

neo<sup>4</sup>j & cypher

tuna vargi

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backend developer @ hipo

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github @ vargi

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twitter @ tunavargi

[neo<sup>4</sup>j.com](http://neo4j.com)

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download free community Edition

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play movies!

graph databases



# how they work

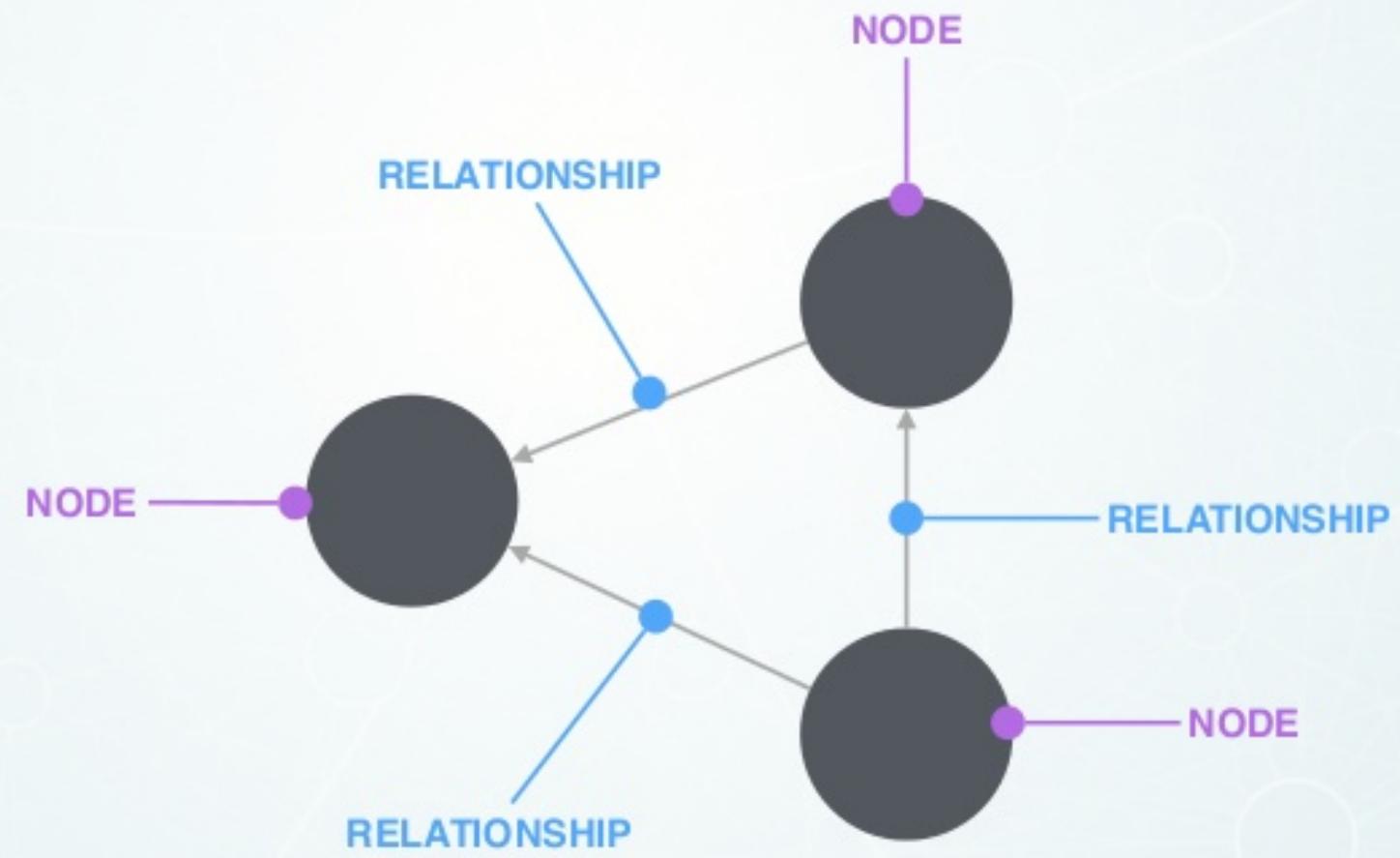


document oriented



Relation

# WHAT IS GRAPH ?

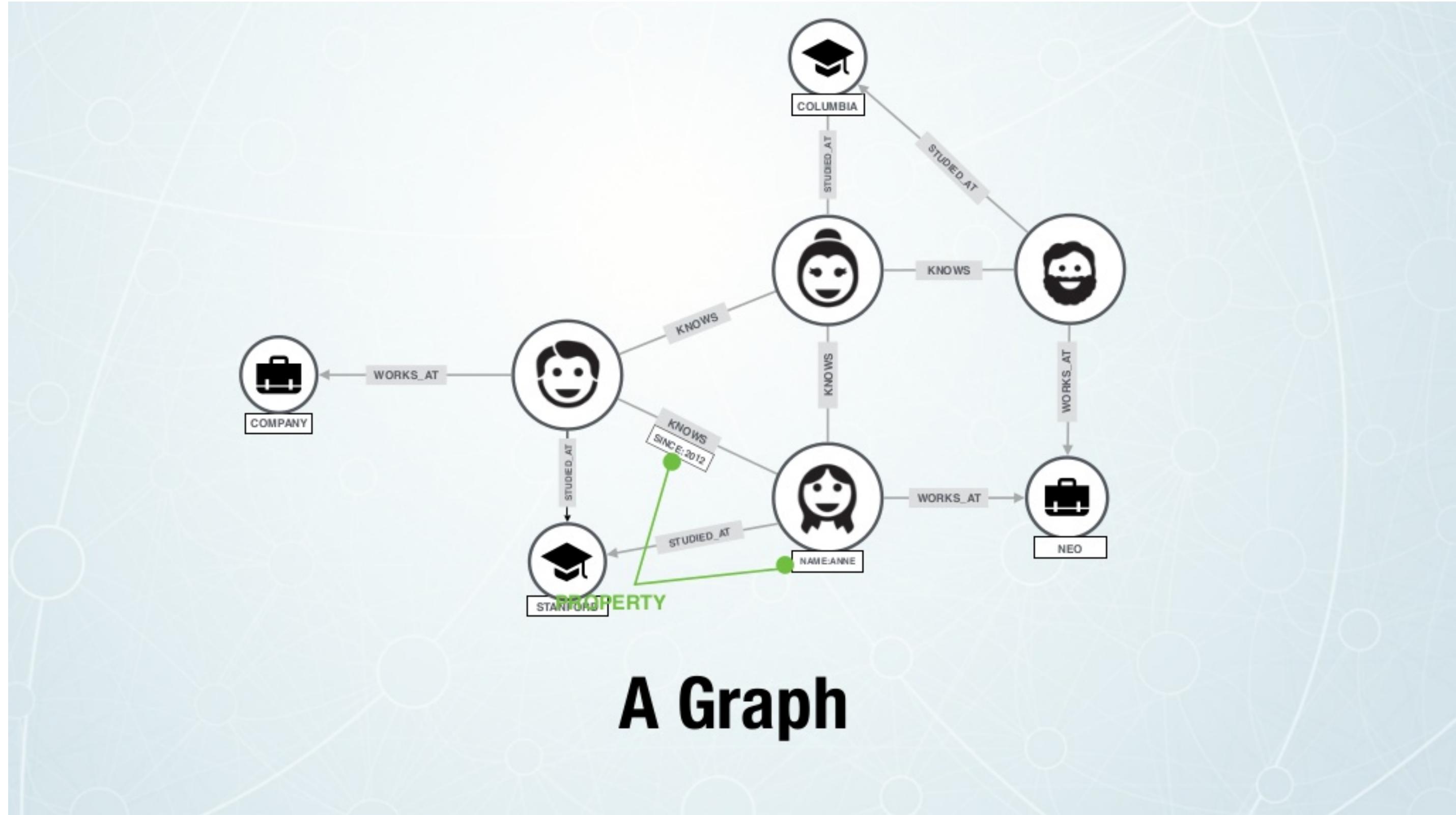


**A Graph Is**

NODES

# PROPERTIES

EDGES



# USE CASES

# NETWORK OPERATIONS



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## FRAUD DETECTION



## REAL TIME RECOMMENDATIONS



## GRAPH BASED SEARCH

# RDB vs GRAPH

ID	Country	Leader
17	UK	Cameron
12	USA	Obama
19	China	Xi Jinping
17	UK	Cameron
112	Israel	Bibi

ID	Name	Pres	State
92	Princeton	Eisgrubr	NJ
34	Yale	Salovey	CT
1	Brown	Paxson	RI

Name	Country	Hair	Uni
John	17	Red	92
Mary	12	Blonde	34
Li	19	Black	92
Kate	17	Brown	92
Michal	112	Brown	1

```
SELECT
