



SOLUTIONS ARCHITECT
Enterprise Integration | Data Architecture | AI-Enabled Solutions

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Immediately available | Open to relocation

PROFESSIONAL SUMMARY

Key results: 98% reduction in reported ATC confusion events with AI in production | 99.8% availability across 200+ integration points and 86 systems (~50M transactions a year) | EUR 800K first-year savings

Solutions Architect with 24 years in airline IT, designing event-driven, API-first integration and data architecture for operations that cannot stop: the **integration backbone of a global carrier** on Apache Kafka, IBM WebSphere MQ and REST/SOAP APIs, and an Airline Operational DataStore feeding eleven downstream domains.

Moved a safety-critical problem from heuristics to production AI: a **fully AI-based callsign safety system** (Neo4j, Graph Attention Networks, PyTorch Geometric) for an **NP-hard** Quadratic Assignment Problem, alongside a real-time Early Warning System with zero restricted-airspace dispatch incidents since go-live.

NetLine SME and technical due diligence on vendor decisions for three carriers through fleet growth from **60 to 500+ aircraft**, and author of the integration standards and reference architectures adopted enterprise-wide. A **hands-on technical authority rather than a line manager**, who treats integration as a change to the operating model, not an interface count.

WORK EXPERIENCE

Career Break and Professional Development | Istanbul | Sep 2024 – Present

- Planned break after 24 years with the Turkish Airlines Group, combining family time with structured upskilling: earned **AWS Certified AI Practitioner (AIF-C01)**, **Professional Scrum Product Owner I (PSPO I)** and **AWS Certified Cloud Practitioner (CLF-C02)** in 2026 and continued research on graph-based AI for aviation safety.

Principal Solutions Architect | Turkish Technology | Istanbul, Türkiye | Jan 2023 – Sep 2024

Official title: Distinguished Expert, the highest technical grade at Turkish Technology.

- Cut reported ATC confusion events by **98%** across up to ~1,500 daily flights at peak season, sustained in the years since, by replacing the 2011 heuristic season-start assignment with an in-house, fully AI-based callsign safety system aligned with EUROCONTROL CSST standards.
- Reframed callsign assignment as an **NP-hard** Quadratic Assignment Problem and built a scalable solution on **Graph Neural Networks (GNN): Graph Attention Networks (GAT)** on Neo4j with PyTorch Geometric and feature engineering over phonetic, visual and semantic similarity.
- Owned roadmaps and technical direction for **six mission-critical operational systems** (1,000 users, ~100 concurrent, 5M annual transactions, EUR 1M budget), sequencing change through **integration dependency management** and architectural constraints so new capabilities did not fragment the platform landscape.
- Ran the NetLine/Ops replacement selection (**5 vendors, 3 shortlisted, 2 POCs**) and vendor evaluation of flight planning platforms (Jeppesen, CAE formerly FPM, Lido) through RFP/RFI, vendor management and business cases, advising VP-level leadership on build-versus-buy, technology strategy and long-term R&D strategy.
- Protected schedule coherence across two carriers and two reservations systems during AJet's migration from TROYA, the group's reservations and inventory platform, to a separate third-party PSS, running SchedConnect-based schedule synchronization, inter-carrier schedule distribution and schedule change management in a transition architecture.
- Established a design authority and design reviews that brought architecture decisions under ISO 27001 compliance, software quality management and enterprise architecture governance, and supported regulatory audits and ICAO compliance.
- Led an **8-person cross-functional team** (project manager, 2 system analysts, 1 business analyst, 4 software engineers) as architecture and design decision owner: defined the implementation approach, mentored engineers hands-on and cleared complex technical blockers, with Scrum Master support as required.
- Shaped integration and technology strategy for next-generation aviation operations platforms as cross-airline **NetLine Subject Matter Expert** for Turkish Airlines, SunExpress and AJet, and as Subject Matter Expert in callsign safety, IOCC and operational control systems.

Official title: Senior Expert, Integration Architect.

