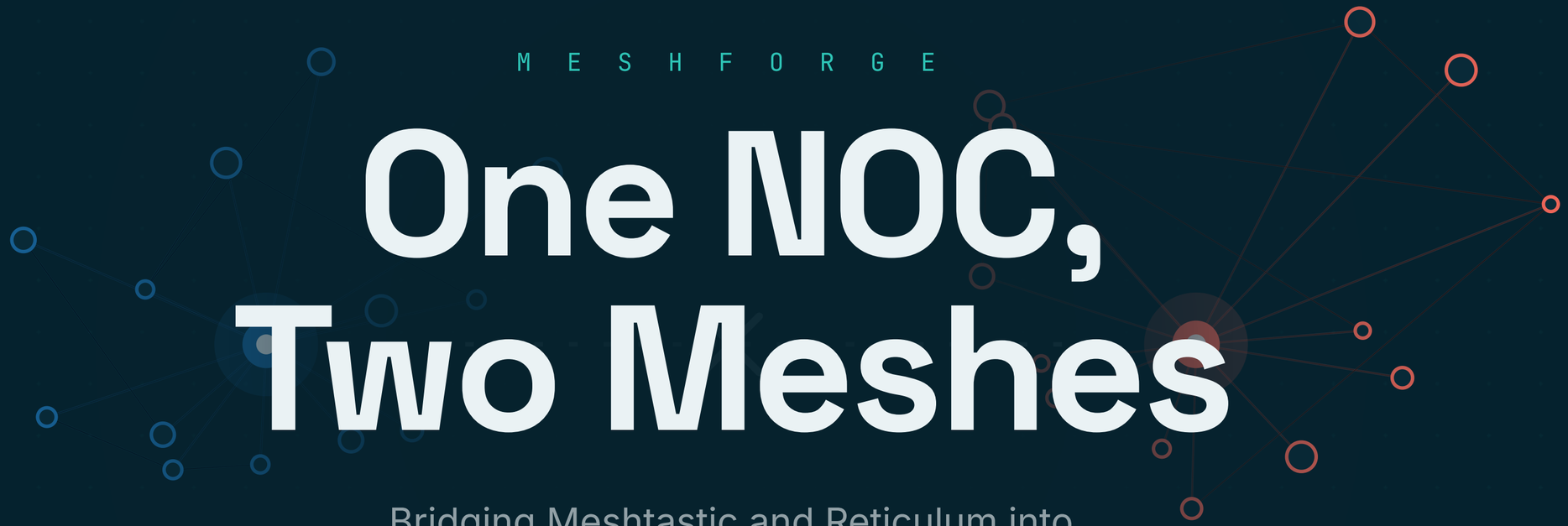
WH6GXZ



M E S H F O R G E

# One NOC, Two Meshes

Bridging Meshtastic and Reticulum into a single off-grid network operations center.

open source · made with aloha · MeshForge 0.6.2-beta · github.com/Nursedude/meshforge

THE TWO MESHES

# Two of the best things in off-grid radio — and they can't hear each other.

## Meshtastic *the friendly LoRa mesh*

- LoRa radios — cheap, dead-simple, a huge community.
- Channels, positions, telemetry, text — out of the box.
- Built for reach and ease, not addressing or routing.

×

## Reticulum *the serious comms stack*

- Cryptographic networking — transport-agnostic by design.
- Real addressing & secure messaging (LXMF), routing baked in.
- A different wire format, a different trust model entirely.

Different wire formats · different crypto · **a message on one is invisible to the other.** Run both, and you run two islands.

