

# North American Midway

## Carnival Operator Boosts Network Reliability with Wireless Mesh



### ORGANIZATION

North American Midway  
Entertainment LLC

### BUSINESS

Operator of mobile amusement parks  
in the U.S. and Canada

### INDUSTRY

Entertainment

### PURPOSE

Maximize revenue by streamlining setup  
and eliminating network downtime for  
cashless billing and transactions

### SOLUTION

Firetide Multi-Service Mesh Network

### MORE INFORMATION

- Affidia Systems, Inc. (Firetide reseller)  
[www.affidia.com](http://www.affidia.com)
- North American Midway, LLC  
[www.northamericanmidway.com](http://www.northamericanmidway.com)

Since the ancient Romans landscaped the first pleasure gardens — and probably long before — people have sought places for recreation and enjoyment. Through many centuries, Europeans visited niches like Tivoli Gardens in Denmark to stroll the grounds, listen to music at concert halls or simply sit and enjoy a spot of tea as in the London gardens. These days in North America, action-packed entertainment comes in the form of the high-tech mobile amusement park. North American Midway offers carnival rides that whisk people into motion along with shows, games, food and attractions. Carnivals have peak business times and revenue must be generated without fail during those periods. Since the carnival cannot operate year-round due to weather, it must conduct cashless and other transactions using a highly reliable network. Here's how North American Midway found one.

### Network Stability on the Road

North American Midway offers about 19 million visitors more than 130 events annually. Events organized by the company include 10 of the top 50 fairs in North America. Each fair held in places like Muncie, Indiana, or Calgary, Alberta, also has its individual set of attractions. Some have ice skating shows or air shows, livestock exhibits, local entertainment in addition to the traditional fare of roller coasters and Ferris wheels. Basically, the carnival business depends on movement, plenty of markets and reliable support systems that can be easily set up and torn down frequently.

"We operate a mobile amusement park that picks up and moves every couple of weeks. One unit operates in 14 cities across the U.S. and Canada during its nine-month touring season," said Robert J. Perkins, executive vice president of North American Midway.

Everybody on staff is busy during this time, and the portable network that travels with the crew must be top-notch as well. If the amusement park's activities stayed put on one site year-round, the type of wireless network required would be far less demanding compared with a carnival that's on the road.

### Developing the Cashless Carnival

Over the years, one of North American Midway's goals has been finding ways to make it easier for visitors to pay for attractions using non-cash methods. This is one of the reasons why the company deployed a traditional wireless network. It is used for cash-free customer billing and other transactions made at a high rate of speed. But the implemented network didn't perform as expected, and the company began losing potential income. The search for a more suitable network began.

"There may be millions of people attending the carnival with the expectation that from the parking lots to the gate passes, rides, food and other entertainment, everything will work seamlessly," said Dan Riekens, chief operating officer of Affidia Systems Inc. "Any interruption in wireless service means lost revenue."

Affidia is an IT solutions provider specializing in IP communications. Affidia is a California-based reseller of Firetide mesh networks and also markets wireless, network and security systems for small and medium-sized businesses.

## North American Midway

Affidia and North American Midway discussed the gnawing issues. The carnival customer base only visits a limited number of times over the event's short duration. If there is network downtime or quality of service decreases, the result to the operator is not only lost revenue for the day, but potentially low turnout for the remainder of the event and fewer repeat customers.

### Network Issues to Monitor

The major stumbling block with the existing network was it couldn't self-heal. In a self-healing network, if a wireless link becomes blocked or for some reason stops working, the data traffic (ticket payments or other transactions) would automatically reroute via an alternate path to the end point or specified server. No one would notice any difference. The company's deployed network could not heal itself.

The second issue was that each carnival location has a different size and shape. The network had difficulty conforming to new locations when carnival structures were set up based on space allowances of the site. The network simply wasn't scalable to the variety of areas, layouts and demands for all the different places where tent poles and rides were set down.

"The network's limitations, inability to self-heal, and difficulty in setting up became an overwhelming problem for North American Midway," Riekes said.

Growing concern over these two issues signaled the point of no return. While the original idea of cashless transactions was a good one, something had to be done to make the backhaul of data consistent and fully operational.

### The Reliability of Firetide Mesh

Whatever system was selected, Riekes said, the network had to be easy to set up, take down and transport, and the network had to work correctly the first time and every time. This is one major reason why Firetide was selected.

In addition, the network would have to be self-healing. The Firetide AutoMesh Protocol automatically configures nodes into the network. The network is designed to send data through an alternate path if a link ceases to function or if line-of-sight is interrupted by a big truck or other object. Information would always be transmitted to the right destination without interruption or loss of data. Then came the cost of deploying the network.

"Another factor in favor of Firetide was the low cost of acquiring and operating the system, which allowed North American Midway to deploy the solution within budgetary restrictions," said Riekes.

### E-tickets Using Mesh

The showcase for the Firetide network was the recent Canadian National Exhibition in Toronto. This was the first time North American Midway implemented a new e-ticket system with a Firetide mesh network. The gate system consisted of 45 point-of-sale terminals, 45 debit/credit card terminals and 55 gate PDA scanners. Primary and backup e-bank servers were housed in a secure, air-conditioned ticket booth near one of the gates. The mesh network integrated well into the exhibition site's fiber optic network.

The network used 47 wireless access points and mesh nodes and 30 data hubs were deployed throughout the grounds. The Firetide mesh network included 25 Mbps HotPort indoor and outdoor wireless mesh nodes and the HotView Pro Mesh Management Software. HotView Pro provides real-time monitoring, with easy local and remote management of the network and individual HotPort nodes.

The installation went well for the most part, but there were issues to overcome in optimizing the system. There were tasks to get the tuning and grounding correct, especially in relation to the higher-density fair. The larger the show, the more visitors can arrive. And the more people, the bigger the issues potentially encountered.

When everything was up and running, North American Midway saw a distinct difference in network performance. Wondering if the network was going to work was no longer a roller-coaster ride. There was an immediate impact when the Firetide network was installed, and the results were beneficial to customers and the company.

"Transactions and all other functions were much quicker and snappier. Everyone noticed," said Riekes.

Recreational sites have come a long way since Rome, and much has changed in the fundamentals of operating an amusement park. The operator has to deploy a reliable network that guests don't have to think about. Visitors really don't care about the underlying systems. They just want to have fun.



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