OPTiGO NETWORKS

CASE STUDY

How Dartmouth College Cleaned Up The OT Network Chaos with Optigo Visual Networks

ABOUT DARTMOUTH COLLEGE

At 254 years old, Dartmouth College is one of the oldest learning institutions in the United States. Its 269-acre campus, with buildings over 200 years old, is spread along the Connecticut River in Hanover, New Hampshire.

To address the complex challenges that come with such a diverse group of buildings, Dartmouth College created a unique, dedicated Technology Services team consisting of network and facilities experts who work together to ensure the smooth operation of building automation systems (BAS) across the campus.

THE CHALLENGE - ANONYMOUS HALL

One of the Technology Services team's biggest challenges grew from a major capital project: the gut renovation of the new Anonymous Hall. From the building automation side, a critical part of the project involved integrating a new occupancy lighting system—supplied by one vendor—with the building's BAS—provided by another. When the integration failed, no one could explain why.

Douglas Plumley, the Technology Services team's Software Architect, realized they needed better in-house tools to tackle the problem and end the finger-pointing. Specifically, he saw the need for a dedicated tool to troubleshoot BACnet issues. "IP? We're great at that," Douglas said. "But we need[ed] to get familiar with this protocol called BACnet. We had to do packet captures, analyze them, and figure out what was going on!"

THE SOLUTION: OPTIGOVN'S ADVANCED DIAGNOSTICS

After initial conversations with Optigo Networks, the Dartmouth team was onboarded with Visual BACnet, then upgraded to OptigoVN—Optigo Networks' advanced OT network monitoring and troubleshooting solution. The advanced suite of diagnostic tools was put to work on packet captures from Anonymous Hall's BAS, revealing the source of the issue was not limited to Anonymous Hall, but the design of the OT network itself.

"Right away, we were seeing issues we weren't even aware of," Douglas explains. It allowed them to prioritize getting the entire network reconfigured, reconnected, and optimized. "We started by focusing on things that were broken. Things people were complaining about. For us, the big ones initially were clamping down the number of broadcast messages and trying to make the networks quieter."

"We needed clarity," he recalls. "Now, we had a North Star guiding our network."

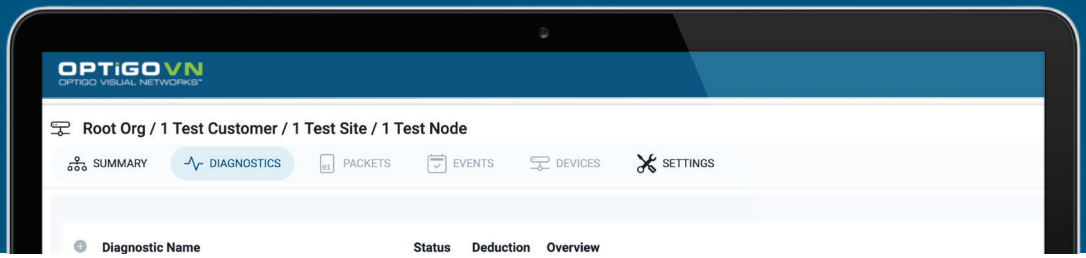
THE RESULT: OPTIMIZED OT NETWORKS IN MINUTES

Optigo Networks' diagnostic tools were able to pinpoint problems down to individual devices, saving time that had previously been spent manually diagnosing issues. Before deploying OptigoVN, Doug says, "We'd have our team mobilizing, getting a ladder, going up into ceiling tiles, and unplugging hubs because there were so many messages."

Douglas added, "If we'd started implementing [OptigoVN] a year or two before we did, and were actually actioning the insights out of it, we would've had a network that was reliable enough that integrations would work. And when things weren't working, we could just troubleshoot them instead of buying that $24,000 controller. I have examples where we did buy that $24,000 controller, and it didn't fix the issue."

With OptigoVN, the team had the insights they'd wanted all along, without scaling ladders or waiting on vendors. "We quickly realized that something like eight devices were responsible for over 50% of all the BACnet traffic on our network. We were essentially DDoS'ing ourselves with unscoped WHO-IS requests, forcing 1000+ devices to respond, times eight!"

"What [OptigoVN] is doing specifically is making it very easy to get to those insights faster. We can then surface high-level issues to our vendors, work with them, and keep them accountable until they fix it."



BEYOND THE HALL

Beyond Anonymous Hall, OptigoVN has also helped resolve issues with other capital projects where work from multiple vendors resulted in broadcast messages flooding the network.

In Webster Hall, an issue stemmed from one of the MS/TP networks still in service. Optigo Networks' solutions served as the source of truth (or the "hammer" as Douglas referred to it) that revealed a programming issue causing excessive Who-Has messages to flood the network and impede the controllers from passing tokens throughout the network.

Armed with this information, Douglas' team was able to give clear instructions to their vendors on what to zero in on, and which devices to move to a new VLAN, finally resolving the problem.

Since adopting OptigoVN, Douglas sums up Dartmouth's experience as setting a new standard. "In my opinion, a large campus like Dartmouth needs to have [an OT network monitoring] resource internally. Now, we can make sure these issues don't happen again. We can look at leadership and say, we have removed a lot of risk from the environment. And that's really empowering."

OPTIGO VISUAL NETWORKS

Instantly find the hidden problems in your OT network. Optigo Visual Networks (OptigoVN) is our free, next-generation OT network troubleshooting and monitoring software solution.

With over 28 advanced network diagnostics unrivaled in the industry, and unlimited access to your partners through Site Scope+, OptigoVN's robust BACnet monitoring gives you deep OT network visibility. Upload a single PCAP file, or let OptigoVN monitor your buildings around the clock and alert you if a problem arises.

Resolve issues in minutes rather than hours or days, and prevent them from happening again.

WANT TO KNOW MORE?

With OptigoVN, OT network monitoring and troubleshooting just got easier. Streamline your troubleshooting and save time and money.

Ready to see what OptigoVN can do for your network? Sign up for free and explore OptigoVN on your network today, or contact us for a personalized demo.

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