

MASTERY AI

HIGH-PERFORMANCE INTELLIGENT LEARNING OPERATIONS SOLUTION

A unified platform that automates training management operations and provided educators a hands-on environment to practice applying AI in education.



Context

RMIT Vietnam's Empowering Educators with AI (EEAI) initiative works with Vietnam's Ministry of Education and Training (MoET) and UNICEF to upskill teachers. In 2025, this national program trained over **300,000 educators**. However, the program lacks a dedicated platform, relying on a patchwork of spreadsheets, Google Forms, and social media. This manual setup creates heavy administrative work for coordinators and leaves teachers without a structured environment to practice and maintain new skills. **MasteryAI** solves this by delivering a unified platform that automates administration and provides a hands-on practicing environment.

Problem

Fragmented Operations: For organizer team, managing massive cohorts using disconnects tools creates heavy administrative work and yields inconsistent, error-prone records.

Knowledge Retention Gap: For educators, without hands-on reinforcement, educators forget up to 70% of new concepts within 24 hours of completing their training.

Objective

- Overall Objective:** Build a unified digital platform that automates upskilling administration and provides a hands-on, syllabus-aligned practice environment for teachers.
- Automate Workflows:** Save 45% to 60% of administrative work by centralizing registration, attendance, and certificate tracking inside a single automated portal.
- Improve Retention:** Help teachers retain up to 75% of skills by transitioning learning from passive lectures to active, curriculum-aligned chatbot practice

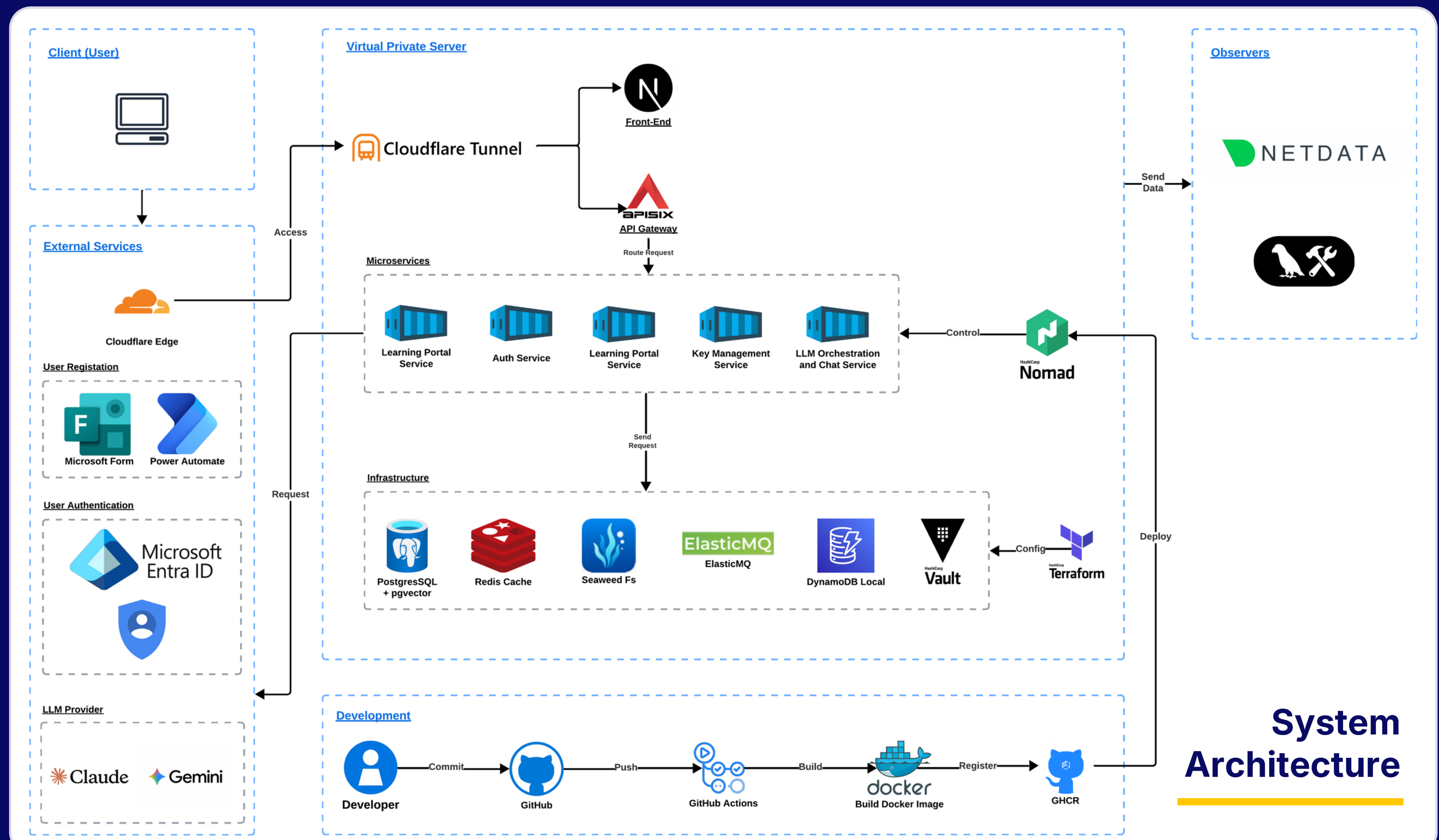
How the system works

300,000
concurrent users

Live Attendance Check-in: Uses a fast caching layer and background processing to confirm instantly, no crash at national scale

