



2025 Australian Grand Prix at Albert Park

Executive Summary

PMY Group and GXC successfully deployed Australia's first private 5G network using n77 spectrum (3300-4200 MHz) at the Albert Park Grand Prix, delivering mission-critical connectivity for over 125,000 attendees and 300 operational devices within a compressed 90-day timeline. The deployment achieved 100% uptime throughout the seven-day event period with sub-10ms latency for critical applications, RSRP values exceeding -90 dBm in primary operational zones, and zero service degradation reported across POS, media, and operational systems. This represented the first-of-its-kind n77 private network deployment in Australia, establishing a new benchmark for large-scale event connectivity.

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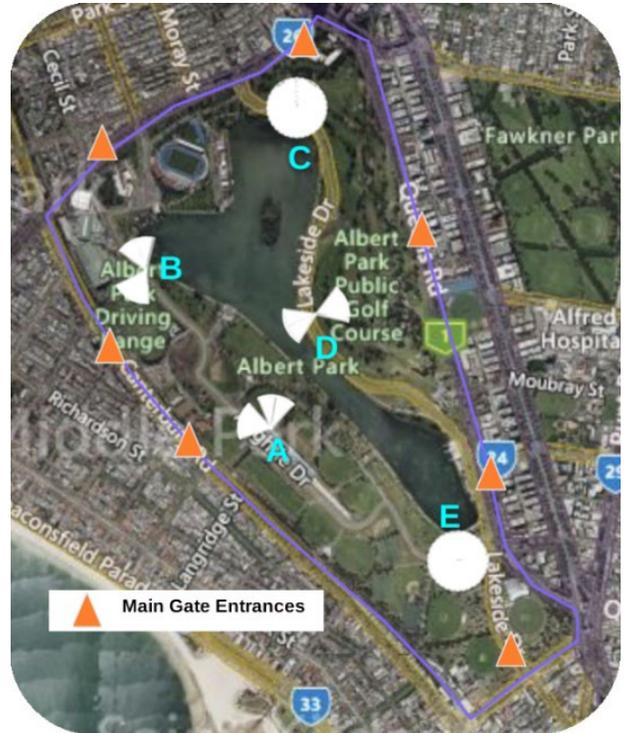
Project Challenges and Requirements

The Albert Park Grand Prix presented unique connectivity challenges that existing public networks couldn't address. With support requirements for 125,000 users across 44,000 permanent seats, the venue demanded mission-critical connectivity for over 300 devices including POS systems, handheld terminals, tablets, and media equipment. Low latency requirements for real-time operations combined with high-availability demands created zero tolerance for service interruption. The project faced significant technical constraints including a 45-day deployment window from project initiation to go-live, interference from congested public cellular networks, and no commercially available n77 spectrum licensing for private use in Australia. Additional challenges included limited local availability of n77-compatible equipment and expertise, temporary venue restrictions limiting equipment placement options, and complex customs and logistics requirements for imported equipment.

