

Amlohri Coal Mine Accelerates Smart Mining with a Private 5G Network

Client: Northern Coalfields Limited

Solution: Private 5G Network (5G Core, 5G RAN, NMS & IMS)

Scale: 780 Hectares Mining Area

Domain: Mining · Industrial Connectivity · Private 5G



780 Ha

Mining Area Covered

5G SA

Private Network Deployed

08+

Smart Mining Use Cases

About the Client

Amlohri Coal Mine, operated by Northern Coalfields Limited (NCL), a subsidiary of Coal India Limited (CIL), is one of India's significant open-cast coal mining operations. As part of Coal India, which contributes over 80% of the country's coal production and operates more than 300 mines nationwide, Amlohri plays a vital role in supporting India's energy requirements. The mine is focused on leveraging next-generation technologies to enhance operational efficiency, workforce safety, and digital transformation initiatives.



The Challenge

Overcoming Connectivity Barriers in a Large-Scale Mining Environment

01

Limited Connectivity Across Remote Mining Operations

Operating across a vast 780-hectare open-cast mine, the site faced challenges in maintaining reliable network coverage. Inconsistent connectivity impacted communication between field teams, equipment, and control centres, limiting operational visibility.

02

Network Configuration Management

Mining operations increasingly rely on real-time data for monitoring and decision-making. Connectivity gaps affected the continuous transmission of operational data, reducing the effectiveness of connected systems and digital workflows.

03

Delays in Fleet Coordination and Automated Operations

The absence of a high-performance communication network hindered seamless fleet management and slowed the adoption of automated and connected mining processes, impacting operational efficiency.

04

Challenges in Maintaining Safety-Critical Communications

Reliable communication is essential for emergency response and workforce safety in mining environments. Network limitations created risks of delayed response times during critical situations.

05

Inconsistent High-Definition Video Surveillance

The mine required uninterrupted transmission of high-resolution video feeds for security, monitoring, and operational oversight. Existing connectivity constraints affected the quality and reliability of surveillance systems.

06

Need for a Future-Ready Digital Infrastructure

To support emerging use cases such as drone surveillance, collision avoidance systems, IoT monitoring, and immersive mine visualization, the site needed a scalable and resilient connectivity platform capable of supporting long-term digital transformation.

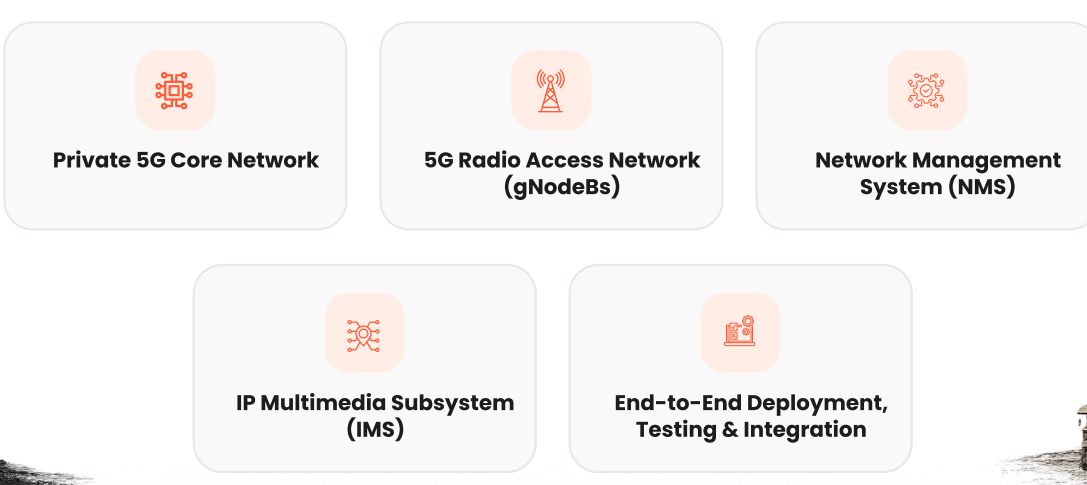


Solution

Private 5G Deployment for Smart Mining Operations

Netar AI deployed a Private 5G Standalone (SA) Network designed specifically for industrial and mining environments. The solution delivers secure, high-bandwidth, and low-latency connectivity to support critical operations and next-generation mining applications.

The deployment included



Implementation Framework



Solution



Reliable Site-Wide Connectivity

The Private 5G network established consistent, high-performance connectivity across the mining area, supporting uninterrupted operations.



Enhanced Operational Efficiency

Real-time communication and monitoring capabilities improved coordination, visibility, and responsiveness across mining activities.



Improved Workforce Safety

Advanced applications such as collision avoidance, surveillance, and emergency communications strengthened overall safety measures.



Foundation for Smart Mining

The deployment created a scalable digital infrastructure capable of supporting future automation, AI-driven analytics, and autonomous operations.



Increased Situational Awareness

Continuous data collection and monitoring provide operators with real-time insights, enabling faster and more informed decision-making.

Deploy Private 5G for Your Industrial Operations

Get in Touch

info@netar.ai

<https://netar.ai/>