



Securing Critical 5G Telecom & AI-RAN Infrastructure Against GPS/GNSS Threats in Near-Conflict Zones

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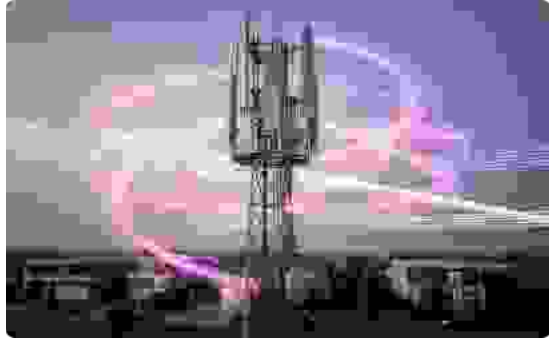
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The Growing Threat to Critical 5G Telecom & AI-RAN Infrastructure

- ⚠️ 5G telecom and AI-RAN infrastructure rely on precise timing, typically from GPS/GNSS, for service quality. However, these signals face increasing vulnerability to jamming and spoofing attacks, especially near contested regions.
- ⚠️ Timing degradation desynchronizes radio cells, causing dropped calls, failed handovers, and widespread service outages. Relying solely on GPS/GNSS creates a single point of failure across your entire network, risking systemic disruption from a single compromised source.



Understanding the Vulnerability Landscape



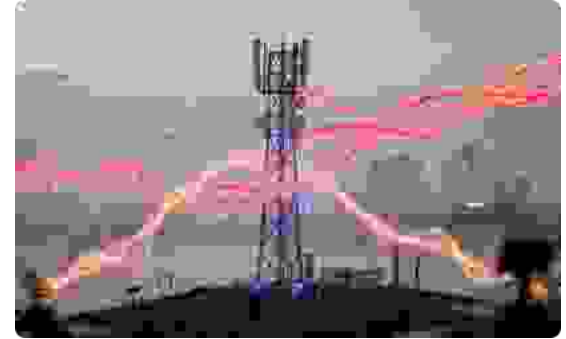
GPS/GNSS Jamming

Intentional interference causes immediate synchronization loss, leading to critical service disruption.



GPS/GNSS Spoofing

False timing signals introduce subtle, hard-to-detect network degradation, especially meaconing threats.



Coordinated Attacks

These advanced attacks combine jamming and spoofing, bypassing traditional timing defenses with complex threats.



SecurePNT EdgeGM 7000: Multi-Layer Timing Resilience



Multi-Orbit GNSS-Independent Sources

Integrates alternative satellite timing sources (GEO/LEO) to ensure continuous operation, even during full GNSS outages or disruptions. This provides resilient backup timing across diverse architectures.



SecureTime GEO Anti-Jamming Antenna

Leverages VIAVI's GEO-L service with encrypted, directional signals for robust protection against jamming. This approach delivers proven interference resistance, unlike vulnerable conventional GPS/GNSS signals.



Enhanced Anti-Spoofing with GPS/GNSS Authentication

Utilizes VIAVI's GEO-L and eGNSS GEO services for authenticated, encrypted signals, protecting against false timing data. This ensures signal authenticity and prevents network degradation from spoofing attacks.



Meshed Terrestrial PTP Backup Feeds

Establishes redundant PTP connections between grandmaster clocks and the EdgeGM 7000. This meshed architecture ensures continuous synchronization and timing resilience against jamming or spoofing attacks.

EdgeGM 7000 Key Features



Multi-Band & -Constellation GNSS

Multi-band receivers supporting GPS, Galileo, Beidou, QZSS, and NavIC for maximum redundancy.

Alternative Multi-Orbit Sources

Activation of GEO (outdoor) or LEO (indoor) reception through an GEO/ LEO antenna when the primary GNSS signal is disrupted.

High-Speed PTP

Grandmaster and NTP Time Server supporting up to 25G network speeds for modern infrastructure.

New Tech Holdover

Low-cost MEMS technology replacing traditional OCXO or Rb oscillators.

EdgeGM 7000 Benefits



Zero-Trust Architecture

TrustedPNT™ technology continuously authenticates, verifies and qualifies timing sources.



Multi-Layered Resilience

Exceeds IEEE P1952 Level 4 standards for PNT resiliency.



