



## Saving energy and millions of dollars with smart lighting

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*Kevin Fletcher, President of Energy Services, WLS Lighting Systems*



It's after dark, and you've just realized you need to pick up groceries for tomorrow. Where are you going to shop? Chances are you'll head straight for the store with the well-lit parking lot, and for good reason. One out of every five traffic accidents occur in parking lots, and dim lighting increases exposure to everything from collision to slips, falls, and crime. It also increases liability for building owners, who have a legal duty to keep properties safe. Retailers know this, of course, but controlling lighting systems efficiently and affordably has been an elusive target. Supplying light only where it's needed—but always when it's needed—is key to improving both energy efficiency and safety. And for more than 45 years, retailers across the United States have turned to WLS Lighting Systems for solutions.

## The search for more sustainable commercial lighting

A leader in sustainable technologies since 1969, WLS Lighting has lit up parking lots for 6,000 retailers from Atlanta, Georgia, to Santa Ana, California. Increasingly focused on “green” lighting systems, WLS produces innovative products and services including state-of-the-art lighting systems that not only improve safety, comfort, and energy efficiency, but also reduce costs

Large shopping centers are a fact of life, providing retailers an opportunity for high-volume sales and offering convenience to consumers. Both necessary and costly to maintain, brightly lit parking lots are a major concern for property managers and store owners. For years, the lighting industry has recognized that intelligent systems based on solid-state or LED technologies are the way forward. However, the transition has been slow for commercial property owners, who have historically lacked a way to remotely manage lighting. A retailer might have more than a dozen locations, each with its own lighting system locally controlled by rudimentary methods such as timers or photo cells. “It’s essentially one-way communication,” explains Kevin Fletcher, President of Energy Services at WLS Lighting Systems. “If it reaches a certain time of day or the light changes, all the lights turn on or off.”

The limited control and insight affect businesses in many ways. Traditionally managed lighting fixtures consume excessive electricity, can burn out quickly,

and are burdensome to maintain—all of which increase operational costs. For example, someone has to get into a car and drive to and through parking lots at night to locate failed fixtures. Facility owners are very aware that with each unlit bulb, risk and liability increase. And with approximately 150 fixtures in an average-sized shopping center, the maintenance time and costs are considerable. In fact, WLS estimates that a large site can spend \$200,000 annually on electricity alone.

WLS wanted to overcome those challenges. But to meet its goals of helping customers become more energy-efficient while improving lighting performance, WLS needed a highly scalable platform that would enable two-way communication with light fixtures in virtually any location. Fletcher says, “Our goal was to have the level of granularity needed to monitor, control, and report the performance of each individual fixture in a shopping center parking lot.”

## Connecting to the cloud for more strategic management

First, the company created its revolutionary netLiNK Wireless Controls System in 2009 in partnership with Mesh Systems, a premier IoT partner of Microsoft. Then, Mesh Systems and WLS extended the control and management capability of netLiNK with the Microsoft Azure cloud platform. Using Microsoft Azure, Mesh Systems designed the system to facilitate high-scale, IoT deployment to almost any type of device. The architecture continuously ingests telemetry data from

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**Customer Name:** WLS Lighting Systems

**Industry:** Manufacturing

**Country or Region:** United States

**Customer Website:** [wslighting.com](http://wslighting.com)

**Customer Profile:** Established in 1969, WLS Lighting Systems is a leading provider of efficient, sustainable commercial lighting technologies and solutions, including an innovative wireless control system designed for shopping centers.

**Partner Name:** Mesh Systems

**Partner website:** [mesh-systems.com](http://mesh-systems.com)

**Partner Profile:** Mesh Systems is an IoT software, services, and solution provider that delivers turnkey systems that include hardware, software, and networking frameworks for Smart products. With the MESHVista IoT platform as the cornerstone, Mesh Systems helps companies get new Smart products to market faster with more scale and reliability than ever imagined.



light fixtures for storage and both real-time and historical analysis in the cloud, surfacing the information in a customized web portal. WLS customers benefit from fine-grained remote management while using any device including personal computers, tablets, and smartphones.

“The netLiNK application is a testament to the scalability and power of the Azure cloud and its IoT services,” says Doug Brune, Chief Operations Officer at Mesh Systems. “WLS has the ability to offer granular control of any lighting fixture connected to the application. And with hundreds of thousands of endpoints, the right cloud is key to ensuring ever-expanding features, uptime, and scale.”

Supporting the netLiNK application with the latest Azure technologies, WLS now offers scheduling and control of energy-efficient LED lighting to retailers across North America with the first two-way wireless control and remote monitoring system. “We’re taking advantage of the operating characteristics of an LED light fixture to dim the light levels on demand and reduce energy consumption,” says Fletcher. “The two-way communication between the light fixtures and our web interface on Azure enables users to not only remotely control light fixtures, but also collect information on each fixture’s energy consumption and how it’s functioning.”

## Near-real-time insight and control

The near-real-time insight and control improve performance in several

ways. Remote maintenance staff will immediately know which bulbs need to be replaced, and property managers can develop more effective, long-term lighting strategies. “Whenever you can selectively dim a fixture, you’re making it run cooler and longer,” says Fletcher. “For example, if you decrease an LED fixture’s energy consumption by 20 percent, you’ll only dim the light level about 12 percent. And you’re both saving energy and increasing the useful lifespan of the fixture by about 30 percent.”

WLS now has 400 shopping centers and more than 120,000 light fixtures connected to the platform and expects to continue expanding its customer base with the rapid adoption of LED fixtures by energy-conscious customers. Because the cloud infrastructure is so highly scalable and flexible, the company anticipates extending its solution to additional areas such as walkways, entrances, and rooftops.

## Cutting costs and speeding ROI

The platform helps property managers to improve operations across multiple locations. WLS estimates that netLiNK can yield ROI within 18 months, providing further incentive for upgrading to greener lighting systems. Fletcher says, “We estimate that by improving energy and maintenance efficiency with netLiNK, customers can cut costs by an additional 50 percent over the savings they get from switching to LED lighting.”

But it's not just about cutting operational costs for property managers. The new platform can also become a competitive business advantage by lowering rental costs and attracting shoppers with better lighting. "For every minute that the lights are on, a larger shopping center could be burning through \$30 and a whole lot of KWH," says Robby Rudasill, Director of Technology at WLS Lighting Systems. "So imagine cutting the lights for only 30 minutes a day all year. You could trim your tenants' rent by five figures just by managing lights better."

With an intelligent lighting system based on cloud technologies, retailers finally have a well-lit path to better energy efficiency and significantly lower costs. Fletcher concludes, "We've calculated that we've saved our customers a little over \$10 million in electrical costs since we've had netLiNK on the market, and it's still just the tip of the iceberg."

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## Software

- Microsoft Azure Service Fabric Cluster
- Microsoft Azure SQL Database
- Microsoft Azure Event Hubs
- Microsoft Azure Storage
- Microsoft Azure VPN
- Microsoft ASP.NET
- Microsoft Visual Studio Team Services