



Next-Gen Migration Initiative

Our Team Members



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Project Description

Background

- MBARI is using outdated Perl and Microsoft SQL legacy code for their current expedition-dependant intranet site.

Motivation

- Current application costs MBARI \$25,000 a year and is more costly to maintain as time goes on, in addition, it is also becoming more difficult for researchers to use.

Objective

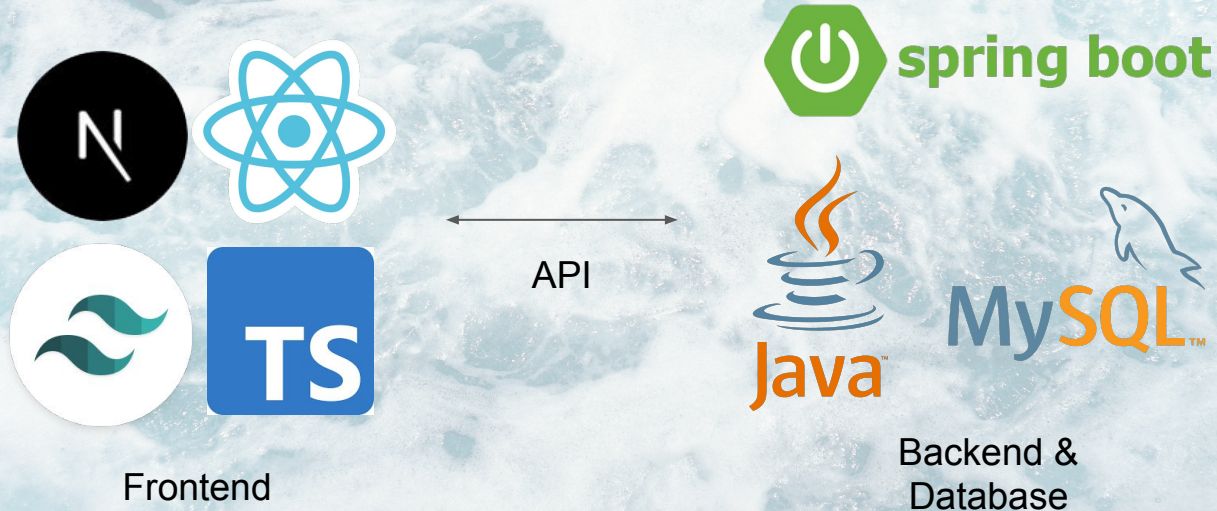
- Update existing application to a modern version with the goal to have longevity as well as reduce costs and improve accessibility.

Our Approach

Frontend - TypeScript, React, Next.js, CSS(Tailwind or Bootstrap)

Backend - Java, Spring Boot

Database - MySQL

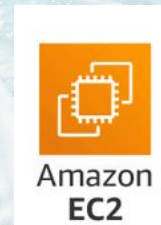


Cost Analysis

Current annual upkeep cost: **\$25,000**

Our solution cost annually:

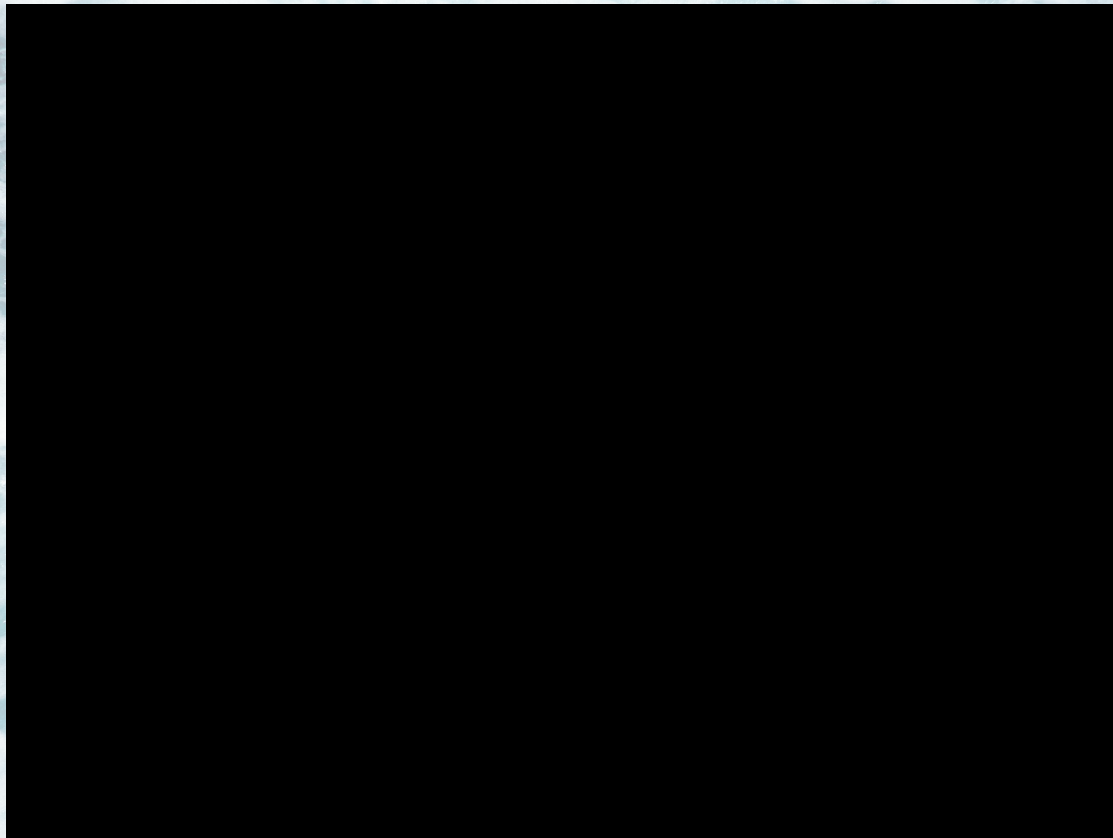
- Frontend using Vercel - \$120 per additional developer
- Backend using Amazon EC2 - \$43 to \$2,803 based on memory usage
- Database using AWS RDS - \$184 to \$1,542 based on database size



Using our solution:

- Minimum annual cost: **\$227.76** or **99.09% reduction**
- Maximum annual cost: **\$5,304.96** or **78.78% reduction**

Live Demo



Deliverables

- Developed a proof of concept tech transition from a traditional monolithic repository to a modern, OOP segregated architecture
- Viable cost reduction up to \$24,762 or 99.09%
- Dynamic frontend rendering process using both Server SR and Client SR
- Transitioned from multiple-page to single-page application
- Implemented authentication security using JWT

What We Learned

- Use of structured **agile software engineering** methodology on a real-world, full stack application development
- Successful and **consistent communication** between the client and engineering team to deliver the best end product
- Effective team **labor division** and **schedule coordination**
- Explicit client **requirement comprehension**
- **Ability to adapt** and overcome unforeseen issues during development
- How to **quickly and efficiently learn new technologies** and implement them into a working tech stack



Thank you