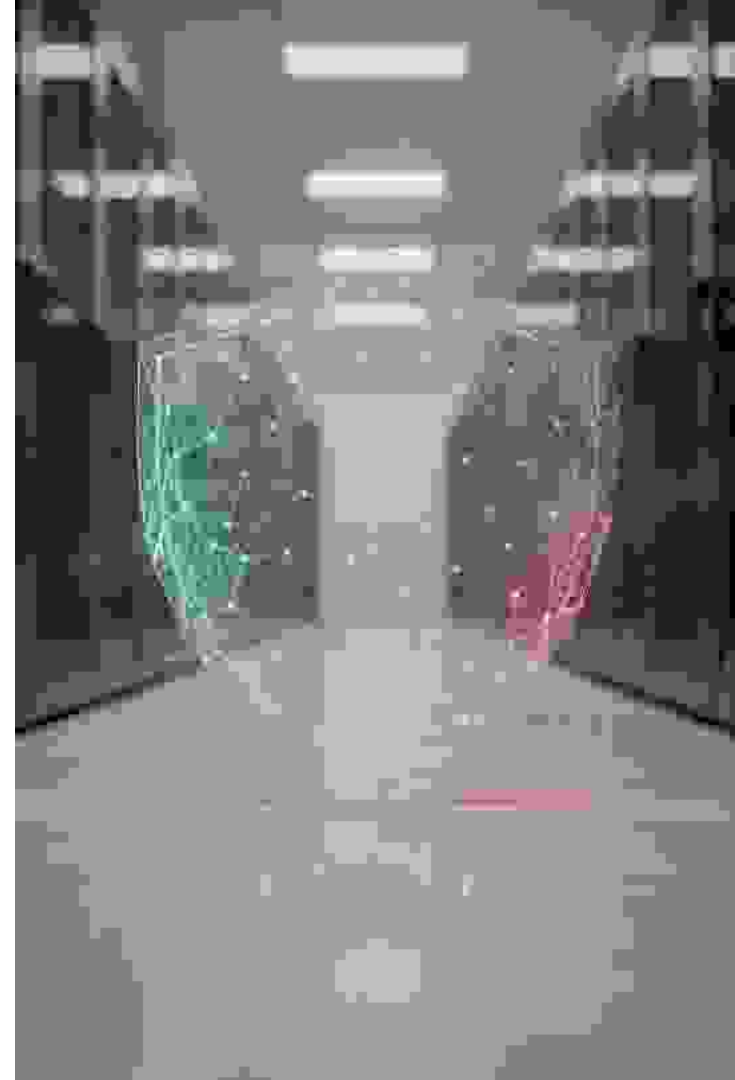
Flexible Platform at Scale

Supports SyncE, NTP, PTP profiles across telecom, enterprise, power and more. Integrates multi-orbit GEO/LEO resiliency.



Easy Management

User-friendly SNMP and GUI for real-time visibility.



Operational Benefits for 5G Telecom & AI-RAN Operators

Service Continuity

Ensure continuous 5G service during GNSS disruptions, safeguarding revenue and customer satisfaction.

Rapid Deployment

Quick deployment leverages existing infrastructure, avoiding costly replacements and delivering protection in weeks.

Future-Proof Investment

Software-upgradeable multi-orbit platform ensures future protection, adapting to emerging timing sources and evolving threats.

Regulatory Compliance

Meet stringent 5G timing requirements for TDD and network slicing, ensuring full regulatory compliance.

These combined layers provide carrier-grade resilience, ensuring precise timing accuracy and high availability. This guarantees continuous 5G service, even during sustained jamming and spoofing attacks in the most challenging environments.

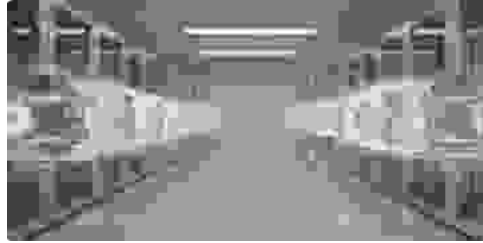
Resilient Timing Benefits for 5G & AI-RAN Data Centers

5G telecom and AI-RAN infrastructure is transforming data centers and extending AI to the intelligent edge. This ecosystem critically demands precise, resilient timing for optimal performance, data integrity, and continuous operations, especially against GNSS disruptions.



Distributed Computing

5G enables distributed AI workloads at the intelligent edge. Accurate time sync across dispersed nodes is paramount to prevent data inconsistencies and computational errors.



GPU Clusters

Precise timing coordinates GPU cluster operations in 5G AI-RAN data centers, maximizing throughput and minimizing idle cycles, even when external timing sources are compromised.



High-Speed Interconnects

Timing errors impact latency in 5G AI-RAN data centers, affecting real-time services and AI speeds. Resilient timing mitigates these risks, ensuring seamless, low-latency connectivity.

Reduced Latency

Ensures real-time processing and faster responses for critical 5G AI applications.

Improved Performance

Optimizes GPU utilization and distributed computing for accelerated 5G AI model deployment.

Protection Against Disruptions

Safeguards 5G AI operations from timing failures caused by GNSS jamming or spoofing.

Power Efficiency

Precise, resilient timing optimizes power consumption in 5G AI infrastructure, reducing operational costs.

Protecting 5G Telecom & AI-RAN Infrastructure at Scale

1 Deploy SecurePNT EdgeGM 7000

Deploy SecurePNT EdgeGM 7000 within your 5G AI RAN infrastructure. It provides multi-layer resilience by integrating diverse multi-orbit (GEO/LEO) and terrestrial timing sources, ensuring robust protection against GNSS jamming and spoofing in conflict-affected zones.

2 Enable Resilient Distribution

Ensure precise and resilient timing distribution from the SecurePNT EdgeGM 7000 across your entire 5G telecom and AI-RAN and interconnected AI data centers, utilizing industry-standard PTP/SyncE protocols for seamless operation.

3 Monitor, Verify & Manage Timing Integrity

Implement continuous monitoring and verification of timing integrity across all 5G telecom and AI-RAN infrastructure. Benefit from centralized management of timing sources and distribution, real-time visibility into performance and health status, and remote configuration and control capabilities. This ensures immediate detection and alerting for timing anomalies, jamming, or spoofing attempts, safeguarding critical operations.



Secure Your 5G Telecom & AI-RAN Infrastructure: Unwavering Resilience with SecurePNT EdgeGM 7000

In an era of escalating GNSS threats, multi-layer timing resilience is not just an advantage—it's foundational for the continuous, uninterrupted operation of critical 5G telecom and AI-RAN infrastructure.

The VIAVI SecurePNT EdgeGM 7000 delivers comprehensive, multi-source timing protection for your entire 5G telecom AI-RAN infrastructure. By leveraging diverse multi-orbit (GEO/LEO) and terrestrial timing sources, it provides an unparalleled defense against GNSS jamming and spoofing, even in the most contested environments.

Ensure your 5G telecom and AI-RAN and interconnected AI data centers remain precisely synchronized, operational, and secure, guaranteeing continuous service availability when it matters most.

[Learn More About SecurePNT EdgeGM 7000](#)

