



CASE STUDY

Delivering a Sovereign Digital Backbone for Modern Defence Platforms

Commonwealth of Australia (CoA)

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Australia is undergoing a Land Modernisation program with Redback AS21 and Boxer Combat and Reconnaissance Vehicle (CRV)



Astute Systems—an Australian defence technology company with more than seven decades of combined in-house experience in land systems—was selected by a major defence prime to support a key program for the Commonwealth of Australia. The CoA required a sovereign partner with deep domain expertise, proven reliability in ruggedised digital systems, and the ability to deliver modern vehicle-borne capabilities aligned with the Generic Vehicle Architecture (GVA) standard. Astute Systems' engineering pedigree, rapid innovation cycle, and commitment to Sovereign Manufacturing made it the natural choice for this strategically important program.

Challenge

The Commonwealth of Australia has long prioritised Australian Industry Content (AIC) to ensure sovereign capability, rapid support, and resilience when operational requirements shift. When the Australian Army sought to integrate a new network switch into a major land program, they faced a unique challenge:

- A non-standard network protocol not typically supported by commercial or military switches
- A shortage of ruggedised systems vendors in the Southern Hemisphere
- A need for rapid modification, testing, and delivery within tight program timelines

The Army required a sovereign partner capable of engineering agility, deep domain knowledge, and the ability to evolve beyond a simple switch to a platform-level digital backbone.

Why Astute Systems Was Chosen

Astute Systems stood out for several reasons:

- Local engineering capability with proven ruggedised hardware experience
- A track record of rapid design adaptation
- Deep understanding of land vehicle digital architectures
- Existing sovereign products, including the BushNET family, already trusted in harsh environments

This combination positioned Astute Systems as the only Australian vendor capable of delivering a compliant, rugged, and future-ready solution within the required timeframe.

Solution

Astute Systems began by adapting its BushNET platform to support the Army's new network standard, delivering updated units in under six months. But the company didn't stop at meeting the requirement—they saw an opportunity to transform the digital architecture of land platforms.

Leveraging extensive domain knowledge, Astute Systems engineered a new variant of BushNET, consolidating multiple critical functions into a single appliance. This evolved into the platform's Central Nervous System, a compact 5-in-1 GVA-enabled solution integrating:

- Managed Layer 2/3 switching
- Network routing

- A server hosting embedded TAK and GVA services
- A neural processor for AI/ML workloads
- An automotive gateway bridging CAN/J1939 and Ethernet

The system also supports red/black separation, thanks to the physical isolation of server and router elements, enabling secure multi-domain operations within a single device.

For platforms requiring additional autonomy or mission-level AI processing, the architecture seamlessly integrates with Astute Systems' GXA-1 AI mission system, providing scalable compute for optionally manned and autonomous operations.

Outcome

The Central Nervous System became a sovereign, off-the-shelf digital backbone suitable for logistics vehicles, robotic platforms, landing craft, and autonomous surface vessels. It now enables:

- C2 and C4ISR integration
- Counter-UAS capabilities
- Active protection systems
- Remote weapon stations
- Autonomous and optionally manned behaviours

The Army gained a rugged, Australian-made solution that reduces SWaP-C, simplifies integration, and accelerates deployment across multiple vehicle classes.



BushNET

BushNET the 5in1 Central Nervous System digital backbone

Key Benefits Delivered

Sovereign capability: Australian-designed, Australian-supported, and rapidly modifiable

- Reduced SWaP-C: Five critical subsystems consolidated into one rugged appliance
- Future-ready architecture: Built-in neural processing and seamless integration with the GXA-1 AI Brain
- Simplified integration: Native GVA v10 services and automotive gateway support
- Enhanced security: Red/black separation within a single device
- Rapid delivery: Updated hardware delivered in under six months

Future

Astute Systems continues to expand its sovereign digital ecosystem, with ongoing development focused on:

- Enhanced AI/ML processing for autonomous and semi-autonomous platforms
- Next-generation GVA services to support evolving land, sea, and air requirements
- Modular mission systems built around the GXA-1 AI Brain
- Export-ready variants to position Australian technology on the global stage

Astute Systems is demonstrating that Australian companies are not just participating in the global defence market—they are leading it, delivering world-class, sovereign technologies that redefine what modern platforms can achieve.



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