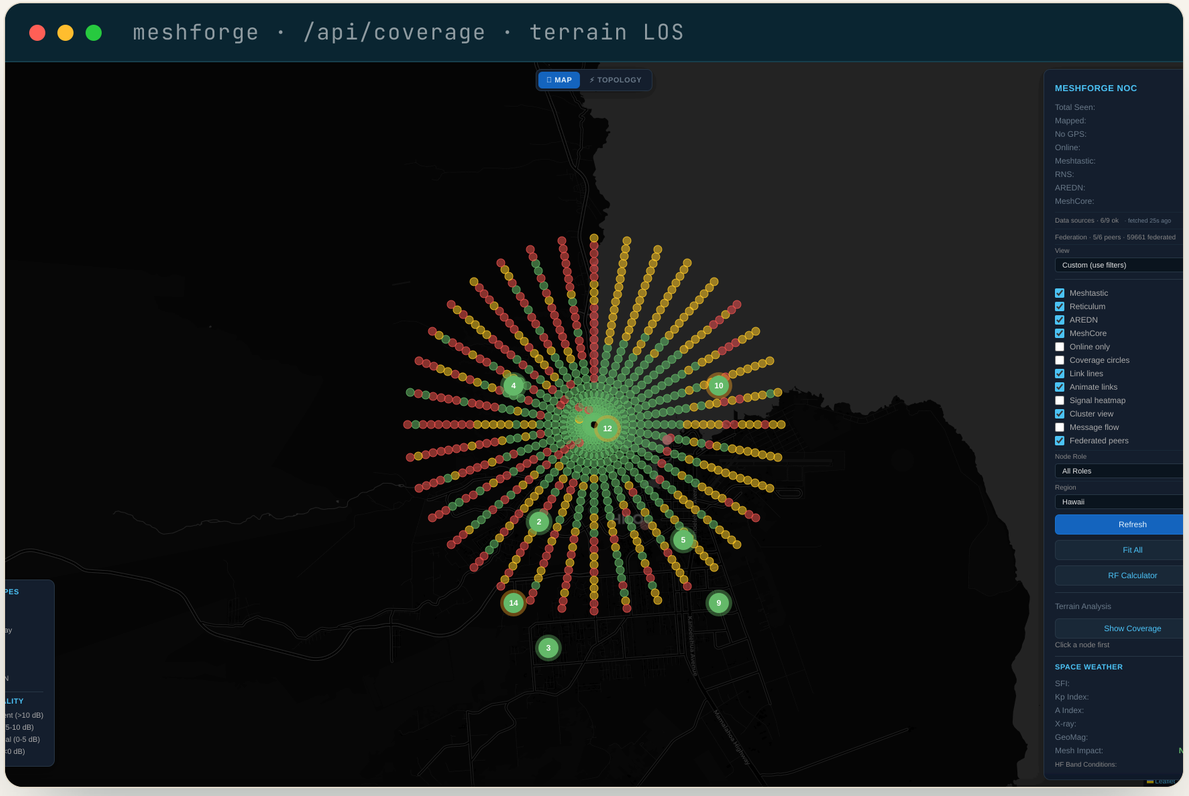
# The network you have beats the one you wish you had.

EmComm runs on what's already lit. And HAMs already bridge worlds every day —

VHF ↔ HF

voice ↔ digital

Meshtastic ↔ Reticulum




Real line-of-sight coverage from a relay site above Hilo — green core is clear LOS; red fringe shows where to add the next relay. One pane of glass: Meshtastic + RNS + AREDN on one map.

A NOC, NOT JUST A BRIDGE

# A bridge alone isn't operations. You have to see the network — and trust it.

monitor · map · diagnose · heal

— not just translate

- ▸ runs on a Raspberry Pi
- ▸ terminal-first (TUI)
- ▸ no cloud required
- ▸ first open-source tool to unify the two

