

Mining



Photo credit: ICT Group

Open pit mining applications

- Lower costs by maximizing truck tire life and minimizing unscheduled maintenance
- Enhance worker safety with improved situational awareness, collision avoidance systems, real-time streams of high wall scans and “man down” systems
- Improve security using video surveillance and physical access control
- Increase efficiency by enabling mine management software (MMS) in the field
- Improve office staff productivity with high-speed connectivity

Tropos technology differentiators

- Performance – multi-megabit capacity, low latency
- Security – firewall, IPsec VPN, AES encryption in every router
- Reliability – patented mesh routing algorithms use multiple paths, channels and frequency bands
- Flexibility – mesh routers can be solar powered and mounted on trailers for easy relocation as active mine footprint changes
- Mobility – seamless roaming across entire coverage area
- Radios – maximum power, best receive sensitivity, outdoor optimized
- Management – most comprehensive configuration, analysis and reporting

Modern mining is a high-tech undertaking in decidedly hostile environments. Some of the world’s largest, most expensive machines must be safely and efficiently maintained and operated in remote locations with rugged terrain and extreme weather. A private wireless IP broadband network from Tropos provides the communications infrastructure needed to support the applications required to ensure safe, secure, efficient and, ultimately, profitable mining operations.

Increasing open pit mining safety and efficiency

Safe and efficient operation of open pit mines requires precise coordination of some of the world’s largest, most expensive machines in settings characterized by punishing heat and cold as well as extreme shock and vibration. Mines operate 24/7 and can cover vast areas. Maximizing productivity in operations and maintenance can yield substantial improvements in profitability and safety.

Wireless communications can significantly enhance the efficiency, productivity, safety and security of open pit mines. Using a wireless network, truck and heavy equipment telemetry data, operational and surveillance video feeds, safety and security system information, high wall scans, field data for mine management software (MMS) and more can be transmitted to a central location in the mine where it monitored, analyzed and acted on in real-time.

Multi-use networks for mining

Tropos' wireless broadband network solutions provide a scalable and reliable foundation to securely support multiple network-based applications running simultaneously including:

- **Transmission of equipment telemetry data** – remote diagnosis of problems with heavy equipment in the field as well as determining the optimal time for routine and preventative maintenance saves time and money
- **Live monitoring of trucks** – monitoring truck speed and load, as well as tire pressure and temperature, maximizes tire life
- **Real-time video feeds** – increase situational awareness of equipment operators, dispatch staff and office personnel while time-stamped recordings support remote correlation of alarms with actual events
- **Video surveillance** – monitoring key facilities such as explosive storage and mixing sites enhances security
- **Real-time guidance, alignment and collision avoidance systems** – improve safety and efficiency
- **Site entry/perimeter security systems** – control access to enhance security
- **Safety systems including “man down” systems** – improve worker safety
- **Field access to drill and blast application data** – quickly determine the proper amount of explosive to use
- **Streaming data from radar scans of high walls** – enables stability analysis to promote safety and efficiency
- **Connectivity for onsite office staff whose offices move regularly** – cost-effectively enhances productivity
- **Mining Management Software (MMS)** – remote diagnosis and operational data for improved operational efficiency

Mining network building blocks

Tropos wireless mesh routers mounted on fixed towers, trailers with pump-up masts and solar panels, dragline booms, trucks and other moving mining equipment provide connectivity for control and safety equipment, sensors, video cameras, laptops, tablets, hand-helds and voice services. Tropos mesh routers are ruggedized and weatherized, proven to withstand extreme heat, cold, wind, rain, snow, ice, humidity, shock and vibration.

The Tropos mesh network connects people, machines and devices in the field to the mine's core IP network, which can be based on copper and/or fiber optic wiring. In remote areas, backhaul from the mine site to the company's enterprise network, data center and the internet can be implemented using Tropos PTP and/or PTMP radios.

“We're seeing a great number of business benefits. We're improving safety and performance with improved communications, we can adjust operations more quickly and we are experiencing improvements in our maintenance cycles through less travel and more efficient servicing of equipment.”

Ben Dennis
Project Manager
BHP Billiton Mitsubishi Alliance (BMA)

For more information please contact:

ABB Inc.
Tropos Wireless Communication Systems
555 Del Rey Avenue
Sunnyvale, CA 94085
Phone: +1 408.331.6800
E-Mail: sales@tropos.com

www.abb.com/tropos

Power and productivity
for a better world™