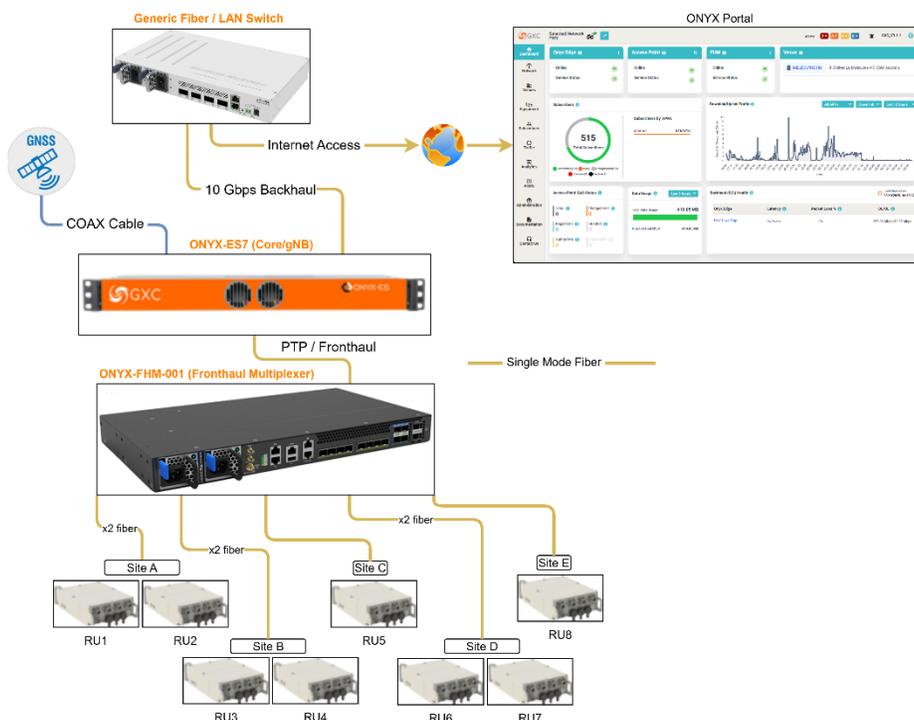
The regulatory environment presented perhaps the most significant barrier, as the 5G NR n77 band (3300-4200 MHz) was not yet licensed for private use in Australia. The project required a special exemption from the Australian Communications and Media Authority (ACMA), which provided temporary authorization limited to March 11-17, 2025, within a 1.6 km radius of the venue. This regulatory flexibility proved essential in enabling the innovative deployment.

Technology Solution and Architecture

GXC's Onyx Edge all-in-one appliance provided the foundation for the solution architecture, integrating 5G Core (5GC) with on-premise user plane processing, Central Unit (CU) and Distributed Unit (DU) functionality, local breakout capabilities for ultra-low latency, and comprehensive session management, authentication, and mobility control. The RAN employed a disaggregated O-RAN 7.2x architecture with five strategically positioned Remote Radio Units (RUs) at zones A through E. A Fronthaul Multiplexer (FHM) provided traffic aggregation and synchronization, creating a single logical radio layer for centralized control.

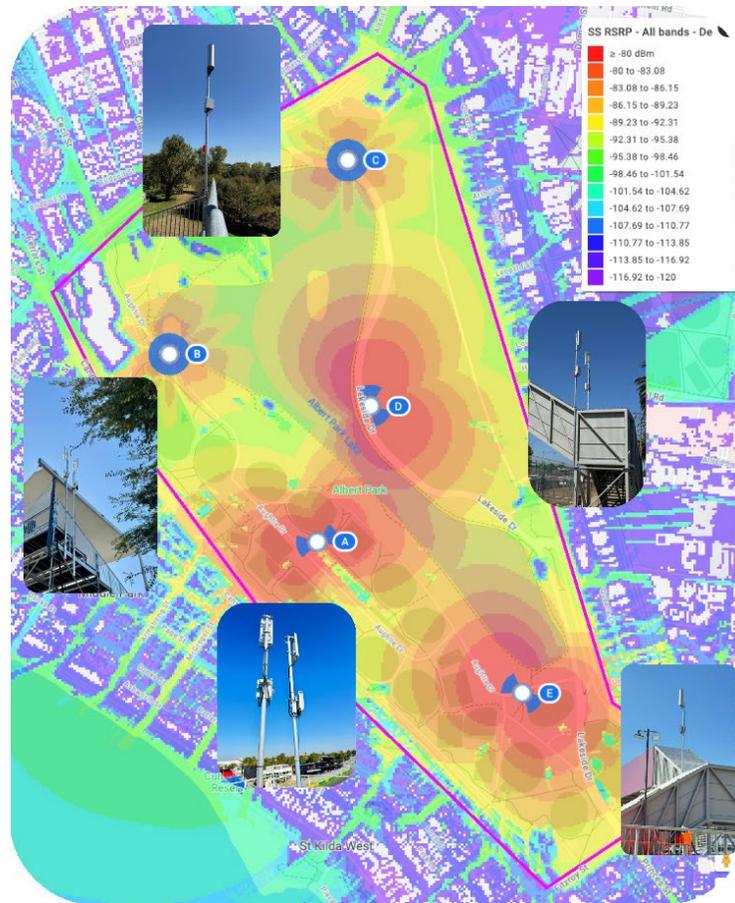


The transport and synchronization infrastructure utilized time-synchronized Ethernet with IEEE 1588v2 Precision Time Protocol (PTP) to ensure jitter-free, deterministic fronthaul performance and TDD synchronization across all radio units. Network management was handled through the cloud-native Onyx Portal, which provided a unified operations dashboard with real-time event alarms.