# HOW THE BRIDGE WORKS

INPUTS

- Meshtastic
- Reticulum (RNS)
- MQTT
- MeshCore


ROUTES OUT

- RNS + LXMF
- MQTT
- MeshCore
- ATAK / CoT

**Directed replies**

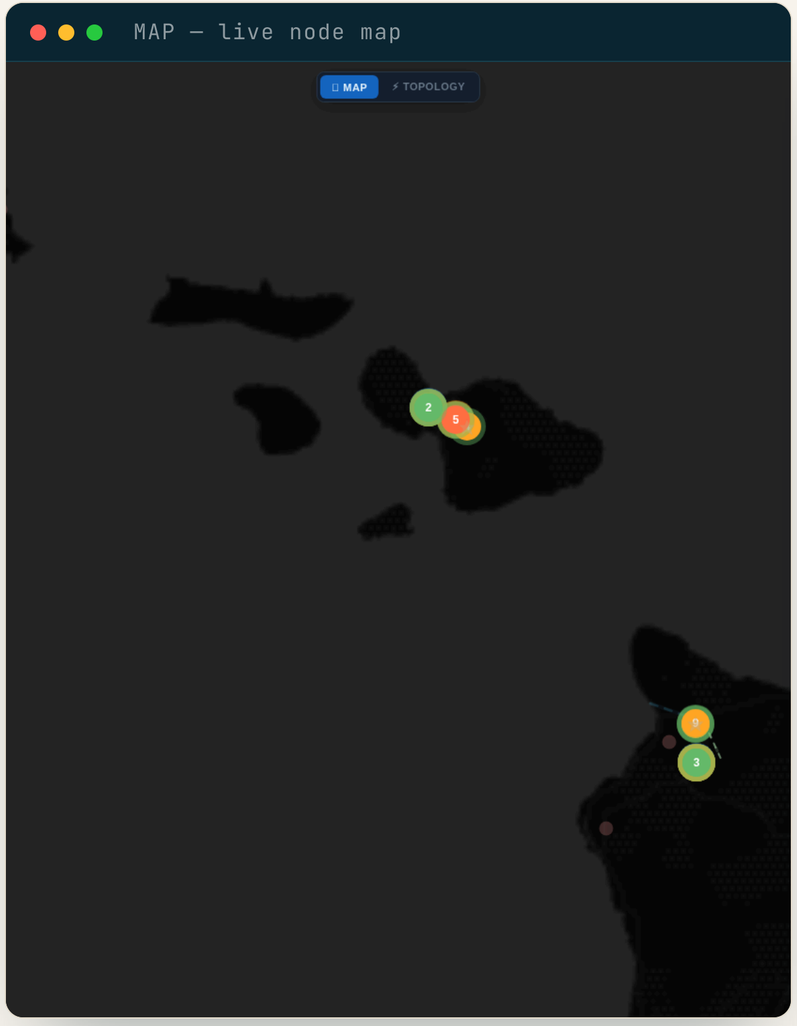
A Reticulum user can answer a Meshtastic node — the reply finds its way back across the gap.

**Honest delivery**

Queues & retries under the hood. The UI never says "delivered" when it only means "sent." ACK ≠ "I keyed up."

