Expertise Finder

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- Neo4j Server

- Neo4j Docker

- Community Edition

- Enterprise Edition

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Neo4j Instance: Options

- Neo4j Server
- **Neo4j Docker**

- Community Edition
- **Enterprise Edition**

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Neo4j Docker

- Easy installation

- Isolated dependencies

- Distributed easily across different servers/OS

- Additional Neo4j documentation

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Neo4j Docker

- *docker-compose pull*

- *docker-compose up neo4j*

```
version: "3.8"

services:
  # Actual Neo4j DB container
  neo4j:
    image: neo4j:latest
    pull_policy: if_not_present
    restart: always
    container_name: neo4j
    ports:
      - 7474:7474
      - 7687:7687
    environment:
      - NEO4J_AUTH=${USER_AUTH}/${PASS_AUTH}
    volumes:
      - ./conf:/conf
      - ./data:/data
      - ./logs:/logs
# Pull images: docker-compose pull

# Start up: docker-compose up neo4j (neo4j-admin) (-d)
# optional: (-d) detache
```

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Neo4j Enterprise Edition

- Role-based authentication/authorization

- Scale-up/Clustering

- Multiple Databases

- Unknown cost
  - Educational purposes?
  - Contact neo4j again

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Neo4j Enterprise Edition

- Role-based authentication/authorization

- Scale-up/Clustering

- Multiple Databases

- Unknown cost

  ○ Educational purposes?

  ○ Contact neo4j again

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Neo4j Enterprise Edition

Community

Download

Server Architecture

- Native Graph Processing & Storage
- ACID Transactions
- Auto Reuse of Deleted Space
- Property Graph Model
- High Performance Caching
- Cypher Graph Query Language

Indexing

- Full Text Indexing and Search
- Native Index Population

Client, Drivers and Connectivity

- Neo4j Desktop and Browser
- Bolt Binary Protocol
- Language Drivers
- Reactive Drivers
- High Throughput Load Balancing
- Spring Boot Starter

Graph Data Science (GDS)

- Algorithm and Embeddings

Enterprise

Contact Sales

High Availability & Operations

- Causal Clustering
- Hot Backups
- Multi-Database
- Consistent 24x7 performance with Auto Cache Reheating
- Advanced Monitoring
- Enterprise Diagnostics
- Production Certified

Security

- Role-Based Security
- LDAP/Active Directory Integration
- Schema-Based Security
- Intra-Cluster Encryption
- Security Event Logging
- Brute Force Protection

Client, Drivers and Connectivity

- Neo4j Desktop, Browser, and Bloom
- Bolt Binary Protocol
- Language Drivers

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Neo4j Enterprise Edition

- Algorithms and Embeddings
- Pregel API
- Parallelization
- Model Catalog

- Reactive Drivers
- High Throughput Load Balancing
- Spring Boot Starter

Scalability & Performance

- Sharding & Federation with Fabric
- Graphs of Unlimited Size
- Faster Cypher

Fabric

- Multi-Graph Database
- Federated Data
- Data Sharding

Graph Data Science (GDS)*

- Algorithms and Embeddings
- Pregel API
- Unlimited Parallelization
- Fine Grained Security
- Unlimited Model Catalog
- Model Persistence & Publication
- Low Memory Analytics Graph Format

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Neo4j Version

- Newest version

  - Most secure

  - Docker image *:latest*

- ~Monthly release

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Web and Logic Backend: Options

- NginX/Apache

- Web Application framework of choice

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Web and Logic Backend

- Conceal DB password & username

- Optional additional logic

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Hosting Hardware

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Hosting Hardware: Options

- Cloud: AWS, Google Cloud, Azure, …

- Neo4j Hosting: AuraDB

- KULeuven:

  - Hosting services

  - IT-governance: current Expertise Finder

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Hosting Hardware: Options

- Cloud: AWS, Google Cloud, Azure, …

- Neo4j Hosting: AuraDB

- KULeuven:

  - **Hosting services**

  - IT-governance: current Expertise Finder

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Hosting Hardware: Cloud

- AWS, Google Cloud, Azure, …

  ○ Potential unexpected costs

  ○ Familiar with specific cloud system

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Hosting Hardware: Neo4j AuraDB

- Free option
  - 200k nodes
  - 400k relationships
  - Bloom and Neo4j browser
- No possibility to host webserver

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Hosting Hardware: Neo4j AuraDB

AuraDB Free

Free

For small development projects, learning, experimentation, and prototyping.

