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Securing the Perimeter and Enabling Smart Base Automation

Executive Summary

Static, physical security alone cannot meet modern threat dynamics. This brief outlines a digital fence line approach that integrates secure wireless mesh, multi-sensor fusion, real-time analytics, and automated response—including safe, compliant drone operations—to elevate protection, efficiency, and adaptability.

The Problem: Static Defences in a Dynamic Threat Environment

- Physical barriers deter casual intrusion but do not guarantee detection or timely response.
- Limited real-time situational awareness hinders classification and escalation.
- Traditional infrastructure is costly and slow to adapt.

Quantifying the Physical Security Burden

Installed costs for high-security fencing at large air and industrial installations often range from approximately £1.03m to £1.55m per site. Across multiple principal sites, aggregate capital outlay can reach £7.1m–£10.6m, excluding gates, surveillance, access control, and future upgrades.

Application Ecosystem

- Rapid, cable-free deployment with minimal civil works (weeks, not months).
- Scalable wireless mesh: long-range cellular backhaul and Wi-Fi mesh with Zero Trust security.
- Advanced IoT sensor fusion: motion, vibration, infrared, acoustic, and video.
- Real-time AI analytics for detection, classification, correlation, and escalation.
- Secure communications with post-quantum-ready encryption and secure-by-design architecture.

Key Differentiators

- Minimal groundworks; rapid reconfiguration as needs evolve.
- Modular, upgradable, and platform-agnostic integrations.
- Open interfaces with existing command, control, and security systems.

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Automated Response: Safe, Compliant Drone Operations

- Automated dispatch to breach locations for immediate visual and thermal awareness.
- Persistent tracking and deterrence, including low-visibility and night operations.
- Integrated command and control for streamlined escalation and reduced personnel risk.
- Geofenced operations, automated flight plans, collision avoidance, and return-to-base protocols.

Smart Base Automation: Beyond the Fence

a) Facial Recognition
   - Automated access control; real-time identification; audit trails.

b) Automatic Number Plate Recognition (ANPR)
   - Automated vehicle logging; known/unknown identification; logistics integration.

c) Digital Signage and Tote Boards
   - Real-time information; automated muster/roll-call; emergency alerts.

d) IoT-Driven Automation
   - Predictive maintenance; smart energy and environmental controls; automated incident workflows.

e) Asset Tracking and Workflow Automation
   - Real-time tracking of vehicles, equipment, and personnel; automated workflows; C2/logistics integration.

Strategic and Operational Benefits

Capital and Operational Savings
   - Avoid or defer multi-million-pound fencing upgrades.
   - Reduce maintenance, inspection, and repair costs.
   - Minimise disruption and downtime.

Security and Resilience
   - Real-time, adaptive perimeter defence.
   - Rapid, automated response—including drone deployment.
   - Enhanced protection and operational continuity.

Agility and Future-Readiness
   - Scalable and upgradable as threats and technologies evolve.
   - Rapid deployment and reconfiguration for agile operations.
   - Foundation for AI, robotics, and advanced analytics.

Why This Approach Works

- Problem-led design that addresses static-infrastructure vulnerabilities.
- Operationally proven building blocks in wireless, sensor fusion, and security.
- Aligned to modern, integrated protection approaches.
- Open, modular, and secure for interoperability and future enhancements.

Recommendations

- Pilot at a representative site to validate rapid deployment and automated response.
- Phased rollout prioritising higher-risk/high-value sites.
- Align with estate, security, and operations stakeholders.
- Plan for capability insertion: advanced analytics, robotics, and automation.

Call to Action

Request a live demonstration to experience rapid deployment, automated response, and smart base features in a representative environment.