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University of North Carolina Greensboro migrates to Microsoft Azure to elevate student and community experiences

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Executive summary

The University of North Carolina at Greensboro (UNCG) faced a decision between updating costly on-premises datacenters and investing in a more scalable alternative. UNCG leaders wanted to deliver better resources to students, faculty, and residents of the surrounding community and chose Microsoft Azure as its cloud technology. Through the campus-wide cloud migration and the launch of the Technology and Data Institute for the community, UNCG has become a model for what North Carolina academic institutions and communities can accomplish together through technology.

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With over 19,000 students and 3,000 employees, the University of North Carolina at Greensboro (UNCG) has provided higher education for over 125 years and is among the largest of the state's academic institutions. The Princeton Review has recognized UNCG as one of the nation's best schools for undergraduates for 23 consecutive years.

In early 2018, Donna Heath, the school's Vice Chancellor and Chief Information Officer, was facing a significant challenge: two campus datacenters needed major renovations and upgrades that would have cost millions of dollars. Heath's team began exploring alternatives, knowing that such an investment could delay learning and operational initiatives and that it was important to minimize the impact on student outcomes. "UNCG's culture of being very focused on student success is deeply rooted," says Heath. "Student success is part of our DNA at UNCG." Jeff Whitworth, the university's Associate Vice Chancellor and Chief Technology Officer, says, "You're not just getting a degree here. You're impacting your life."

Instead of waiting for a technology crisis to hit, UNCG decided to modernize its infrastructure to provide better resources to support students—many from underserved communities—while boosting their employability after graduation.

Moving to a cloud-first environment on Azure

Heath and Whitworth researched cloud computing services and determined that Microsoft Azure met their needs in terms of scale, security, and cost. Because of UNCG's strong relationship with Microsoft technologies, Whitworth also knew the high level of support that they could expect. "We had significant expertise with

high level of support that they could expect. "We had significant expertise with on-premises Microsoft technologies, which is something we were pretty proud of. And from what we saw inside Azure, it looked very mature compared to some of the other solutions we considered," says Whitworth.

Whitworth's team began implementing the new environment by creating a prototype of the architecture. "We actually built the prototype out multiple times. Because it was in the cloud, we had the flexibility to start over when needed," says Whitworth.

Next, the IT team began to deploy Azure. To improve security and control access, UNCG included Azure Active Directory (Azure AD) to provide single sign-on, multifactor authentication, and conditional access capabilities for student, faculty, and staff users all at the same time.

Partnering with the community for regional success

As UNCG rolled out Azure across the campus, Heath realized that municipal governments, school districts, universities, and community-based nonprofits in the region were struggling to understand how to migrate to the cloud efficiently. Heath knew UNCG's experience could help. After meeting to share ideas, community IT leaders decided to form the Technology and Data Institute (TDI) so that they could work to solve the problem together.

"Microsoft provided the foundation for the TDI, which helped the organization become sustainable in the early days," says Heath. "The TDI in its current form would probably not exist without Microsoft support."

The TDI set out to help turn the region into an innovative and connected sector where communities could flourish through shared technology and data. Specifically, TDI leadership decided to address two main topics: providing access to high-speed networks and offering robust computing capabilities. UNCG helped the TDI develop an infrastructure model on Azure that organizations could easily adopt.

One of the first TDI projects focused on providing high-speed home internet connections for local K–12 students who lacked reliable access.

The TDI also supported the Guilford Community Indicators Project, which pulls survey data—such as access to food stores, transportation data, and average income by race—from multiple sources into a single database. Because the Community Foundation of Greater Greensboro, which runs the project, did not have an IT team, the TDI helped by hosting and managing the project's website. Tech leaders and businesses can now derive insights to make data-driven decisions about using public resources to meet the community's needs.

And to create more compatible infrastructure in the region, TDI members collaborated on best practices and a common cloud framework to help municipalities and organizations migrate to the cloud and share the same infrastructure design. The City of Greensboro is now using the TDI framework for its cloud migration.

