Private mobile networks: your competitive edge

Reliable, secure and scalable connectivity tailored to your industry's unique needs

Leading organisations worldwide are adopting private mobile networks (PMNs) — what's driving this strategic shift?

PMNs provide the perfect solution offering tailored, secure and high-performance wireless infrastructure that empowers you to operate without limits.

Designed to meet the specific needs of your industry, private mobile networks enhance your operations by delivering exceptional speed, reliability and control. Whether it's streamlining logistics, optimising workflows, ensuring real-time coordination or securing sensitive data, these networks offer a robust and adaptable foundation to enable your digitalisation and operational excellence strategy.

What is driving the need for private mobile networks?

The future is smart

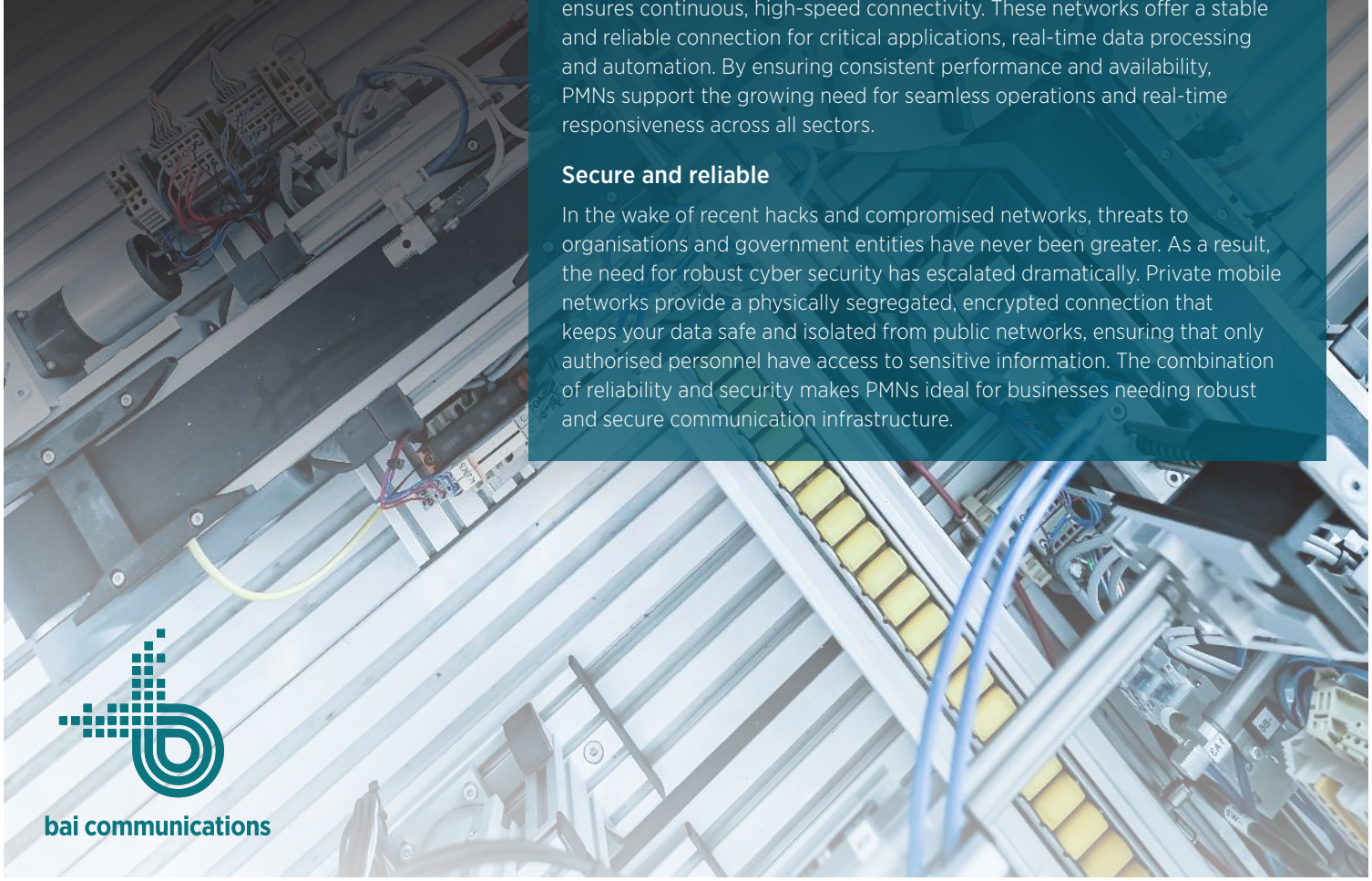
With the rise of smart technologies such as industry 4.0/5.0, industrial Internet of Things (IoT) and augmented reality (AR), businesses are adopting automation, machine learning and data analytics at unprecedented levels. Private mobile networks provide the dedicated, high speed connectivity needed to support complex ecosystems of machines, sensors and analytics platforms. PMNs serve as the foundation for smart buildings, factories and precincts across all industries, connecting devices, systems and people in real-time to optimise efficiency, productivity and decision-making.

