SIERRA WIRELESS WHITE PAPER

How Utility Companies Can Reduce Operating Costs With Vehicle Area Networks

To improve customer experience and reduce operating costs, utility companies are looking to streamline the critical communication systems for their vehicle-based mobile workforce. Consolidating connectivity over a vehicle area network (VAN) reduces high costs while increasing field productivity to better serve customers. This white paper outlines key strategies for streamlining operations, finding efficiencies and lowering costs with the right technology and solutions.

Utility companies today face challenges on many fronts - meeting consumer expectations and regulatory requirements, addressing aging infrastructure and maximizing profits. To maintain market agility, utilities must adapt more quickly to change, get closer to customers, increase their focus on value-added services and collaborate with a wide range of partners.

When it comes to technology and infrastructure investments, utility executives are seeking investments that provide maximum payback in terms of reducing operational expenses, increasing profits and improving customer service levels.

One area to examine is how the organization is connecting its mobile workforce and fleet of service vehicles to the enterprise network. Many utility organizations have turned to cellular technology to connect their mobile workforce. Cellular networks continue to rapidly evolve with Long-Term Evolution (LTE) technology and fleet management systems, and mobile workforce management software tools are becoming more powerful and sophisticated. Implementing the right strategy for connecting your mobile workforce to the enterprise creates an opportunity for significant return on investment (ROI).

Challenges: Complexity and Cost

Traditionally, utilities have relied on equipping workers with laptops that use embedded or internal cellular modems for enterprise connectivity. In some cases, these laptops are assigned to a worker or attached to a vehicle. While cellular-connected laptops have served mobile workforces for many years, as the desire to add new tools and systems to the vehicle grows, this approach comes with added cost and complexity.

COST: Each new application or tool, such as a rugged tablet, GPS tracking system or on-board driver video, comes with additional installation (including multiple antennas) and recurring costs. Managing hundreds, if not thousands, of mobile devices, each with their own subscriber identity module (SIM) data plan, produces a high monthly expense.

COMPLEXITY: Adding new devices and systems that may have redundant functions, such as location-based services requiring vehicle GPS location, increases overhead and complexity over time. When it comes time to upgrade connectivity (for example, a new network operator or modem), the configuration of other systems may be impacted.

In these ways, many utilities suffer from the lack of a centralized, extensible platform that supports all of their current needs and whatever new technologies they might opt for in the future.

Mobility for the Modern Utility: VAN

Utilities can modernize their fleets with technology and solution choices, including cellular connectivity (LTE) and mobile communication devices, that provide better coverage, improve operational efficiency, help meet increasing customer demands and reduce high operating costs.

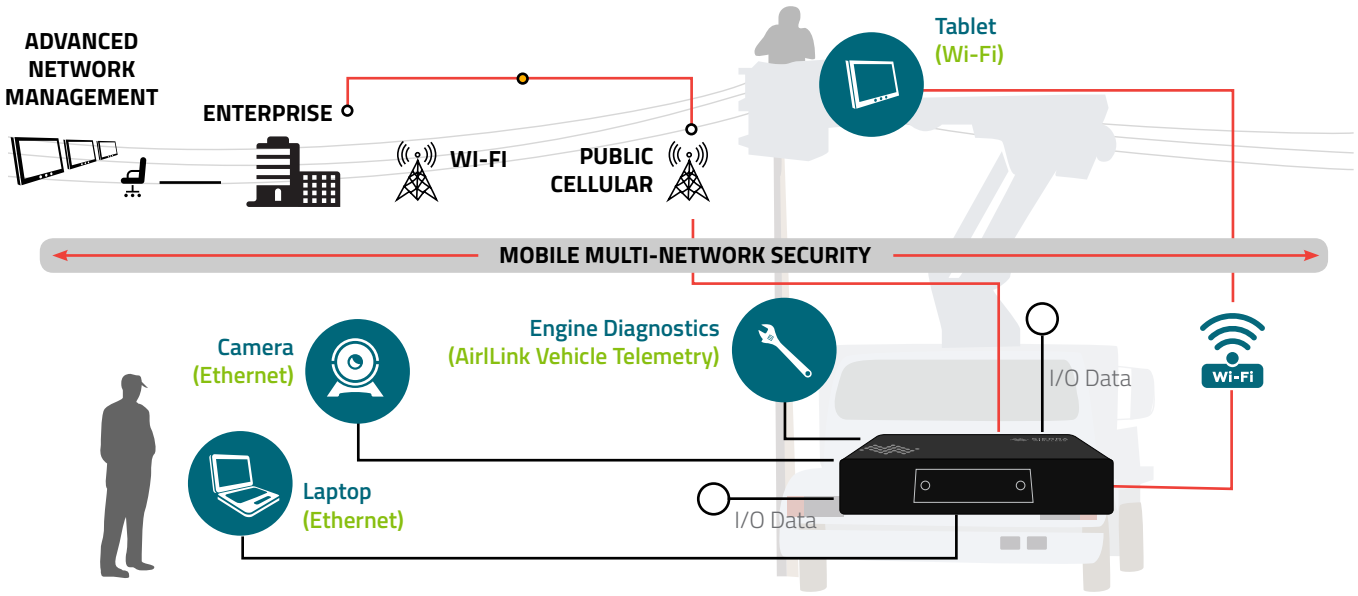
Deploying a VAN architecture that consolidates and secures communications for in-vehicle systems can achieve this for utility companies.

