Pedro Duarte

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Summary

Senior Product Engineer with **6 years of experience** building scalable backend platforms in **C# / .NET 8+**, microservices, and **event-driven architectures with Kafka**. Proven track record as a **Tech Lead**, owning system design, delivery, and production reliability across SQL and NoSQL data stores. Passionate about developer productivity and automation, including running a self-hosted **Home Assistant** environment with 50+ Zigbee devices and custom automations to experiment with distributed systems and real-world IoT integration.

Technical Skills

- **Backend:** C# / .NET 6–10, ASP.NET Core, Microservices architecture, REST APIs, Event-driven systems, Domain-driven design.
- **Data & Messaging:** Kafka, SQL Server, PostgreSQL, Elasticsearch, Redis, NoSQL data modelling, High-volume indexing & query optimization.
- **Infrastructure & DevOps:** Docker, Kubernetes, Azure DevOps Pipelines, Cloud-ready architectures, CI/CD migration (GoCD → Azure DevOps).
- **Architecture & Leadership:** Tech Lead experience, system design for scalable services, production reliability, security & vulnerability reduction to zero in production.
- **Automation & IoT (Personal Projects):** Self-hosted Home Assistant server, Zigbee network integration (50+ devices), automation design and monitoring.
- **Modern AI:** Practical use of GitHub Copilot and agentic coding tools to improve code quality, automate test creation, and speed up delivery of .NET microservices

Professional Experience

Enhesa

(Current Company)

Senior Software Engineer - Tech Lead
Mar 2023 – Present

Tech stack: C# .Net 10, Kafka, Elastic Search, Postgres, Entity Framework, Kubernetes, Redis

Responsible for the maintenance, design and development of core microservices of the company like Identity Service, User Management, Export Service, Document Service and Home Page.

I tackled a **major performance bottleneck in the Identity Service** where the /connect/token endpoint was averaging around 1.5 seconds per request under concurrent load, slowing down authentication across the platform. I redesigned the flow by introducing a distributed cache using Redis with TTL aligned to token expiration and added a circuit breaker to protect the system from cascading failures if Identity or cache dependencies became unstable. This reduced token retrieval latency from about 1.5 seconds to under 100 milliseconds, roughly a **93% improvement,** while significantly **reducing database load** and improving platform **resilience and scalability**.

In parallel, I addressed broader **platform scalability and delivery challenges** where integrations required code changes and release cycles, CI/CD pipelines were difficult to maintain, and several services carried production vulnerabilities. I designed and delivered an Integrations Service that enabled configuration-driven integrations without code changes, led a cross-service initiative that **reduced production vulnerabilities to zero**, and migrated pipelines **from GoCD to Azure DevOps Pipelines** to standardize and automate deployments. These changes reduced integration setup delivery time from weeks to hours or days, improved CI/CD reliability and strengthened security posture.

Software Engineer
May 2022 – May 2023

VORTAL

Software Engineer
Aug 2021 – Apr 2022

Tech Stack: C# .Net Core, SQL Server, Entity Framework

Participated in the development of the initial microservices during the company's transition from a monolithic architecture to a microservice-based approach. I worked on building scalable backend services using **C# .NET Core 6**, **SQL Server**, and **Entity Framework**, contributing to the foundation of the new distributed platform and helping set patterns for future microservices.

Closer Consulting

Junior Software Engineer
Sep 2020 – Aug 2021

Teck Stack: .NET MVC, Razor, SQL Server

Intern Software Engineer
Jun 2020 – Set 2020

Education

Polytechnic Institute Of Setúbal

Management Information Systems
Sep 2017 – Jun 2020
Grade: 15
Focused on both management and technology, covering the full information system development lifecycle.

Key courses: Application Development, Database Management, Information Systems (Analysis, Design, Architecture, Project Management, Quality, Security), Mathematics.

Formabase

Web Creation
Certification Id 3215 – Issued Feb 2017
PHP, HTML, CSS

Conferences and Events

Azure Dev Summit

Attendee
Oct 2025 – 4 days

Microsoft technology focused conference and a full day workshop building an app with Aspire.

Web Summit

Volunteer
Nov 2019

Helped organizing in the days prior to the event.