Creating opportunities for new classroom and campus projects

Back on campus, the UNCG IT team continued to find ways to improve the student experience and create new learning opportunities. When instruction went virtual in the spring of 2020, the IT team used Microsoft Intune and Microsoft System Center Configuration Manager to quickly convert to managing faculty and staff devices from the cloud. Now the team can manage devices even if they are not physically on campus. UNCG supplied Microsoft Surface Laptop Go devices to 700 students who did not have equipment for remote learning. After looking at different devices, the school determined that Microsoft Surface would provide its students with a premium experience while helping them increase productivity and deliver their best work without putting their college careers on hold.

The cloud-first environment also provided nontechnical staff members with tools to address student and campus needs. For instance, the UNCG Campus Climate Dashboard provides disaggregated equity, access, and climate indicators to help the university assess and address deficiencies. Zach Smith, Assistant Vice Chancellor for Emergency and Risk Management, also used Microsoft Power BI to create a dashboard to visualize on-campus COVID-19 data and case trends for students, parents, faculty, and staff.

Further, students can now access more hands-on learning opportunities. For example, the UNCG IT team used Azure to deploy JupyterHub, a preconfigured data science environment, to hundreds of students for use in their data science courses. Before UNCG moved to Azure, deploying JupyterHub would have been too time consuming and costly. Students can now learn in a real-world environment that improves their understanding of key data science concepts, which increases their employability after graduation.

UNCG also deployed Microsoft Teams Phone as part of the transition from desk phones to a modern mobile system so that faculty and staff can spend more time with students around campus instead of at a desk. "Mobility is one of the cornerstones of our IT strategy, and Teams Phone certainly hits that mark," says Heath. Typically, the rollout to digital voice takes institutions five to six years, but UNCG completed deployment in a year with the support of its Microsoft team.

Improving student success with modern infrastructure

Other UNC schools see UNCG as a valuable resource that can offer advice on using Microsoft products on their campuses. When IT leaders across the system

gather annually to share how each school uses technology, Whitworth answers many questions about best practices for cloud migration. "We really do strive to view ourselves at UNCG—and specifically in IT—as innovators," he says.

Whitworth and Heath have additional projects to help students succeed on campus—projects facilitated by the use of Azure. UNCG recently finished a project with Microsoft Consulting Services to move from a monolithic on-premises data warehouse to a modern data warehouse. And by using Microsoft Azure Data Lake, UNCG is now working to collect rich data from many different sources—student enterprise resource planning, residential systems, meal planning, transportation, and more—and combine it into a single data lake.

One of UNCG's goals is to use AI on a rich data set to proactively reach out to struggling students and offer services such as academic assistance or mental health counseling. "Before, it wasn't an option for us to think about how we could use AI on top of all the data we had," says Whitworth. "But by pulling it into our warehouse and having all these modern machine learning and AI tools available from Microsoft—which is where the data lives—that has become a road map for the future."

UNCG continues to find ways to improve the student experience with Azure. By requiring two-factor authentication to access the network, the university reduces its risk of a data breach or cyberattack disrupting campus operations and classes. Operating on Azure also helps the university manage the loads on its systems more effectively. For instance, previously, when 20,000 students clicked a link in an extreme weather alert for more information, the associated webpage would crash. Now the school's IT team can proactively increase the load capacity of the server before sending an alert.

UNCG is modernizing its infrastructure to improve the campus experience and be seen as a technology leader, and its success lies in being proactive rather than reactive. "We still have a lot of work to do, but we know we will have the capabilities we need because of the services available to us," says Whitworth.

> "From what we saw inside Azure, it looked very mature compared to some of the other solutions we considered."

Jeff Whitworth, Associate Vice Chancellor and Chief Technology Officer, University of North Carolina at Greensboro

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CUSTOMER

University of North Carolina at Greensboro

PARTNER

Planet Technologies

PRODUCTS

Azure

Microsoft 365

Power BI

Surface Go

ORGANIZATION SIZE

1,000-9,999 employees

BUSINESS NEED

Modern infrastructure

COUNTRY

United States

INDUSTRY

Higher Education

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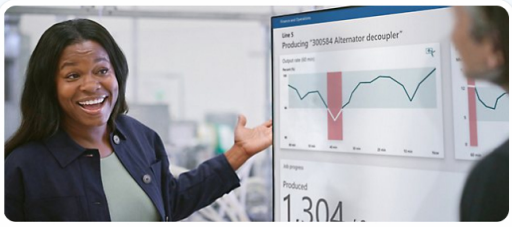

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