    p.name,
    c.country, c.leader, p.hair,
    u.name, u.pres, u.state
FROM
    people p
    LEFT JOIN country c ON c.ID=p.country
    LEFT JOIN uni u ON p.uni=u.id
WHERE
    u.state='CT'
```

:)

CYPHER!

# GOOD BYE JOINS

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## BETTTER FOR ASSOCIATIVE DATA SETS



# NODES CONNECTED BY EDGES



# NODES HAVE PROPERTIES



# EDGES HAVE PROPERTIES

QUERY ?

# JON'S FRIENDS

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## OLDER THAN 25

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### FRIEND SINCE 2009

NODE TYPE : PEOPLE

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NODE PROPERTY FILTER : AGE > 25

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EDGE PROPERTY FILTER :  
FRIENDSHIP SINCE 2009

```
MATCH (jon:People{name: "Jon"})-[r:FRIEND_OF]->(friends:People)
WHERE friends.age > 25 AND r.date > 2009
RETURN friends
```

**WHY USEFUL ?**

EASY TO WRITE



FASTER DEVELOPMENT



DECLARATIVE !!!

TRAVERSING ALONG  
NODES VIA EDGES

**SHOW ME THE  
CODE**

**AND STOP TALKING!**

MOVIES

KEANU REEVES

```
MATCH (person:Person)
WHERE person.name = 'Keanu Reeves'
return person
