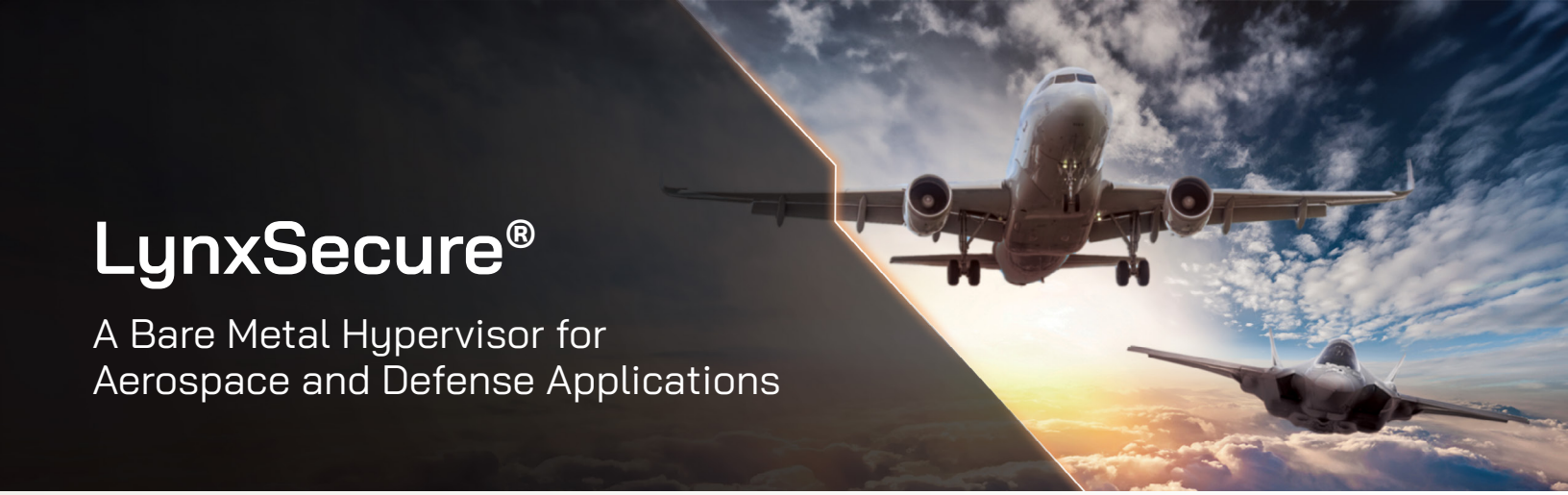

LynxSecure®

A Bare Metal Hypervisor for Aerospace and Defense Applications

LynxSecure is a separation kernel hypervisor that supports multicore CPUs by precisely partitioning hardware resources to meet strict safety and security needs. Each application is assigned only the required CPU cores, memory, I/O, and operating system necessary to complete its function. Proven in commercial and military deployments, LynxSecure is certifiable to DO-178C (up to DAL A) and MIL-HDBK-516C standards.

Unlike many hypervisors in its class, LynxSecure does not include or require a central management kernel between the application and the CPU. This approach provides direct access to CPU cores, which can significantly improve overall system performance. LynxSecure is a completely OS agnostic hypervisor. It can can be used with any vendor's RTOS or with the LynxOS-178® RTOS, the LynxElement® unikernel, embedded Linux, or as a bare metal implementation.

Proven Architecture

- **Minimal and Independent:** Bare-metal separation kernel with no host OS dependencies, designed to reduce complexity, attack surface, and certification effort.
- **Maximum Hardware Utilization:** Portable architecture with broad processor support, providing direct access to the CPU, contributing directly to SWaP (size weight and power) optimization.
- **Deterministic and Predictable:** Supports real-time performance through a static configuration with fixed resource allocation and precise task control, without hidden schedulers or interference.

Assured Isolation

- **Mixed-Criticality Support:** Enables the simultaneous deployment of safety-critical and non-critical applications by allowing them to run concurrently in fully isolated partitions. Supports both OS-managed and bare-metal applications.
- **Strong Partitioning:** Hardware-backed separation with no shared memory and no centralized scheduling. This eliminates cross-partition interference and helps protect sensitive data.

A Trusted Computing Base

- **Secure by Design:** Meets modern cybersecurity requirements. Anchored in secure boot and cryptographic root of trust, aligned with NIST SP 800-53 security and privacy controls.
- **Reduced Attack Surface:** A small footprint hypervisor that delivers robust protection and eliminates common intrusion vectors.

Certification-Ready

- **Airworthiness Certified:** Certifiable to DO-178C DAL A, MIL-HDBK-516C, and key multicore regulatory guidance such as A(M)C 20-193.
- **Integrated Modular Avionics:** A modular architecture that meets IMA and MOSA standards. Supports legacy hardware and software while also ready for future modernization in both commercial and defense-specific contexts.
- **Reduced Certification Costs:** Lean separation kernel architecture isolates components, enabling updates without ripple effects on other certified software. DO-297 / IMA aligned design that simplifies adding or removing subjects while bounding the scope of the certification effort.
- **Field-Proven:** Field-deployed in a variety of commercial and military aircraft.

AI and ML Workloads

One of the key challenges in deploying applications that use artificial intelligence and machine learning is the potential impact on safety-critical functions and the security of sensitive data. LynxSecure addresses this challenge by providing 100% separation in the application.

Primary Use Cases

LynxSecure is engineered for mission- and safety-critical environments where fault tolerance, cyber resilience, and strict separation are essential.

- **Fault-Tolerant, Cyber-Resilient Platforms:** Resists cyberattacks and contains faults through hardware-enforced isolation and a trusted computing base.
- **Command vs. Payload Separation:** Protects critical command and control functions by isolating them from complex or higher-risk payload operations.
- **Secure Gateways for Mixed-Criticality Data Flows:** Manages trusted data exchange across domains with different safety and security requirements.
- **Safety-Critical Mission and Flight Systems:** Provides certifiable separation of mission and flight software to meet the highest assurance standards.

Why LynxSecure

A hypervisor is the cornerstone of your risk profile. LynxSecure delivers the isolation, predictability, and assurance that mixed-criticality and multicore platforms demand.

Ready to revolutionize your mission-critical systems? Contact Lynx today to learn more about how LynxSecure can empower your success and help you Seize the Edge in every critical endeavor.

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