

Minnesota Benefits from Cost Savings due to Server Consolidation



Minnesota Department of Transportation implements next-generation server technology and drives significant energy rebates.

Executive Summary

Minnesota Department of Transportation (MnDOT)

- **Industry:** State and Local Government
- **Location:** St. Paul, Minnesota
- **Number of Employees:** 4838

CHALLENGE

- Upgrade aging infrastructure, specifically servers
- Simplify management of server network to save staffing resources
- Address financial responsibility and create savings in server operations by cutting costs in cooling and power consumption

SOLUTION

- Utilize fiber optic network to eliminate • Implement Cisco Unified Computing System to consolidate servers
- Integrate blade technology to facilitate management of data center

RESULTS

- Reduced costs by US\$300,000 to \$400,000 by decreasing data center hardware
- Achieved potential eligibility for \$77,000 energy savings rebate
- Created human resource savings stemming from simplified management of new infrastructure

Challenge

The Minnesota Department of Transportation (MnDOT) oversees, builds, and maintains the majority of the transportation infrastructure throughout the state of Minnesota. This responsibility includes, but is not limited to, 31,000 lane miles of roadway in the state and over 100 airports, pedestrian walkways, and bike paths. MnDOT's services have a direct impact on the more than 5.3 million Minnesotans, because these residents rely on quality infrastructure for their day-to-day transportation needs, safety, and security.

As a whole, MnDOT spans 30 office buildings, 200 rural truck stations, and 100 instrumentation sites, which house sensors for gathering weather condition intelligence. MnDOT relies on an impeccable, cohesive communications system between these disparate entity locations to deliver effective transportation-related services to Minnesota residents, for example snowplowing following a snowstorm.

In 2010, MnDOT was facing aging servers. MnDOT's Information Technology (IT) team was hesitant to go through yet another traditional, short-term cyclical server replacement, and instead decided to evaluate alternative options for MnDOT's server upgrade. MnDOT's IT team wanted to use the technology refresh as an opportunity to tackle some of MnDOT's larger goals. First, MnDOT wanted to consolidate its server environment to increase IT management efficiencies. Second, MnDOT wanted to create operational savings, specifically by cutting energy costs resulting from hardware cooling and power consumption. Finally, MnDOT wanted to demonstrate a progressive approach to technology amid other state agencies.

Solution

Bob Bennett, network operations supervisor, and his team needed a simple yet effective server consolidation solution, and believed that blade technology could address MnDOT's needs. They evaluated blade server technology across Cisco, Dell, and HP, ultimately choosing to work with Cisco. Bennett says, "Cisco was one of the most efficient providers in terms of minimizing the amount of cable and providing an efficient management structure. We correlated this to meaning a more efficient system for staff to support and maintain." John Moreland, IT infrastructure manager for MnDOT, likewise, says about the easy decision to work with Cisco: "Cisco has been a dedicated partner in many of our past networking development projects. We saw their technology and direction as the best fit for MnDOT."

Cisco offered MnDOT a solution that allows them to simultaneously upgrade its aging physical equipment, streamline its server management, and create long-term savings: Cisco Unified Computing System™ (UCS®). After witnessing the efficiency-driving design of the Cisco UCS first hand during a Cisco training session and comparing prices with competitors, MnDOT replaced its 350 Dell rack servers

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with 25 streamlined Cisco B-200 Series Blade Servers.

Moreland says, “I liked what I had seen in UCS; I wanted this technology to be a part of the discussion from the beginning.” Cisco UCS combined two technologies (blade servers and fabric interconnects) into MnDOT’s server operations. Cisco blade servers deliver a scalable and flexible architecture for data centers while helping to reduce total cost of ownership. The streamlined blade server design reduces equipment bulk and eliminates the need for additional cabling. Simultaneously, fabric interconnects create a single, highly available management domain with network connectivity and administrative capabilities that support all the attached blades. Finally, Cisco UCS Manager resides within the fabric interconnects, facilitating server management and decreasing frontline costs. Cisco UCS combined multiple critical technologies into one solution, resulting in the ideal solution for MnDOT to address its needs.

Results

Since installing Cisco UCS to consolidate its data center, MnDOT has seen concrete benefits across the organization.

Cost Savings

The streamlined rack unit design of Cisco blade servers means that MnDOT has had to purchase fewer hardware assets, bypassing costly “charged by the rack” spending. These savings have translated to fewer funds needed to support IT, and therefore, more resources available to support MnDOT’s critical core services, such as roadway maintenance. Moreland says: “At the end of the day, we are able to support the same amount of services with less hardware.” As of March 2012, MnDOT has achieved a cost avoidance of approximately \$300,000 to \$400,000, primarily stemming from the decrease in rack units needed.

Energy Rebate

Following deployment of the Cisco UCS technology, MnDOT was notified that it was potentially eligible for a \$77,000 rebate from a local energy company, Xcel Energy, which offers a rebate program for organizations engaging in data center consolidation. The significant electricity, power, and cooling savings that will result from the integration of UCS into its server operations positions MnDOT for eligibility for a significant rebate, dependent on the energy savings that are being monitored for the next two years.

Streamlined Server Management

By implementing Cisco UCS, MnDOT anticipates to save from a staffing standpoint. With the consolidated data center, installation and maintenance of the Cisco blade servers requires only low-level technical skills, whereas traditionally MnDOT has had to employ highly-skilled, costly technicians for their cyclical server replacements. Bennett says, “Instead of spending time racking and cabling, my staff and I simply install the blades and



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Network Operations Supervisor
Minnesota Department of Transportation

we’re done.” This ease of management was a significant draw for MnDOT’s IT team, as noted by Bennett, “One of the things we like about Cisco is that everything is integrated. All device cooling is done offsite, and the level of staff needed is considerably lower.”

Next Steps

MnDOT has ordered three more blades for two additional data center consolidations. Cisco UCS facilitates MnDOT’s plans for future expansion; the technology saves time for building additional servers, because UCS provides an easily scalable infrastructure.

For More Information

To find out more about the Cisco UCS, go to:
<http://www.cisco.com/go/UCS>.

To find out more about the Cisco B-Series Blade Servers, go to:
<http://www.cisco.com/en/US/products/ps10280/index.html>.

To find out more about the Cisco UCS Manager, go to:
<http://www.cisco.com/en/US/products/ps10281/index.html>.

To find out more about the Cisco 6100 Series Fabric Interconnects, go to:
<http://www.cisco.com/en/US/products/ps10276/index.html>.

Product List

DATA CENTER SOLUTIONS

DATA CENTER

- Cisco B200 Series Blade Servers
- Cisco UCS 6100 Series Fabric Interconnects

NETWORK MANAGEMENT

- Cisco UCS Manager