Always-on connectivity

The need for uninterrupted connectivity has never been greater. Network service disruptions result in downtime of production and operational systems that can lead to loss of revenue and cost overruns. Private mobile networks address this demand by providing dedicated, always-on access that ensures continuous, high-speed connectivity. These networks offer a stable and reliable connection for critical applications, real-time data processing and automation. By ensuring consistent performance and availability, PMNs support the growing need for seamless operations and real-time responsiveness across all sectors.

Secure and reliable

In the wake of recent hacks and compromised networks, threats to organisations and government entities have never been greater. As a result, the need for robust cyber security has escalated dramatically. Private mobile networks provide a physically segregated, encrypted connection that keeps your data safe and isolated from public networks, ensuring that only authorised personnel have access to sensitive information. The combination of reliability and security makes PMNs ideal for businesses needing robust and secure communication infrastructure.



bai communications

Unlock limitless connectivity with BAI's private mobile network solutions

BAI Communications offers tailored private mobile network (PMN) solutions designed for the most demanding environments and critical applications. Our PMNs ensure seamless connectivity for both people and machines, delivering reliable, secure wireless coverage across entire industrial facilities or venues through dedicated infrastructure and spectrum.

Built on globally recognised 4G LTE and 5G standards from 3GPP, BAI's PMN solution offers organisations access to carrier-grade capability and exceptional performance at a lower total cost of ownership.

We collaborate closely with each client to understand their specific requirements, designing bespoke networks that deliver tangible business value.

From initial concept to deployment and ongoing management and support, BAI is your trusted partner in every step of your wireless connectivity journey. Our solution offers dedicated coverage, capacity and control, empowering businesses to drive their digital transformation – whether it's high-speed data transfer, real-time analytics or enhanced security.

BAI's PMN solution uses dedicated on-premise equipment, including antennas, radios and baseband units, to provide uninterrupted coverage across even the most challenging locations. We deploy additional components like gateways, routers, and cloud-based functions which orchestrate secure packet routing, policy management, and seamless operation. We also setup a dedicated private core network which coordinates network access, session management, policies and routing decisions. This acts as the interconnect point to organisations' private IP networks to ensure all user data stays within their network perimeter. All of this is tailored to meet the performance demands of each organisation's applications and use cases.

Quality of Service (QoS) policies ensure that critical applications receive prioritised access, maintaining optimal performance, supporting business continuity and safety.

A private wireless network using 4G/5G technology offers enhanced performance, security, control and customisation over either Wi-Fi or a public mobile network. Using dedicated spectrum ensures stronger signal quality with minimal interference, while SIM-based authentication and advanced encryption keep your data safe and secure on-premises, ensuring that your network operates with maximum reliability.

Features	Benefits
Widespread coverage	Connect all your users and devices anywhere throughout your facility, using licensed spectrum for greater reach and reliability.
Robust security	Only trusted devices can access the network, with data retained inside your network perimeter.
Flexible capacity	Capacity for thousands of users and devices in a scalable network.
High speed and low latency	Enables applications that demand fast data speeds or ultra-reliable, low-latency connectivity through smart QoS policies.
Uninterrupted mobility	Seamless handovers between radio nodes ensure network service continuity aboard vehicles and other non-stationary use cases.
Assured performance	Exclusive access to network resources that delivers high availability and reliability, backed by operations and management service level agreements.
Voice and video communication	IMS based dialled voice and video calling to keep staff connected. Mission critical push-to-talk communications options for enhanced reliability and access.

