

TECHNICAL ARCHITECTURE – CONFIDENTIAL

# TokiStorage

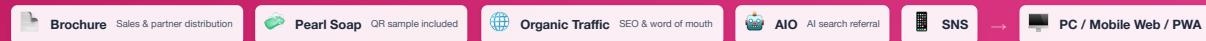
## Technical Architecture

No server. No subscription.

Three-layer distributed storage carrying voice and memory **a thousand years** forward.

INFRASTRUCTURE & SERVICE MAP

USER TOUCH



CLOUD



ARCHIVE



SEO



DEVELOPMENT



Zero fixed monthly costs. Zero proprietary servers — development, delivery, payments, and archiving all run on external services and public institutions. Frontend, GAS, and Cloudflare Workers run on JavaScript / HTML / CSS; generator scripts in Python.

## Zero servers in the data flow — an architecture with no dependencies

### ARCHITECTURE & DATA FLOW

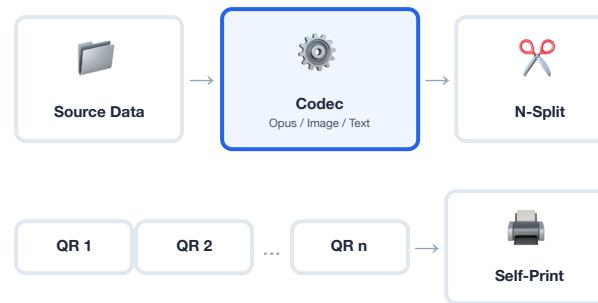


Data Type	Encoding	Max Capacity
Voice	Codec2 WASM (6 modes: 3200–450 bps)	~29 sec (450 bps)
Image	JPEG / WebP — in-browser resize + Base64URL	~2.2 KB
Text	UTF-8 — Base64URL	~2,900 chars

To eliminate service shutdown risk, servers are completely removed from the data flow. The QR code itself is the storage, and the decoder is just a 3 MB static site. With PWA, fully offline playback is possible. No customer data, personal information, or confidential data is held.

## BULK MODE ARCHITECTURE

Supports long audio, high-res images, and long text beyond the single QR's 30-second limit

