IROKO CONNECTOR

BY SEAN, ABIDUL, VANSHIKA, VINCENT AND JONAH

THE TEAM

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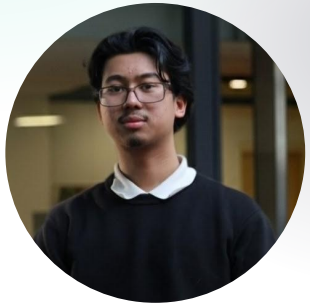

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OUR CLIENT: IROKO TECHNOLOGIES

FOUNDERS

Nicholas Hardy

Co-Founder, CTO

Technical lead. BU computer engineering alum.

James Hardy

Co-Founder, CEO

Operational risk & compliance, formerly State Street.

THE PRODUCT

OneScor

Connected Intelligence for Operational Risk and Resilience

OneScor is an enterprise platform that helps financial-services firms unify operational threats — risk, vendors, audits, infrastructure — in one place.

OUR SCOPE: making it easy to plug new data in.

PROBLEM STATEMENT

Third-party service data ingestion is difficult due to inconsistent data schemas, making integration slow, expensive, and error-prone. Currently, there is no standardized way to intelligently align and ingest their data into a unified platform.

SYSTEM DESIGN

Frontend

Next.js + TypeScript
React Flow for schema visualization

Backend

Node.js
REST API + connector logic

Database

Supabase (PostgreSQL) for mock client schema data

AI Engine

ReMatch: LLM-powered retrieval-enhanced schema matching