Examples of industry applications and benefits enabled by PMN

Ports and intermodal terminals

- Automated crane and straddle carrier operations enhance container throughput and operational safety with remote-controlled equipment.
- Digital twins for real-time operations optimise scheduling and reduce dwell times through a comprehensive view of port activities.
- Safety wearables for staff operating heavy machinery improves safety with real-time hazard detection and alerts when working around large vehicles.

Warehouse and logistics

- Autonomous mobile robots (AMRs) automate the transport of goods to reduce worker fatigue and accelerate order fulfillment.
- Indoor positioning for asset tracking optimises inventory management and improves supply chain visibility.
- Augmented reality (AR)/virtual reality (VR) for picking operations increases accuracy and efficiency while reducing the need for manual scanning.

Equipment training and support

- AR overlays for operating equipment improves production efficiency and remote assistance improves mean-time-to-repair which reduces downtime.
- Smart vision for detecting and removing product defects enhances quality assurance and customer experience.
- IoT sensors for predictive maintenance monitors equipment health and production processes in real-time to prevent failures and boost yield.

Utilities

- Drones for asset surveys increase safety and efficiency in turbine and infrastructure inspections with drone technology.
- Connectivity to remote workers keep projects on track by providing field staff with real-time access to construction plans and expert support, improving productivity.
- Secure SCADA/PLC control systems safeguard plant operations and improve cyber security through reliable, private connectivity for control systems.
- Improve visibility of real-time operations, safegaurd plant resiliency and improve cyber security through reliable and secure wireless connectivity for critical control systems.

Healthcare

- Telehealth and clinical collaboration extends the reach of healthcare professionals, reduces wait times and improves patient flow with telemedicine platforms.
- Patient monitoring with wearables delivers personalised care and enhances treatment outcomes with continuous health monitoring.
- AMRs for hospital transport automate the movement of medicine and equipment, freeing staff to focus on patient care and reducing fatigue.

Mining

- Autonomous vehicles for heavy haulage of ore and materials, improve transport cycle-times and reduce hazards to human workers.
- Reliable wireless access to IoT sensors and control systems for equipment enables remote operation, predictive maintenance and real-time operations monitoring to enhance staff safety and improve operational efficiency.
- Mission critical push-to-talk (MC-PTT) over 4G/5G enables quick and reliable voice, video and data communications for field staff improving collaboration and safety.

Stadiums and venues

- Video capture for events improve fan engagement with flexible camera deployments and enhanced broadcast quality.
- Smart cameras can detect hazards, control crowds, and ensure event safety with video analytics and body cameras.
- Secure communications for event coordination streamline event management and team collaboration with reliable and secure communication systems.

Your Journey with BAI: From Vision to Reality

End-to-end support for your private mobile network

Discovery

We work with you to understand your business and technology requirements to asses and provide solution options that best meet your needs. We also help you identify use cases and smart applications enabled by PMNs that provide the best return on investment.

Design

We design a network that meets your coverage, performance and resiliency requirements, using leading-edge 4G/5G radio access and core network solutions.

Build and integrate

We manage the on-site installation along with configuration and testing to setup the network to your operational requirements. We also work closely with your technology teams to integrate the PMN solution with your existing IT/OT network and systems.

Operate

We provide 24/7 support from our network operations centre, governed by strict service-level agreements for maximum performance.

Spectrum management

We offer expert spectrum management, backed by our ownership of spectrum holdings and the capabilities to efficiently manage and optimise spectrum use for secure, high-performance networks.

Own

We offer long-term contracts and flexible commercial ownership models, including an upfront investment or smaller recurring fees for managed service based models to suit your needs.

Contact us

Explore how BAI's private mobile networks can elevate your operations and drive efficiency. Contact us to learn more about how we can tailor our solutions to meet your unique needs: baicommunications.com

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