Get Started Free

Feature Highlights:

- Forever free! One fully managed graph database
- No credit card or other payment method required
- Up to 200k nodes and 400k relationships
- More sample datasets to explore
- Bloom data discovery and visualization included
- Access to the largest online graph community

AuraDB Professional

Starting at

$65/month*

For medium-scale applications in advanced development or production environments.

Sign Up

View Pricing Table

Everything in Free, plus:

- Up to 64 GB memory per database instance
- Unlimited database instances
- Daily backups, 7-day retention
- On-demand snapshots
- Credit card payment or Cloud marketplace billing integration
- Support for analytical queries with Parallel Runtime

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Hosting Hardware: KULeuven

- IT-Governance for official hosting

  - Toledo authentication

  - Current Expertise Finder

  - Documents & requests…

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Hosting Hardware: KULeuven

- Hosting as a service
  - Container as a Service (CaaS)
    - 2Ghz GPU / 2GB RAM
    - 4GB Storage + extensions
    - Cheap: €66,56/year

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Architecture

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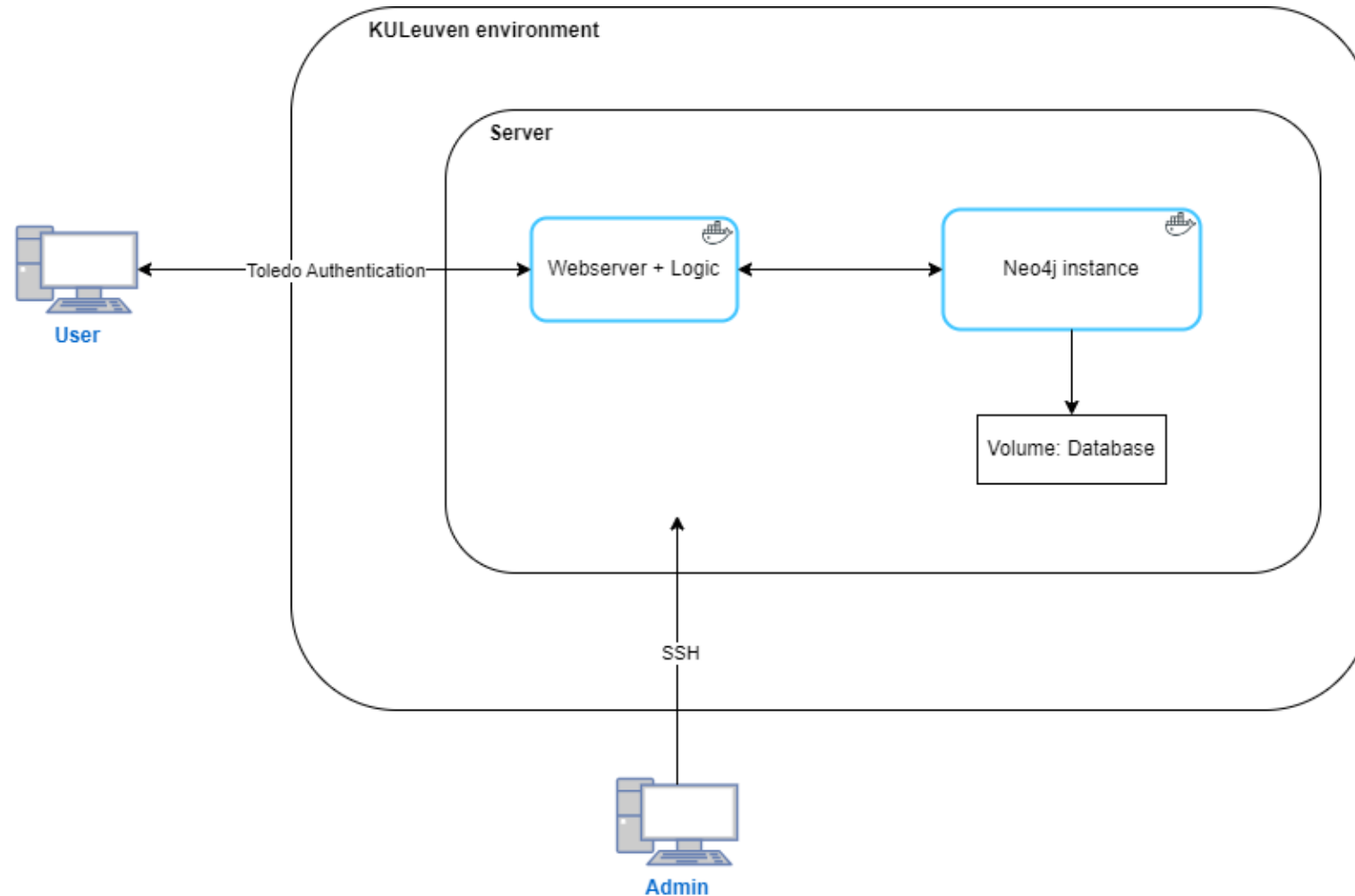
Graphical Interface

