

DARTMOUTH COLLEGE CASE STUDY

Accelerating Network Automation at
Scale with NetBox Cloud

AT A GLANCE

Industry: Education

About Dartmouth College:
An Ivy League college
supporting 30,000
concurrent Wifi
connections, along with
the associated network
infrastructure across its
269-acre campus,



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All of this work used to consume 20% of our time. NetBox Cloud gives us all of that bandwidth back, so we can spend it on actually administering our network – which is significantly more valuable.”

FELIX WINDT

Dartmouth College

OBJECTIVES

Dartmouth College’s infrastructure and platform group realized that network automation could help modernize their IT operations and improve network reliability. The Ivy League college supports 30,000 concurrent Wifi connections, along with the associated network infrastructure across campus.

SOLUTIONS

Dartmouth College CTO Felix Windt had heard of open source NetBox – a centralized platform for managing IP addresses and data center assets – and decided to give it a try. NetBox enabled the team to maintain an accurate source of truth for their network infrastructure, reducing errors associated with manual processes and improving reliability. But they wanted an even simpler and more effective solution, so after four years using open source NetBox, Dartmouth College turned to NetBox Cloud – a managed version of NetBox with enterprise-grade capabilities – to focus their time on using the tool to its fullest without worrying about managing it.

BENEFITS

- 80% decrease in tickets for manual network errors
- Time savings for network configuration changes – what took a full hour now takes minutes
- Improved inter-departmental efficiencies due to the simplicity of a managed cloud platform for network automation
- 1 month of network engineering time reclaimed to spend on valuable projects
- Avoid weeks-long NetBox upgrade cycles to “catch up”

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"There are really two kinds of reliability we were focused on. The first one is that our equipment was up and running and that we could troubleshoot it fast," says Felix Windt, CTO Dartmouth. "The second was ensuring changes are made the same way, every time, and work the first time."

SOLUTIONS

Windt had heard of open source NetBox<LINK> – a centralized platform for managing IP addresses and data center assets – and decided to give it a try. Windt was impressed by NetBox's ability to provide an accurate source of truth for their network infrastructure – managing IP addresses and data center assets while reducing errors associated with manual processes.

"NetBox helps us avoid making bad choices," says Bryan Ward, lead infrastructure engineer at Dartmouth. "It can ensure that you don't have the same IP address assigned to more than one device. It can make sure you don't have more than one cable trying to be plugged into the same ethernet port, or you're trying to assign a VLAN from one building to another."

Another thing that made NetBox stand out was the tool's openness to other tools in the network ecosystem. NetBox's well-documented APIs allow seamless integration with automation platforms such as Ansible, Nornir, Itential, and Terraform. This flexibility was important to Dartmouth as they sought to avoid vendor lock-in that happens with many enterprise tools.

"One of the big reasons we chose NetBox initially was that it's an API-first tool, which makes it really easy to integrate it with any of your other tooling. Your time is spent on work that actually matters." – Felix Windt, CTO, Dartmouth

After seeing how NetBox helped their team, Windt extended its use to the service desk and empowered those team members to apply it appropriately and address longstanding issues with network-related tickets. Being able to share that source of truth with other departments initiated a significant cultural shift – leading to collaboration, key information sharing, and increased efficiency.

HOW NETBOX IMPROVED NETWORK RELIABILITY

Manual network errors decreased by 80%: Following the rollout of NetBox, Dartmouth's network reliability improved significantly, with IT tickets related to manual errors decreased by 80 percent.

Network configuration changes went from an hour to a few minutes: A request from a maintenance team member would typically result in a "fire drill" and that team member waiting until one specific networking team member could make a needed change. With NetBox, the ideal state was already defined, so more people can make needed changes safely while avoiding work interruptions.

Improved inter-departmental relationships: Utilizing NetBox as the source of truth improved relationships cross-functionally between campus departments by empowering more team members to make changes they needed on the network quickly. With manual errors now a non-issue thanks to NetBox, the networking team opened access to the tool so other departments can self-service and the networking team is no longer a bottleneck.

EVEN GREATER BENEFITS AFTER MOVING TO NETBOX CLOUD

The Dartmouth team continued to leverage NetBox successfully and extended its use case across campus. After four years, they realized they were dedicating significant resources to managing this critical tool, due in large part to a challenging and time-consuming upgrade process for the open source tool. They turned to [NetBox Cloud](#), a managed version of NetBox with enterprise-grade capabilities, to focus their time on high value projects leveraging the tool instead of managing it.

A month of network engineering time back to spend on valuable projects

NetBox Cloud provides Dartmouth College's networking team with all the benefits of NetBox as a network source of truth - without having to administer or manage it. The resultant time savings means the team can focus on higher-value projects.

"NetBox housekeeping used to take us four hours a week, or 200 hours a year, which adds up pretty fast," Windt says. "Now that NetBox Labs is managing our instance, I get more than a month's worth of time back from an engineer who can now do something that actually adds value, rather than doing housekeeping."

NO MORE FALLING BEHIND ON SOFTWARE UPGRADES

Any IT team knows it's easy to fall behind on enterprise software upgrades - and once you are behind, it can be hard to catch up. This is especially problematic with a tool all your network automation relies on. Dartmouth faced these challenges when upgrading from NetBox v2.0 to NetBox v3.0; it took a full work week for their small team to make the change. With fully managed NetBox Cloud, upgrades are automated - simply select the target version and click 'apply'. And with scheduled, automated backups, there is no fear of losing your original setup or having to revert.

"NetBox Cloud gives us automated backups with easier restore. NetBox Labs upgrades our instance for us and keeps basic plugins up to date," Felix Windt explains. "All of this work used to consume 20% of our time. NetBox Cloud gives us all of that bandwidth back, so we can spend it on actually administering our network - which is significantly more valuable."

