EFFICIENT

Unattended Ground and Maritime Sensors

Air-drop it, forget it, get the right call months later.

Unattended ground sensors, sonobuoys, and maritime drift sensors are deployed once and expected to live for months in places no one will return to. They mix seismic, acoustic, magnetic, and RF front ends. The mission is to listen continuously, classify what they hear, and burst-transmit only the events that matter, often through satellite or mesh links with painful energy costs.

What is actually running

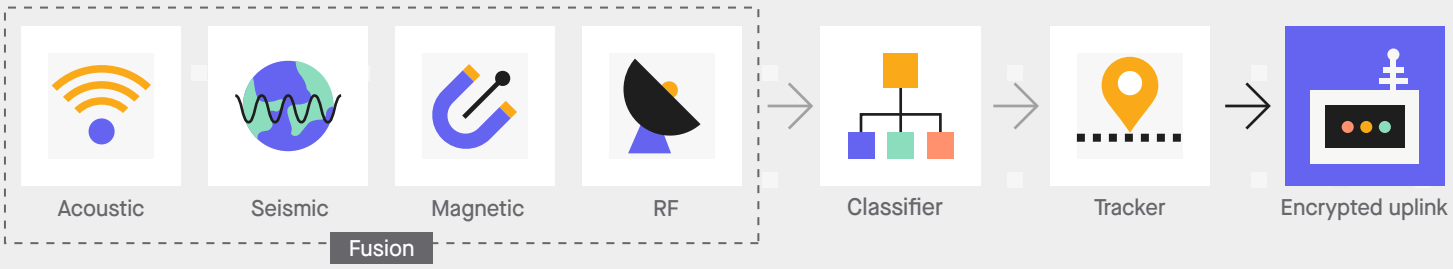
Continuous high-rate sampling on multiple modalities. Beamforming on acoustic and RF arrays. Spectral analysis and matched filtering. Cadence and gait classifiers for footstep detection. Vehicle and platform classifiers. RF emitter identification. Track association across time. Encrypted burst transmit scheduling.

The Amdahl's Law trap

This is a DSP and signal-intelligence workload with classifiers as a final stage. An NPU does almost nothing for the workload. A CPU plus NPU SoC trades battery for very little intelligence gain. The mission either ends early or the sensor downgrades to a dumber duty cycle.

What the Fabric architecture delivers

The Fabric architecture runs every layer of the chain (filters, beamformers, classifiers, trackers) at much lower energy. Continuous all-source listening on a small primary battery becomes a normal operating mode rather than an aspiration.



What it unlocks

Longer missions per deployment. Smaller form factors that can be air-dropped more easily. Smarter on-device discrimination so the satellite link is used only for events that matter, which extends both energy budget and the operator's signal-to-noise. New sensor classes (very small, very cheap, very many) become viable.

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