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Admin Management

- **Neo4j Browser**

  - Available in every edition

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Admin Management

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Node Graph

- Neo4j Bloom

- Neovis.js

- D3

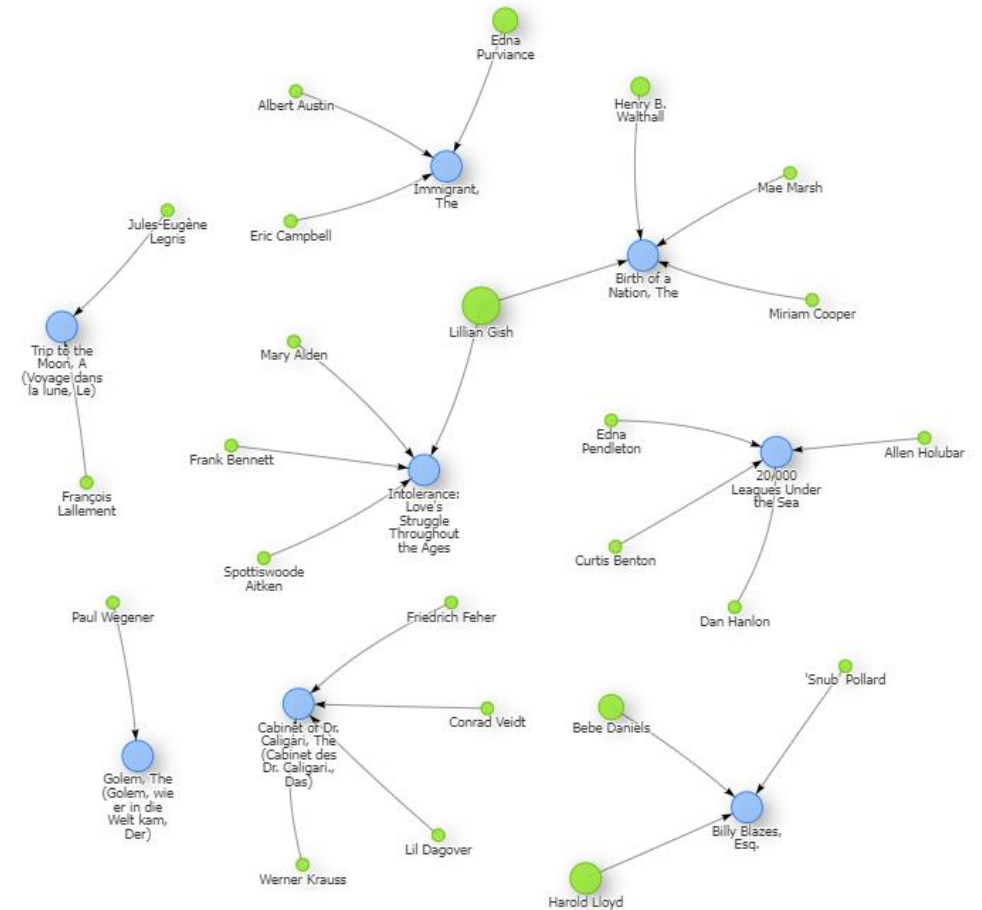- Neo4jD3

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Node Graph

- **Neo4j Bloom**

  - Included in Enterprise edition

  - Out-of-the-box

  - No flexibility

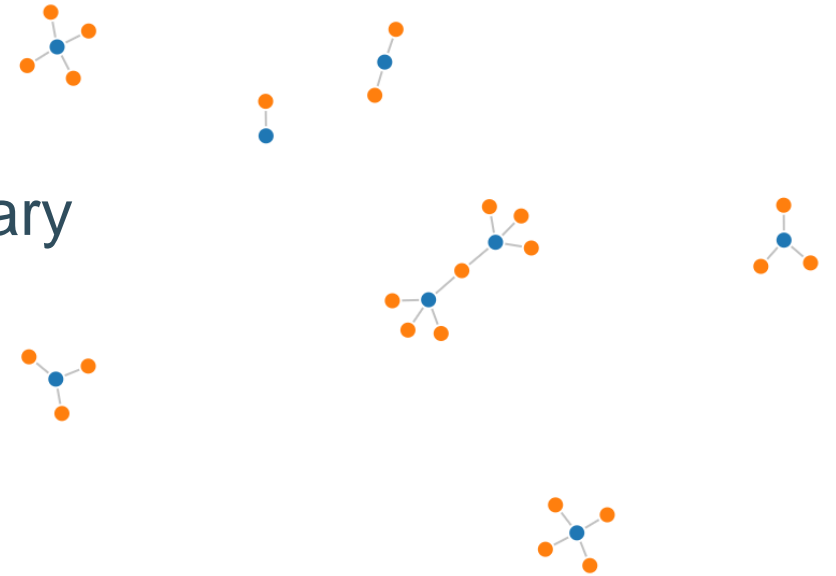KU LEUVEN
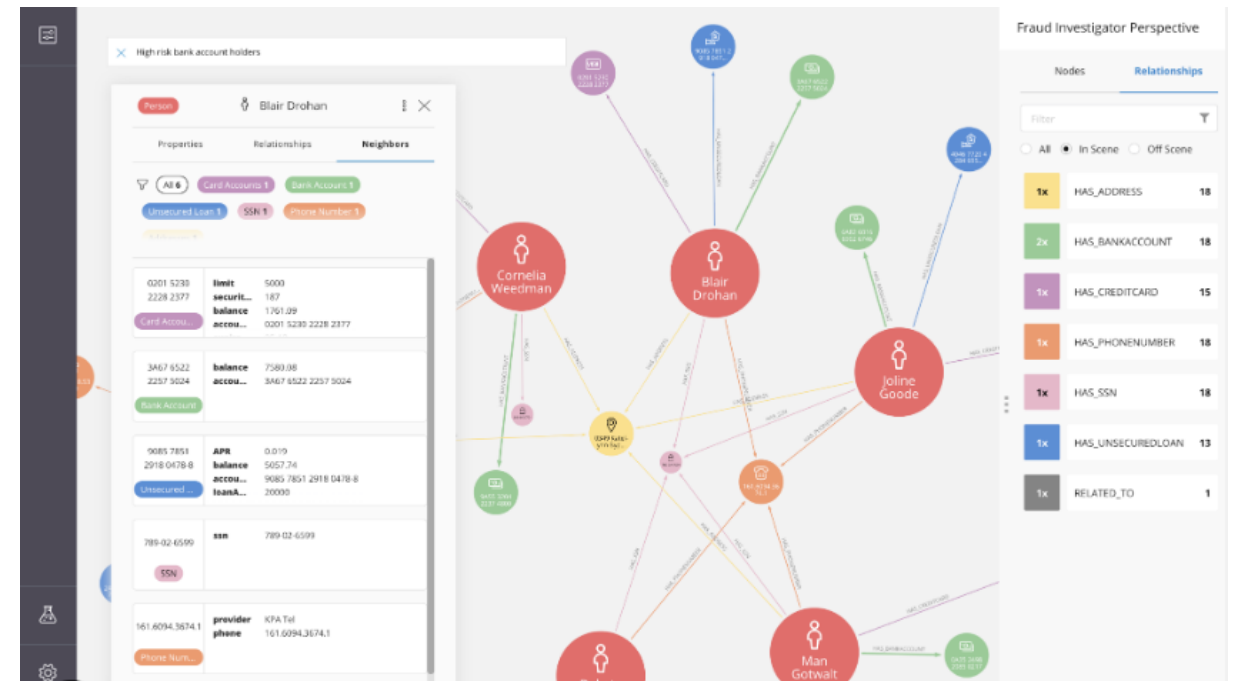
Node Graph

