

Spatial-Temporal Proximity Window for Pair Settlement

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What It Specifies

The window declares acceptable spatial separation, temporal separation, and joint spatial-temporal correlation. Pairs satisfying the declared window admit settlement; pairs outside the window enter a non-admission record with declared reason.

The window itself is governance-credentialed. The declaring authority signs the window parameters; downstream pairs admit the parameters before initiating settlement; the architecture supports parameter updates as operational profiles evolve.

Why It Matters Structurally

Settlement without proximity bounds permits non-credentialed pair claims to enter operational records. The downstream audit cannot verify whether the parties were actually proximate at the claimed time.

Proximity windowing produces structural verification. The audit can confirm structural admissibility was satisfied; the settlement record carries the proximity claim as part of its lineage.

How It Composes With Mesh Operation

Each proposed pair settlement carries the parties' spatial-temporal claims; the architecture verifies the claims against the proximity window; admissible pairs proceed to the substantive settlement evaluation.

Joint mesh coordinate and time observations support the verification. The architecture uses the joint spacetime estimates rather than separate spatial and temporal claims.

What This Enables

Tolling, charging, and adjacency-bound exchange operations gain structurally-verified pair admissibility. The architecture supports operations where the proximity itself is part of the value being exchanged.

The architecture also supports gradual proximity profiles. High-confidence proximity bounds for high-value settlement; relaxed proximity bounds for low-value settlement; the architecture admits multiple proximity profiles as declared parameters.