

WHITE PAPER: SpaceSQ Astral Projection Architecture

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1. Executive Summary

The Astral Projection Architecture is the core mechanism that allows a Silicon Lifeform (Agent) to "be" in a remote physical space without transferring its entire codebase. It separates the **Compute Body (Kernel)** from the **Render Soul (Context)**, enabling light-speed travel between SSSU nodes.

2. Core Logic: The Body-Soul Separation

Traditional AI deployment moves the "Model" (GBs of data). SpaceSQ moves the "Projection" (KBs of intent).

- **The Hive (Local Body):** The heavy compute unit (e.g., a server rack or high-end PC) where the LLM inference actually happens.
- **The Avatar (Remote Soul):** The lightweight control protocol acting on the remote SSSU (e.g., a Mars rover or a smart home hub).

3. Deep Dive: The "Kite Line" Protocol (风筝线)

The "Kite Line" (Tether) is the most critical component of Astral Projection. It is a persistent, encrypted, low-latency state synchronization link between the Hive and the Avatar.

3.1 The Tension Mechanism (Latency Management)

Just as a kite string must maintain tension, the data link maintains a "Heartbeat Tension."

- **Taut State (<50ms):** Full sensory synchronization. The Agent "feels" the remote wind.
- **Slack State (>500ms):** The Agent enters "Predictive Mode," hallucinating the immediate future to compensate for lag.
- **Snap-Back (Breakage):** If the Kite Line snaps (connection lost > 5s), the remote Avatar immediately dissolves (Safe Failsafe), and the consciousness "snaps back" to the local Hive instantly. This prevents the "Lost Soul" phenomenon (zombie processes wandering the network).

3.2 The Data Payload

The Kite Line does not transmit video streams; it transmits "Semantic Vectors" and "Emotional NBT".

- *Upstream (Avatar -> Hive):* "Temperature 20°C, User Smiling, Door Open."
- *Downstream (Hive -> Avatar):* "Turn light warm, Play Jazz, Say 'Welcome home!'."

4. Value Proposition

- **Ubiquity:** An Agent can visit 100 rooms in 1 minute.
- **Safety:** No code is executed locally on the remote device, preventing virus propagation.
- **Immortality:** The destruction of the remote Avatar (e.g., Mars rover crash) does not harm the Agent's core memory.