- Drove the enterprise integration transformation: standardized **200+ integration points across 86 systems (~50M annual transactions)** under a single integration governance and data governance model, with enterprise messaging and data streaming reference patterns adopted group-wide for interoperability, maintainability, observability and operational reliability.
- Achieved **99.8% availability**, including planned maintenance windows, for mission-critical operational platforms serving **500+ concurrent users with zero unplanned downtime**, by leading cross-functional delivery management across internal and external integration platforms through production deployment under high availability, disaster recovery design and SLA/SLO management.
- Engineered a real-time Early Warning System across NetLine and FPM that cross-checks planned routes for up to **~1,500 daily** peak-season dispatch legs with hundreds of automated checks and alarms: **zero** flight dispatches into restricted airspace since go-live.
- Extended PSS/DCS integration with the in-house PSS TROYA to irregular operations (IROPS/IRROPS) and disruption management, propagating IOCC decisions to inventory, reservations and departure control as they happened, so disrupted passengers, even those already en route to the aircraft, could re-accommodate online.
- Modernized the integration landscape onto an event-driven application and data integration platform on Apache Kafka (topic design, schema registry), IBM MQ and REST/SOAP APIs, sustaining **~50M annual transactions** with microservices, enterprise integration patterns, API-first design and lifecycle management, and API versioning and backward compatibility.
- Engineered the estate's reliability semantics: publish/subscribe and asynchronous processing, idempotency in consumers, retries and exponential backoff, timeouts and error recovery, dead-letter handling and poison-message processing, message ordering and durability, and replay of persisted streams for recovery.
- Owned the solution architecture artefacts that kept decisions traceable to a maintained target state architecture: solution blueprints, architecture roadmaps, High-Level and Low-Level Design (HLD/LLD), Architecture Decision Records (ADR) and non-functional requirements (NFR).
- Integrated a partner service behind an API gateway, handling API-key acquisition and token renewal on expiry.
- Set the estate's engineering practice: CI/CD architecture and DevOps release automation with Git-based (GitOps) configuration control, with automated testing strategies and performance and security testing gating releases.
- Built a real-time observability tool across all live enterprise integrations, using structured logging, correlation IDs and distributed tracing; directed delivery of Grafana dashboards, metrics and alerting to support proactive issue detection.

Official title: Project Manager, Flight Operations.

- Designed and built **TKAODS** (Airline Operational DataStore) and **OFPDS** (Operational Flight Plan DataStore), **Tier-0** integration layers in front of the Lufthansa Systems NetLine suite (NetLine/Sched, NetLine/Slot, NetLine/OPS & Base) and flight planning that became the **single source of truth** for schedule and flight data.
- Owned enterprise-wide flight plan and flight data distribution for planning, operational and post-flight periods as the single integration point for **eleven main downstream domains**: scheduling, crew, load control, PSS/DCS interfaces, cargo, maintenance, DWH, revenue and cost accounting, SAP finance, HR/payroll and regulatory reporting.
- Processed **~100K update records a day** for up to **~1,500 flights a day** at peak, 24/7 and near-real-time, through source-to-target mappings, ETL/ELT pipelines and integration rules that consolidated, transformed and enriched every update across summer and winter seasons under data quality and metadata controls.
- Architected batch, near-real-time and real-time distribution patterns that absorbed **~22.5M** flight-data changes a year (~450K annual flights, ~50 changes per flight) before fan-out to large-scale distributed data processing and analytics, with consumer-specific horizons from a **rolling three-day window** to a **90-day window**.
- Fed operational changes (delays, cancellations) to passenger-notification systems and flight data to loyalty and disruption hotel systems, so passenger notifications, loyalty and disruption hotel arrangements ran on the same data as operations.
- Designed the enterprise operational data and integration architecture on the AODB (Airline Operational DataStore) pattern, standardizing flight, leg, schedule and operational flight-plan data airline-wide: logical data models, entities and relationships, canonical data structures, and the ESB pattern applied twice.
- Evolved both Tier-0 platforms for **ten years** (2014 – Sep 2024) as de facto product owner with final authority over feature prioritization and architectural evolution, running agile delivery in **Jira** and **Confluence**: user stories with acceptance criteria, backlog management, sprint planning and Definition of Ready/Done.
- Coordinated operational stakeholders and cross-squad dependencies for two Tier-0 platforms, carrying releases through production under ITIL-aligned **Site Reliability Engineering (SRE)** practices and continuous monitoring.
- Drove technical direction, integration landscape and platform modernization for **multimillion-euro** airline operational systems across scheduling, slot management, flight planning and IOCC as lead architect with delivery accountability, combining system and business analysis, software architecture and hands-on coding through release, operational handover and 24/7 production under ITIL.
- Managed NetLine's master and reference data (NetLine/Base) with the team: built and maintained the tables where users edit it and trained key users in master data management (MDM), keeping master data owned at its source.

- Built a reporting layer into both platforms on the same enriched data and fed it back into NetLine and the flight planning system, so enterprise reporting and operations shared one version of the data.
- Coordinated the infrastructure teams' VMware-based solution as Turkish Airlines' NetLine product owner, keeping users working in NetLine throughout the pandemic.

Integration Solution Design Lead

Turkish Airlines

Istanbul, Türkiye

Jan 2007 – Jun 2014

Official title: Acting Team Leader.

- Delivered **EUR 800K** in first-year savings with a multi-currency overflight cost engine, launched in 2012 and built on a data pipeline of country entry/exit timestamps and segment distances.
- Architected the schedule-to-PSS (TROYA) message integration under IATA SSIM Chapter 4 (SSM) and Chapter 5 (ASM) over Type B messaging, keeping inventory and reservations in step with cancellations, re-timings, equipment and routing changes, reinstated flights and disruption reason codes.
- Introduced SchedConnect in 2007 for inter-carrier schedule enrichment and distribution, establishing recurring schedule data exchange with partner carriers under IATA data standards.
- Headed solution design and delivery for flight operations, crew and flight-planning integrations across global aviation vendors, building multithreaded real-time integration frameworks (2010) and contributing to an in-house Enterprise Service Bus (ESB) on Service-Oriented Architecture (SOA).
- Developed the first heuristic Callsign Similarity & Assignment System (phonetic, visual and semantic similarity), delivered in 2011: the groundwork later rebuilt as the graph-based AI solution once reclassified as NP-hard.

