

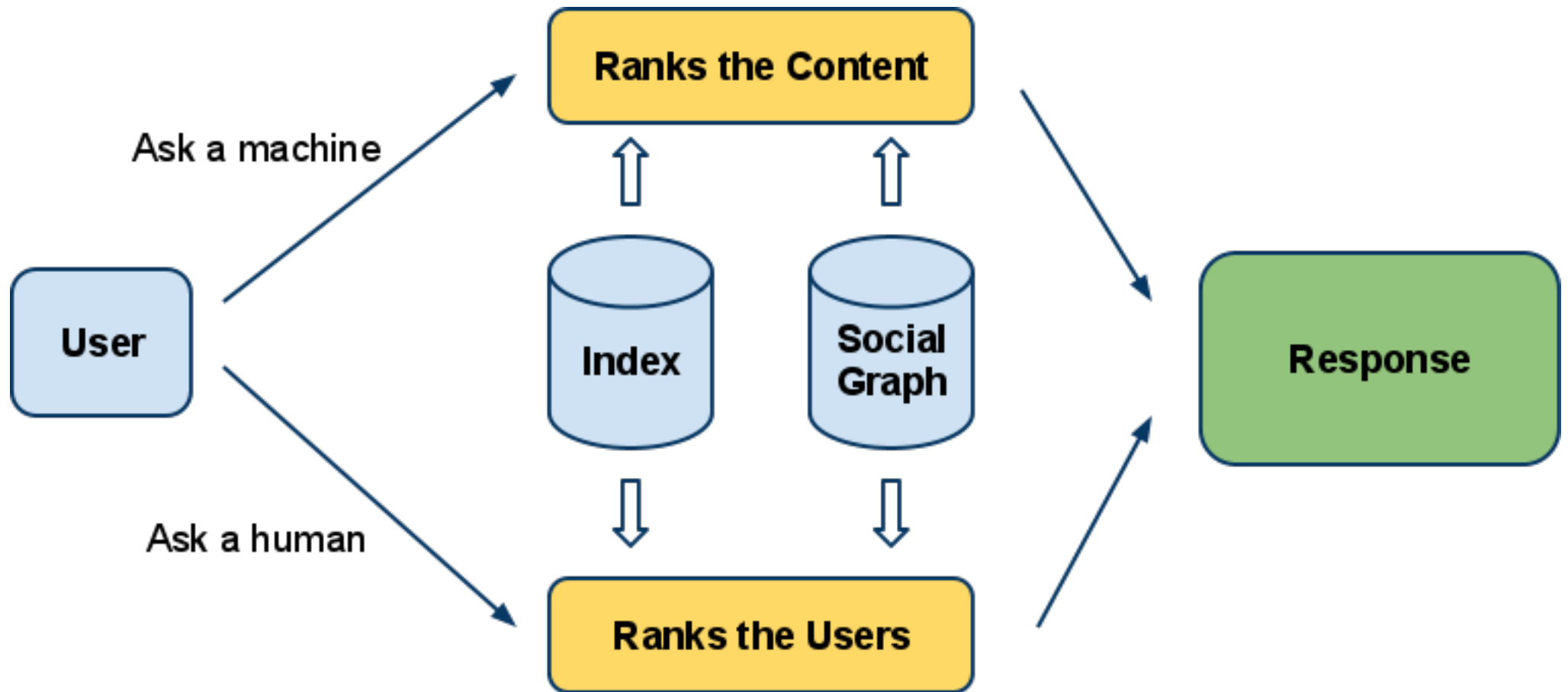


# Social Search

R&D North



# THE BIG PICTURE



# Zing: User Behavior Analysis

## User interests: *networking*

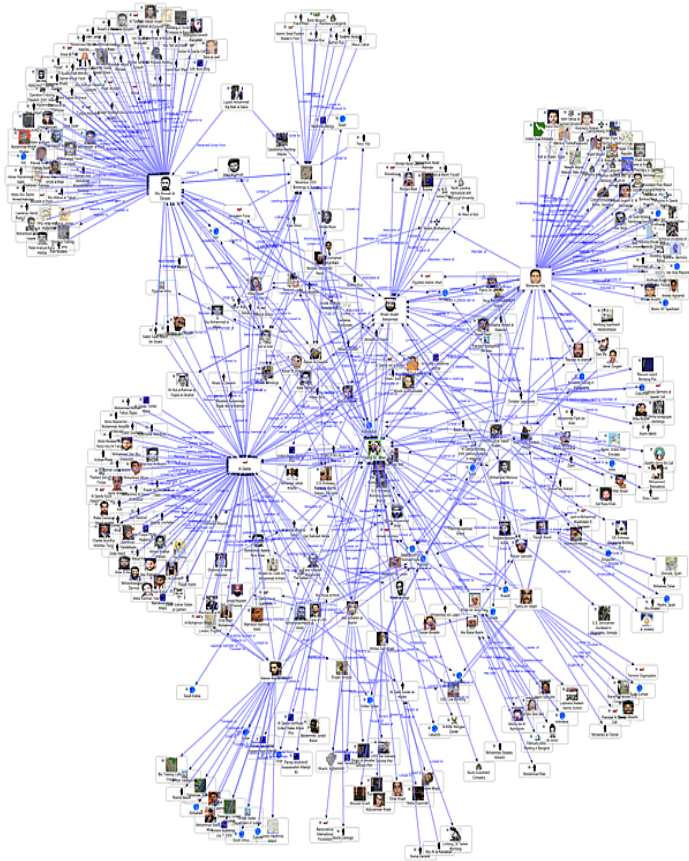
- Find old friends
- Find friend with mutual interests
- Find game play friends
- Find friend within group
- Find friend around a location

## Problems

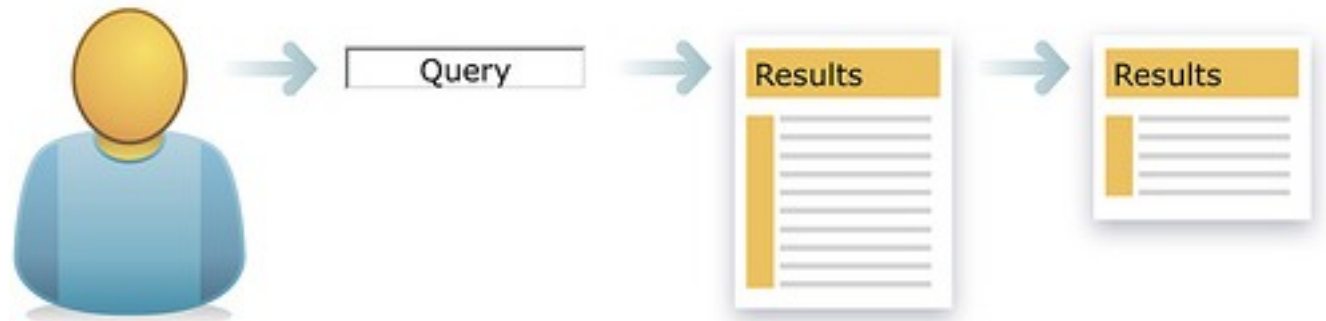
Result is **not relevant** to user's network.

Browsing **thousands of results** is a pain.

# Solution



**Social Search** + Faceted Navigation



# Zing Friend Finder

Refine by

Location

☐ Ha Noi (14)

☐ HCM (22)

☐ Nha Trang (5)

University

☐ Bach Khoa (9)

☐ Ngoai Thuong (1)

☐ Xay Dung (5)

High school

☐ Amsterdam (13)

☐ Tran Phu (1)

☐ Phan Dinh Phung (25)

Age

15

24

Game

☐ Gunny (44)

☐ Zing Farm (12)

☐ NTVV (5)

Group

☐ iPhone (31)

☐ VNG (12)

☐ HUT K50 (50)

Showing 342 results for **"Kien"**



1 2 3 4 5 ... Last

*First prototype*

# BIG DATA

**26** avg friend/user

**30.000** avg friends of friends/user

**800.000** maximum friends of friends/user

**17,000,000** users in index\*



\* test index

# STRICT SLA

Worst case: 1s (1000ms) / request.



