Kela

Sovereign Sky - Kela in Space

Kela's move into space extends the same edge we hold on the ground - being the best, fastest integrator - into full, end-to-end space solutions. In a field where mature technology rarely translates into complete defense solutions, we integrate the separate modules into a single operational system. We are backed by top talent with 20+ space missions and 30+ years of experience, and a track record of rapidly integrating and customizing high-TRL modules. We expect to launch our first LEO satellite by the end of 2027.

We leverage the commercial stack for the commodity layers - satellite bus, ground stations, mission control, 5G core - and concentrate our own R&D on the core, sensitive modules: the communication stack, the navigation solution, and the sensing payloads. We maintain control over these core layers, as they dictate the system's ultimate strategic advantage and sovereign security.

The problem we are solving

1. Strike behind enemy lines - primary scenario

- A mass-scale strike - thousands of UAVs and missiles - has to reach targets deep inside hostile territory. To get there and hit precisely, every one of those platforms requires continuous communication and navigation, unaffected by jamming or range.
- This means full telemetry, command uplink, and target confirmation. At this scale, platforms run on lightweight guidance and autonomy rather than manual control - which removes the need for high-bandwidth video.
- The same backbone also carries the assisting fleet around them - manned platforms, ground robotics, and dismounted troops - which requires support for C2 data and voice.

2. Loss of national telecom - secondary scenario

- An enemy strike has knocked out key national telecom infrastructure. Military units and first responders still have to coordinate - so they fall over onto a sovereign backup network that does not depend on the damaged ground infrastructure or on anyone else's satellites.
- Sustained coordination here requires messaging, C2 data transfer, and voice.

3. Core infrastructure

- Kela can help build a variety of capabilities in space, from launch detection to spectral awareness and a high-revisit EO (electro-optical) constellation. But we want to address the most painful problems first.
- Both scenarios point to the same conclusion. A military superpower cannot depend on foreign communication and navigation services in a contested environment. It needs its own resilient layer - and that is the system this paper describes.

Architecture & tech

1. Multi-orbit

We set up a LEO constellation that enhances existing GEO capability. Distributing the system across many small satellites makes it robust and hard to take down. The lower orbit delivers higher performance and resiliency, and the satellites' motion enables navigation. Sharing service across the two layers (GEO + LEO) creates resilient infrastructure.

2. How communication works

The system delivers narrowband communication for command and control - location, messaging, telemetry and control, voice/PTT, and small-scale video. It runs on software-defined satellites carrying a military-grade custom communication payload, with frequency-hopping spread spectrum (FHSS) for anti-jam resilience, a sovereign ground station, and a terminal tailored to each use case.

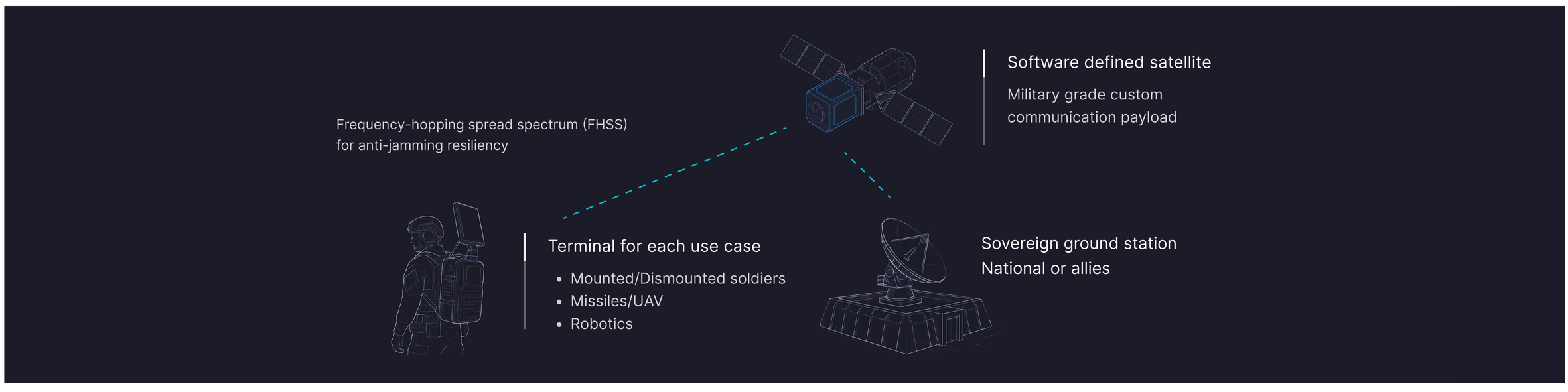
Telemetry & control

Location

Messages

Voice/PTT

Small scale video



3. How navigation works

Two layers that build on each other:

Opportunistic PNT

Computed from open broadcast signals - using their features for triangulation without parsing content. An adversary can't jam every signal in the sky, and this works before the first satellite in orbit.