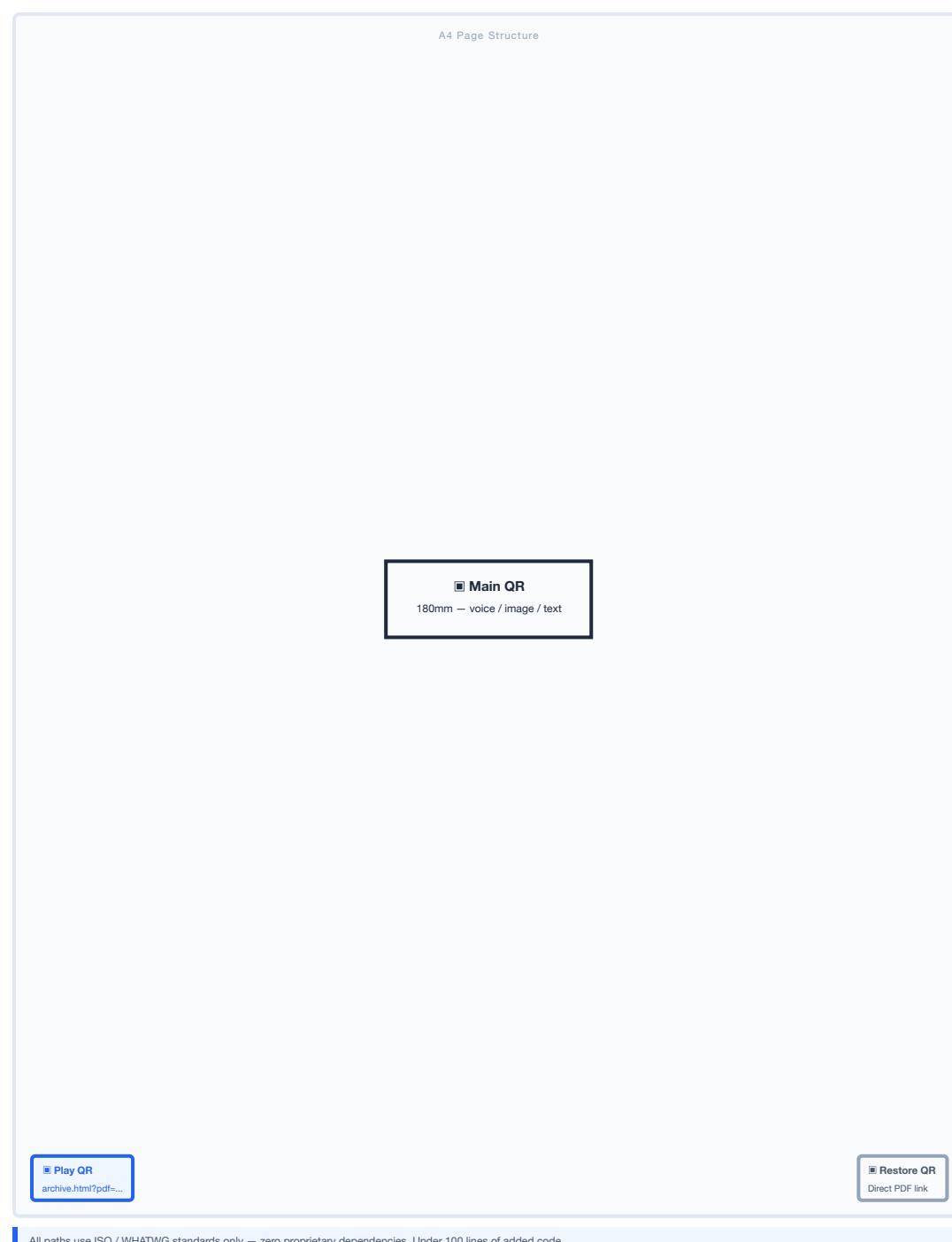


### Prepaid Credits

- ¥150 / 1 code (\$1)
- IndexedDB (browser storage)
- No account required
- No personal info required
- No expiry
- Purchase via Wise transfer

The server cannot see balances, revoke credits, or recover lost ones. This asymmetry is intentional by design.

## MULTI-LAYER RESTORATION ARCHITECTURE



Path	Entry Point	Action
A. Play QR	Page bottom-left (blue)	Scan → auto-decode → instant play
B. Restore QR	Page bottom-right (grey)	Scan → fetch PDF → save
C. PDF Link	Inside PDF viewer	Click → browser navigation
D. Play Button	Newsletter	▶ → auto-decode → instant play
E. Manual Scan	Page main QR	Scan one by one (works offline)

Storage Layer	Medium	Durability
Physical	Quartz glass / UV laminate	1,000 yr+
Public	NDL deposit (newsletter PDF)	Permanent
Private	GitHub + PWA offline	Immediate

## Every component has a pre-designed trigger and migration target — act before crisis arrives

### MIGRATION ROADMAP

Component	Current	Migration Candidate	Trigger	Phase
Email Delivery	GAS + Gmail (100/day)	<a href="#">Amazon SES (62,000/mo)</a>	Orders > 100/day	Phase 2
Production	Manual (print, laminate, pack, ship)	<a href="#">Domestic outsource (turnkey)</a>	Orders > 50/day	Phase 2
Partner Payouts	Wise manual (monthly batch)	CSV batch → API automation	Volume increase	Phased
Voice Codec	Codec2 WASM (450 bps)	Next-gen low-bitrate codec	QR capacity up or quality demand	10-yr audit
QR Standard	Version 40, ECC-L (2,953B)	rMQR / JAB Code / next-gen 2D	ISO update & reader adoption	10-yr audit
Playback Stack	WebAudio API + WASM	Successor browser APIs	API deprecation notice	10-yr audit

Design seams in advance; act before crisis. Swapping a single `sendEmail()` migrates GAS to SES. Every component is independently replaceable — zero lock-in.