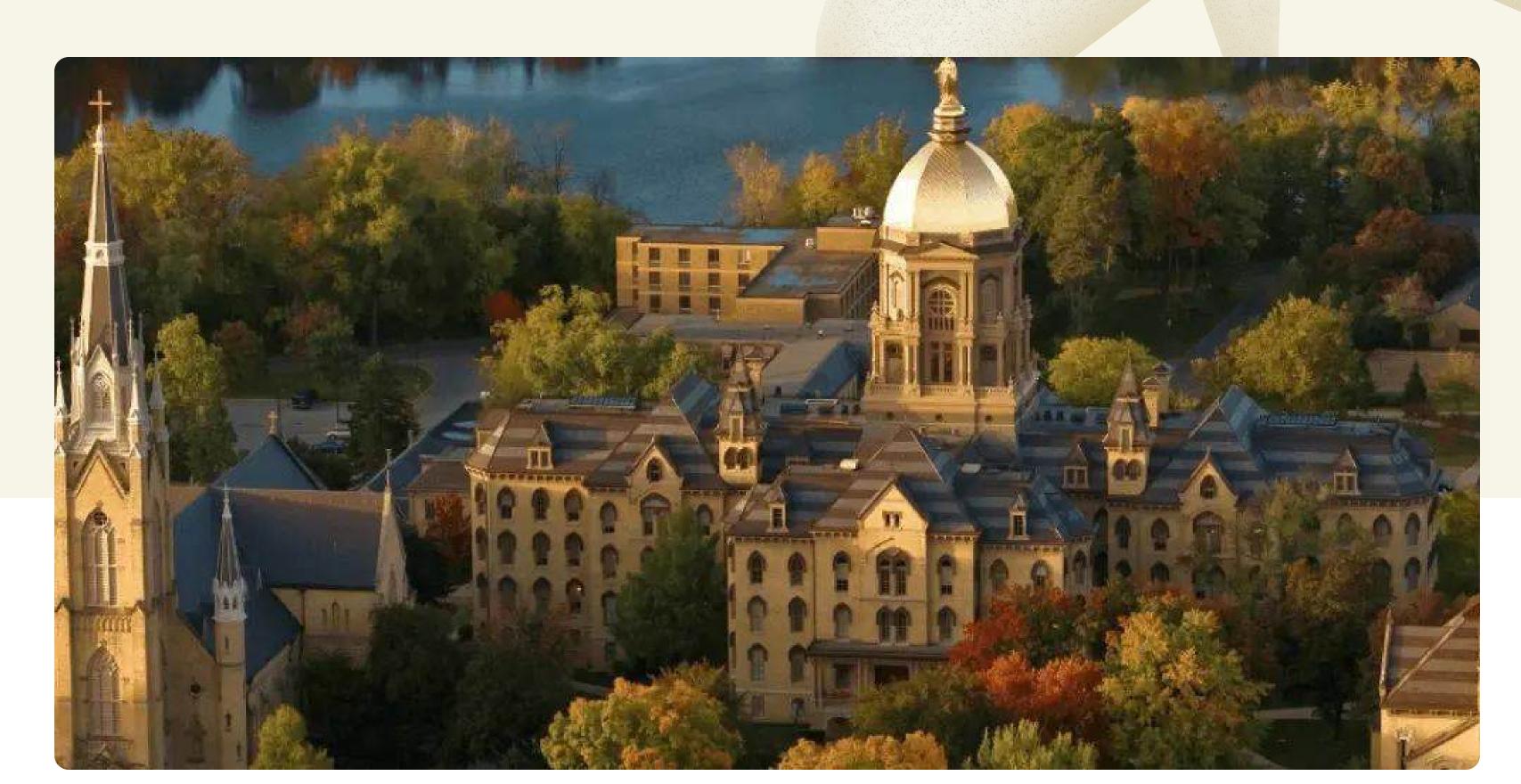# Save 25% more time over manual backups—and ensure uptime

With 240 IT staff, 6k employees, and 12k students, the University of Notre Dame needed a way to ensure 100% availability and reduce time spent on backups.

UNIVERSITY OF NOTRE DAME

FAST AND RELIABLE

Not only does N2W allow teams to back up data as often as needed and recover it more quickly than traditional on-premises solutions, but setup is speedy as well.

"Had we needed to develop a new backup and recovery solution, test it, put together a development team and put it into production, we would have easily spent 4,000 hours. N2W took between thirty minutes to an hour to set up. With N2W in place backup admins are available to concentrate on other cloud projects."

