubleshoot, improving efficiency and cutting downtime."

Micro-segmentation for enhanced security

"Unfortunately, one of the big challenges and concerns we have at the university are security incidents," says McGraw. To bolster security, the IT team adopted VMware NSX, now a component of VMware Cloud Foundation, a network virtualization and security platform that enables WCU to create software-defined networks, embedding them them in the hypervisor layer of the IT infrastructure.

"We're a state agency, and so we have a lot of audits that we have to apply both at the state level and then internal level as well," says McGraw. "When we review the findings in these audits, we have to address them. NSX has given us a powerful tool to address those audits and put a virtual firewall around each VM."

VMware NSX abstracts the underlying physical network hardware, allowing WCU to automate network and security services provisioning. Using the micro-segmentation features of NSX—creating secure zones in data centers and cloud deployments—isolates workloads from one another down to individual workloads or virtual network interfaces, reducing the attack surface within the IT environment. So, even if a malicious actor gains access to one segment, damage is confined by preventing lateral movement to other network sections. "Now, we can look at our entire environment with one pane of glass and see what's going on from a security standpoint," says McGraw.

A collective commitment to excellence

The collaboration with VMware became more than a client contacting a solutions provider for support. It became a symbiotic exchange of ideas and suggestions.

VMware Technical Adoption Management Services played a pivotal role in ensuring that the university harnessed the greatest potential from its technology. And the results are proof-positive. "We had conversations, exchanged ideas, and learned together, with VMware Technical Adoption Management Services guiding us throughout our journey," says McGraw. "We saw each other as partners, not just as a university and a tech company."

The integration of VMware technologies into the WCU digital ecosystem has brought network flexibility and an upgraded student experience and paved the way for a more strategic outlook toward the future. As WCU continues to leverage these tools, the university remains steadfast in its mission to deliver a well-rounded, affordable education that equips students for successful careers in the modern world.

"What excites me about the future and the digital journey we're pursuing," says McGraw, "is that we're going to be able to help the university accomplish its mission to make a well-educated student who is going to go out into the world and be successful in whatever they decide to do."

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