



TicketCo

WHITEPAPER

# TicketCo Platform Architecture and Technical Overview



2025 Edition

# Executive Summary

In today's dynamic sports and live events industry, ticketing is no longer just about access control — it is central to the fan experience, data strategy, revenue generation, and operational agility.

TicketCo has been purpose-built to meet these modern demands through a flexible, scalable, and cloud-native platform that serves organisations at every level — from regional clubs to top-flight stadiums. Developed through real-world partnerships with professional leagues and leading clubs, TicketCo combines a modular architecture, open integrations, and fan-first innovations that put operational control and commercial growth directly in the hands of clubs and leagues.

This document offers a detailed technical deep dive into the TicketCo ecosystem. It covers the underlying system architecture, core platform modules, integration capabilities, security models, data intelligence tools, and future-facing developments — providing a transparent view of how TicketCo is structured to support the next era of sport and event ticketing.

For technology teams, operations leads, and strategic partners, this overview serves as both a technical reference and a roadmap for understanding how TicketCo delivers simplicity on the surface and sophistication under the hood.

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# 1. Introduction: From Vision to Realisation

Since its inception in 2013, TicketCo has evolved from a disruptive challenger in Norway to a fully-fledged, elite-ready sports ticketing ecosystem — designed for flexibility, scalability, and fan-first engagement.

Today, TicketCo powers organisations across the full spectrum of sport — from grassroots clubs to top-flight professional organisations, including clubs operating at Premier League standards.

Designed for the dynamic demands of modern sport, TicketCo provides a modular, open, cloud-native ecosystem that offers unparalleled operational control, commercial flexibility, and exceptional fan experience — ready for today, and built for tomorrow.

## 2. Core Philosophy: Partnership-Led Product Development

At TicketCo, software is not built in isolation — it is co-created with clubs and leagues through structured, real-world partnerships.

Our product evolution has been shaped by extensive collaboration with:

- The Norwegian Professional Football League (NTF)
- Professional clubs in top European leagues
- National governing bodies across Europe

Our commitment ensures that TicketCo is equally suited for high-capacity stadiums as it is for regional clubs, offering adaptable operational models for diverse commercial strategies.

## 3. High-Level Architecture Overview

**TicketCo's platform is underpinned by modern cloud-native microservices, deployed across AWS and GCP cloud infrastructures, optimised for elastic scalability and operational resilience.**

**Core technical features include**

- REST APIs built to OpenAPI 3.1 standards
- Event-driven architecture. using NATS message queues
- Serverless database structure PostgreSQL clusters for transactional data
- Time series databases for event telemetry
- Redis caching layers for low-latency read/writes
- API Gateway orchestration with WAF protection
- Stateless containerised application nodes
- Serverless scaling capabilities for sudden load peaks

This technical foundation enables TicketCo to handle everything from modest matchdays to major league finals without compromising stability or speed.

## 4. TicketCo Platform Components

### 4.1 TicketCo Flex: The API-Driven Core Engine

- Headless ticketing system, modular by design
- Event creation, seat map management, pricing structures
- Order orchestration: sale, transfer, resale, donation
- Loyalty programme management hooks
- Embedded fraud prevention mechanisms

Flex allows organisations to build custom fan journeys while relying on TicketCo's robust backend operations.

### 4.2 TicketCo Flow: The Fan Engagement Layer

- Mobile-first, high-conversion ticketing flow
- Emotionally-driven design (scarcity, urgency triggers)
- Integration with digital wallets (Apple/Google Pay)
- Customisable landing templates with sponsor integration

Flow maximises fan engagement while offering consistent branding and promotional flexibility.

### 4.3 TicketCo Connect: Real-Time Integration Fabric

- Webhook-based real-time push to external systems
- CRM integrations (Lime, Salesforce, Symplify)
- Marketing automation triggers (email, SMS)
- Access Control integrations (Skidata, Fortress, HID)
- Advanced analytics exports (Zoho, PowerBI)

Connect ensures clubs' ticketing ecosystems are fully interoperable and data-driven.

#### 4.4 TicketCo Admin: The Operational Control Tower

- Event and seat map configuration
- Price management (fixed, dynamic, loyalty-based)
- Voucher and discount rule engines
- Mass communication centre (email, SMS)
- Live dashboards and real-time KPIs
- Security and incident reporting modules

TicketCo Admin enables clubs to run complex operations with simple, intuitive controls.

#### 4.5 TicketCo Direct: The Point-of-Sale Extension

- On-demand ticket sales for walk-up customers
- Fully integrated with TicketCo's backend — no manual reconciliation
- Compatible with mobile phones, tablets, card readers, and receipt printers
- Supports both digital ticket delivery and printed hard-copy tickets
- Card, mobile, and cash payment support
- Real-time synchronisation with ticket inventory and access control

TicketCo Direct is the platform's fully integrated point-of-sale (POS) solution, enabling seamless on-site sales across both digital and physical environments.

## 5. Access Control and Matchday Operations

#### 5.1 TicketCo Validator App

- Mobile-based access control
- Offline mode with auto-synchronisation
- Partial validations for group ticket handling
- QR and NFC-based ticket scanning

Real-time ingress analytics and reporting

## 5.2 TicketCo Fly App

- Mobile matchday management
- Event creation and on-the-fly updates
- Live operational KPIs (scanning rates, sales progress)
- Emergency incident logging
- Push notifications to on-site stewards or departments

# 6. Fan-Facing Features and Commercial Models

- Traditional season tickets, flex passes, and subscription models
- Away ticketing allocation management
- Member-only pre-sales and discount campaigns
- Merchandise and hospitality bundling
- Voluntary returns, donations, and fan resale platforms
- Campaign-based upselling and micro-purchase nudges

TicketCo turns every ticket sale into a platform for deeper engagement and higher fan lifetime value.