# CHALLENGES

**Check relationship**

Ranking user's affinity

**ONLINE**



# CHALLENGES

## Example:

User A executes a query: "*Nam*" => **500,000 hits**

Social search: check each hit's relationship with user A.

$$500,000 * 0,1\text{ms} = 50\text{s!!}$$



## BOTTLENECK!

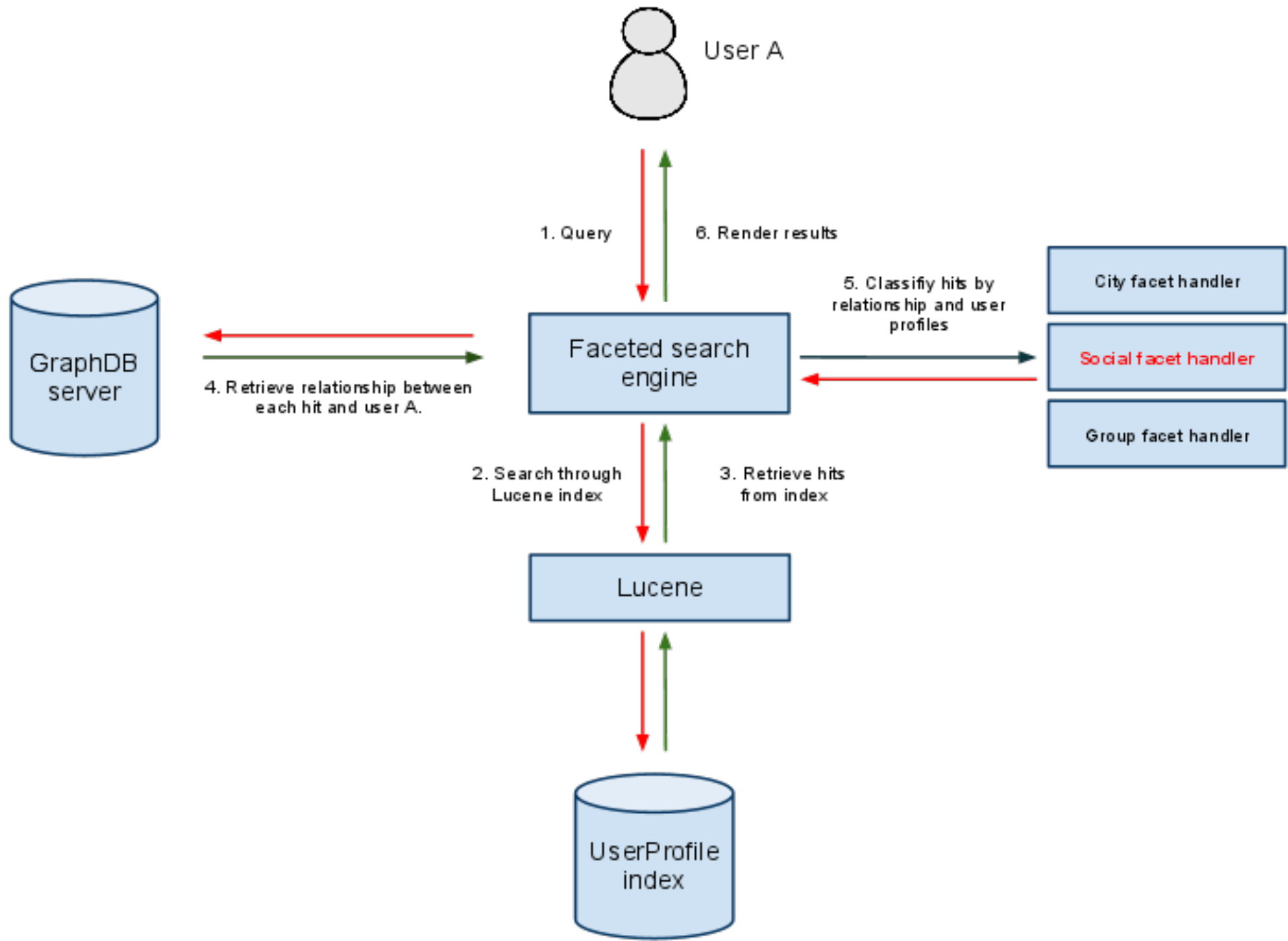
# Solution

Built a **fast, memory-efficient** graph database.

Built a **social facet handler**.