The company

The University of Notre Dame, a 176-year-old private research university in South Bend, Indiana, is one of the nation's top religiously affiliated schools. It also happens to contain one of the most sought-after places to work in IT: The university's Office of Information Technologies (OIT) has been ranked as one of the top places to work in IT for five years running.

The OIT is tasked with protecting enterprise-wide computing on campus, including tasks related to university employees, staff, and its large body of students. The OIT currently protects over 600 AWS instances (it will reach 700 by the end of 2018); four Amazon Relational Database Service (Amazon RDS) instances; and two accounts. One of their two accounts is AWS GovCloud (US)— an isolated AWS region that allows U.S. government agencies and customers to move sensitive workloads into the cloud by addressing their specific regulatory and compliance requirements.

Leading the way to the cloud

With such a large population depending on them, the OIT wanted to ensure that the nd.edu site could handle traffic spikes or unforeseen circumstances with absolute reliability. It load-tested the university's website, and when it failed, the OIT turned to AWS and N2W for a solution.

Notre Dame was in search of rock-solid reliability for good reason. The university uses an Enterprise Resource Planning (ERP) system, Banner, that integrates with virtually all the university's applications. A failure would impact every single person who interacts with the university's site, including its 240 IT staff, its 6,000 employees, and its 12,000 students.

Should the system fail, the OIT would spend weeks recovering data, requiring all-hands-on-deck for 12-hour shifts and taking up time better spent on other strategic projects. Notre Dame faculty wouldn't be able to access online teaching resources; payroll wouldn't be able to pay staff; and students wouldn't be able to see grades, access class locations, or manage financial aid. With so many dependencies, any downtime would be catastrophic.

"It would be like being in the middle of the ocean without oars or sails. Dead in the water," explains Aaron Wright, systems engineer at the University of Notre Dame. The university's decision to go with N2W was no coincidence. "They offered a flawless solution that's reliable."

Cloud-first mentality

In 2014, Notre Dame built the smallest possible web servers to host nd.edu— auto scaling up during peak demand and shutting down administrative systems over the weekend when staff were at home. Month-to-month billing from N2W allowed Notre Dame to migrate at its own pace: The university could purchase what it needed, when it needed it without tying backups into a proprietary format.

By 2016, about 60% of Notre Dame's IT systems were in the cloud, including parts of its business management software. Notre Dame's N2W-protected environment has grown 2900% since 2015— from 25 instances to up to 750. Today, Notre Dame is considered the first nationally recognized university to come out full force as a cloud first organization, with more than 80% of its IT systems housed on the cloud. By the end of 2018, the university plans to have migrated any remaining data to the cloud and close its primary data center.

Near-instantaneous recovery during a bad patch

Notre Dame's continuous adoption of an N2W and AWS solution is a result of its earned trust— and with good reason. In March of 2018 the university's applications team rolled out a patch on a production server only to discover an issue two weeks later. University of Notre Dame engineers were easily able to locate the issue by looking at the snapshot's description on the console. This naming convention allowed them to quickly identify and detach the corrupted Amazon Elastic Block Store (Amazon EBS) volume, manually create a new one from the snapshot, and attach it to the instance—all without requiring assistance from a backup admin.

"If it had been on premises, it could easily have been an hour or more. Using N2W, it took five minutes," says Wright. He calculates that the university is spending 25% less time by using a centralized backup solution by N2W. As a cloud-native backup tool purpose- built for AWS, N2W is especially fast.

"Moving data in and out of the cloud would take much longer. We have six engineers managing 100 machines each who would take an hour a day to back them up manually. Because the Amazon EC2 attributes are stored within the database we can restore in minutes. We're not obligated to take time out to track down bits and pieces of information."

Equally efficient with single file restores

"Just this morning, I did a single file restore for a Windows server that had a three TB drive," explains Wright. "Using N2W, I was able to find the lost folder and restore it to the source destination in five minutes as opposed to 30."

Securing the university's data means securing its future

N2W provides the university with the flexibility to respond quickly to business demands for continuous uptime every day, all day, for students, faculty, and staff, enabling them to:

- Save up to 25% of time previously spent on manual backups.
- Recover entire Amazon EC2 instances across local and global regions within seconds.
- Apply N2W's backup blueprint to AWS GovCloud (US) for Federal, State, and Local government protection.

Having instigated a solid backup and recovery solution, the university can spend more time and resources on the implementation of its cloud-first strategy, confident that their environment is reliably protected, allowing students and faculty to focus entirely on a top-rate education.

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