# 7. Data, Reporting and Predictive Insights

- Live dashboards for operational decision-making
- Detailed cohort and LTV reporting
- SQL endpoint integrations for advanced querying
- Predictive tools for no-show forecasting, upsell targeting, churn risk analysis

TicketCo empowers clubs to become data-led commercial organisations, not just ticket sellers.



## 8. Payments and Settlements

- 250+ global payment options
- Multi-currency and multi-market setups
- Instant settlements to clubs or league treasury accounts
- PCI-DSS compliant processing (via Stripe, Adyen, Zettle)
- PSD2-compliant authentication flows

## 9. Security and Compliance

- GDPR compliance (European and UK versions)
- Strong authentication (OAuth 2.0, OpenID Connect)
- Zero Trust internal architecture
- Penetration-tested annually by third parties
- Real-time security monitoring and threat detection
- Redundancy built into all core services

## 10. Future-Facing Development

- AI-powered personalisation engines
- Loyalty ecosystems natively embedded into ticketing flows
- Environmental sustainability modules (carbon offset ticketing)
- Dynamic cluster-based seating models

TicketCo's development vision focuses on fan delight, operational empowerment, and sustainable innovation.

## 11. Final Word

TicketCo is not simply a ticketing solution. It is a fully modular platform, designed to integrate deeply into the modern sports ecosystem, unlocking new levels of revenue, fan loyalty, and operational excellence.

**For clubs, leagues, and governing bodies ready to embrace the future, TicketCo is your trusted partner.**

## 12. Technical Appendix

### Key API Categories (Examples)

API Group	Purpose	Notes
Event API	Create, update, and configure events	Seat maps, categories, capacities
Order API	Create, retrieve, and manage orders	Payment status, refund workflows
Ticket API	Manage individual ticket instances	Transfer, cancel, validate
Access Control API	Real-time validation management	Ticket scans, entry logs
Loyalty API	Link loyalty programmes to ticket purchases	Points systems, member entitlements
Voucher API	Create and redeem discount codes or presale keys	Supports pre-sale campaigns
Communication API	Send transactional messages	Email, SMS notifications to customers
Reporting API	Retrieve operational metrics and sales data	Real-time and historic data access

*All APIs use REST principles with JSON payloads.*

# Example Purchase Journey Flow (API View)

**GET** /events → Retrieve upcoming events list

**GET** /events/{event\_id} → Fetch event seat map and pricing

**POST** /cart → Add selected seats/tickets to basket

**POST** /checkout → Create order and initiate payment link

**Webhook** /payment/confirmation → Confirm payment success

**POST** /ticket/issue → Generate digital ticket and distribute

# Example

## Access Control Scan Journey

### 1. Ticket purchased

→ A unique QR code is issued and attached to the ticket.

### 2. Fan arrives at stadium

→ The Validator App scans the QR code at the gate.

### 3. Real-time validation request

→ POST `/access/validate` is sent to the server.

→ The ticket is instantly checked against the event database.

### 4. Access decision made

→ Access is granted or denied based on:

- Event status
- Ticket validity
- Anti-fraud flags

### 5. Scan result logged

→ A timestamped scan is stored in the event telemetry database.

### 6. Offline fallback enabled

→ If offline, validation syncs automatically once the network resumes.

*Offline mode fallback available with synchronisation once network resumes.*

# Deployment Topology Overview

- Frontend APIs protected by global CDN (Cloudfront)
- API Gateway performing WAF (Web Application Firewall) checks
- Load balanced containers (ECS on AWS, GKE on GCP)
- Stateless application nodes, autoscaling
- Dedicated PostgreSQL clusters with read replicas
- Redis caching clusters for session and lookup data
- S3-based secure storage for digital assets (e.g., ticket PDFs)
- NATS queues for internal event distribution across services

# 13. TicketCo Technical Reference Glossary

Term	Definition
<b>Microservices</b>	Architectural pattern where applications are built as collections of independent services. Improves scalability and fault isolation.
<b>REST API</b>	Standard way to structure network requests using HTTP verbs (GET, POST, PUT, DELETE) and structured JSON data.
<b>OpenAPI 3.1</b>	Specification standard for describing REST APIs in a machine-readable format.
<b>NATS</b>	Lightweight, high-performance messaging system for cloud-native apps, used here for event distribution.
<b>PostgreSQL</b>	Open-source relational database system, highly reliable for transactional systems like ticket sales.
<b>Redis</b>	In-memory database used for caching frequently accessed data, reducing database load.
<b>OAuth 2.0</b>	Secure standard for authorisation between applications, used here for API access and user authentication.
<b>OpenID Connect</b>	Identity layer on top of OAuth, allowing federated authentication. Useful for SSO (single sign-on) integrations with league systems.
<b>CDN (Content Delivery Network)</b>	Globally distributed servers that cache content closer to users, improving performance and reliability.
<b>OLAP (Online Analytical Processing)</b>	Systems designed for querying and analysing large volumes of data quickly. Used in BI integrations.
<b>PCI-DSS</b>	Payment Card Industry Data Security Standard — compliance required for handling credit card transactions.
<b>Zero Trust Architecture</b>	A security concept where no part of the system is automatically trusted; authentication and authorisation are enforced everywhere.

## 14. Disclaimer

The TicketCo platform is under continuous development. Features, integrations, and architectural components evolve regularly based on ongoing innovation and customer feedback. This document reflects the platform status at the time of publication.

New editions of this technical overview will be released at least once per year to ensure accuracy and transparency.

For technical questions or integration inquiries, please contact us at:  
[support@ticketco.io](mailto:support@ticketco.io)