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References

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HYHYVE

PROJECT	HyHyve
CUSTOMER	Binary Please
WEBSITE	https://www.hyhyve.com/
LANGUAGES	* Elm * Nix * Shell * TypeScript
TECH STACK	Aws.s3, Bash, Docker, Eslint, Express, Fastify, Mongodb, Nats, Nodejs/bun.sh, Redis, Stripe, TailwindCSS, Typescript, NixOS, Docker, Docker Compose, GitHub Workflows, Justfile/Makefile
DESCRIPTION	The HyHyve project, developed entirely in-house as our flagship product, is a real-time multiplayer web application with a modern and scalable architecture. The frontend is built entirely in Elm, providing a robust and maintainable user interface. The core game engine, written from scratch in TypeScript, ensures smooth gameplay and interaction. Additionally, the system features extensive Elm FFI via custom components for seamless integration with external functionalities. Styling is handled with Tailwind CSS. The backend runs on a Fastify-based API using TypeScript and Node.js (Bun.sh) for high-performance execution. Data is stored in MongoDB, validated with Zod, and synchronized in real time using Redis. A NATS-based microservice architecture ensures efficient messaging and event-driven communication. The system and deployment are managed on a dedicated server running NixOS, with custom Nix modules for declarative system configuration. The infrastructure is containerized using Docker, orchestrated with Docker Compose, and automated via Docker CI and GitHub Workflows. AWS S3 is used for file storage, while Stripe handles payment processing. This architecture leverages NixOS for stability and maintainability, ensuring a scalable, high-performance system optimized for real-time interactions.