CineLog DB

A Comprehensive Analysis of a Scalable Movie Database

Schema

System Architecture

The schema is architected into **6 distinct domains** containing a total of **26 normalized tables**.

1. Catalog & Metadata
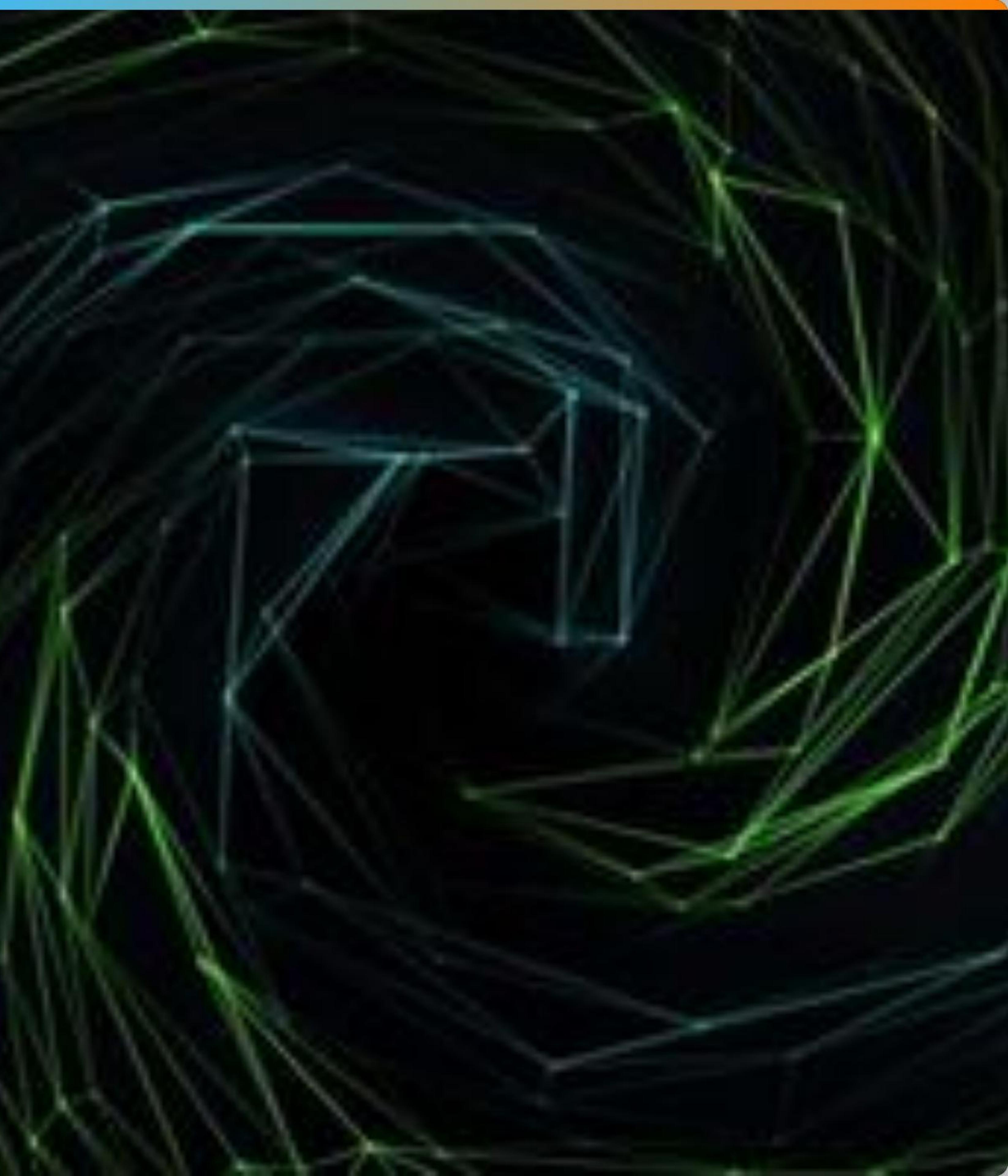
The static foundation: Movies, People, Streaming.

2. User Identity

Authentication, Profiles, and Privacy blocks.

3. Social Graph

Interactions, Lists, and Activity Feeds.

