SOLUTION ARCHITECTURE

eMbox

The Solution — eMbox Secure Delivery Anchor

Delivered at your door. Read in private. Proof by default.

Technical + Product **With visuals**

May 2026 · https://embox-site.pages.dev

Confidential summary for partnership and planning discussions. Patent pending — not legal advice. Not a filed USPTO application.

A secure digital receiver at your physical address — not an outdoor reader.

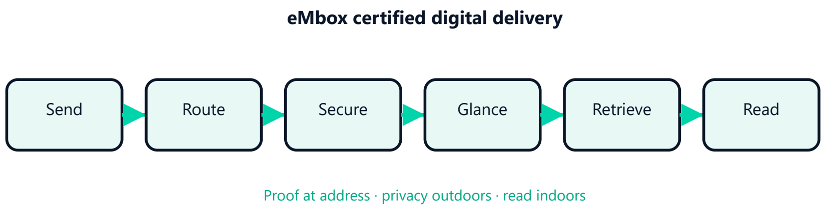


Fig. 1 — End-to-end eMbox delivery flow

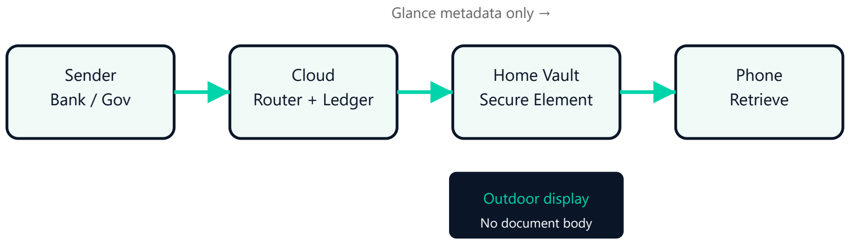


Fig. 2 — eMbox system architecture — sender to household retrieve

Six Pillars

Address-bound vault

Payloads cryptographically tied to GPS, street address, and device serial. Misaddressed or spoofed payloads rejected automatically.

Glance-only outdoor UI

Count, sender category, urgency — never document body, titles, amounts, or account numbers on exterior surfaces.

Retrieve on phone

NFC/BLE/biometric at the door. Legal delivery timestamp at anchor. Read indoors on phone or desktop.

Sender-verified allowlist

Institution-signed payloads only. Postcard enrollment for new senders. Anti-phishing by architecture.

Cryptographic receipts

SENT → ROUTED → SECURED → RETRIEVED → READ. Webhooks for senders. One-tap affidavit export.

Theft-resistant

Encrypted vault worthless if stolen. Tamper zeroization. Sender tamper broadcast.

Software-Only Path

eMbox App and Digital Pro deliver the full protocol without curb hardware — ideal for renters, insurance pilots, and discreet adoption.

End-to-End Delivery Flow

1. Sender (bank, IRS, doctor) signs via Certified Send API with digital address token
2. Cloud validates sender cert, address chain, device registry — encrypts AES-256-GCM
3. Home vault secures payload; outdoor display receives metadata only
4. You glance: Bank · 1 new · Urgent — no amounts visible from street
5. Phone handshake at door — retrieve-or-acknowledge records legal delivery
6. Read privately indoors; export court-ready affidavit if needed

Fig. 3 — Feature comparison — traditional mailbox vs eMbox

Protocol Specifications

Component	Specification
Digital address token	Binds device ID, address hash, geo bounds, payload hash, sender cert
Payload encryption	AES-256-GCM; key wrapped to device public key (X25519)
Chain-of-custody	Append-only signed ledger per delivery
Glance-only rule	Outdoor UI: metadata enum only — firmware enforced
Retrieve handshake	Signed challenge at anchor releases wrapped key
Sender allowlist	Unknown/unsigned payloads rejected or quarantined

vs Traditional Mailbox

Dimension	Traditional	eMbox
Secured to physical address	Paper yes	Cryptographic yes
Readable from street	Yes — windows	No — metadata only
Tamper-resistant vault	Thin metal	Encrypted + tamper-aware
Encrypted until retrieve	No	Yes

Dimension	Traditional	eMbox
Sender verified	Anyone can drop	Institution allowlist
Delivery proof	$10+ certified	Default
Theft = data breach	Yes	No — keys zeroized

Real-World Scenarios

The stolen check

Traditional: Tax refund visible in window envelope. Stolen overnight. $4,200 forged.

eMbox: Glance shows Bank · 1 new. Retrieve indoors. Check never visible outdoors.

The missed court notice

Traditional: Summons in junk pile. Default judgment.

eMbox: Urgent on display + phone push. Statutory classifier surfaces deadline.

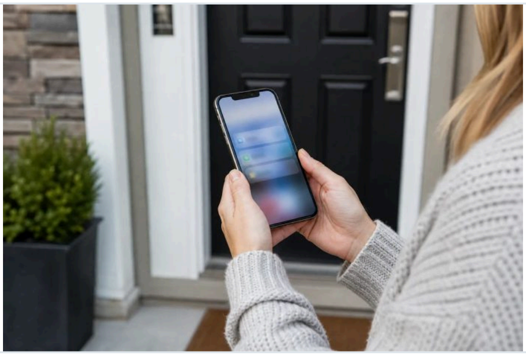
Medical results in rain

Traditional: Soaked HIPAA paper in unlocked box.

eMbox: Verified healthcare sender. Results only on phone after retrieve.

Product Visuals

Home vault — glance-only outdoor display

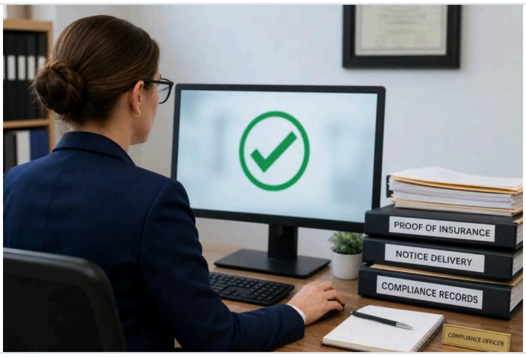


Retrieve at door on phone

Address-bound delivery at home

App-only — no hardware required

Encrypted vault — health & financial mail



Delivery receipt & affidavit export

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See Patent Portfolio for IP protection of each layer