

Securing Reliable Connectivity for Mining Operations: Private 5G/LTE Solutions

Traditional wireless networks fail in remote and complex mining environments. You need voice and data everywhere, across the entire site. However, existing Wi-Fi architectures and fragmented satellite setups cannot deliver the reliability, security, or scalability required for modern mining operations.

We deliver enterprise-grade private cellular (5G/LTE) technology on-premises to replace inadequate legacy networks. This solution provides guaranteed performance, centralized management, and the robust wireless infrastructure necessary to eliminate downtime and accelerate digital transformation.

Core Mining Use Cases

1. Remote Processing Machine Connectivity

- **The Business Issue:** Operators require continuous connectivity to processing machines located above the mine in remote areas.
- **The Current Limitation:** Standard Wi-Fi fails in complex industrial layouts. Covering a 2,000-square-foot facility requires 20+ Access Points (APs), and even with this dense deployment, the network struggles with interference and persistent dead zones.
- **The Private Cellular Solution:** Deploying a private 5G/LTE network provides wall-to-wall coverage with minimal hardware. This guarantees reliable connectivity for processing machines, seamlessly integrating with edge computing platforms to ensure continuous operational control.



2. Scalable Connectivity for Work Trucks

- **The Business Issue:** Maintaining proper data links in moving work trucks across expansive mining sites is critical for fleet management and safety.
- **The Current Limitation:** Relying on individual Starlink terminals for each vehicle provides basic internet but creates severe scalability, maintenance, and centralized management issues.
- **The Private Cellular Solution:** A single, broad-area private mobile network covers the entire operational footprint. This provides highly reliable wireless connectivity to all vehicles, eliminating the need for unscalable, hardware-heavy satellite setups in individual trucks.



3. Enabling Field Tablets and Mobile Workers

- **The Business Issue:** On-site personnel deploy tablets to access real-time schematics and operational data, but they cannot execute tasks because connectivity is exceptionally poor.
- **The Current Limitation:** Attempting to bridge coverage gaps with a hybrid of Starlink and Wi-Fi leaves significant dead zones and fragmented connections.
- **The Private Cellular Solution:** Enterprise mobile cloud solutions deliver seamless 5G/LTE connectivity directly to field tablets. Personnel experience uninterrupted access to critical applications, maximizing operational efficiency and improving safety compliance.



4. Autonomous Equipment and IoT Sensor Networks

- **The Business Issue:** Transitioning to automated mining equipment and IoT-enabled environmental monitoring requires massive data throughput and minimal delay.
- **The Current Limitation:** Legacy Wi-Fi networks suffer from high latency and frequent handoff failures when equipment moves.
- **The Private Cellular Solution:** AI edge devices need low latency, highly reliable wireless to support automation use cases and Industry 4.0. Private 5G ensures the ultra-low latency and enterprise-grade security necessary to manage autonomous drills, haulage systems, and real-time sensor networks safely.



Key Benefits of Private Mobile Networks

- **Guaranteed Performance:** Achieve robust, reliable wireless infrastructure even in the harshest industrial environments.
- **Enterprise-Grade Security:** Keep your critical operational data secure within your own network perimeter.
- **Centralized Management:** Gain full visibility and precise control over your network operations and connected endpoints.
- **Reduced Downtime:** Eliminate the network drops and dead zones that pause critical mining processes.
- **Seamless Integration:** Smoothly integrate wireless capabilities with existing enterprise IT systems and edge compute platforms.

Take the Next Step

Stop managing fragmented, unreliable wireless networks. Enhance your operational efficiency with a scalable private LTE/5G network built for the demands of modern mining.

Contact our network engineering team today to schedule a pilot program and validate real-time performance on your site.

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