

Managed Private Wireless Network for Mining

Mission-Critical Wireless Connectivity for Modern Mining Operations

Mining companies are under increasing pressure to improve worker safety, operational efficiency, sustainability, and asset utilization while accelerating digital transformation. As physical AI reshapes the industry, mines are deploying autonomous equipment, remote operations centers, intelligent sensors, drones, and connected workers across vast surface and underground environments.

Traditional Wi-Fi and public cellular networks often struggle to deliver the reliable coverage, seamless mobility, low latency, and security required for mission-critical mining operations. Challenging terrain, remote locations, and constantly moving assets create connectivity gaps that limit visibility, slow decision-making, and hinder the adoption of next-generation automation. Private wireless networks provide the resilient connectivity foundation needed to support autonomous operations in areas where wired infrastructure cannot reach, Wi-Fi falls short, and public cellular coverage is unavailable or inconsistent.

The Hughes Private Wireless Solution

Hughes Managed Private Wireless Networks deliver a dedicated, secure, and high-performance wireless infrastructure powered by 4G/LTE and 5G technologies. Hughes provides a converged connectivity platform that seamlessly integrates Private 5G, Wi-Fi, and LEO (or satellite backhaul), extending secure, reliable communications across the entire mining operation, including remote sites, expansive pit environments, and hard-to-reach locations. Unlike public cellular or unlicensed Wi-Fi networks, Hughes leverages licensed and shared spectrum options, including CBRS, to provide guaranteed Quality of Service (QoS), superior coverage, and seamless mobility across mining operations.

Offered as a fully managed service, Hughes simplifies the planning, deployment, operation, and optimization of private wireless networks. Mining operators gain reliable connectivity for personnel, vehicles, machinery, sensors, and automation systems without the complexity of managing a wireless network themselves.



Key Features and Benefits

Purpose-Built Performance

Reliable, low-latency connectivity for mission-critical mining applications and operations.

Hardened Security

Protect devices and data with cellular authentication, encryption, and segmentation.

Secure IT/OT Connectivity

Delivers secure IT and OT connectivity with segmentation, policy control, and unified access.

Operational Visibility and Control

Monitor assets, personnel, vehicles, environmental sensors, and applications with greater control and visibility.

Flexible Deployment Architectures

Deploy on-premises, cloud, or hybrid networks to meet operational requirements.

Seamless Mobility Across Mine Sites

Maintain uninterrupted connectivity for personnel, vehicles, heavy equipment, drones, and autonomous systems.

Fully Managed Service Model

End-to-end lifecycle management with AI-driven operations, automation, and 24/7 support.

Scalable and Future-Ready Infrastructure

Supports device growth, automation, and 5G with flexible O-RAN and global spectrum support.

Private Wireless Networks for Mining

Supported Use Cases



Autonomous Haulage and Mobile Equipment



Environmental and Site Monitoring



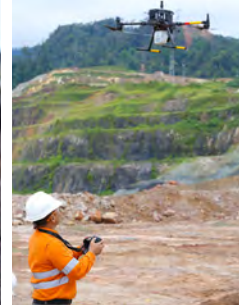
Fleet Tracking and Asset Management



Worker Safety and Communications



Predictive Maintenance and IoT



Video Surveillance and Remote Operations

Hughes prioritizes the security and reliability of private wireless environments supporting critical mining operations.

The solution incorporates:

- **3GPP Standards-Based Security** leveraging built-in LTE and 5G authentication and encryption capabilities
- **SIM-Based Authentication** providing strong identity management for connected devices
- **Network Segmentation** isolating critical applications and operational traffic
- **Proactive Monitoring and Threat Detection** through continuous oversight from the Hughes Network Operations Center (NOC)

These capabilities help mining operators secure operational data while maintaining reliable performance for mission-critical systems.

Getting Started

Is a private wireless network the right fit for your mining operation? Consider these questions:

- Do your operations rely on applications requiring guaranteed low latency and high reliability that traditional Wi-Fi cannot consistently support?
- Are autonomous vehicles, mobile equipment, drones, or remote operations part of your mining strategy?
- Do you need reliable wireless coverage across expansive surface or underground environments?
- Are you deploying increasing numbers of IoT sensors and connected devices that require secure, scalable connectivity?
- Do you need enhanced visibility into assets, personnel, and operational systems?
- Are safety, environmental monitoring, and predictive maintenance initiatives driving your digital transformation efforts?

To learn more about how Hughes Managed Private Wireless Network can transform your operations and accelerate your digital initiatives, please contact your Hughes representative or [visit our website](#).

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