Authentication

- Power Automate Registration:** Connects directly to the official Microsoft registration form; Power Automate (a Microsoft tool that automates workflows between apps) creates the user's account and participant code automatically once they submit the form.
- OAuth-only Login:** Verifies accounts against the registration data from Power Automate using the unique participant ID, only granting access to pre-approved users who sign in with Google or Microsoft (OAuth is a secure sign-in method that lets users log in with an existing account instead of a new password)



Deployment

Automated CI/CD Delivery

GitHub Actions packages multi-arch Docker images, publishes them to GitHub Container Registry (GHCR), and triggers automated deployment to the Contabo VPS over SSH.

Lightweight Orchestration (Nomad)

HashiCorp Nomad pulls new images from GHCR to execute zero-downtime rolling updates with automatic health checks, providing a high-efficiency alternative to Kubernetes.

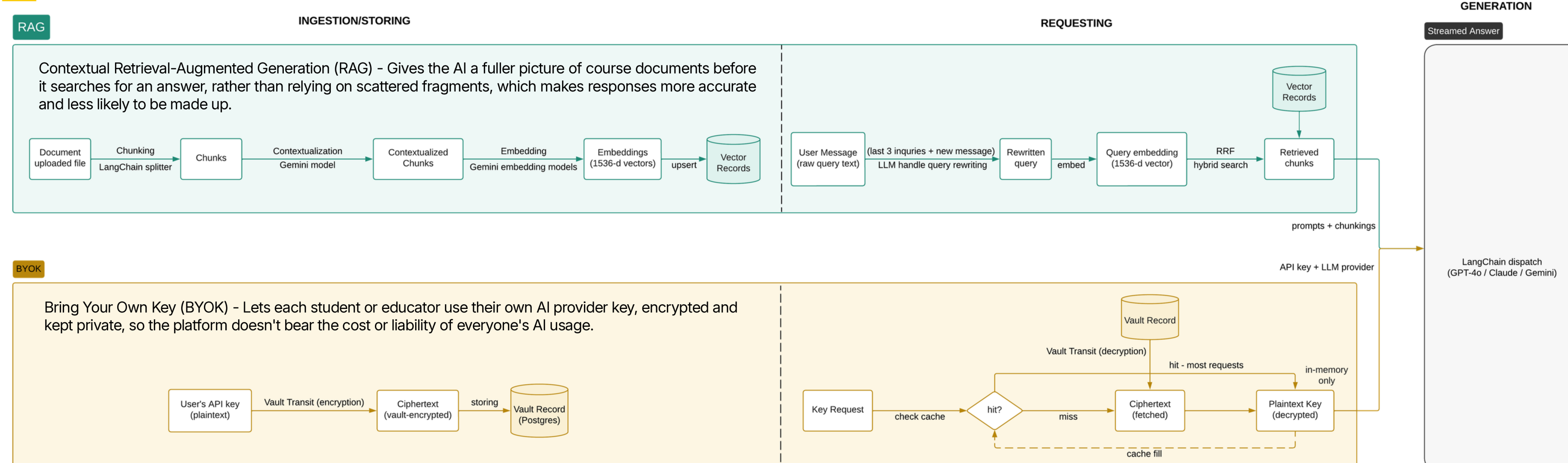
In-Memory Security & BYOK (Vault)

Integrates with Nomad to dynamically inject all environment variables, static API keys, and database credentials into container memory at runtime, while powering AES-256 BYOK encryption to ensure zero plaintext secrets on disk.

Real-Time Monitoring (Netdata)

Continuously tracks container health, VPS resources, and message queues per second to proactively prevent bottlenecks during mass attendance spikes.

AI features



Virtual Classroom

An AI study room educators create for students with a guided prompt and documentation, working with students' API key, where student-AI conversations can be observed to assess their thinking and AI usage.

Both features are powered by the contextual **Retrieval-Augmented Generation (RAG)** pipeline and **Bring Your Own Key (BYOK)** architecture shown in the diagram above.

Custom Chatbot

A standalone bot educators configure with their own prompt, API key, and knowledge base to support focused teaching tasks and practicing using applying AI in education.

Other LMS features

- Quizzes & Assignments:** Covers quiz creation, grading rubrics, and student submission tracking.
- Progress Tracking:** Keeps course completion, quiz scores, and attendance history fast and accurate.
- Certificate Management:** Trainers customize certificates; unique codes and signatures prevent faking.
- Trainer Analytics Dashboard:** Gives trainers instant visibility into enrollment and course performance.
- Multi-language Support:** Switches smoothly between Vietnamese, English, and other languages platform-wide.

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