

## Nashville Electric Service Extend the Enterprise to the Mobile Workforce for Lower Costs, Increased Safety



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Nashville Electric Service (NES) is one of the largest publicly owned electric utilities in the US, serving more than 360,000 residential and business customers across seven counties in north-central Tennessee. In 2010, the American Public Power Association awarded NES the Reliable Public Power Providers (RP3®) Diamond status, the electric industry's highest designation for reliability, safety,

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workforce development and system improvement. Based on a 2011 survey, customers ranked NES as “Excellent”; or “Good”; with a 91% rating at “maintaining a continuous flow of power”; and an 85% rating at “restoring service after storms.”

## **BUSINESS CHALLENGE**

In 2002, NES with local government and police were using an 800 MHz radio system with additional channels for data transmissions. NES’s first application with data was an automatic vehicle location (AVL) system that consisted of a basic modem, router and triple GPS system. Vehicle location data was fed directly into the outage management system and was monitored on a digital map. All other work orders were manually dispatched by looking at the map and determining the location of the vehicle and outage and making a work assignment through the radio. This system served NES’s purpose for over 6 years. However, as the technology became obsolete, they needed to consider either a vehicle-centric AVL solution or onboard computer alternatives.

While considering their current needs, NES also determined their requirements going forward, such as:

- increased bandwidth for new applications and on-board systems
- Wi-Fi hotspots to support wireless rugged devices
- ability to use multiple wide area networks for increased coverage
- ability to track location of critical assets in real-time
- reduction in response times to outages
- increased employee safety
- use of an enterprise management system
- ability to expand the system in the future

In 2008 NES reviewed the alternatives and wrote an RFP. “When we began our search for a new mobile communications technology, we had set very demanding specifications,” said Vic Hatridge, Nashville Electric Service’s Chief Information Officer.

## **SIERRA WIRELESS INMOTION SOLUTION**

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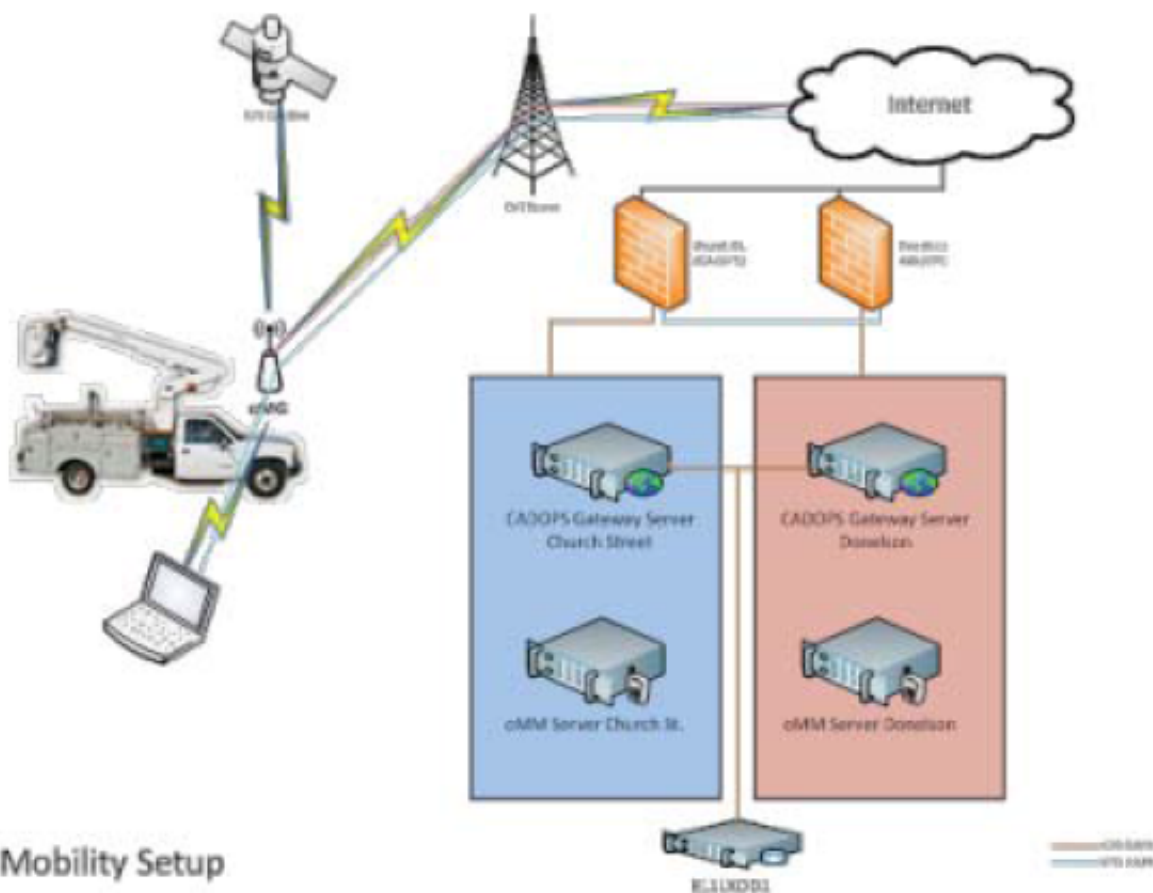
Based on NES's specifications, an InMotion Solution was selected as best able to deliver:

- simultaneous downstream and upstream Wi-Fi
- support for multiple wireless wide area networks
- dependable wireless connectivity
- extreme reliability
- a rugged self-contained box, industrial strength cables and antennas
- expansion capabilities for future use by additional applications and technologies.

NES installed the oMGs in their bucket trucks and supervisory vehicles, which provided wireless connectivity to laptops and other devices in and around the vehicle. The oMG roams across wireless networks to provide the highest bandwidth and most reliable communications. The InMotion Solution was straightforward for Operations to install, maintain and upgrade, and requires no field worker intervention.

The oMG is GPS-enabled and simulcasts a GPS location to 4 NES locations: 2 in the data center and 2 in the data recovery center; so that data is not funnelled from one server to another, and all servers receive the information directly. The GPS information allows NES dispatchers to track all vehicles on a single screen and dispatch the closest truck to an outage or service call; a capability that reduces response times and fuel use, while improving efficiency and customer service. Additionally, the oMG establishes a secure connection, and in emergency situations can provide Wi-Fi access for other vehicles in the immediate area.

The oMM web-based management system was installed in the NES data center and scans and analyzes information from oMGs to provide NES with real-time and historical information about its operations and communications. If a vehicle leaves its designated service area or exceeds speed limits, dispatchers receive email alerts. Dispatchers can now view an outage and the trucks moving in real-time to the area, and can inform customer service about service updates. NES also uses the oMM to map all available wireless networks in its service area and selects the one with the best coverage.



## THE RESULTS: TESTED, TRUSTED AND PROVEN

The InMotion Solution allows Nashville Electric Service to fully extend the enterprise to the mobile workforce, leverage the power of 4G LTE networks, and provide the robustness they need today and for the future.

### Reduce operating costs

- Transmits data over any wireless network (e.g. Cellular, Wi-Fi)
- Reduces airtime costs by allowing multiple devices to share a single broadband connection
- Identifies the location of vehicles and allows recovery if they are stolen
- Lowers fuel costs and increases productivity through more efficient dispatching of vehicles

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## **Manage customer interactions in real-time**

- Increases customer response and satisfaction because crews can enter and access customer information in the field in real-time

## **Improve routing and scheduling**

- Tracks vehicle location so dispatchers can assign the closest vehicle for power restoration work
- Scheduled maintenance can be monitored and adjusted based on outage management software and visual map views
- Dispatch can provide specific directions, if required, to crews based on map views

## **Increase worker productivity and safety**

- Crews can operate more effectively in the field with the ability to securely access enterprise systems
- Dispatchers can have an enhanced view of vehicle locations and cross-check to blackout/ lockout procedures

## **THE FUTURE**

Shortly, NES will be implementing a new mobility work management program to all hand-held and vehicle mounted Wi-Fi devices to allow for automated dispatching, map queries, time entry and photo/video uploads.

## **CUSTOMER CRITICAL CHALLENGE**

- Automatic vehicle location (AVL) system used obsolete technology.
- Work orders were manually dispatched by determining the location of the vehicle and outage, and making a work assignment using radio.

## **SOLUTION**

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- oMGs installed in bucket trucks and supervisory vehicles. oMM webbased management system installed in the data center.

## **BENEFITS**

- Reduced operating costs &#150; transmits data over any wireless network, reduces airtime costs, identifies the location of vehicles and allows recovery if they are stolen, lowers fuel costs and increases productivity through more efficient dispatching of vehicles.
- Customer interactions managed in real-time &#150; increases customer response and satisfaction.
- Improved routing and scheduling &#150; tracks vehicle location, scheduled maintenance can be monitored and adjusted, dispatch can provide specific directions to crews based on map views.
- Increased worker productivity and safety &#150; crews can securely access enterprise systems, dispatchers have an enhanced view of vehicle locations and cross-check to blockout/lockout procedures.