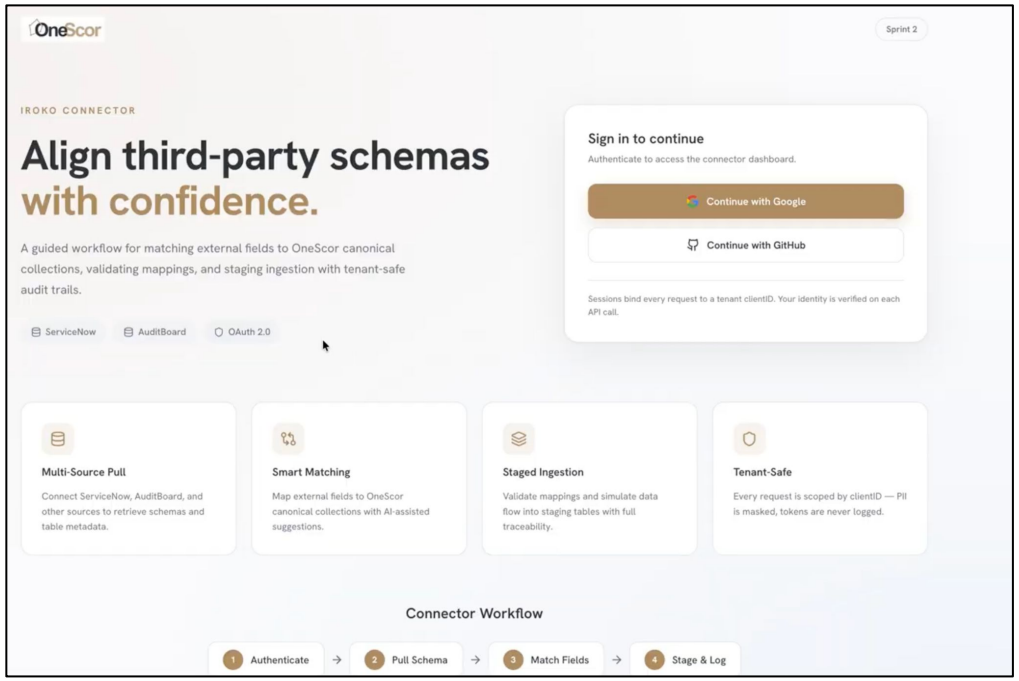
Security

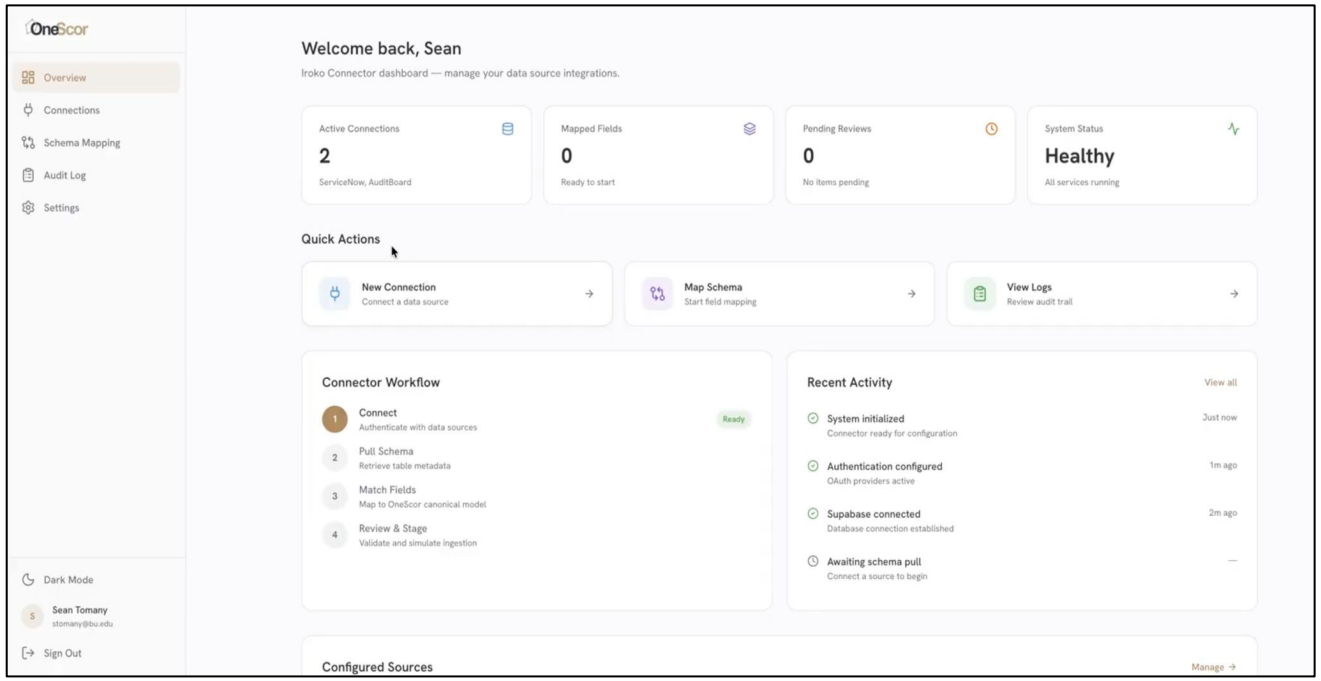
NextAuth OAuth 2.0

Integrations

ServiceNow REST API
Extensible to other platforms

FRONT END





As a data engineer, I want a guided, end-to-end interface for connecting to third-party systems, reviewing AI-suggested schema mappings, and validating data transformations, so that I can onboard external data into OneScor reliably without writing custom integration code.

REMATCH: AI SCHEMA MATCHING

ReMatch uses LLMs and intelligent retrieval to infer field correspondences between schemas, without requiring training data, labeled mappings, or access to raw data.

1

Retrieve

Gather contextual clues: field names, types, descriptions, documentation

2

Embedding

Feed metadata to LLM to propose candidate field matches

3

Rank

Score and ranks candidates pairs with confidence percentages

STAGE 1 – DOCUMENT CREATION

Core Input Documents:

- Source Attribute Doc
- Source Table Doc
- Target Asset Type Doc

Database Metadata (via Supabase)

- Schema Details: Primary/Foreign keys and column comments.
- Data Profiling: Sample values, null rates, and approx. row/distinct counts.

