# Ray Cammack Shows
## Mobile Enterprise Unwires with Firetide Mesh



*Wireless mesh on the Midway*

**ORGANIZATION**
Ray Cammack Shows

**INDUSTRY**
Entertainment

**CHALLENGE**
Process reengineering in a mobile environment

**SOLUTION**
Firetide wireless mesh network and access system

**MORE INFORMATION**
www.firetide.com
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### Ferris Wheel, Cotton Candy, and Wireless Technology

In 1956, in Lennox, South Dakota, Ray Cammack lived next door to carnival owners and soon became the ride superintendent for their company. Eventually he bought a bumper car ride and a merry-go-round. That was the beginning of a carnival empire, now called Ray Cammack Shows (RCS).

RCS is the largest carnival company in the US, with over 120 rides and attractions plus
a large variety of specialty food booths. Nearly 9 million carnival-goers enjoy RCS carnival midways each year. A typical RCS midway requires 650-800 employees to support each opera-tion. When the crew packs up and makes its way from fair to fair, it is much like a traveling town. RCS has its own beauty salon, a company store, an employee lounge, and a daycare facility. The company travels on the road with 115 recreational vehicles, motor homes, and bunk houses, and a convoy of 80 tractor-trailers hauling the carnival rides. It takes 18 trucks alone just to haul La Grande Wheel, which is the Western Hemisphere's largest portable Ferris wheel.

In 2006, RCS embarked on a business reengineering initiative to implement a completely "digital" midway to deter ticket fraud, reduce paper waste, and optimize inventory and personnel management. "It was a daunting experience," said Bil Lowry, director of IT and marketing technologies at RCS. "We needed to migrate our entire IT infrastructure to wireless in order to achieve these goals."

### Ready to Rumble!

Because of the nature of the carnival business, the wireless network had to be portable and versatile. RCS also needed a secure infrastructure that could be rapidly deployed and perform in any environment that its IT team faced. RCS researched the idea of going wireless for roughly five years, but had trouble getting vendors to take the project. "Other solutions were not cost-effective," said Lowry. "Also, vendors doing stationary campuses with fixed networks weren't interested in us. They were not ready to rumble. It's a hostile environment out here, full of reflective metal."

After consulting with his peers in the mobile entertainment business, including North American Midway, RCS chose Firetide mesh because it is both affordable and highly effec-tive. "Firetide has demonstrated that it can perform exceptionally well under the huge range of conditions we encounter from place to place," said Lowry. "We can't afford any delays or down time. We need a network we can rely on under any circumstances."

### Setting Up and Tearing Down—Again and Again

Typically, Bil Lowry and his four-person IT staff (augmented by four to six local temporary workers) have about 72 hours to set up the carnival's network in each new location. Once at the new site, the crew installs a 65-foot portable tower close to the main IT server trailer. The height allows wireless signals to be transmitted to the most distant locations of the carnival, nearly a half-mile away.

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Four Firetide HotPort® outdoor nodes are mounted on the tower, with directional patch antennas covering different areas of the car-nival. A fifth node serves as a backup. Each antenna provides a clear line of site to other Firetide nodes, mounted on metal poles usually attached to the many ticket booths dispersed around the venue site.

At the ticket booths, an Ethernet cable connects the topside mesh node to a Firetide HotPoint® access point inside the booth. Each Firetide HotPoint incorporates a four-port Ethernet switch for point-of-sale terminals or other wired clients. A 2.4 radio offers a wireless link for handheld computers and scanners.

## Wireless Mesh Reshapes Carnival Business

RCS was on a mission to revolutionize the centuries-old carnival entertainment business and provide its customers with enhanced service and increased security. In the not-too-distant past, carnivals were plagued by thieves and counterfeiters. If visitors lost tickets, no refund was possible. And, after a long day at the midway, carnival managers had to spend hours weighing paper tickets to determine the day's attendance. Paper tickets also generated a lot of waste around the midway.

Today, with the use of wireless mesh and handheld scanners, these problems no longer exist. The Firetide network supports
the entire enterprise operation, including real-time eTicketing, inventory management, and time card tracking for all full-time and temporary employees—a total of 250,000 transactions a day. "We're definitely the only people in our industry with electronic inventory throughout, from the 10,000 square-foot off-site warehouse right down to the game level. An operator scans the toys as they give out the prizes, and the system updates our inventory in real time," said Lowry.

## Crowd-Pleasing Performance at Each New Venue

The RCS IT team has achieved near military precision in deploying and operating the Firetide wireless mesh infrastructure, with proto-cols in place to deal with unexpected challenges, such as interfer-ence impacting communications among access points and scanners. "Apart from the obvious noise distortions, our biggest problems are microwaves from the TV broadcast trucks," said Lowry.
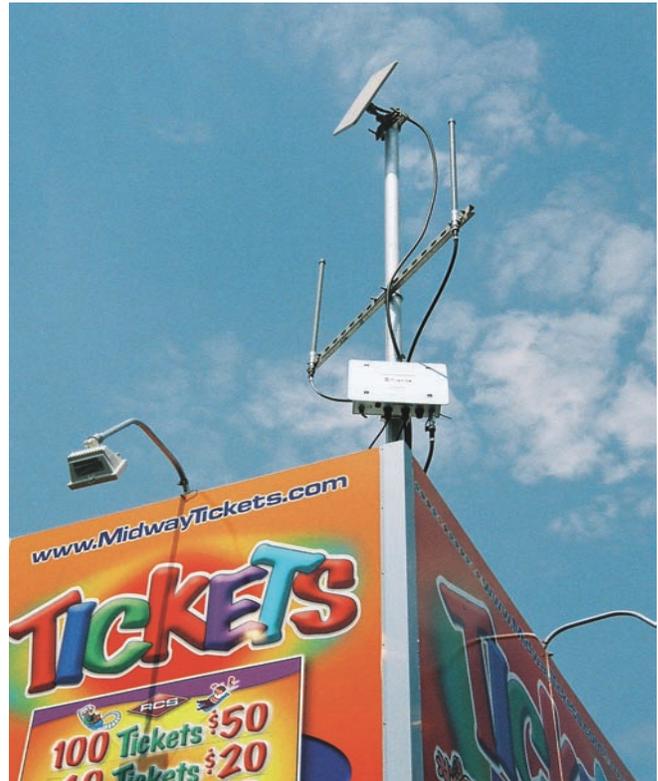


*Firetide node installed on a ticket booth*

The Firetide backbone has been the most resilient part of the wireless network: operating at 5 GHz, it is the component least susceptible to interference from common Wi-Fi devices that operate at 2.4 GHz. Each Firetide node with its 400-milliwatt radio delivers strong, clear, resilient signals that can be precisely aimed. At the Sacramento California State Fair, for example, Lowry's team shot a Firetide signal through a 20-foot tunnel between trees and fair-ground structures. At another location, the fairground's monorail cars moved through another signal: the mesh immediately adjusted, rerouting traffic as needed and then self-healing once the cars passed by.

"We don't have the luxuries of brick and mortar IT. The spectrum analyzer never comes out—there's no time for that," said Lowry.
"Firetide mesh infrastructure is the only one out there that works in this type of deployment. We can go days without any tech support problems."