A VAN solution simplifies network architecture by consolidating and securing communications for various systems and mobile devices. A VAN platform can also incorporate GPS location services and vehicle telematics sensors to enable improved fleet management and more efficient use of resources with real-time location tracking and vehicle data.

A Comprehensive Approach to Utility Cost Reduction

At the heart of a VAN architecture is a vehicle-based cellular gateway or router that establishes a continuous, reliable and secure internet connection for field personnel, giving workers access to corporate applications and enabling two-way communication that keeps them productive. Devices, such as laptops or tablets, can share a single connection via wired ethernet or long-range Wi-Fi hotspot from the gateway. Applications, like vehicle telemetry, in-vehicle cameras and remote system access, can all share network resources and more readily interact with the line-of-business applications your field personnel use every day to perform their work.

With this approach, your utility can realize cost savings and benefits that significantly outweigh the expense of investing in a modern vehicle communications platform.



OpEx Savings

By combining the latest cellular networking and vehicle telematics technologies, a VAN approach can help utilities save on operating expenses in multiple ways:

LOWER SUBSCRIPTION COSTS

Devices and systems connected to the VAN over Wi-Fi or wired connection can share a single cellular data plan rather than requiring cellular subscriptions for each device.

REDUCE DOWNTIME FOR EQUIPMENT AND WORKERS

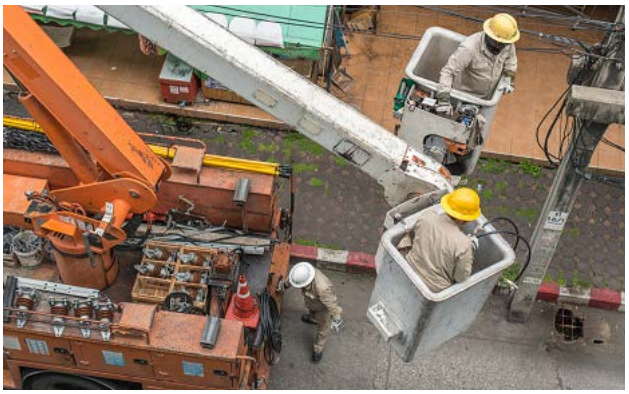
Engine and vehicle health data collected from the vehicle's diagnostic port can be collected and sent to fleet management software to warn of vehicle problems in real time, avoiding costly repairs and service downtime.

SAVE ON CELLULAR CONNECTIVITY EXPENSES

Automatically switch communications links from a cellular connection to your local network (depot Wi-Fi) in the yard for data-intensive operations, such as uploading large, bandwidth-intensive files.

INCREASE FIELD WORKER PRODUCTIVITY

Easily add mobile applications that increase field service productivity by putting more information into workers' hands, with real-time access to customer and product data, asset location and parts inventory.



IT Operational Savings

Within your OpEx ROI, a VAN approach can save your company costs related to IT, such as:

SECURE CONNECTIVITY

Consolidate security for all devices connected to the gateway, providing a safer and more manageable alternative to using client-based virtual private networks (VPN) on each individual device through a gateway-based VPN. This helps reduce the risk of future breaches and financial impact to operations.

REMOTE MANAGEMENT

Troubleshoot and make configuration changes for all connected systems remotely, reducing the need for your IT team to resolve connectivity issues, perform upgrades or add new equipment.

FUTURE-PROOF PLATFORM

Adapt to changing business needs. Make it easier to add cameras, voice over IP (VoIP), bucket weight monitoring and other Internet of Things (IoT) technologies with a VAN-centralized configuration on a single platform.

Asset Utilization Savings

Smarter communications systems mean you're able to run your fleet more efficiently in crucial ways that deliver:

IMPROVED LOGISTICS

Track vehicles' and workers' locations, even if devices are turned off and/or workers are away from the vehicle, with a VAN solution that has integrated GPS capability.

ENHANCED VISIBILITY INTO UTILIZATION IN REAL TIME

Control your fleet and enable smarter decision-making about vehicles, workers and asset usage with an "always-on" GPS connection.

