RIPA

Deniability layer on ciphertext

Data Entropment Labs
entropment.com

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Problem

Encrypting content is not enough.

In specialised links, diplomacy and air-gapped systems, observers can still infer whether communication happened and which packets were real.

Traffic analysis and metadata remain cheap.

Solution

RIPA is a transport layer on top of existing ciphertext.

- Makes it expensive to determine which packets were real
- Supports short, phrase-portable secrets
- Air-gap friendly
- Does not replace or weaken the underlying cipher

How it works (high level)

Path-dependent state + cover traffic + fakes.

Observer without the path loses synchronisation.
Cost of analysis grows with the number of plausible paths.

Details and model are in the product plan.

Status

Working prototype with full logic
(modulation, keyring, rotation, fakes, verification, state).

Open code.
Model, limitations and technical plan documented.

Core research is done.

What funding is for

Productization, not research.

- Rewrite to C/Zig
- Real HSM (Pi Zero / STM32 class)
- Packaging (dongle / appliance)
- Documentation for institutional users

Target: deployable MVP

Market

Narrow, high-margin niche:
dual-use, govtech, specialised links, air-gap, institutional users.

Relational sales, small number of customers.
No direct mature substitute combining these properties.

Ask

~€300–450k for productization

or

A partner who takes the relational / institutional side
(we stay technical).

Team & risks

Small technical team. Core exists.

Known risks:
- No independent review yet
- No classical certification path (by design)
- Toolchain dependency
- Narrow market
- Bus factor

All named in the product plan.

Next step

Product plan:
https://entropment.com/blog/RIPA_Product_Plan_EN

Happy to walk through the prototype
or technical materials.