



Modernizing a Language Learning Platform for global reach

This project showcases how a strategic tech overhaul can transform an EdTech platform's performance, significantly impacting user satisfaction and business growth.

Client: EdTech platform specializing in online language courses for diverse age groups

1. Challenge

The client approached **ZONE3000** with several critical issues affecting their growth:

Technical debt:

legacy PHP codebase with custom CMS, causing frequent outages and slow feature development.

Scalability issues:

system crashes during peak usage times, particularly impacting international users.

Limited mobile support:

poorly optimized mobile experience, leading to high bounce rates (>60%) on smartphones.

Content management:

inefficient process for updating course materials across multiple languages.

User retention:

Low completion rates (<20%) for courses due to lack of engagement features.

2. Solution

ZONE3000 proposed and implemented a comprehensive 6-month redesign:

1

Backend overhaul:

migrated from custom PHP to Node.js with Express, using MongoDB for flexible content storage.

2

Microservices architecture:

developed discrete services for authentication, content delivery, and user progress tracking.

3

Progressive web app (PWA):

built a responsive frontend using React.js, enabling offline mode for vocabulary practice.

4

Content API:

created a GraphQL API for efficient, language-agnostic content updates and third-party integrations.

5

Gamification

Implemented a points system, leaderboards, and daily streak tracking to boost engagement.

3. Technology Stack



Backend:

Node.js,
Express,
MongoDB



Frontend:

React.js, Redux,
Service Workers



API:

GraphQL with
Apollo Server



DevOps:

Docker,
Kubernetes
on AWS EKS



Monitoring:

ELK Stack
(Elasticsearch,
Logstash, Kibana)

4. Result

After a 3-month post-launch period, the client reported:



Scalability:

successfully managed a 2.5x increase in concurrent users during a recent promotional campaign, maintaining an average response time of **1.2 seconds** with zero downtime.



User growth:

58% increase in new user signups, attributed to improved performance.



Performance:

average page load times **reduced from 3.2s to 0.8s**.



Mobile usage:

mobile user retention **increased by 56%** due to responsive design implementation.



Course completion:

overall course completion **rate increased to 62%**.