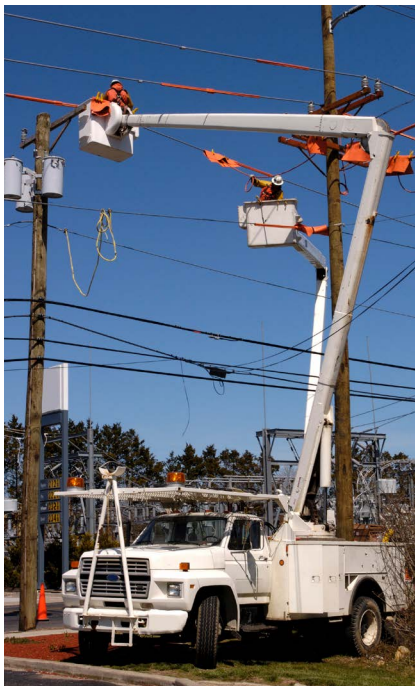
BETTER EMERGENCY PREPAREDNESS

Respond quickly and help restore service in case of an emergency or natural disaster. VAN solutions that support dedicated cellular public safety networks, such as FirstNet, make it easier to coordinate mutual aid between utilities and government agencies.

Fleet Management and Safety

In addition to fixed operational costs, a utility company can also streamline operations and improve productivity in important ways, including:

- Remote application and data access
- Reliable, continuous, real-time access to remote applications, such as mobile workforce management and work order and outage management tools, to ensure efficient use of service vehicles.
- **VEHICLE INSIGHTS**
  Make more informed decisions about vehicle usage and health. Vehicle sensors produce data, including power takeoff (PTO) status and engine health, that can warn of vehicle trouble, extending vehicle life and lowering repair costs.
- Compliance and regulatory standards
- Document compliance with safety ratings and regulatory standards, such as using odometer and GPS data to compute state-based highway taxes owed. Monitor vehicle-specific information, such as fuel consumption, using telematic applications.
- **WORKER SAFETY AND ACCOUNTABILITY**
  Always know when and where your workers and equipment are operating, including in hazardous locations. Some VAN gateways or routers can dynamically operate across more than one network to provide redundancy and better coverage, providing workers more reliable access to enterprise applications and crew communication and keeping them and their equipment safe.



Building a compelling business case for investing in a new vehicle communications approach ultimately rests on a holistic and comprehensive assessment of IT, operations and fleet management needs - both current and long-term. Since many of the applications and tools they require rely on secure, reliable connectivity, many utility organizations are taking the opportunity re-examine their approach and the technologies they use to connect their mobile workforce with the enterprise.

Sierra Wireless Solutions and Services

Sierra Wireless has a proven track record for helping utilities modernize their fleet communications and reduce overall costs. One large utility in the Southeastern US started by implementing a gateway to connect its laptops and, over time, added telematics capabilities entirely through built-in gateway capabilities in its vehicles, instead of adding multiple data plans with various providers. Most recently, the utility added a system to monitor the performance of their trucks' aerial boom system in real-time and send data to a centralized dashboard, where managers can take action to prevent damage to the boom – thereby saving boom repair costs and reducing worker injury claims and lost productivity.

4 out of 5 top power utilities use Sierra Wireless solutions to connect critical infrastructure and vehicle fleets.

Start with Sierra Wireless: Secure, Managed VAN Solutions

Sierra Wireless AirLink® VAN solutions provide integrated remote management in both on-premises (AirLink Manager) and cloud-based (AirLink Management Service) configurations. Both solutions comprise the key capabilities to help utilities achieve robust OpEx savings, including:

DURABLE, EXTENSIBLE CELLULAR GATEWAY AND ROUTERS

All AirLink gateways are purpose-built to survive harsh vehicle environments and support a wide range of connectivity options (for example, Wi-Fi, Ethernet and serial) for connecting multiple devices, as well as the latest fleet management and telematics applications and services.

ENHANCED MONITORING AND REMOTE MANAGEMENT

Centralized management of remote in-vehicle devices and systems empowers IT personnel to efficiently track and maintain all software and hardware aspects of fleet operations from a single location using simplified and persistent over-the-air connectivity.

BEST-IN-CLASS SECURITY

AirLink services use globally distributed, independently audited Tier 43 data centers hosted by Amazon Web Services. Device-initiated communication protocols safeguard the gateways from intrusion and other network threats.

To learn more about AirLink mobile communications solutions from Sierra Wireless and its solution partners, contact your sales representative or call us at: 1-877-687-7795.

About Sierra Wireless

Sierra Wireless (NASDAQ: SWIR) (TSX: SW) is an IoT pioneer, empowering businesses and industries to transform and thrive in the connected economy. Customers Start with Sierra because we offer a device to cloud solution, comprised of embedded and networking solutions seamlessly integrated with our secure cloud and connectivity services. OEMs and enterprises worldwide rely on our expertise in delivering fully integrated solutions to reduce complexity, turn data into intelligence and get their connected products and services to market faster. Sierra Wireless has more than 1,300 employees globally and operates R&D centers in North America, Europe and Asia.

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