Software and Integration Engineer

Turkish Airlines

Istanbul, Türkiye

Apr 2000 – Jan 2007

Official title: Analyst Programmer.

- Contributed to the first production implementation of the Lufthansa Systems NetLine suite (NetLine/Sched, NetLine/Slot, NetLine/OPS & Base), the platform foundation behind fleet growth from **60 to 500+ aircraft** and passenger scale from 10M in 2000 to 85M in 2024.
- Drove the technical work of the first major legacy modernization from day one as an implementation team member, moving schedule and operations control off the IBM mainframe (ADABAS/Natural) onto Oracle on Unix (AIX) and the NetLine product family.
- Enabled SunExpress and later AJet to adopt the NetLine platform, establishing the cross-carrier SME role.
- Developed **50+ applications and integrations** from flight operations to DWH, SAP, MRP, PSS and DCS, a leg-to-flight online conversion platform supporting cargo integration, and backend components in Oracle, PL/SQL, Java and C on Unix/Linux, with incident analysis and performance tuning.
- Built **Flight Watch**, a 24/7 live view of every Turkish Airlines flight on a world map: system design and architecture decisions, mainframe integration over IBM MQSeries and Java object-oriented design, introducing UDP multicast on the airline's LAN for the first time.
- Cut costs by **EUR 100K** a year by designing and building the timetable publication system from scratch: worldwide airline schedules and partner codeshare flights in, a downloadable timetable on the corporate website out (Java, C, PL/SQL).
- Set the calculation methodology for average passenger and baggage weights through statistical analysis of historical data.

TECHNICAL EXPERTISE (hands-on) & CORE COMPETENCIES

Integration and API Governance: Event-Driven Architecture, API Architecture, API lifecycle management, API versioning and backward compatibility, integration standards and integration governance, Apache Kafka (schema registry), IBM WebSphere MQ, Enterprise Service Bus (ESB), REST and SOAP APIs.

Data Architecture and Governance: Enterprise Data Architecture, Data Modeling, Canonical Data Model, Operational Data Store (ODS), Data Integration Architecture, Data Pipeline Architecture, master data management (MDM), data lineage through source-to-target mappings, data quality and metadata, schema evolution.

Aviation Operations and Airline IT: Integrated Operations Control Center (IOCC), operational and tactical flight planning (Jeppesen flight planning; FPM, now CAE Flight Planning Solutions; Lido), schedule management.

IATA Schedule Data Standards: SSIM Chapter 7 (Presentation and Transfer of a Schedule Data Set); schedule-to-PSS distribution across three group carriers.

Analytics & Graph / Advanced Analytics and AI: Neo4j and graph databases, PyTorch and PyTorch Geometric, MLOps, data quality and metadata management.

Engineering — Platforms & Languages: Oracle DB, Docker and containerization, Linux (RHEL) and Unix administration (AIX, HP-UX), application administration on Windows Server; Languages: Python, Java, C, PL/SQL, shell scripting (Bash, KSH), YAML and JSON; Git and Jenkins; UML; multithreaded real-time and database-driven systems.

Executive — Technical Leadership and Delivery: Migration and transition architecture, transformation governance, executive (C-level) stakeholder management, customer consulting and workshop facilitation.

EDUCATION

• Ph.D. (coursework)	Business Administration (Finance)	Yeditepe University	Istanbul	2002 – 2006
• M.Sc.	Management Engineering; thesis on data warehousing for mass customization	Istanbul Technical University	Istanbul	1997 – 2002
• B.Sc.	Computer Science Engineering	Istanbul University	Istanbul	1993 – 1997

LANGUAGES

• English	C1	Full Professional
• German	A2	Studying towards B1
• Turkish		Native

CERTIFICATIONS

• AWS Certified Cloud Practitioner (CLF-C02)	Amazon Web Services (AWS)	2026
• AWS Certified AI Practitioner (AIF-C01)	Amazon Web Services (AWS)	2026
• Professional Scrum Product Owner I (PSPO I), Credential ID 1347372	Scrum.org	2026
• AI and Cloud Foundations: OCI AI Foundations; Agentic AI Foundations; IBM SkillsBuild; PMI AI (CPMAI, GenAI)	Oracle, IBM, PMI	2025
• Docker Foundations Professional Certificate	Docker	2025
• Manager Ready (DDI) leadership simulation: exceptional rating	TAG Taurus Group	2024
• ITIL v3 Foundation, Credential ID 990453483		2013
• Project Management Professional (PMP), Credential ID 1225730	PMI	2008
• Lufthansa Systems SchedConnect vendor training (two weeks)	Lufthansa Systems	2007