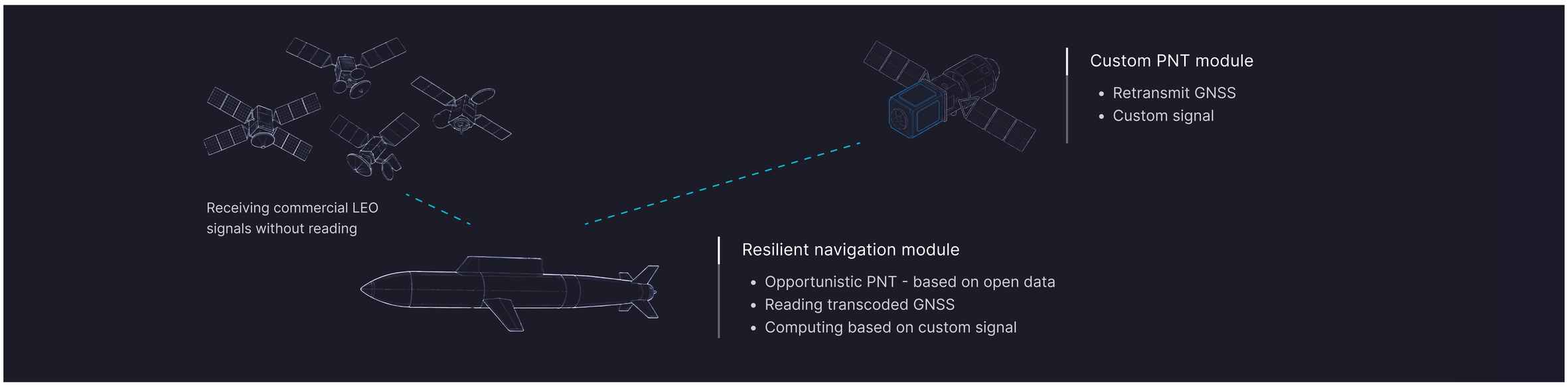
Custom PNT

A custom PNT signal from our own satellites, purpose-built for triangulation. We can extend by holding a secret, unused frequency in reserve for wartime.

Reliable under GNSS jamming

Location

Timing



Key concepts

1. Gradual sovereignty

Rather than wait years for a single, all-at-once delivery, we stand up operational capability quickly on national/commercial GEO, then utilize sovereign LEO as launches progress - made possible by hybrid terminals and a shared stack. In a similar manner, we deliver fast navigation capability using opportunistic PNT, that is later enhanced by the custom PNT signal.
This hybrid approach provides rapid capability that keeps getting better, and more independent, with each step.

2. Small, lean satellites - a constellation that grows and upgrades

Instead of a few massive, expensive satellites that take years to field, we launch small ones quickly and add capability with every batch. Like commercial vendors, the constellation grows and upgrades over time: new batches and end-of-life refreshes introduce more capable generations and new missions. Each satellite is equipped for a group of missions, keeping the programs lean and fast. Because the satellites are software-defined, we can also upgrade behavior and repurpose hardware in orbit - so the fleet improves without waiting for the next launch.

3. Prioritized vs. balanced coverage

Full, continuous coverage for hundreds of sq. km can take hundreds of satellites. Rather than pay for all of them and wait years to deploy, we field dozens (x3 less) and use them intelligently. In balanced mode, capacity and coverage are spread evenly, providing a decent service across the entire area. In prioritized mode, we dynamically concentrate resources on the area of interest - full 24/7 service there, at the expense of lower capacity elsewhere - and switch as the mission demands. The result is higher effective coverage per dollar than buying out the whole map.

3. Narrowband now, wideband later

Narrowband is high-TRL, fast to field, and cost-effective - it brings real operational capability quickly. Wideband (video and high-bandwidth applications) is lower-TRL and needs bigger, more expensive satellites. We can deliver either. But given our understanding of the urgent scenarios, narrowband is enough to solve the key problems, so we'd recommend focusing on it for the first step. Because wideband runs on the same stack, just larger, more complex hardware - deferring it is an evolution, not a pivot.

We build what you actually need

Our biggest idea is the simplest one: build what the customer actually needs, not a generic platform. Everything here - the figures, the modes, the terminal mix, the roadmap - rests on the assumptions of standard operational scenarios and constraints. Please challenge them. The more precisely we understand the need, the better we tune the constellation for you and the path to it.

The companion Performance Timeline lays out an example staged plan given these assumptions.