



Vernetzen Network Solutions

Industrial Networks for Underground Mines and Tunnels



Vernetzen
Industrial Networking and Cybersecurity



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The Foundation for Reliable, Cost-Effective and Smarter Mining Networks

As mining operations become more digital, a high-performance Operational Technology (OT) network is critical. Networks built with mine-specific hardware and software, rather than ad-hoc installations, deliver far superior reliability, performance, and long-term cost savings. A well-architected and managed network reduces downtime, enhances automation, and lowers operational costs.

AI-Enhanced Wi-Fi Over Coax Solution

Long Linear Coverage Wi-Fi Solution for Industrial Applications

Vernetzen's Wi-Fi over Coax (WoC) wireless access system provides industrial-grade high bandwidth networking for reliable and continuous connectivity for static and mobile industrial field devices and applications such as communication, tracking, cameras, Programmable Logic Controllers (PLCs), safety systems, autonomous and semi-autonomous vehicles, and train-to-trackside connectivity.

These powerful capabilities can enable autonomous operation of critical mobile assets in underground mining and tunnelling and deliver a high-reliability solution for applications that need robust high bandwidth wireless connectivity.



1. High Availability & Long-Term Reliability

- Mine-specific network solutions ensure maximum uptime for critical operations.
- Designed redundancy (dual fibre paths, failover mechanisms) prevents costly outages.
- Managed infrastructure reduces unplanned downtime and maintenance costs.

2. Secure Remote Access & Global Support

- NIST-compliant remote access enables specialists, support providers, remote operations centres, and OEMs to connect securely to the OT network.
- Voice and video functionality allows real-time collaboration between underground teams and experts abroad.
- Enables a future-proof approach to underground mining, reducing the need for on-site presence and improving response times.

3. Optimised for Automation & Real-Time Control

- Supports low-latency connectivity for autonomous and tele-remote mining equipment.
- Enables real-time collision avoidance, ventilation control, and short-interval decision-making.
- Delivers consistent performance across mobile and fixed assets.

4. Seamless, Scalable Coverage

- Wi-Fi 6 and fibre-based networks ensure reliable data transmission underground.
- Eliminates dead zones and unreliable handoffs that disrupt operations.
- Modular network design supports future expansion without costly overhauls.

5. Cybersecurity & Operational Resilience

- Mine-specific security frameworks protect against cyber threats.
- Secure remote access ensures only authorised personnel can manage the OT network.
- Continuous monitoring and automated alerts maintain network integrity.

6. Data-Driven Efficiency & Cost Optimisation

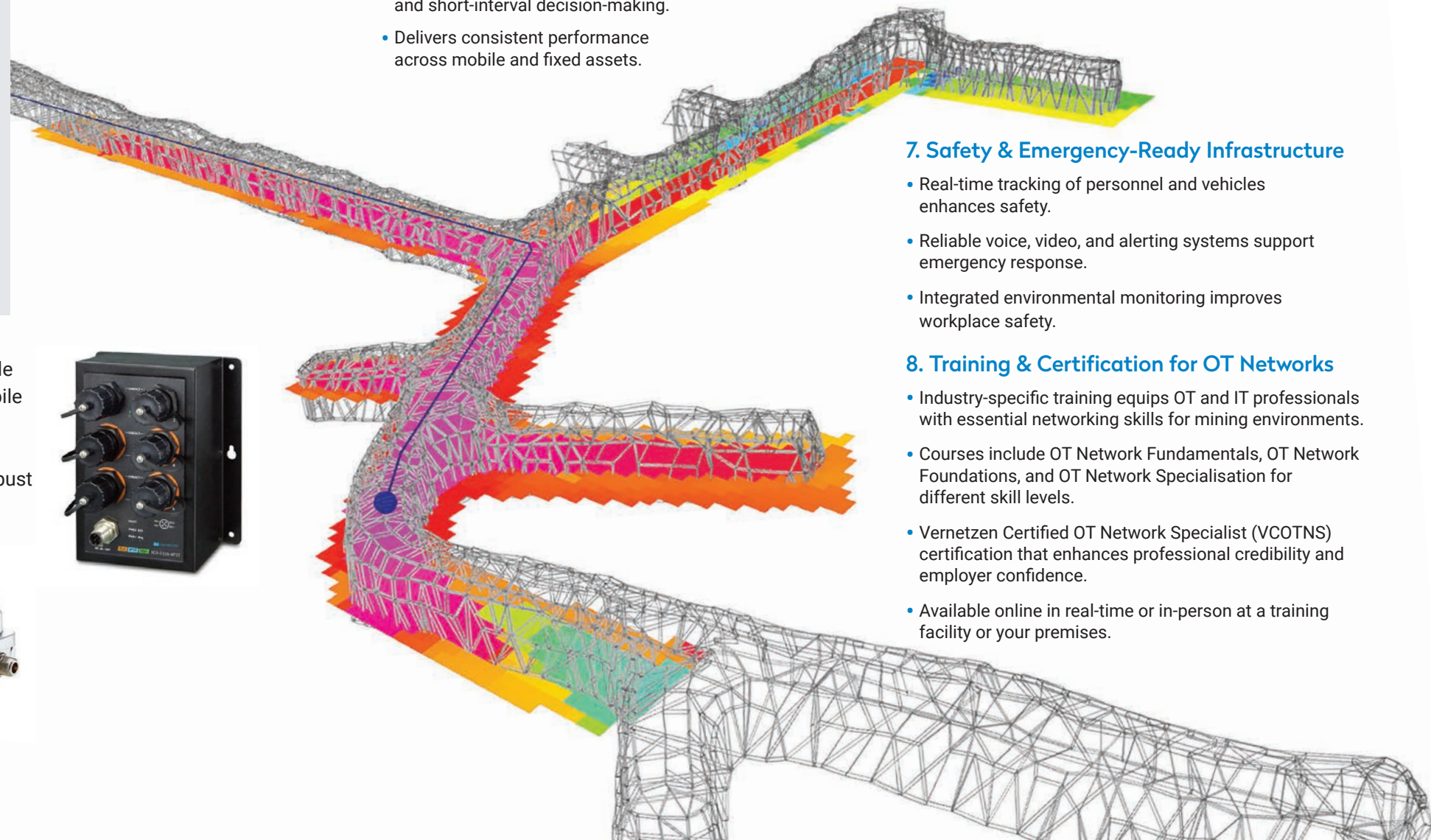
- Centralised network management reduces maintenance costs and energy waste.
- AI-driven analytics improve asset performance and predictive maintenance.
- Designed to integrate future technologies like AI and edge computing.

7. Safety & Emergency-Ready Infrastructure

- Real-time tracking of personnel and vehicles enhances safety.
- Reliable voice, video, and alerting systems support emergency response.
- Integrated environmental monitoring improves workplace safety.

8. Training & Certification for OT Networks

- Industry-specific training equips OT and IT professionals with essential networking skills for mining environments.
- Courses include OT Network Fundamentals, OT Network Foundations, and OT Network Specialisation for different skill levels.
- Vernetzen Certified OT Network Specialist (VCOTNS) certification that enhances professional credibility and employer confidence.
- Available online in real-time or in-person at a training facility or your premises.



Transform Your Underground Mine

A structured, purpose-built mining network ensures long-term reliability and lower operational costs compared to fragmented, widget-based installations. Investing in secure, high-performance infrastructure today prevents costly downtime and inefficiencies in the future.

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