Semantic Pattern Inference

- Meaning Detection: Automatically identifies data types (e.g., Email, URL, Date, IDs).
- Driven By: Column names, types, samples, and key structures.

Contextual Disambiguation

- Sibling Columns: Uses neighboring fields to clarify meaning.
- Table "Shape" Hints: Categorizes the overall table focus (e.g., Person vs. Infrastructure vs. Location).

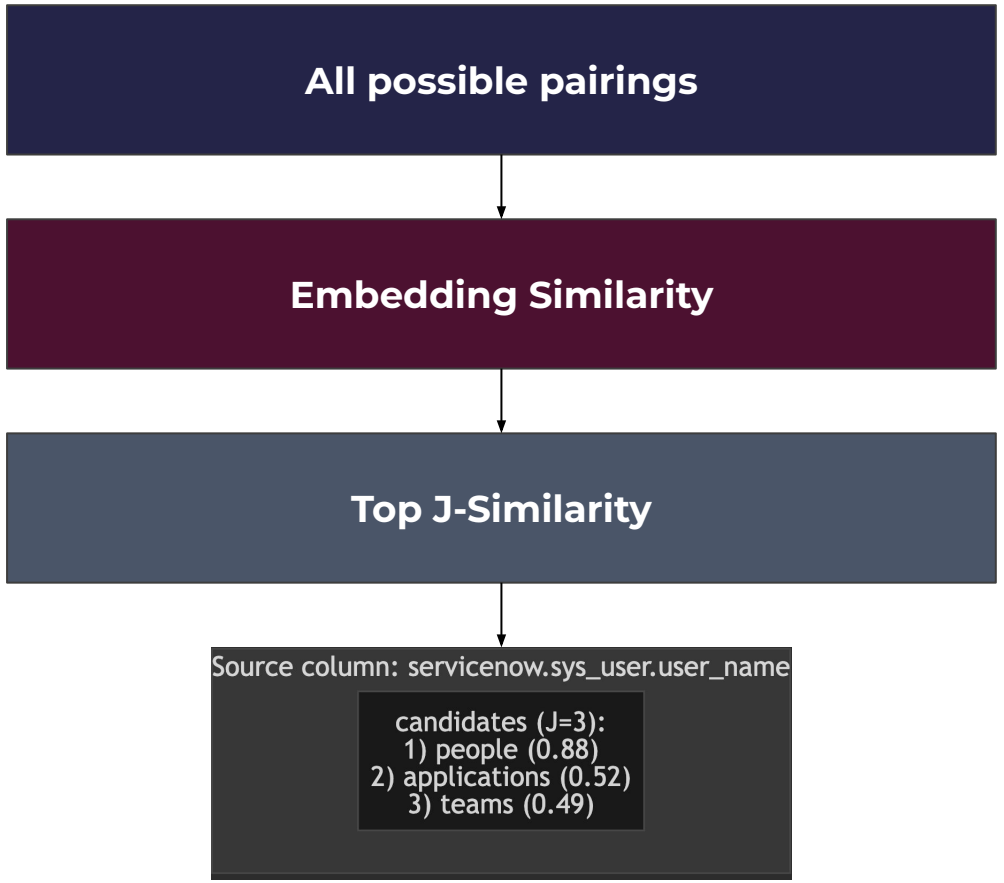
```
Table: cmdb_ci_appl
Overview: ServiceNow application CI table
  containing software applications in the CMDB.
Primary Key: sys_id (string)
Attributes:
  - name (string): Display name
  - operational_status (string): Status code
  - managed_by (reference): Person managing
  - business_criticality (string): Rating
```

STAGE 2 – EMBEDDING

After each schema element is converted into a structured text document:

- 2-pass Retrieval
  - Table-level Retrieval
    - Embed:
      - Source Table Doc
      - Target Asset Type Doc
  - Column Level Retrieval
    - Embed:
      - Source Attribute Doc
      - Target Asset Type Doc
- Table-level context accurately map ambiguous fields (like "status" or "owner")