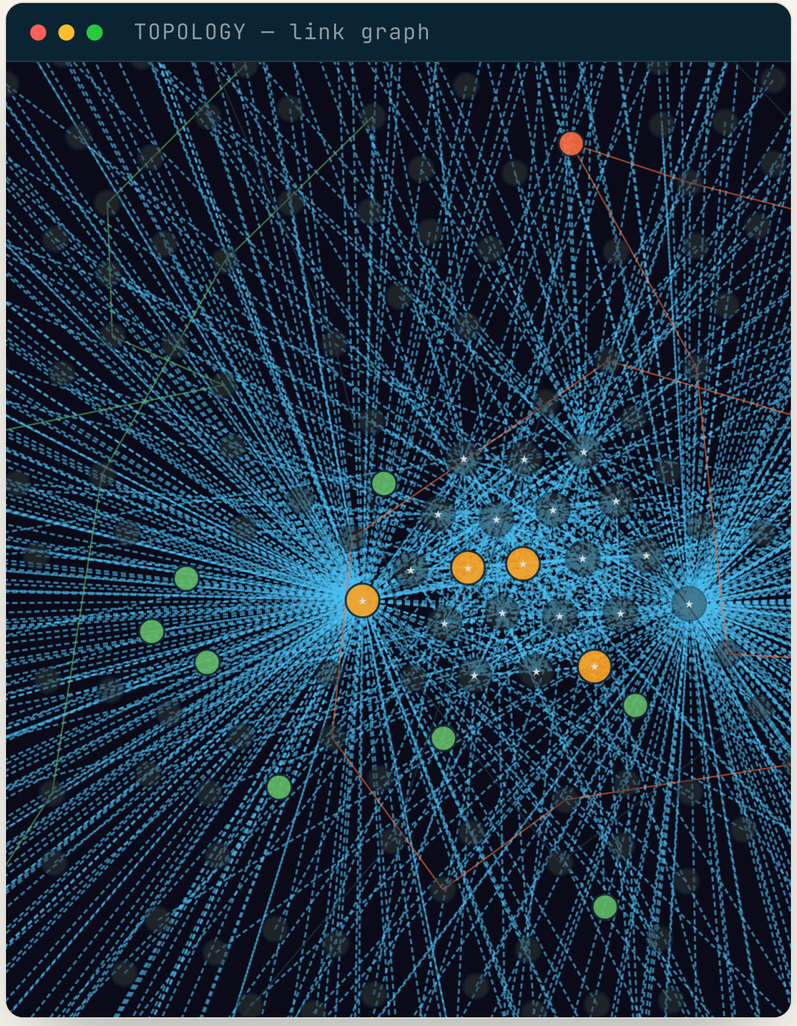
## WHAT YOU ACTUALLY SEE

• LIVE DEMO



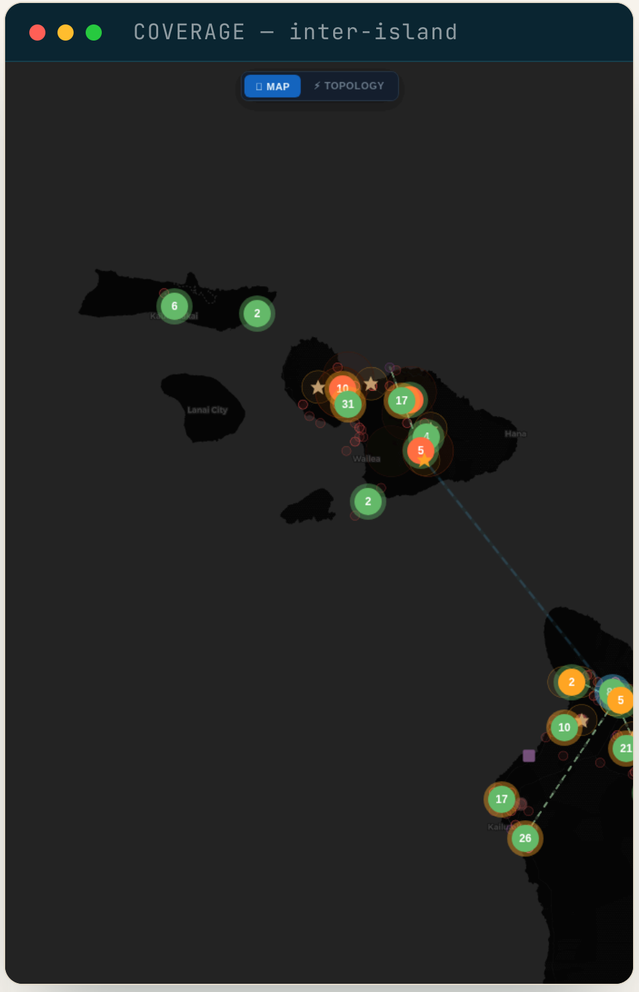

### Live node map

Position · last-heard · source network · SNR, across every island.




### Topology & links

Who hears whom — the mesh's real shape, link by link.




### RF coverage

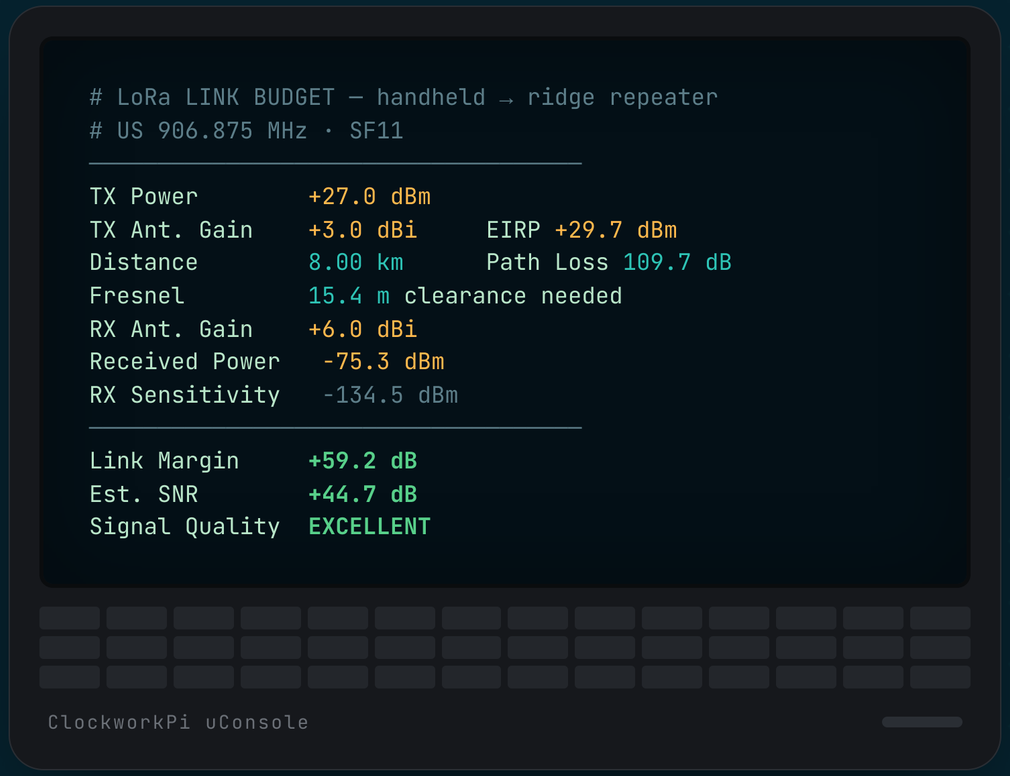
Link budgets & terrain reach — plus a terminal NOC for operators who live in SSH.