- **Neovis.js**
  - Based on vis.js
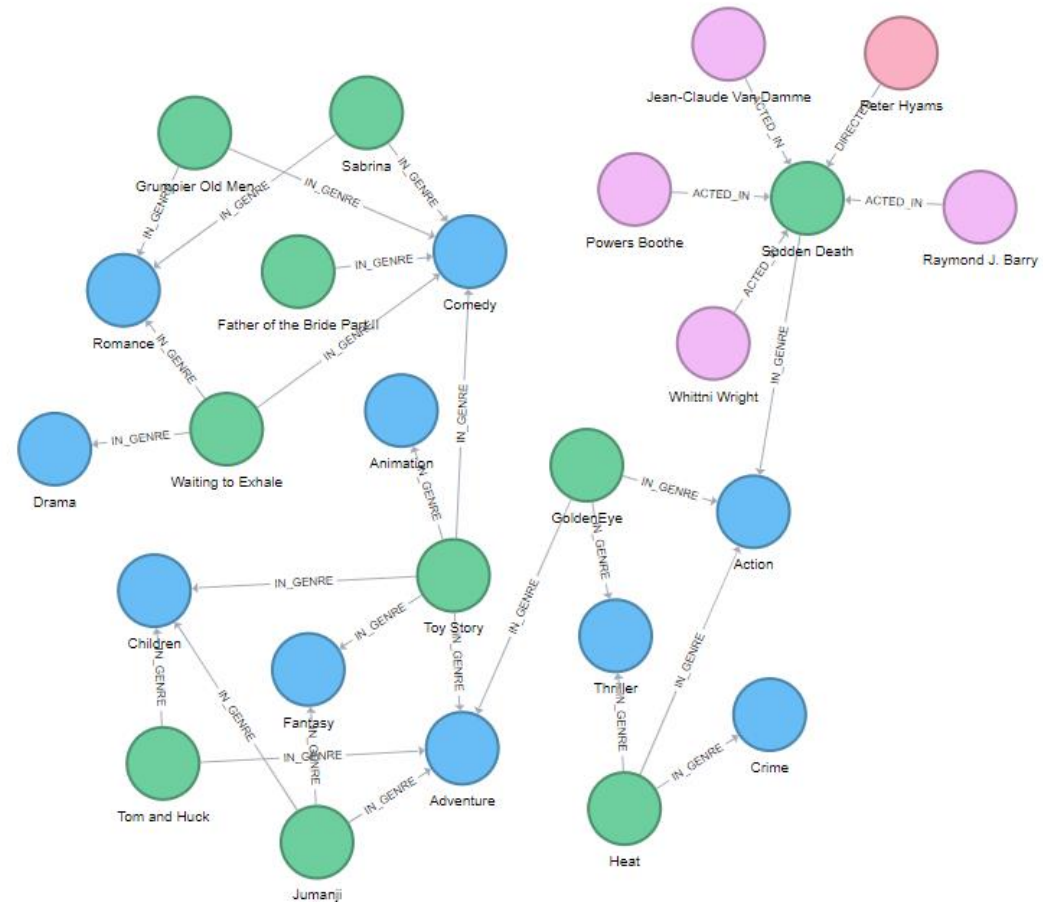 - Useful graph functions:
    - *Weight*
    - *InitialQuery*