Domain 1: The Core Catalog

This domain handles the static data. It exists independently of users.

Movies Table
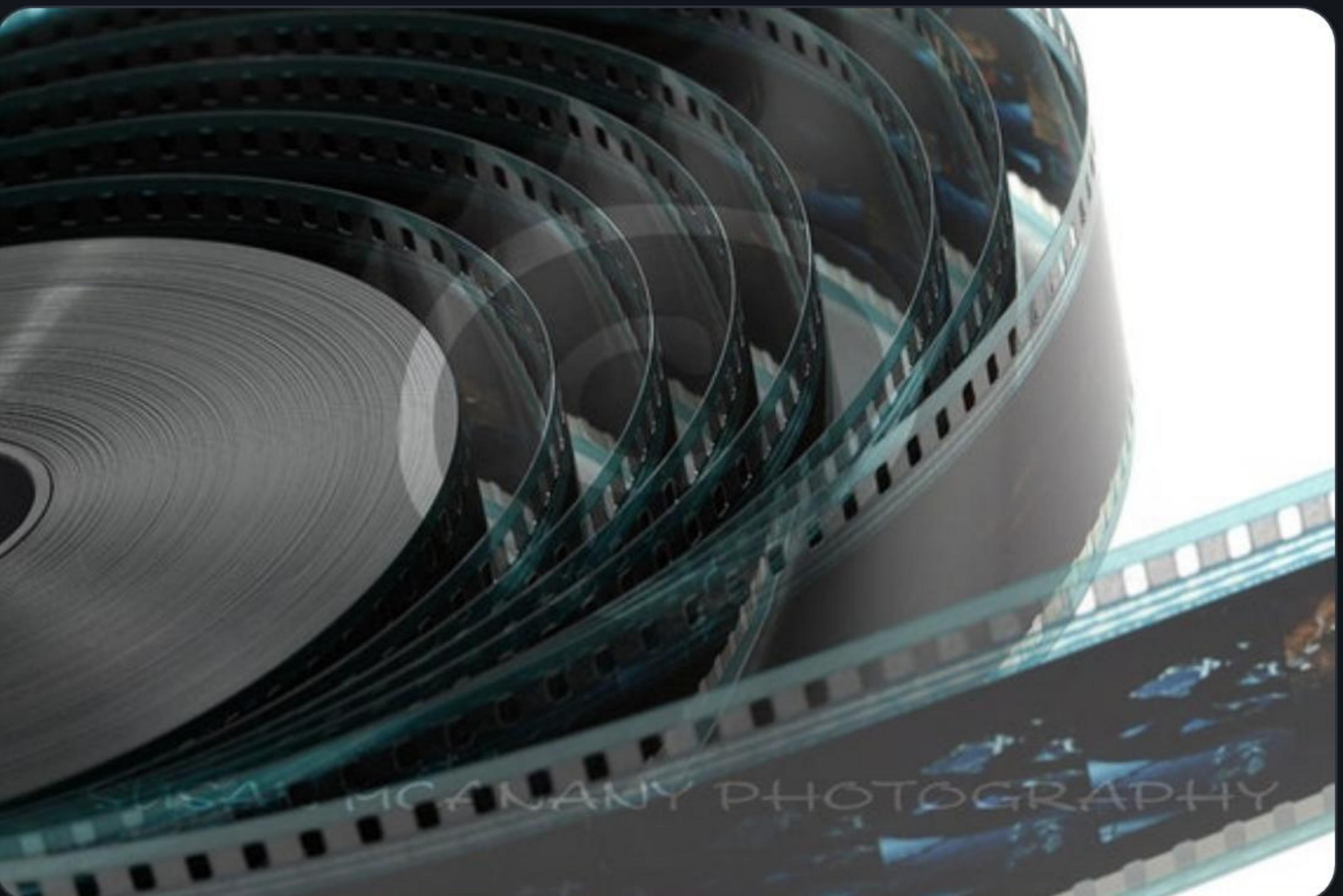
PK **movie_id**

Stores title, runtime, plot, and crucially, **tmdb_id** for external syncing.

People Table

PK **person_id**

A single registry for all Cast & Crew to prevent duplication.

Handling Many-to-Many Data

Cast_Crew

Connects **Movies** and **People**.