```

KEANU REEVES AND HIS  
MOVIES

```
MATCH (person:Person)
WHERE person.name = 'Keanu Reeves'
MATCH (movies:Movie) <-[:ACTED_IN]-(person)
return movies.title
```

WHERE WE USE IT IN  
REAL LIFE ?

```
MATCH (person:Person)
WHERE person.name = 'Keanu Reeves'
return person
```

# CHROMA

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chr.ma

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catalogue curious things

# TREE STRUCTURE APP



LETS CHECK ON WEBSITE

LETS TRY SOME QUERIES

# "FOOD AND DRINK"



## CATEGORY

"FOOD AND DRINK"



SUB CATEGORIES FIRST  
DEGREE

"FOOD AND DRINK"

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SUB CATEGORIES  
UNDER ALL TREE

**PHOTO COUNT UNDER "FOOD AND  
BEVERAGES" 'TREE**

LAST PHOTO OF  
"FOOD AND BEVERAGES" TREE



GIVE ME USER OF  
ANDRE POREMSKI

GIVE ME PHOTOS OF  
USER ANDRE POREMSKI

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CONTINENT NORTH  
AMERICA TREE

GIVE ME PHOTOS OF USER ANDRE  
POREMSKI

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CONTINENT NORTH AMERICA TREE

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NATURE CATEGORY TREE

THANKS