RF Design and Performance Results

RF design optimization achieved comprehensive venue coverage while overcoming physical constraints including metallic structures and tree canopies. Strategic RU placement delivered RSRP values consistently exceeding -90 dBm in primary zones and maintaining coverage above -100 dBm venue-wide. Critical coverage areas included ticketing locations, concessions, team garages, and media centers, with successful interference mitigation providing isolation from congested public networks.



Implementation Timeline and Execution

The implementation timeline demonstrated exceptional project management under extreme constraints. Pre-deployment activities spanning 45 days before the event included spectrum coordination and ACMA exemption approval, equipment procurement and international shipping, and customs clearance and staging coordination. On-site integration during the 8 days before the event encompassed site preparation and equipment installation, network integration and testing, and performance validation and optimization. The operational phase began with go-live prior to public attendance, followed by continuous monitoring throughout the event and real-time performance optimization as needed.

Business Impact and Results

The business impact delivered measurable operational excellence by enabling seamless POS transactions across all vendor locations, supporting uninterrupted media broadcasting and content distribution, facilitating real-time team communications and logistics coordination, and delivering an enhanced spectator experience through reliable connectivity. The strategic value included demonstrating private 5G viability for large-scale events, establishing Australia's first n77 private network precedent, validating rapid deployment capabilities under extreme time constraints, and creating a replicable framework for future sporting events. Risk mitigation benefits eliminated dependency on congested public networks, provided guaranteed bandwidth and latency for critical applications, and ensured business continuity for revenue-generating systems.

Technology Innovation and Industry Firsts

The deployment achieved several industry firsts, including the first 5G NR band n77 private network deployment in Australia, successful implementation under special regulatory exemption, and demonstration of O-RAN architecture in a temporary event environment. The modular architecture supports venue expansion while cloud-native management enables multi-site deployments. Pre-integrated edge hardware reduces future deployment cycles, and the proven framework is applicable to other major sporting events. Future-proof elements include O-RAN compliance ensuring vendor flexibility, edge computing capabilities supporting emerging applications, and a standards-based approach facilitating technology evolution.

Key Success Factors

Key success factors included strategic partnerships between PMY Group's deployment expertise and project management capabilities, GXC's integrated technology platform and support, and ACMA's regulatory flexibility enabling spectrum access. Technical excellence was demonstrated through pre-staged edge hardware minimizing on-site integration time, cloud-native management platforms enabling scalable support, and early RF site planning optimizing coverage in complex environments. Operational discipline maintained aggressive but realistic project timeline management, comprehensive testing and validation procedures, and continuous monitoring and optimization during the event.

Lessons Learned and Future Applications

The project yielded valuable lessons for future deployments. Pre-integration and staging significantly reduce deployment risk, while cloud-native management platforms prove essential for complex temporary networks. Early RF planning remains critical in constrained and temporary environments. Regulatory engagement showed that proactive spectrum coordination enables innovative deployments, special use authorizations can accelerate technology adoption, and clear technical justification supports regulatory approval. Partnership strategy insights revealed that global equipment sourcing requires early logistics planning, local expertise combined with specialized technology providers optimizes outcomes, and regulatory relationships facilitate innovative deployment approaches.

This groundbreaking deployment was delivered through the strategic partnership of PMY Group (deployment and integration) and GXC (technology platform), enabled by special authorization from the Australian Communications and Media Authority (ACMA). The success demonstrates the viability of private 5G networks for large-scale events and establishes a framework for future innovative connectivity solutions in challenging deployment environments.

