

# PROJECT PLANNING PHASE

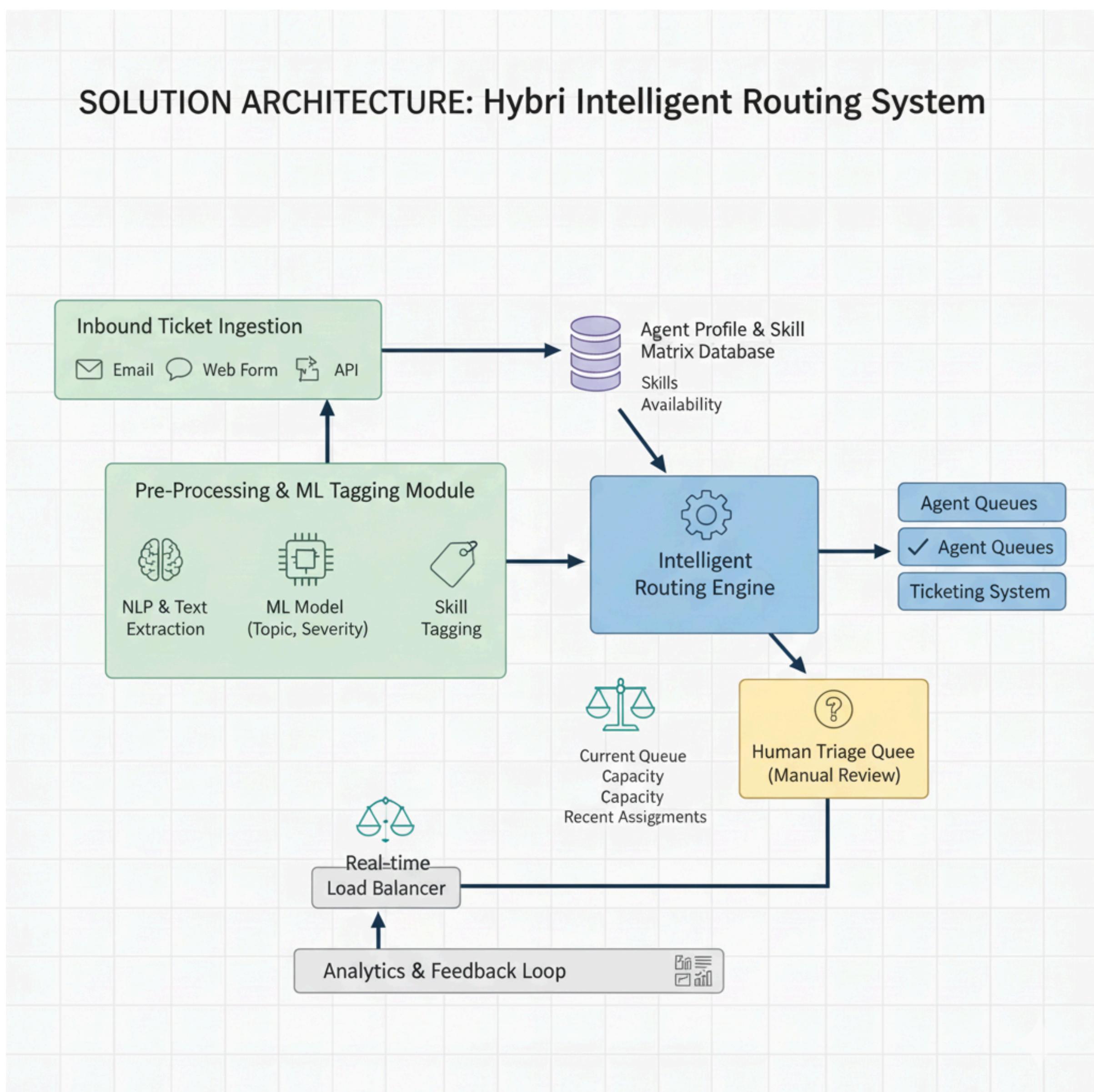
## SOLUTION ARCHITECTURE

Date	02 NOV 2025
TeamID	NM2025TMID01660
Project Name	Streamlining Ticket Assignment for efficient support operations
Maximum mark	4 marks

