Engineer Software

Platform Architecture

19 achievements

Connect the parts of your system

The work collected under “Platform Architecture” shows one part of a working system. We can help connect that part to the rest of your operation. The shape of a system worked out on paper first, so the parts fit and the cost is known before anyone writes code.

Explore our services Get in touch →

Find a comparable challenge

Follow an example that resembles your situation. Its review describes the decisions behind the result, beyond the technology label. One infrastructure plan for 14 departments — 14 research departments on one infrastructure plan

One infrastructure plan for 14 departments Get in touch →

One infrastructure plan for 14 departments

Designed a comprehensive infrastructure framework for a research institute impacting 14 departments, featuring flexible modules, unified data pipelines, and structured support strategies for long-term adoption.

Ran 100 PostgreSQL, MS SQL, BigQuery warehouses

Architected, created, and managed 100 PostgreSQL, MS SQL, and Google BigQuery data warehouse databases with primarily GIS and time-series data, optimizing performance and scalability.

Led a GIS map application to 10x revenue growth

Led the software development of a GIS map application, driving revenue growth by 10x and positioning the product as a primary data asset.

Directed full-stack GIS map development

Directed full-stack GIS map development, overseeing PostgreSQL, Mapbox, ReactJS, and NodeJS to deliver an integrated solution.

Overhauled internal processes, saving 8,000 hours

Overhauled internal processes, saving 8,000 hours by improving software architecture, systems, and scheduling efficiency.

A mapping product, carried end to end

Architected, developed and supported infrastructure, data processing and a map application over 2 years, covering both software delivery and operational maintenance.

Infrastructure simplified beyond AWS

Reworked an international client's infrastructure by removing unused services, adjusting capacity and moving workloads away from AWS. The founder reports a 10x reduction in cloud costs with no loss of productivity.

A maritime platform with clear system boundaries

Architected a layered maritime platform separating a Next.js PWA frontend, a Go (Huma/Fiber) API, and a PostgreSQL function layer, keeping all business logic in the database.

Designed a JSON passthrough from Postgres to API

Designed a JSON passthrough architecture where PostgreSQL functions return complete JSON forwarded verbatim by the Go API, eliminating intermediate unmarshalling and decoupling the frontend from schema changes.

Built organization context switching for users

Designed an organization context-switching system with client localStorage and server-side cookie mirroring, letting users act as managed organizations while enforcing least-privilege authorization.

Migrated the API to Huma v2 at 100% parity

Migrated the HTTP API from Fiber to Huma v2 — 649 paths and 760 operations — reaching and holding 100% parity between the routes the server registers and the OpenAPI description it publishes.

Designed a function-first PostgreSQL data layer

Designed a PostgreSQL function-first data layer — 1,275 stored functions across 34 schemas — so every read and write goes through a function the database can grant, rather than through a table.

Modeled 348 tables across 34 Postgres schemas

Modeled the maritime domain into 348 normalized tables across 34 PostgreSQL schemas — professionals, companies, ships, jobs, reviews and the rest — with SMALLINT lookups and UUID v7 keys.

Built the Next.js 16 frontend: SSR, SSG and CSR

Built the Next.js 16 frontend with deliberate SSR, SSG and CSR strategies, and a reusable prefetched-server-page factory that removes the N+1 fetch cascade from each authenticated page moved onto it.

Hardened the application with nonce-based CSP

Hardened the application with nonce-based CSP, HSTS, SameSite cookies, least-privilege database roles and server-side entitlement re-checks.

Set the platform's founding technical decisions

Set the platform's founding decisions in the weeks after the repository opened in November 2025 — the layering, database-first data access and the zero-warnings bar — and they still hold nine months on.

Built infrastructure that still runs years later

Planned and implemented new infrastructure functionality for internal and external systems, building solutions durable enough to still run years later with minimal change.

Built the entire core infrastructure from scratch

As one of the first hires, designed and built the entire core infrastructure and supporting processes from scratch for a green-energy SaaS startup, laying the foundation for rapid growth.

Public services on a small server

Hosted the company's public services on a single-core 512 MB host — a git forge, a web server for seven domains, Tor, two alternative-protocol servers and intrusion banning — treating 464 MB of usable memory as the design constraint; backup automation is a separate implementation.

Focus the engineering effort

Describe the workflow, the existing interfaces and the users who need the change. We can define a testable delivery and a handover that lets your team maintain it.

See what it costs Get in touch →

Put the subject in your context

Tell us how "Platform Architecture" appears in your own system. We can help choose the relevant service and define the work around it.

Explore our services

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