Live Ticket Processing Sequence Diagram

Client Browser | **Ingestion API** | **Redis Stream** | **ML Worker** | **MLflow Server** | **Azure Blob Storage (Artifact Store)** | **PostgreSQL DB**

[01] POST /tickets (subject, description) → Ingestion API

[02] XADD (Write new ticket message to stream) → Redis Stream

[03] Confirm message written

[04] 200 OK (Returns unique ticket_id) → Client Browser

Asynchronous Boundary
The user receives an immediate response.
All subsequent processing happens in the background.

[05] XREADGROUP (Polls for new messages in group) → Redis Stream

[06] Return new ticket message

[07] INSERT new ticket row (status='PROCESSING') → PostgreSQL DB

[08] Confirm insert

[09] Get "Staging" (champion) model URI → MLflow Server

[10] Query Model Registry for artifact path → PostgreSQL DB

[11] Return artifact path

[12] Return model URI (points to Azure Blob Storage)

[13] Download model artifact file (.pkl) → Azure Blob Storage

[14] Return model file

> 1. Preprocess incoming ticket text.
> 2. Load model and predict category/priority.
> 3. Calculate prediction confidence score.
> 4. Execute Human-in-the-Loop (HITL) logic.

[15] UPDATE ticket row with prediction results (status='COMPLETED' or 'PENDING_REVIEW') → PostgreSQL DB

[16] Confirm update

[17] XACK (Acknowledge message successfully processed) → Redis Stream

[18] Confirm acknowledgement