REAL RF TOOLS, IN YOUR HAND • LIVE DEMO

# Tools you'd want anyway — with zero dependencies.

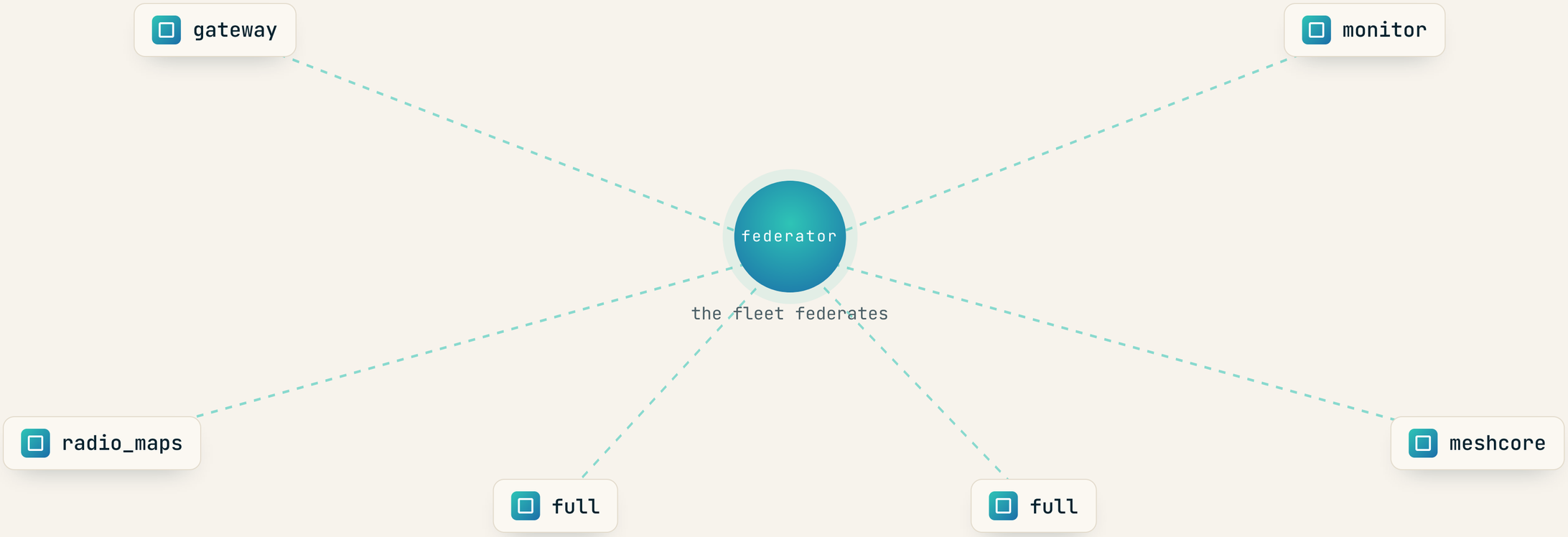
- Link-budget · Fresnel · path-loss · antenna math.
- Space-weather & propagation, live from NOAA.
- LoRa presets · regions · frequencies.
- Zero deps on purpose — so it runs on a handheld in your go-bag.

```
$ python3 standalone.py
```