Includes **role** (Actor/Director) and **character_name**.

Movie_Genres

Connects **Movies** and **Genres**.

Allows a movie to be both "Horror" and "Comedy" without comma-separated strings.

Movie_Countries

Connects **Movies** and **Countries**.

Properly handles international co-productions (e.g., UK/USA).

Domain 2: Streaming & External Data

Where to Watch?

We avoid hardcoding "Netflix" into the movie row. Instead, we use a scalable provider system.

- **Streaming_Providers:** A lookup table for services (Netflix, Hulu) and their logos.

- **Movie_Streaming:** The junction table containing the **web_link** deep link and **region_code**.

- **TMDB Ratings:** Stored directly on the **Movies** table (vote_average, vote_count) for easy sorting.

Domain 3: User Identity

Users Table
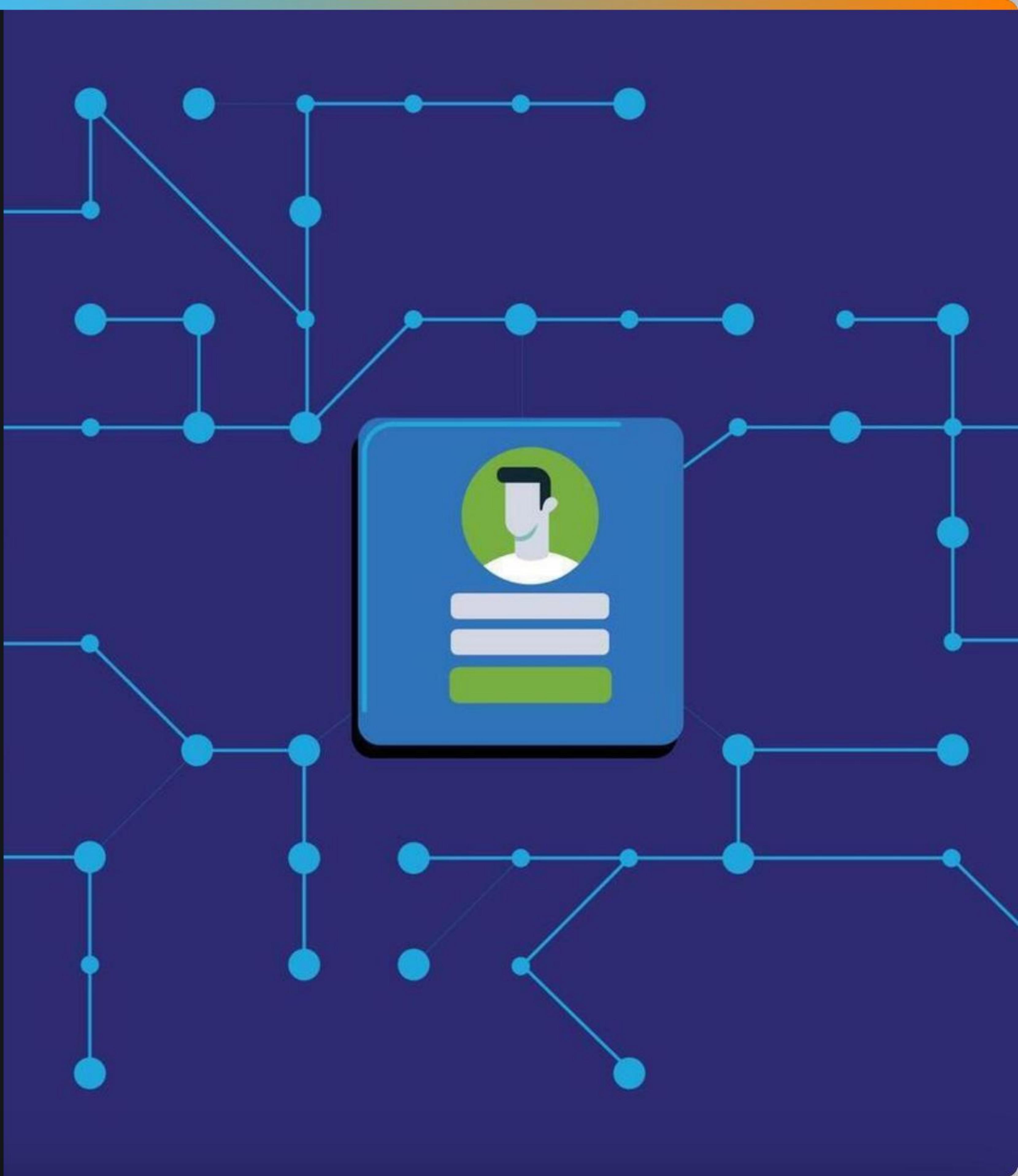
The central node for authentication (email/hash) and profile data (bio/avatar).