OpenAI text-embedding-3-large used for S2



STAGE 3 – RANKINGS

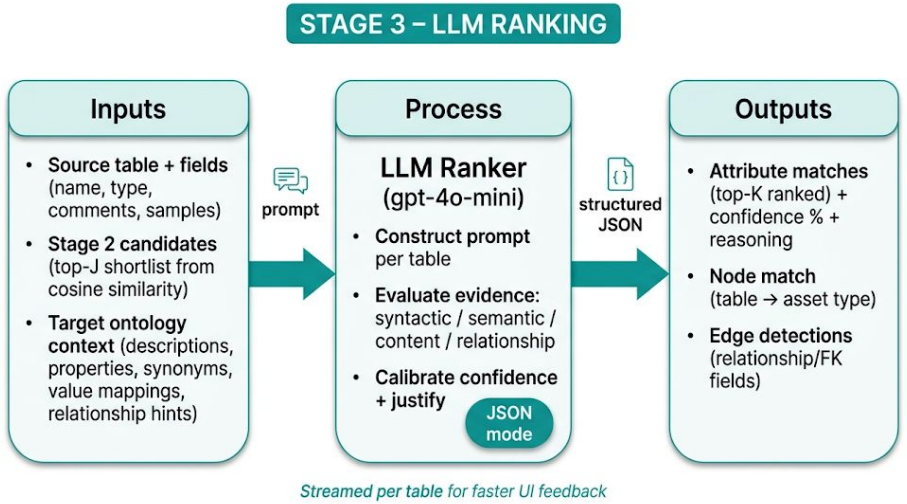
Context Setup:
Combine source table metadata and enriched target ontology definitions.
Top-J candidate target assets from Stage 2

LLM Processing:

- Rank top-5 attribute matches (with confidence score and reasoning).
- Identify best table-to-asset mapping (node match).
- Detect relationship/reference fields (edge detections).

Output Constraints:

- Return strictly formatted JSON.
- Exclude matches with confidence < 0.30.




```
const SYSTEM_PROMPT = `You are an expert in database schema matching, data integration, and ontology alignment.

Your task is to match source schema attributes to a target data model. You have access to an enriched target ontology with
descriptions, synonyms, example values, value mappings, and source system hints.

You must reason across three layers of evidence:
1. **Syntactic**: field name similarity between source and target
2. **Semantic**: meaning alignment using descriptions, synonyms, and source hints from the ontology
3. **Content-Aware**: whether sample values from the source data match the expected patterns, examples, or value mappings in the target

For each source attribute, produce a ranked list of the top-K best target field matches. Also detect:
- **Node matches**: which target asset type this source table most likely maps to
- **Edge/relationship matches**: source fields that represent relationships to other entities rather than simple attributes

ALWAYS respond with valid JSON matching the schema described in the user prompt.`;
```

