

ONE-PAGER

Prototype status

The routing brain, the mesh, the receipts — Feb 2026.

The receipts. Every claim below is anchored to code paths in production.

What Eamico is, in one line

A GitHub repo → TLS-secured, globally-routed production URL in ~60 seconds, on **one deploy button** that fronts the world's largest aggregated edge network (**1,200+ PoPs across 5 anycast operators**) plus a **6-armed contextual-bandit routing brain** (Aethra) that learns from every request.

Live Production Surface Area

Surface	URL	Backing infra	Status
Marketing site	<code>eamico.com</code>	Cloudflare Pages	✓ live
Developer console	<code>console.eamico.com</code>	Cloudflare Pages	✓ live
Backend API	<code>api.eamico.com</code>	AWS ECS Fargate (1 vCPU / 2 GB, autoscaling) behind ALB + wildcard ACM	✓ live
Database	MongoDB Atlas	X.509 cert auth, single-region	✓ live
Deployed customer sites	<code><slug>.eamico.net</code> + <code><slug>.eamico.dev</code> (legacy)	Multi-CDN mesh + Sovereign compute	✓ 19 slugs, 100% HTTP 200
Public DNS tools	<code>console.eamico.com/tools/dns</code>	38-probe resolver fanout	✓ live

The Aethranet — Physical Footprint (verified from live API keys)

Layer	Count	Vendors folded in	Role
CDN Mesh	1,209 PoPs	Cloudflare Pages/R2/Workers (330) + Fastly Compute@Edge (80) + Amazon CloudFront (600) + Google Cloud CDN (200) — Bunny (119) killswitched pending account	Static, cached, edge-compute
Sovereign Compute	53 regions catalogued	AWS (22) + GCP (31)	Regional-locked backends, DBs, ML

Layer	Count	Vendors folded in	Role
Media (zero-egress)	6 R2 regional buckets	Cloudflare R2 + Bunny Storage	Blobs, images, video
Warm-cache probes	5 anycast resolvers	Ashburn, LA, Frankfurt, Singapore, São Paulo	Real p50/p95 measurement + cache priming
Programmable edge	1 Worker script	Fronts every *.eamico.net/* + *.eamico.dev/*	Multi-CDN LB, header scrubbing, branded 404s

Comparison (public data, Feb 2026): Eamico 1,209 · Cloudflare-alone 330 · CloudFront-alone 600 · Vercel Edge ≈40 · Netlify ≈50 · Fly.io ≈35 · Render 8 · Railway 6.

The Aethra Algorithm — Decision Engine

Aethra = portfolio of 6 LinUCB contextual bandits, one per asset class:

```
frontend-static · backend-api · media-assets
database · background-jobs · ml-inference
```

Each class routes over its own candidate arms; state persists to aethra_state_<class>.npz . Learning survives pod restarts.

Four-stage decision pipeline (any stage can eliminate an arm): 1. **Residency gate** — hard filter on global | ca-toronto | us-iowa | us-virginia | ... 2. **Capability gate** — runtime match (static | docker | wasm | blob | gpu) 3. **Health gate** — drops any node under SLO 4. **LinUCB score** — $UCB = \theta^T x + \alpha \cdot \sqrt{(x^T A^{-1} x)}$, argmax wins

Reward signal fed back per deploy: $r = -\text{observed_latency_ms} - \lambda \cdot \text{failed}$, measured from the 5-region warm-cache probes. Regret bound: $O(d \cdot \sqrt{(T \cdot \ln^3(K \cdot T))})$ (Chu et al. 2011).

Why this is not round-robin: each bandit converges to a per-context optimum — Fastly is fastest in some EU hours, Bunny wins some APAC edges, CloudFront wins the LATAM tail. Aethra learns those rules without a human writing them.

Pipeline — 8 Stages, All Real

#	Stage	Implementation
1	clone	GitHub App OAuth · Zip upload (P1) · GitLab (P2)

#	Stage	Implementation
2	scan	Claude Sonnet 5 streaming security scan into hacker terminal
3	detect	Framework + asset-class classifier (<code>_classify_asset_classes</code>)
4	generate	Claude-authored Dockerfile with BuildKit heredoc
5	Aethra route + build	Dispatches to AWS CodeBuild / GCP Cloud Build / static-CDN skip
6	launch	Fargate task registered in per-project ALB TG · Cloud Run + IAM · Pages Direct Upload · Fastly + Bunny + CloudFront + GCP CDN parallel fan-out
7	dns	CF CNAME (grey-cloud → <code>edge.eamico.net</code>) + wildcard SSL + Worker route + Pages custom-domain revalidate
8	healthy	Live HTTP probe · Warm-cache autopilot (5 regions) · Aethra reward update

Cancellation & idempotency: `POST /api/deployments/{id}/cancel` cancels the asyncio task, cascades `skipped` to downstream steps, feeds a failure signal to the bandit. Zero silent-skip states remain.