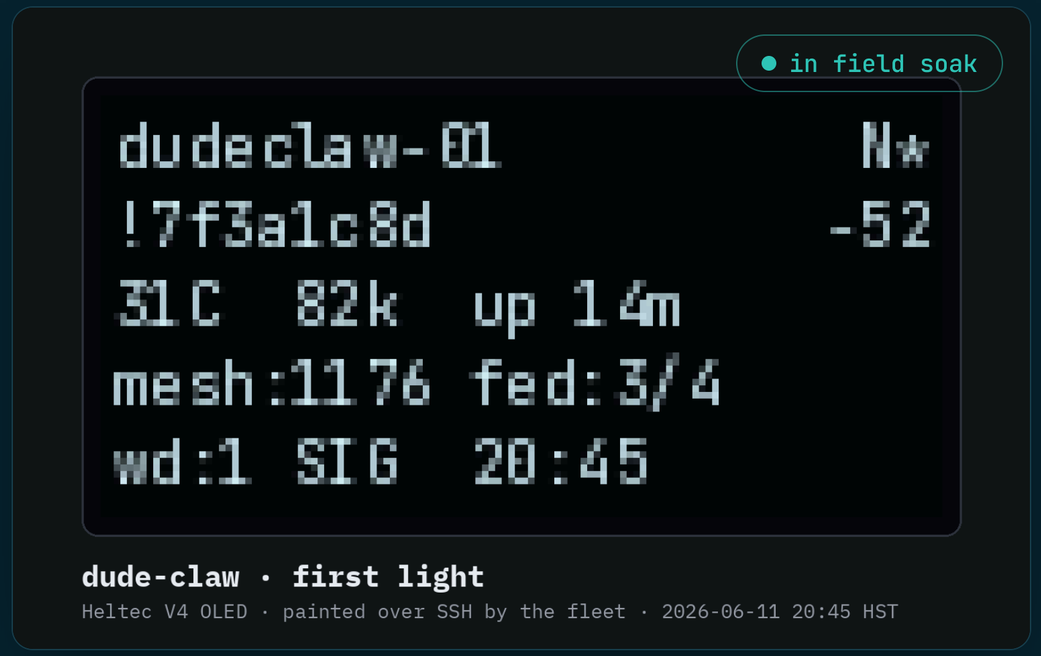


IT RUNS AS A FLEET

# Pick a role per box. The fleet federates.




A field-deployed fleet of Raspberry Pis. One's a **gateway**, one's a map server — assign a deployment profile per box and they federate into one network.




**dude-claw · first light**

Heltec V4 OLED · painted over SSH by the fleet · 2026-06-11 20:45 HST

DUDE-CLAW — THE EDGE

# Three radios. One tiny ESP32.

**LoRa**
RX + TX — the mesh long-haul.

**WiFi**
Link-up to a Pi-brain or the field LAN.

**BLE**
Passive scan — sensing, not pairing.

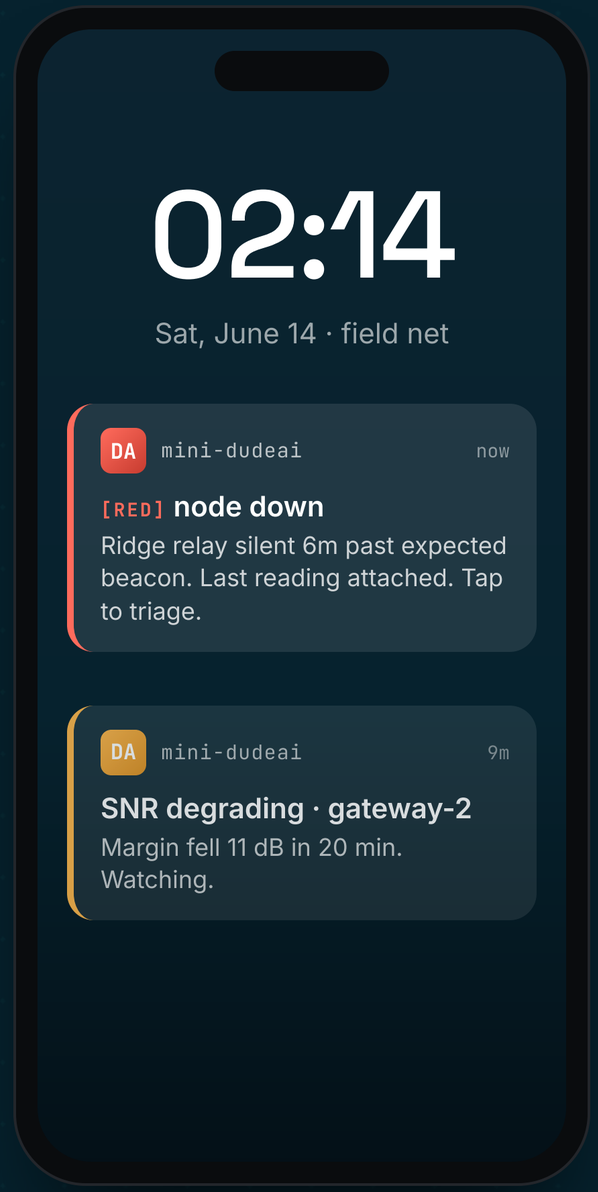
The sensing **tip** of the fleet — deploy where a Pi won't fit or survive. Pair it with a Pi-brain (even a handheld) and you've got a fully portable, standalone NOC. Built lean & fail-loud.

