



Lighting the way to better learning outcomes

Miami-Dade County Public Schools wanted to cut costs and raise student results. Cisco Digital Ceiling is illuminating the way.

“I’m hoping to use lighting effects to increase attention and help improve results. The aim is to see fewer tired learners at the end of the day.”

Deborah Karcher, CIO, M-DCPS

Like most education bodies, Miami-Dade County Public Schools (M-DCPS) is keen to improve students’ results. But classroom lighting wasn’t assisting. A Cisco® Digital Ceiling solution showed how the Internet of Things can help.

Challenges

- Improve student results.
- Cut power use.
- Reduce risk.

As the fourth-largest municipal school district in the United States, M-DCPS cares for about 350,000 students. Its unwavering aim is to give them the best possible education.

Deborah Karcher, chief information officer (CIO) for M-DCPS, says: “I was interested in studying how classroom lighting, along with other activities, could affect student performance.”

With the triple aim of attracting more students, recruiting the best teachers, and improving pass rates, she looked for something completely different. The question was how to test ideas without a big increase in costs?

Case Study | Miami-Dade County Public Schools

Size: 22,000 teachers and more than 350,000 students

Location: Miami, Florida

Industry: Education





Creating imaginative classroom environments with Cisco Digital Ceiling—a really bright idea.

Solutions

- [Cisco Digital Ceiling](#) for energy-efficient, easily connected buildings

Output goes up while energy usage goes down

M-DCPS learned of the Cisco Digital Ceiling framework. This solution combines lighting, air conditioning, and other building networks in one IP-based infrastructure—making it not only smart, but also easily and securely connected. Network-powered lighting using Power over Ethernet (PoE) can reduce energy use by up to 30 percent while helping boost asset value.

Best of all, this PoE-powered LED lighting can most closely mimic natural light, which has been shown to improve output by 16 percent.

Plug-and-play lighting for simplicity

M-DCPS set up a proof of concept at the staff training center. NuLEDs, a Cisco Digital Ceiling partner, helped with the deployment using DECO Lighting fixtures powered and controlled by NuLEDs SpiceBox controllers.

“I was impressed with how easy the whole process was,” says Karcher. “The ease of installation was incredible. At the front end, it was as simple as plugging in new lights.”

Cutting costs and opening future options

The drop in power use was noticed straight away. Javier Perez, executive director of infrastructure and system support, says: “One classroom went from using 750 watts to 350 watts for a 50 percent saving in energy.”

But what was more eye-catching were the future options available by moving lighting to the network.



Energy use was reduced by more than **50%**



Results

- Lighting energy usage was cut in half.
- Uncovered new uses for smart lighting.
- A plan was created for other tools to help improve student achievement.

Students stop talking, but the lighting doesn't

The Cisco Digital Ceiling solution replaces the main source of electricity with Cisco Universal Power over Ethernet (UPOE), which lets each light fixture communicate with the school network. In a classroom setting, this means ambient illumination can very closely mimic outdoor lighting patterns.

Karcher says, "After lunch you always get a lull. So I'm hoping to use lighting effects to increase attention and help improve results. The aim is to see fewer tired learners at the end of the day."

Signaling the arrival of the Internet of Things

At the same time, wider use of network-powered lighting could lead to a host of other classroom improvements.

For example, M-DCPS can use lighting colors to send signals across sites; like green could signal a change of class while red could be used to sound an alarm. And lighting sensors connected to the network can pick up wristband signals from students coming into class. This means the network could carry out roll calls instead of the teachers. "It's where we should be moving," Karcher concludes.

Products & Services

Routing and Switching

- Cisco Catalyst® 3560 Series Switches
- Cisco 4431 Integrated Services Router
- Cisco 3925 Integrated Services Router

Cisco Energy Management Suite

- **Network-Powered Lighting**
- NuLEDs PoE LED lighting solution using DECO Cloud white-tuneable lights

For More Information

To learn more about the Cisco solutions featured in this case study, visit www.cisco.com/go/digitalceiling



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

