

# LUIS E. SILVA

Principal Software Engineer | .NET Architect | Enterprise Integration | Full-Stack Development

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## PROFESSIONAL SUMMARY

Principal software engineer and .NET architect with 18+ years of experience building enterprise-grade data transformation engines, cross-platform mobile applications, REST API platforms, and integration systems. Most recently delivered a 254K+ LOC transformation engine with custom parsers for complex data formats (EDI, XML, delimited messages), canonical data models, and validated API output — all in pure .NET with zero external dependencies. Deep expertise in .NET/C#, ASP.NET Core, Azure, Entity Framework, cross-platform mobile (Xamarin/.NET MAUI), and enterprise integration patterns. Proven track record of building reusable frameworks, leading cloud migrations, and shipping production systems that pass federal compliance audits. Experienced with AI-assisted development (Claude Code, GitHub Copilot) at enterprise scale. Open to senior IC, architect, and consulting engagements — full-time or contract.

## TECHNICAL SKILLS

**Languages:** C#, T-SQL, JavaScript, TypeScript, VB.NET, HTML, XML, JSON, XAML, MUMPS/ObjectScript, C++

**Frameworks:** .NET 9, .NET Core 6/7/8, ASP.NET Core MVC/Web API, Entity Framework Core, .NET MAUI, Xamarin, WPF, WCF, Syncfusion

**Cloud & DevOps:** Azure (VMs, Blob Storage, AD, DevOps CI/CD), GitHub Actions, NuGet packaging

**Data & Integration:** Custom parsers (EDI X12, HL7, XML/C-CDA), REST APIs, ETL pipelines, message-based integration, Mirth Connect, PilotFish, InterSystems Ensemble

**Databases:** SQL Server (2000–2019), PostgreSQL, MySQL, Oracle (PL/SQL), SQLite

**Security:** AES-256-GCM, RSA-2048, HMAC-SHA256, OAuth 2.0, Okta, XXE prevention; US Confidential Security Clearance

**AI-Assisted Development:** Claude Code, GitHub Copilot — applied at enterprise scale for architecture, refactoring, and code review

## PROFESSIONAL EXPERIENCE

### Principal Integration Engineer | CodeFhir LLC

Sept 2025 – Present

Royal Palm Beach, FL | C#, .NET 9, ASP.NET Core 9, EF Core, SQLite, REST APIs, SSE, Stripe API

Independent software consulting practice built around a productized enterprise data transformation engine. Available for full-time, contract, and advisory engagements.

#### InteropSuite — Enterprise Data Transformation Engine (254K+ LOC)

- **Architected and delivered a 254K+ LOC .NET 9 transformation engine** converting complex legacy data formats (EDI X12, HL7 delimited messages, XML documents) into validated REST API resources — shipping as a productized solution for organizations modernizing legacy integration pipelines.
- **Built custom parsers from scratch** with zero external dependencies: an EDI parser handling 13 transaction types with segment-level tokenization and loop hierarchy tracking, a delimited message parser supporting 30+ message types with tolerant parsing for real-world variability, and an XML parser with 33 section mappers and complex relationship traversal.
- **Designed three-tier transformation pipeline:** format-specific ingestors → canonical data models → 47 output resource builders, with schema validation against industry profiles and standards.
- **Built a standalone data analyzer** with interactive heatmap visualization, three-pass validation pipeline (structural, field population, semantic), and detection of 18 common integration pitfalls — ships as a self-contained cross-platform executable.
- **Implemented parallel batch processing** with System.Threading.Channels, enabling single input files with 100+ records to produce individual output bundles via multi-record boundary detection.
- **Delivered production-grade security and operations:** AES-256-GCM encryption at rest, HMAC integrity verification, XXE prevention, RSA-2048 licensing with Stripe webhook-driven provisioning, and a real-time SSE monitoring dashboard with 100-client connection pooling.
- **Metrics:** 254K+ LOC | 380+ unit tests | 47 output builders | 30+ message parsers | 13 EDI ingestors | 33 XML section mappers.

### Senior Software Engineer | Document Storage Systems, Inc. (DSS)

Jan 2012 – July 2025

*Juno Beach, FL | 13+ years delivering enterprise software for a regulated industry (healthcare / federal government)*

*DSS is a leading enterprise software provider serving the US Department of Veterans Affairs — supporting VistA/CPRS clinical environments across VA Medical Centers nationwide and developing JunoEHR, its commercial EHR platform. Held US Confidential Security Clearance throughout tenure.*

*C#, .NET Core 6/7/8, Xamarin, .NET MAUI, ASP.NET MVC, EF Core, Azure, OAuth 2.0, Okta, Mirth Connect, PilotFish, InterSystems Ensemble, SQL Server, PostgreSQL*

### **RadWise — Full-Stack Decision Support System**

- Designed and developed RadWise, a full-stack decision support system (ASP.NET MVC, SQL Server) that guides users through a multi-step workflow: input selection criteria → rules engine evaluates against a structured knowledge base → returns ranked recommendations with industry-standard codes → user confirms and routes the order downstream.
- Converted the decision support rules engine from its original XML format into a structured SQL Server database, creating a queryable and maintainable backbone for the rules evaluation logic.
- Integrated multiple industry code sets and terminology services into the rules engine, ensuring accuracy and compliance with evolving regulatory standards.