The **Solution Architecture** for streamlining ticket assignment outlines the interconnected components and data flows of the proposed Hybrid Intelligent Routing System. At its core, the architecture begins with the **Inbound Ticket Ingestion** layer, where tickets from various channels (email, chat, web form, API) are received and normalized. These ingested tickets then flow into the **Pre-Processing&ML Tagging Module**, which leverages natural language processing (NLP) to extract key information (e.g., product affected, issue type, urgency keywords) and applies a trained machine learning model to assign preliminary skill tags and a severity score. This enriched ticket data is then fed into the central **Intelligent Routing Engine**. This engine is the brain of the system, consulting the **Agent Profile&Skill Matrix Database** (containing agent skills, certifications, and availability) and the **Real-time Load Balancer** (which monitors current agent queues and capacity). Based on these inputs, the Routing Engine makes an optimal assignment decision. Finally, the ticket is dispatched to the appropriate **Agent Queue** within the existing ticketing system, or directed to a **Human Triage Queue** for manual review if the confidence score of the automated assignment is low. This entire architecture is monitored by an **Analytics&Feedback Loop**, which tracks assignment accuracy, re-assignment rates, and agent workload, providing continuous data to

retrain the ML model and refine routing rules, ensuring the system continually learns and improves.

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## Solution Architecture Overview

The architecture is designed as a sequence of interconnected processing layers that act upon the incoming **Task** record (like an Incident).

## Architectural Components and Data Flow Layers

This architecture moves data through distinct, sequential layers to achieve intelligent and efficient assignment.

### 1. Ingestion&Data Layer (The Source)

- **Components:** Incident/Service Catalog/Task Table, Service Portal, Email/Virtual Agent Inbound Channels.
- **Function:** Captures the initial ticket data. This layer provides the raw input for all subsequent automated processes. CSDM data (like the linked **CI** or **Service**) ensures the context is rich from the start.

### 2. Classification&Prediction Layer (The Brain)

- **Components:** Predictive Intelligence (PI) Classification Solution.
- **Function:** This is where machine learning is applied.
  - The PI model analyzes the ticket's **text fields** (Short Description, Description).
  - It outputs a predicted **Assignment Group** with a confidence score. A high score bypasses manual triage; a low score routes the ticket to a manual review step.

### 3. Decision&Routing Layer (The Rules Engine)

- **Components:** Flow Designer, Business Rules, Assignment Rules.
- **Function:** This layer processes the classified data and enforces organizational policies.
  - **Flow Designer** orchestrates the overall sequence: *If PI confidence is high, skip to AWA; otherwise, run manual checks.*
  - **Business Rules** execute server-side logic for immediate assignments based on hard criteria (e.g., "If Priority is P1, assign directly to 'Major Incident Response Group'").
  - This layer determines the final, authoritative **Assignment Group**.

### 4. Capacity&Final Assignment Layer (The Dispatcher)

- **Components:** Advanced Work Assignment (AWA), Agent Capacity Rules, Skill Mapping Table.
- **Function:** This is the critical step that moves the ticket from being assigned to a **Group** to being assigned to an **Individual Agent** (Assigned To).
  - AWA queries the **Agent's current status** (busy/available) and **Capacity limits**.
  - It checks the agent's **Skills** against the ticket's required skills.
  - It applies the chosen load-balancing algorithm (**Round Robin, Least Busy**) to select the best-fit agent.

## 5. Output&Feedback Layer (The Result)

- **Components:** Notifications Framework, Activity Stream, Performance Analytics (PA).
- **Function:**
  - The ticket is assigned, and relevant parties are notified.
  - The entire assignment process (who assigned it, when, and why) is captured in the **Audit Logs** and **Activity Stream** for transparency.
  - The final assignment data (Group, Agent, Time to Assign) feeds into **PA Indicators**, closing the loop and providing data to refine the PI model (**Layer 2**).