SILENCE IS THE FAILURE MODE

# A dead repeater that looks alive is worse than one obviously down.

An autonomous watchdog watches for the **absence** of signal — not just errors. **mini-dudeai** is a rule-loop that pages the operator's phone when something's actually wrong.

`doctrine · every swallowed failure leaves a witness a probe can see.`



OPEN SOURCE & THE ECOSYSTEM

# Off-grid comms you can't inspect is comms you can't trust.

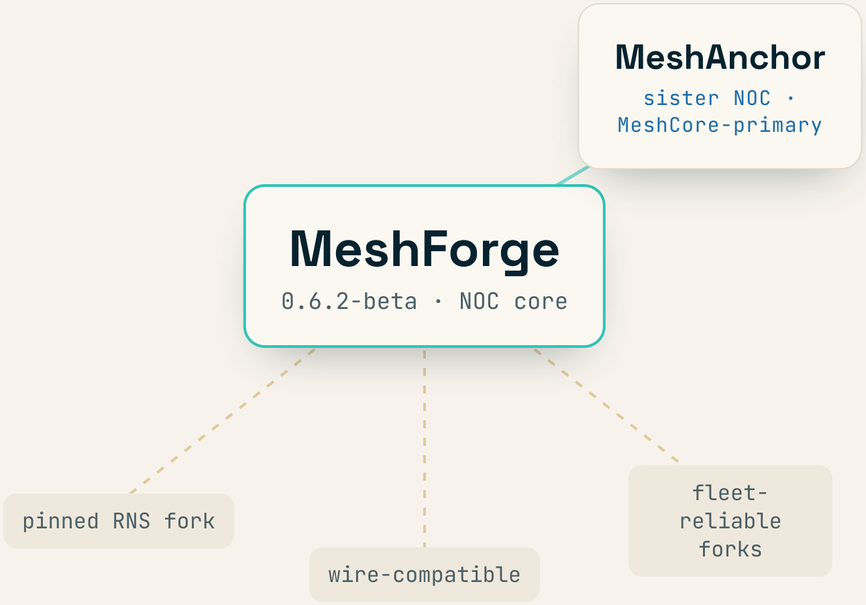
**0.6.2**
MeshForge · beta · rel. 2026-06-12

**6,079**
automated tests (~6,000)

**200**
test files

**0.1.0**
MeshAnchor · sister NOC · alpha

Four weeks ago at BIRC: **134 files / 3,830 tests**. Today: **200 / 6,079** — the test count nearly doubled. That delta is the "actively field-hardened" number.



TRY IT

# Got a Pi and a LoRa radio? You’re 10 minutes from this map.

THE NOC

```
sudo python3 src/launcher_tui/main.py
```

RF TOOLS · ZERO DEPENDENCIES

```
python3 src/standalone.py
```

It auto-detects your setup — or pick a deployment profile. Bring your nodes.

github.com/Nursedude/meshforge

scan → clone → key up

# Two meshes.
# One network.

Made with aloha for the mesh community. Come build the bridge.

73 de WH6GXZ — mahalo