

## ■ DOMAIN SPACE • THE EDGE, LANE BY LANE

# FIVE DOMAINS. ONE ARCHITECTURE, FIVE ARTIFACTS EACH.

Every lane carries the same chain – asset, model, code, analytics, data – and ends in an edge node that keeps fighting when the link is gone. That repetition is what makes the layer hybrid.

| DOMAIN   | 1 • ASSET                                                   | 2 • MODEL                                                      | 3 • CODE                                                          | 4 • ANALYTICS                                            | 5 • DATA                                                      | EDGE NODE                                         |
|----------|-------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------|
| Space    | <b>SDA sensors</b><br>RF / EO custody • maneuvering objects | <b>Orbital mechanics</b><br>Orekit • high-fidelity propagation | <b>Maneuver detection</b><br>Custody handoff • autonomous at node | <b>Track quality</b><br>Conjunction risk • MOPs          | <b>Ephemeris record</b><br>Catalog deltas • every run logged  | ➡ <b>Space edge</b><br>Fights alone under DDIL    |
| Air      | <b>ISR • missile warning</b><br>Airborne and overhead feeds | <b>Flight + propagation</b><br>Kinematics • radar horizon      | <b>Track correlation</b><br>Single air picture at the node        | <b>Warning time</b><br>Detection probability • MOEs      | <b>Track record</b><br>Air picture history • provenance       | ➡ <b>Air edge</b><br>Fights alone under DDIL      |
| Land     | <b>Ground sensors • fires</b><br>Force posture • effectors  | <b>Terrain + posture</b><br>Line of sight • movement           | <b>Fires deconfliction</b><br>Pre-authorized responses            | <b>Effects • coverage</b><br>Mission outcome • MOMs      | <b>Position + order log</b><br>Who moved, when, on what basis | ➡ <b>Land edge</b><br>Fights alone under DDIL     |
| Maritime | <b>Surface • subsurface</b><br>AIS • radar • sonar contacts | <b>Sea state + propagation</b><br>Environmental model          | <b>Contact fusion</b><br>Custody across sensors                   | <b>Track confidence</b><br>Identification quality • MOPs | <b>Contact record</b><br>AIS + track history                  | ➡ <b>Maritime edge</b><br>Fights alone under DDIL |
| Cyber    | <b>Network telemetry</b><br>Link health • intrusion signals | <b>Network model</b><br>NS-3 • contested-link behavior         | <b>Path selection</b><br>Five-tier degradation ladder             | <b>Link availability</b><br>Latency • loss • MOPs        | <b>Event record</b><br>Telemetry + path decisions             | ➡ <b>Cyber edge</b><br>Fights alone under DDIL    |

----- EVERY EDGE NODE FEEDS THE HYBRID LAYER Same five artifacts in every lane means the core reasons across domains on one record – and any lane keeps running on its own when the link drops. ➡

DDIL = DENIED, DISRUPTED, INTERMITTENT, LIMITED • SDA = SPACE DOMAIN AWARENESS • MEASURES: MOMS • MOES • MOPs

SOURCES: USSPACECOM FY29-33 IPL • HYPATIUS PLATFORM DIRECTIVES