Follows (Self-Referential)

Tracks the social graph. Both `FK` follower_id and `FK` following_id reference the Users table.

User_Blocks

Essential for safety. Allows users to hide content from specific other users.

Domain 4: The Core Loop

The "Letterboxd" model separates **Opinion** from **Event**. This is critical for the schema.

Ratings: A user's current score (1-5). Overwritable.

Reviews: The text content. Can exist without a rating.

Diary_Logs: The *Event.* Tracks "Watched on Date". Allows multiple entries for the same movie (Rewatches).

Anatomy of a Log

Diary_Logs Table

PK **log_id**

FK user_id, movie_id

watched_on_date: When they saw it.

is_rewatch: Boolean flag.

Tags System

Users tag logs with context (e.g., #Halloween, #DateNight).

Tags Table: Stores unique tag names.

Log_Tags Table: Junction connecting Logs to Tags.

Domain 5: Curation (Lists)

Lists vs. List Items

A List is a container. The Items are the contents.

Lists Table

Stores the Title, Description, and Privacy Settings (Public/Friends).

List_Items Table

Connects Movies to Lists. Includes **rank_order** to maintain the user's sorting preference and optional notes per item.
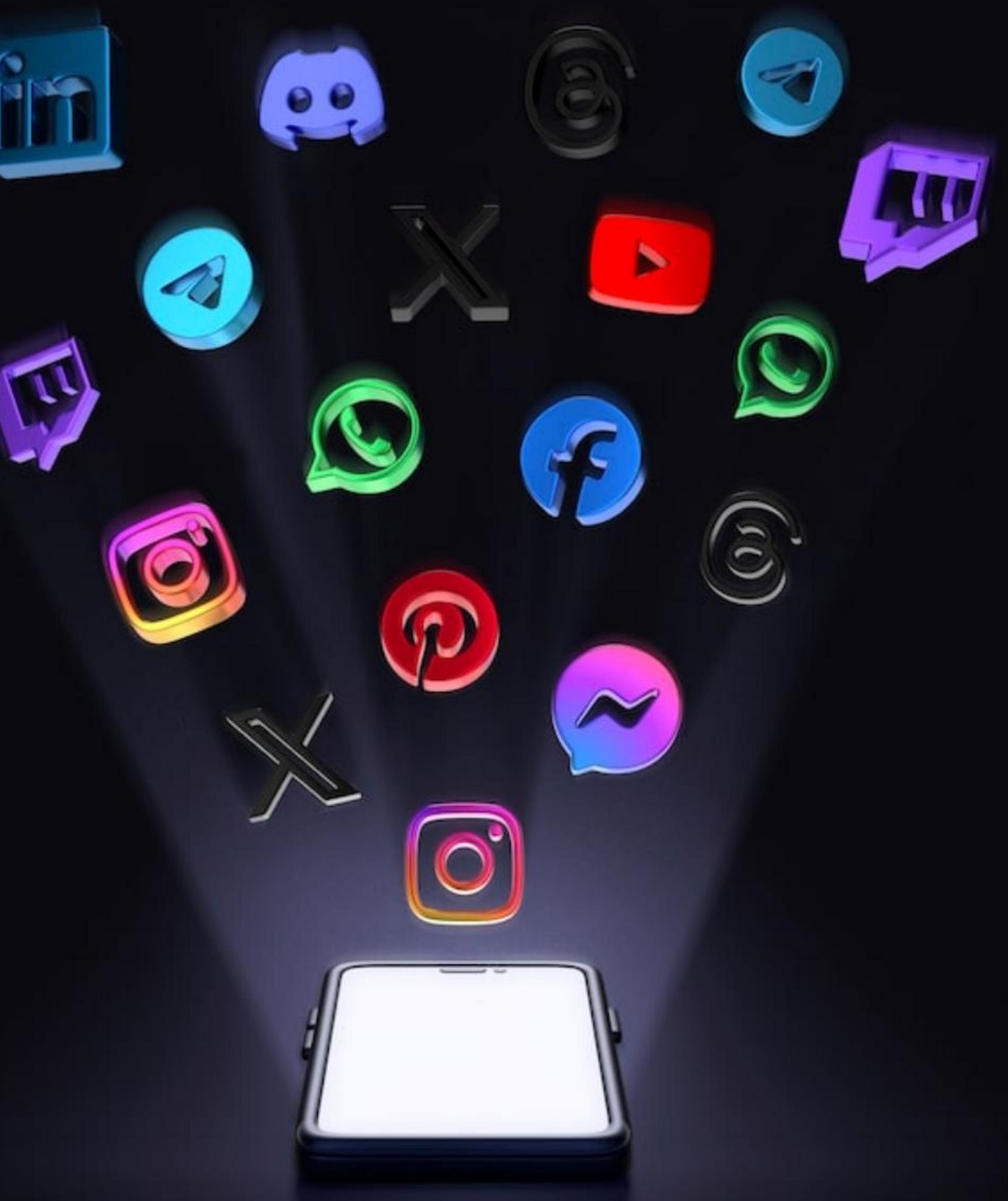
Domain 6: Social Graph

