

# Legacy SCADA Systems Are Failing Your Grid



## Strategic Communications | The Time for Electric Utility Modernization Has Arrived

### Your Current Challenge

Decades of reliable service from narrowband SCADA systems have reached a critical turning point. Legacy MAS 900 MHz networks that once provided dependable utility communications now face insurmountable limitations that threaten operational efficiency and regulatory compliance.

#### *The reality utilities face today:*

- Bandwidth constraints of 4.8–19.2 kbps cannot support modern grid demands
- Polling-based delays measured in seconds impede real-time operations
- Endpoint capacity limited to dozens versus thousands needed for smart grid implementation
- Minimal cybersecurity leaves critical infrastructure vulnerable
- Vendor support disappearing with scarce replacement hardware



### Regulatory Compliance Creates Urgent Action

NERC CIP requirements have evolved beyond traditional exemptions. The regulatory landscape now mandates comprehensive security standards for all control system communications, regardless of transport technology.

#### *Continuing with legacy MAS systems exposes utilities to:*

- Complex and costly security retrofitting requirements
- Compliance audit risks and potential penalties
- Inability to meet centralized logging and monitoring obligations

### The Strategic Solution: LTE/MPLS Architecture

MCA's proven LTE/MPLS integration delivers the performance, security, and scalability your utility operations demand while meeting current and future regulatory requirements.

## Transformational Performance Benefits



### Ultra-Low Latency Performance

Sub-100 millisecond round-trip times enable advanced applications including Fault Location, Isolation, and Service Restoration (FLISR), Volt/VAR optimization, and real-time automated grid management.

### Enhanced Bandwidth Capability

From kilobits to megabits per endpoint—enabling simultaneous support for SCADA operations, video monitoring, synchrophasor measurements, IoT sensors, and predictive analytics platforms.

### Massive Scalability

Support thousands of intelligent endpoints compared to dozens with legacy systems, accommodating distributed energy resources, remote generation assets, and comprehensive grid automation.

### Native Security Compliance

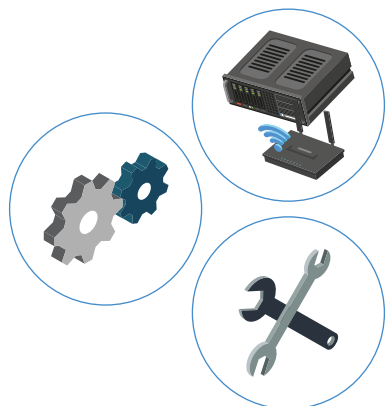
AES encryption, SIM-based authentication, and MPLS traffic segmentation provide comprehensive cybersecurity that aligns directly with NERC CIP and IEC 62443 standards without additional overlay solutions.

### Operational Resilience

Hybrid LTE/MPLS architecture delivers multi-layered redundancy across private and public cellular networks with MPLS core failover, ensuring continuous communications availability.

## Your Strategic Implementation Partnership

Our collaborative approach ensures seamless transition without operational disruption:



### Phase 1: Foundation Establishment

Deploy LTE-enabled routers and SCADA-aware gateways while maintaining full backward compatibility with existing RTU infrastructure.

### Phase 2: Core Integration

Aggregate LTE traffic into MPLS enterprise core, creating unified communications management with enhanced visibility and control.

### Phase 3: Advanced Applications

Implement video monitoring, IoT integration, predictive maintenance, and automated optimization systems enabled by enhanced bandwidth and performance.

## Proven Results Across North America

Forward-thinking utilities partnering with MCA report measurable improvements:

- **Faster commissioning times** for substations and DER installations
- **Centralized operational visibility** across SCADA and IT/OT systems
- **Reduced O&M costs** through legacy infrastructure retirement
- **Enhanced grid resilience** during storms, fiber cuts, and security incidents
- **Advanced application enablement** previously impossible with narrowband limitations

## Technology Comparison | Legacy vs. Modern

Characteristic	MAS 900 MHz	700 MHz Guard Band	LTE/MPLS Architecture
Bandwidth	4.8–19.2 kbps per channel	~100 kbps shared across base station devices	Multi-Mbps per endpoint
Latency	Seconds	Seconds	Sub-100 ms
Endpoint Scale	Dozens per base station	Hundreds (limited by channelization)	Thousands per network
Authentication / Security	Minimal	Limited, retrofitted security	SIM-based, AES encryption, segmented traffic
Reliability	Single point of failure	Improved but constrained by spectrum	Redundant and diverse paths
Lifecycle	Vendor sunseting	Niche deployments, limited vendor support	Broad ecosystem, ongoing evolution
Applications Supported	Basic telemetry	Limited IP, polling only	SCADA, AMI, DER, IoT, video, analytics
Regulatory Compliance	Complex retrofitting	Still challenged for NERC CIP	Native NERC CIP alignment

### Investment Protection Strategy

This transformation preserves your existing operational investments through strategic migration that maintains service reliability while establishing next-generation capabilities. Our phased approach maximizes ROI on current assets while providing the foundation for smart grid evolution.

### Ready to Future-Proof Your SCADA Network?

MCA combines industry-leading technology with unparalleled engineering expertise to deliver LTE/MPLS solutions engineered specifically for utility-grade SCADA applications. Our comprehensive services encompass technical design, regulatory compliance validation, implementation management, and ongoing operational support.

**The strategic imperative for communications infrastructure modernization has arrived.** Utilities that act decisively will establish competitive advantages through enhanced operational capabilities, regulatory compliance readiness, and technological flexibility for long-term industry leadership.

### Take Action Today

- **Download our comprehensive whitepaper >>** for detailed technical analysis and implementation strategies for your SCADA modernization initiative.
- **Schedule a consultation** with our expert engineering teams to assess your specific requirements and develop a customized transition strategy.



## About MCA

MCA is dedicated to creating safe, secure, and efficient workplaces by offering integrated communication, connectivity, and security solutions with a customer-focused **"Service-First"** approach. With combined expertise from over 50 companies and a growing team, MCA provides turnkey solutions for two-way radios, network infrastructure, video surveillance, and so much more. Our 100+ Solution Centers nationwide ensure seamless support, combining sales, installation, service, and operations to deliver customized solutions with lifecycle support.

### Contact Us



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