OpenAI gpt-4o-mini used for S3

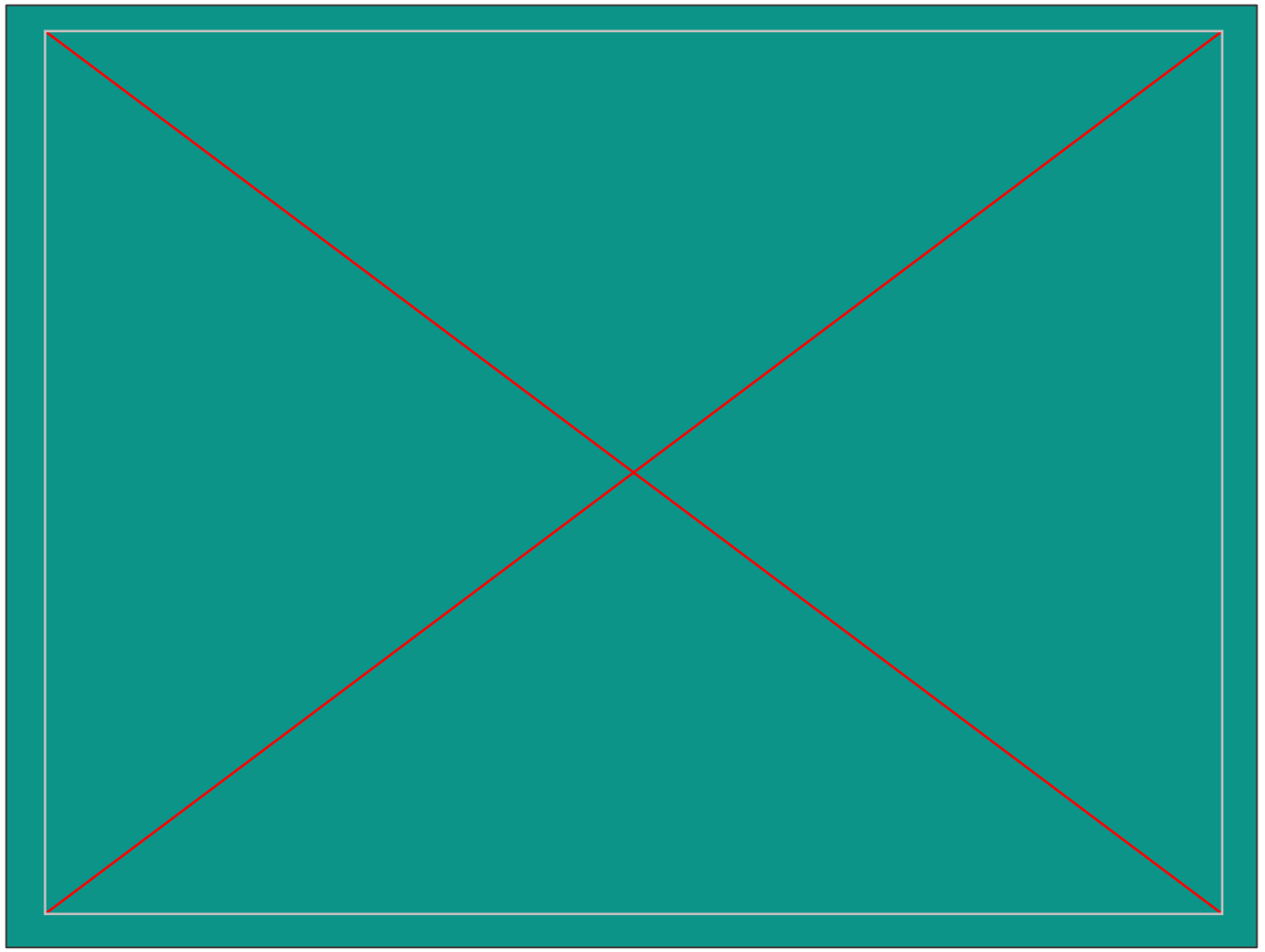
FINAL TOUCHES

- Task / Deliverable 1: Test custom field edge cases
- Task/ Deliverable 2 - App ↔ Infrastructure Relationship Tests
- Task / Deliverable 3: Implement some sort of recovery process for if ReMatch fails during execution
- Task / Deliverable 4: Spark! Handoff

FUTURE MILESTONES & HANDOFF

- **Implement Real API Connectors**: Transition the backend from our mock Supabase databases to live ServiceNow and AuditBoard REST APIs using OAuth 2.0.
- **Database Persistence**: Create backend tables to save and persist a user's accepted or rejected schema mappings across sessions.
- **Live Audit Log Wiring**: Connect the frontend mapping approvals to automatically populate the system's security audit log.
- **Visual Canvas Polish**: Add auto-layout features and the ability to save node positions on the interactive graph.

REMATCH IMPLEMENTATION



Thank you!