Instead of creating 3 separate tables (ReviewLikes, ListLikes, DiaryLikes), we use a **Smart Polymorphic Design**.

Interactions Table

Contains `FK` columns for **review_id**, **list_id**, and **diary_id**.

Constraint: Exactly one of these FKs must be populated per row. This maintains SQL Referential Integrity while keeping the schema clean.

The Activity Feed

Notifications Table

The engine of retention. Connects an **Actor** (who did it) to a **Recipient** (who sees it).

Action Types

ENUM values track the type of event: **'LIKE'**, **'FOLLOW'**, or **'COMMENT'**.

Resource Linking

Uses a **resource_id** to point the user to the specific Review or List when they click the notification.

Schema Summary

Domain	Key Tables	Key Relationships
Catalog	Movies, People, Streaming	Many-to-Many via Junctions
Identity	Users, Follows, Blocks	Self-Referential (Follows)
Activity	Diary_Logs, Reviews, Ratings	Log connects User -> Movie
Curation	Lists, List_Items	Ordered One-to-Many
Social	Interactions, Comments	Polymorphic FKs (Exclusive Arc)

Total Entities: 26 Tables

Questions?

Database Design & Architecture

Image Sources

https://static.vecteezy.com/system/resources/thumbnails/046/029/957/small/loop-animation-with-glowing-blue-and-green-connected-lines-and-dots-in-a-shape-of-swirl-abstract-plexus-background-with-digital-data-network-connectivity-and-programming-nodes-looped-4k-60fps-video.jpg

Source: www.vecteezy.com

https://i.etsystatic.com/6535807/r/il/7ba550/1578810416/il_570xN.1578810416_m4k5.jpg

Source: www.etsy.com

https://img.freepik.com/premium-photo/social-media-network-global-communication-concept-abstract-background-with-chat-bubbles-connected-by-glowing-lines-dots_143569-1510.jpg

Source: www.freepik.com

https://static.vecteezy.com/system/resources/previews/073/321/903/non_2x/digital-network-identity-connection-system-with-profile-interface-vector.jpg

Source: www.vecteezy.com

https://i.ytimg.com/vi/eUkiOVWiho8/hq720.jpg?sqp=-oaymwEhCK4FEIIDSFryq4qpAxMIARUAAAAAGAElAADIQj0AgKJD&rs=AOn4CLAikMF2KmiTXcVDYk-FuvSuLQ9dmg

Source: www.youtube.com

https://png.pngtree.com/png-clipart/20250131/original/pngtree-checklist-3d-icon-isolated-on-a-transparent-background-symbolizing-tasks-organization-png-image_20357673.png

Source: pngtree.com

Image Sources

https://img.freepik.com/free-psd/social-media-phone_23-2151938401.jpg?semt=ais_hybrid&w=740&q=80

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