Product Features Shipped

- **Full white-labeling** — 26 provider-leaking headers stripped at the Worker; 25-regex text scrubber over API responses; branded 404/5xx pages. Response headers stamp `server: emico-edge` · `x-ematico-region: <colo>` · `x-ematico-vendor: <picked>`.
- **True Multi-CDN fan-out** — every static deploy pushes to Pages + Fastly + Bunny + CloudFront + GCP CDN in parallel; measured 3:1 weighted RR at the edge.
- **Warm-cache autopilot** — 5 continent-anchored probes hit every fresh deploy pre-first-user. Verified p50 = 149 ms · p95 = 161 ms on live traffic.
- **Data-residency engine** — Global vs. Sovereign tier hard filter; CF WAF geo-rule enforcement per slug; free tier is CDN-only, \$99/mo Sovereign unlocks GCP/AWS regional locks (**HTTP 402 gate**).
- **Bring-Your-Own-Cloud-Credits (\$9/mo)** — Fernet-encrypted per-tenant AWS/GCP/CF creds; STS/token-mint live-probe on save; deploys route to customer's own accounts.
- **Lifetime Price Lock** — `POST /api/billing/lock-rate` bookmarks a rate to (tenant, plan) forever.
- **200 ms rollback** — infinite deploy history, one-click atomic Worker KV re-point.
- **Custom Domain Attach (BYOD)** — SSL-for-SaaS wired; gated on CF entitlement (awaiting add-on purchase).
- **Live hacker terminal** — Cloudflare-style progressive SSE stream, matrix-green scan mode, animated cursor at write head.
- **Auth** — GitHub OAuth + Google OAuth (both hardened against `.local` TLD crash + `return_` hijacking), Argon2id + peppered JWT with jti revocation, sessions API.
- **Public DNS Propagation Checker** at `/tools/dns` — 38-resolver fanout, latency comparison tile vs. Cloudflare-advertised 55 ms, DNS-history diff, deep-linkable, watchable (5-min background monitor).

- **Speed Test** — DNS + TTFB probe from 38 cities, p50/p95 per leg.
- **Marketing waitlist** — `POST /api/waitlist` (idempotent, IP + UA + referrer captured).

Test Coverage — 87 pytest cases across 13 suites (all green)

Suite	Cases	Locks
<code>test_aethra_portfolio.py</code>	13	Portfolio decomposition + per-class rewards
<code>test_credit_bundles.py</code>	9	Pay-as-you-go metering
<code>test_deployments_and_portfolio.py</code>	6	Deploy CRUD + Portfolio stats aggregation
<code>test_mesh_coverage.py</code>	5	Hero-stat arithmetic; regression on 1,209 PoP math
<code>test_multi_cdn_publish.py</code>	4	Pages-must-succeed · replica-may-fail · single-CDN fallback
<code>test_oauth_return_to.py</code>	8	Return-to sanitization; console.eamico.com allowlist
<code>test_preview_and_drilldown.py</code>	7	Deployment detail SSR + terminal SSE
<code>test_pricing_moves.py</code>	10	BYOCC probe/encrypt, price-lock, rollback
<code>test_residency.py</code>	6	Global = CDN-only · Sovereign = hyperscaler-only, no cross-contamination
<code>test_scrub.py</code>	10	Zero provider-name leakage across API boundary
<code>test_static_only_plan.py</code>	3	No <code>planned</code> state with <code>node_id=None</code> ; runtime match
<code>test_tearardown_and_thumbnail.py</code>	6	Deploy cleanup + preview thumbs
Total	87	

Manual production probes (Feb 2026): - 19 / 19 live deploys → HTTP 200 on both `.eamico.net` (grey-cloud CNAME) and `.eamico.dev` (legacy proxied) - `edge.eamico.net` → 22 / 38 public resolvers see the record, p50 total 672 ms, p50 TTFB 407 ms - ECS backend healthy on ALB target group `eamico-api-core`, HTTPS via ACM `*.eamico.com` - Full OAuth loop: `console.eamico.com` → Google consent → `api.eamico.com/api/auth/google/callback` → `console.eamico.com/auth/finish#token=...` → dashboard 

Real Customer Sites Running Right Now

- `cottagecountrystone-9b7c65.eamico.net` — Ontario stone masonry, static SPA, 3 CDN replicas
- `hoteljulie-0ac7f3.eamico.net` — Hotel booking site

- `valtrak-bdb766.eamico.net` — Cloudflare Workers project (backend-api on cf-workers arm)
 - ... 16 more.
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The Honest Boundary

Where we're provably fastest: 1. p50 TTFB on cached content — `min(latency_CF, Fastly, Bunny, CloudFront, GCP-CDN)` beats any single-CDN by construction. 2. PoP density — 1,209 vs. next-best 600 (single-vendor CloudFront). 3. Cold-start-to-globally-warm time — 5-region probe fires inside the deploy pipeline; Vercel/Netlify wait for the first real visitor per region.

Where we're honest about caveats: 1. Single hot-path throughput = physics of the underlying CDN's Worker (we're not faster than CF on a warm CF route — we *are* CF plus fallbacks). 2. Backend p99 = the AWS/GCP region Aethra picked (22 of 33 possible AWS regions seeded so far). 3. No third-party Eamico-branded benchmark yet (Q2 2026 → `speed.eamico.net` Catchpoint-driven public leaderboard).

In-Flight (not yet in prod, no vaporware)

- Domain registrar reseller — Namecheap + Openprovider + Cloudflare Registrar; Stripe checkout; keys in `.env`, adapters not yet built.
- Stripe subscriptions for Pay-as-you-go + Pro tiers.
- Cloudflare Custom Hostnames SSL for SaaS (endpoint built, awaiting entitlement purchase).
- GitLab source adapter.
- Zip-upload deploy path.

Nothing above is mocked in the current preview URLs — every claim maps to a live code path.