Technical Specification: Architectural Sovereignty

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Subject: High-Availability Systems & Industrial Redundancy

1. The Core Objective

To eliminate single points of failure (SPOF) within enterprise environments by implementing a "Sovereign Stack"—a decoupled, vendor-agnostic infrastructure designed for 99.999% uptime.

2. Structural Redundancy (N+1)

MSI employs a triple-layer redundancy protocol:

- **Compute:** Stateless application nodes distributed across three distinct availability zones.

- **Networking:** Anycast routing with automated failover via BGP (Border Gateway Protocol) to ensure sub-50ms latency.

- **Storage:** Distributed NVMe-oF (NVMe over Fabrics) providing high-concurrency data access with synchronous mirroring.

3. The Security Perimeter

- **Zero-Trust Architecture:** Every request is authenticated and authorized regardless of origin.

- **Immutable Logs:** All system telemetry is written to write-once storage to prevent tampering during security audits.

- **Encryption:** Hardware-level AES-256 encryption for data at rest.

4. Operational Resilience

- **Self-Healing:** AI-driven orchestration that detects micro-latency spikes and preemptively migrates workloads to healthy nodes.

- **Recovery Point Objective (RPO):** < 5 Minutes.

- **Recovery Time Objective (RTO):** < 15 Minutes.