Node Graph

- **D3**

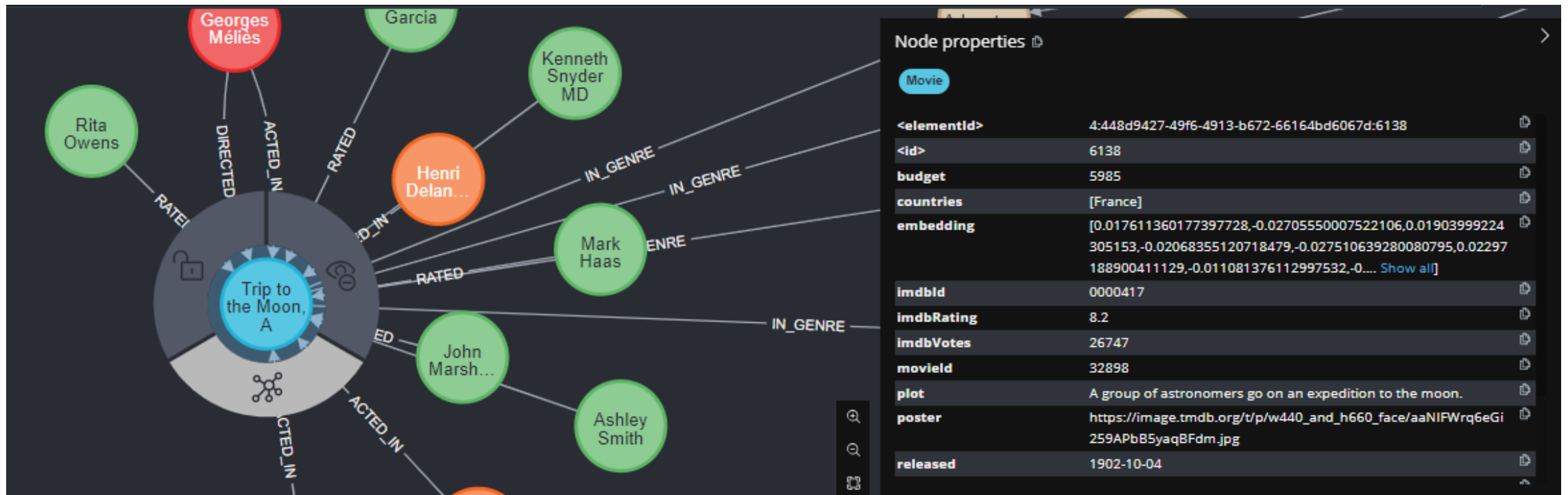 ○ Most popular JavaScript data visualization library

  ○ Low level / difficult

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Node Graph

- **Neo4jD3**
  - Based on D3
  - Slightly out-of-date
  - Solid foundation with extending possibilities using D3

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User Interface

- Based on Neo4j Browser/Bloom

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User Interface

- **No Cypher**

  - Add new Node of Type x

  - Controlled expansion: expand with limit and/or keyword

- **Keep graphs composed**

  - Open new browser tab when node limit reached

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User Interface

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