### **Federal Compliance — XML Document Ingestion, Generation & Certification**

- Owned the XML document ingestion and generation subsystem across two rounds of federal certification — building parsers that extract structured data from complex XML documents and generators that assemble validated, schema-compliant XML output from internal data models.
- **Round 1:** Built the document parser and generator handling 5 core data sections. The ingest pipeline parsed incoming XML documents, extracted structured data, and mapped it into the internal data model. The generator assembled data from internal records into schema-valid XML for outbound transmission.
- **Round 2 — Expanded Scope:** Expanded the parser and generator to support 15 document sections, significantly deepening the parsing logic, section mapping, and validation to meet expanded federal requirements.
- Implemented secure point-to-point messaging for document exchange between organizations as part of federal compliance requirements.
- Participated in federal certification testing cycles across both rounds, working with accredited test labs and auditors to validate document conformance and data completeness — directly contributing to the product passing federal audits.

### **Enterprise Integration — Message-Based Interfaces & EDI**

- Built integration interfaces on three enterprise integration engines — PilotFish, Mirth Connect, and InterSystems Ensemble — handling both delimited message protocols and EDI X12 5010 transactions to ingest, transform, and route data between internal systems and external partners.
- Worked directly with legacy M-based (MUMPS/ObjectScript) systems, writing code and interfacing with proprietary data models — gaining deep experience with legacy system modernization and integration.
- Attended 3 official industry interoperability events (HL7 FHIR Connectathons), implementing and testing emerging data exchange standards. Shipped a working implementation bridging legacy XML document formats to modern REST-based resource representations.

### **Data Transformation — Legacy Migration to REST APIs**

- Led a multi-year data transformation initiative migrating data through a four-stage pipeline: PostgreSQL → XML → SQL Server → REST APIs — modernizing legacy data access patterns and establishing reusable architectural patterns.

### **Mobile Platform — Reusable Framework & Cross-Platform Applications**

- Served as lead developer for the company's mobile application product line. Created a reusable mobile framework (class library) providing OAuth 2.0 authentication, REST API consumption for the core platform, and Syncfusion mobile control output formatting — used as the foundation for all mobile applications.
- Architected the mobile product line on Xamarin, later migrated to .NET MAUI. Shipped three production applications:
- **E-Prescribing App** — Mobile application enabling users to look up records, review data, place orders, and submit transactions to an external e-prescribing network (Surescripts) for processing.
- **Field Documentation App** — Mobile tool for capturing photographs and short videos at point of service, uploading directly to the core platform for remote review and feedback from specialists.
- **Summary Dashboard App** — Mobile dashboard providing a snapshot of key data (vitals, orders, procedures, diagnoses) from recent records, pulled directly from the core platform APIs.

### **Cloud Migration & API Development**

- Developed secure Web APIs integrated with Azure Active Directory and OAuth 2.0/Okta. Led the company's cloud migration to Azure (VMs, Blob Storage, DevOps CI/CD pipelines), improving deployment velocity and operational reliability.

## EARLIER EXPERIENCE

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### Software Developer | Mednax, Inc.

Sept 2011 – Dec 2011

Sunrise, FL | National healthcare provider group

- Implemented federal interoperability standards in a clinical module. Developed XML document export, data exchange modules, and compliance-certified document generation using C#, T-SQL, XML, and XSLT.

### Lead Software Developer / Scrum Master | eDermSystems

Sept 2010 – Sept 2011

Boca Raton, FL

- Led an Agile team of 8 developers and 2 QA across distributed locations. Built third-party integration interfaces (Quest Diagnostics, HL7 listener), led federal compliance certification, and managed system data migrations.

### Earlier Roles | 1999 – 2010

- **eNeighborhoods (Dominion Enterprises), FL — 2010:** Cross-platform mobile/web development (iOS, Android, BlackBerry).
- **Cendyn / Premier Prizm Solutions, FL — 2009–2010:** Agile RAD delivery, eCommerce platforms, SSRS enterprise reporting.
- **Maritime Telecom Network, Miramar, FL — 2005–2009:** Manager of Software Development. Led 7-person team. Built custom TCP/IP communication protocols for POS and satellite systems — message parsing and routing architecture that directly informed later enterprise integration work. ERP integration (MS Dynamics Great Plains).
- **Maritime Telecom Network, Miramar, FL — 2001–2005:** Supervisor / Senior Developer. SOX-compliant SDLC, custom TCP/IP protocol development, C++ telephony systems, satellite/VOIP billing systems.

## EDUCATION

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- Master of Science, Management Information Systems — Nova Southeastern University, FL (2004)
- Bachelor of Science, Ocean Sciences — Universidad Nacional Agraria La Molina, Peru (1993)

## CERTIFICATIONS & TRAINING

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- **US Confidential Security Clearance** — Privacy & Security Awareness, HIPAA Compliance, Secure Software Development
- **MIT** — Artificial Intelligence in Healthcare — two-month online course (2023)
- PMP Boot Camp | Lean Agile Training | 3 Official HL7 FHIR Connectathons

## ACADEMIC EXPERIENCE

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- Adjunct Professor — Northwood University, West Palm Beach, FL (2005–2008). Taught C#, VB.NET, ASP.NET, Web Technologies, MIS, and Business Data Communications.