**Trade off** results: use bitset / filter.

# SYSTEM MODEL



# PERFORMANCE EVALUATION

## 1. User's query

- Simple query: "Kiên"
  - 200-300ms => FAST.
- Complex query: "Phạm OR Kiên"
  - More hits => slow.

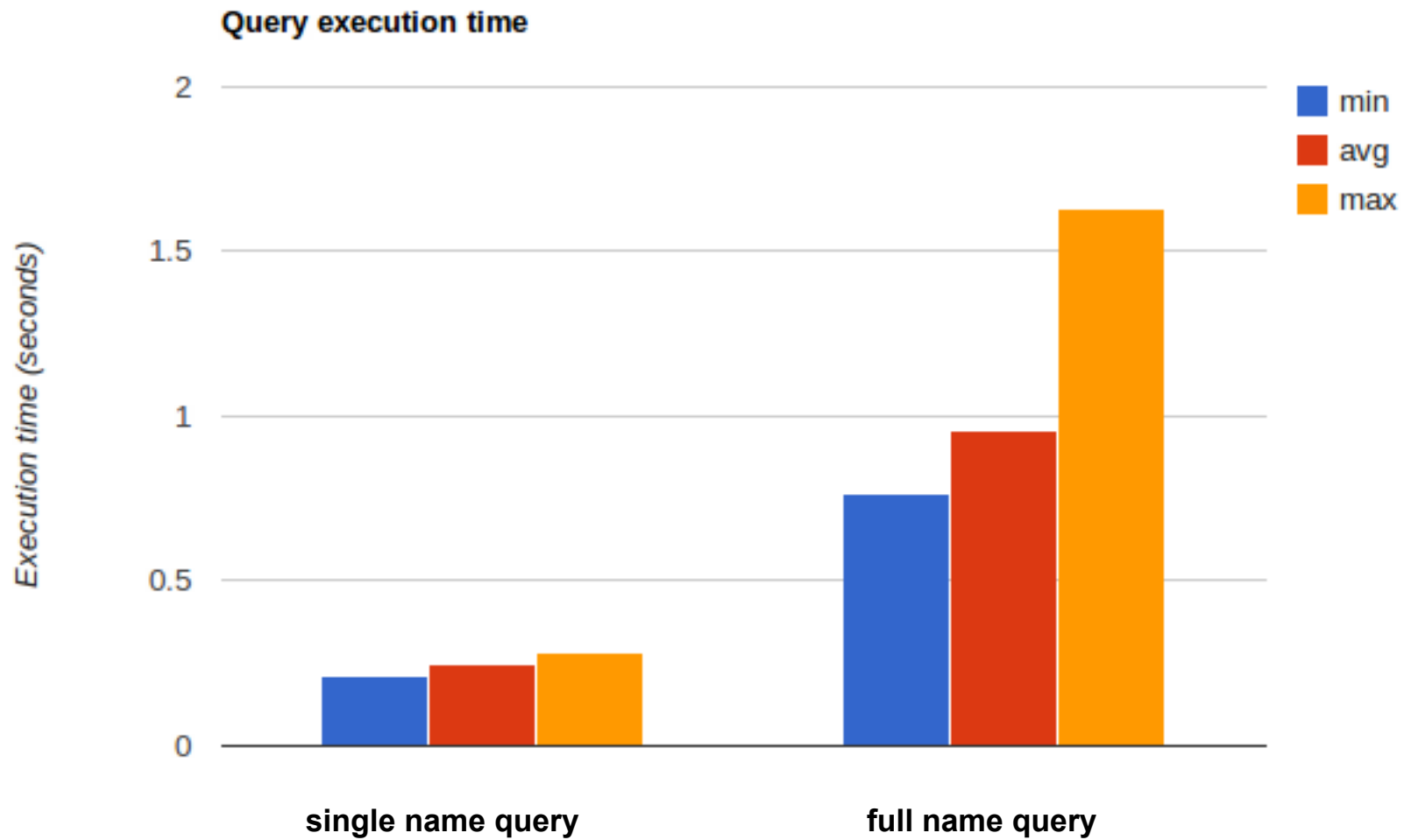
## 2. Facet

- All facets is selected => slow.

## 3. User's network

- ☐ More friends => more hits => slow.

# EXPERIMENTAL RESULTS



# DISCUSSIONS