

NoSQL Graph Databases: **Neo4j**

Moisés de Siqueira Campos Neto



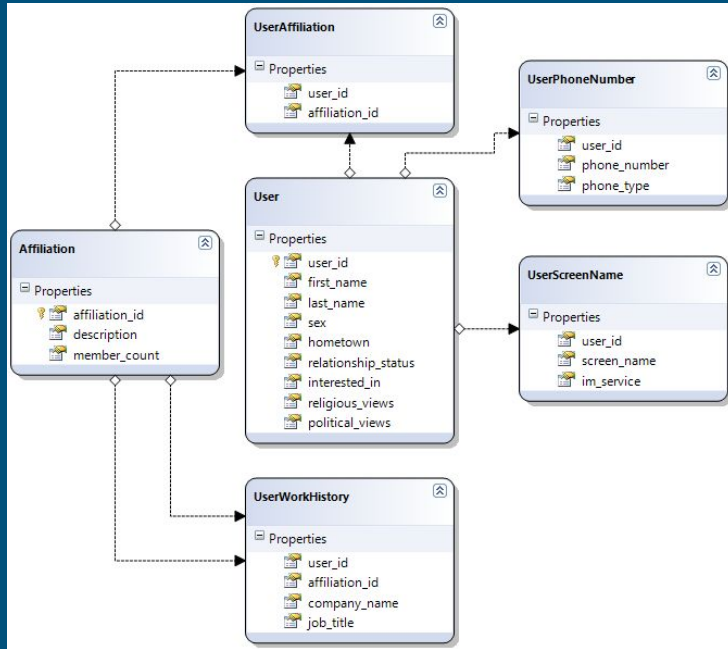
Roteiro

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Motivação

First Name	Last Name	Address	City	Age
Mickey	Mouse	123 Fantasy Way	Anaheim	73
Bat	Man	321 Cavern Ave	Gotham	54
Wonder	Woman	987 Truth Way	Paradise	39
Donald	Duck	555 Quack Street	Mallard	65
Bugs	Bunny	567 Carrot Street	Rascal	58
Wiley	Coyote	999 Acme Way	Canyon	61
Cat	Woman	234 Purrfect Street	Hairball	32
Tweety	Bird	543	Itotltaw	28

Motivação



- ACID:
 - Atomicidade
 - Consistência
 - Isolamento
 - Durabilidade
- Normalizações
 - Custo

USERS PIN

3,472
images.

**VINE
USERS**

SHARE

8,333

VIDEOS.

**SKYPE
USERS**

CONNECT FOR
23,300 HOURS.

YELP USERS
POST
26,380

72 HRS.
OF NEW
VIDEO.

204,000,000
MESSAGES.

RECEIVES OVER
4,000,000

**SEARCH
QUERIES.**

**FACEBOOK
USERS SHARE**

2,460,000

PIECES OF CONTENT.

**TINDER
USERS SWIPE**

416,667

TIMES.

WHATSAPP
— USERS SHARE —

3,172,222

EVERY
MINUTE

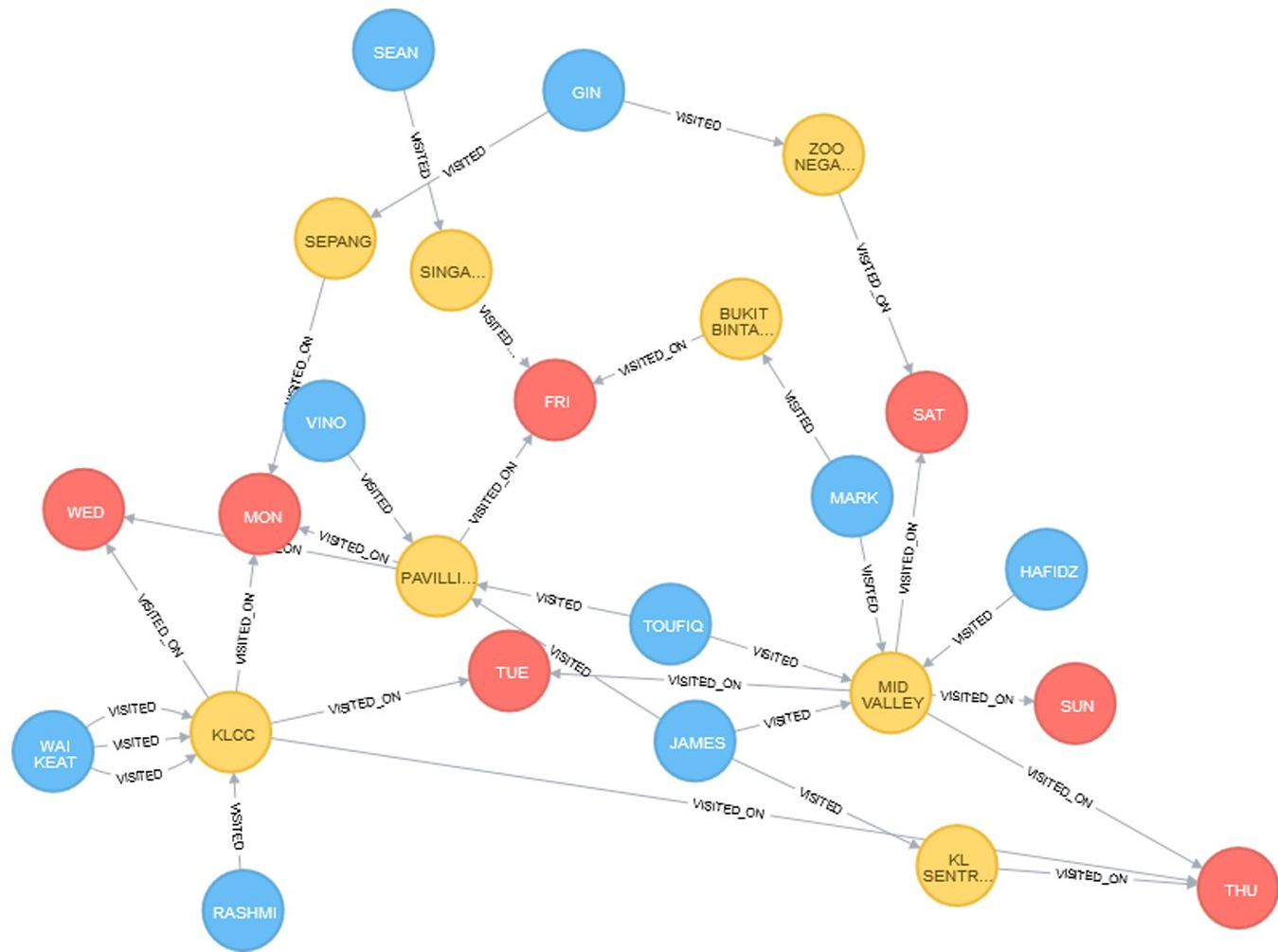
OF THE

DAY



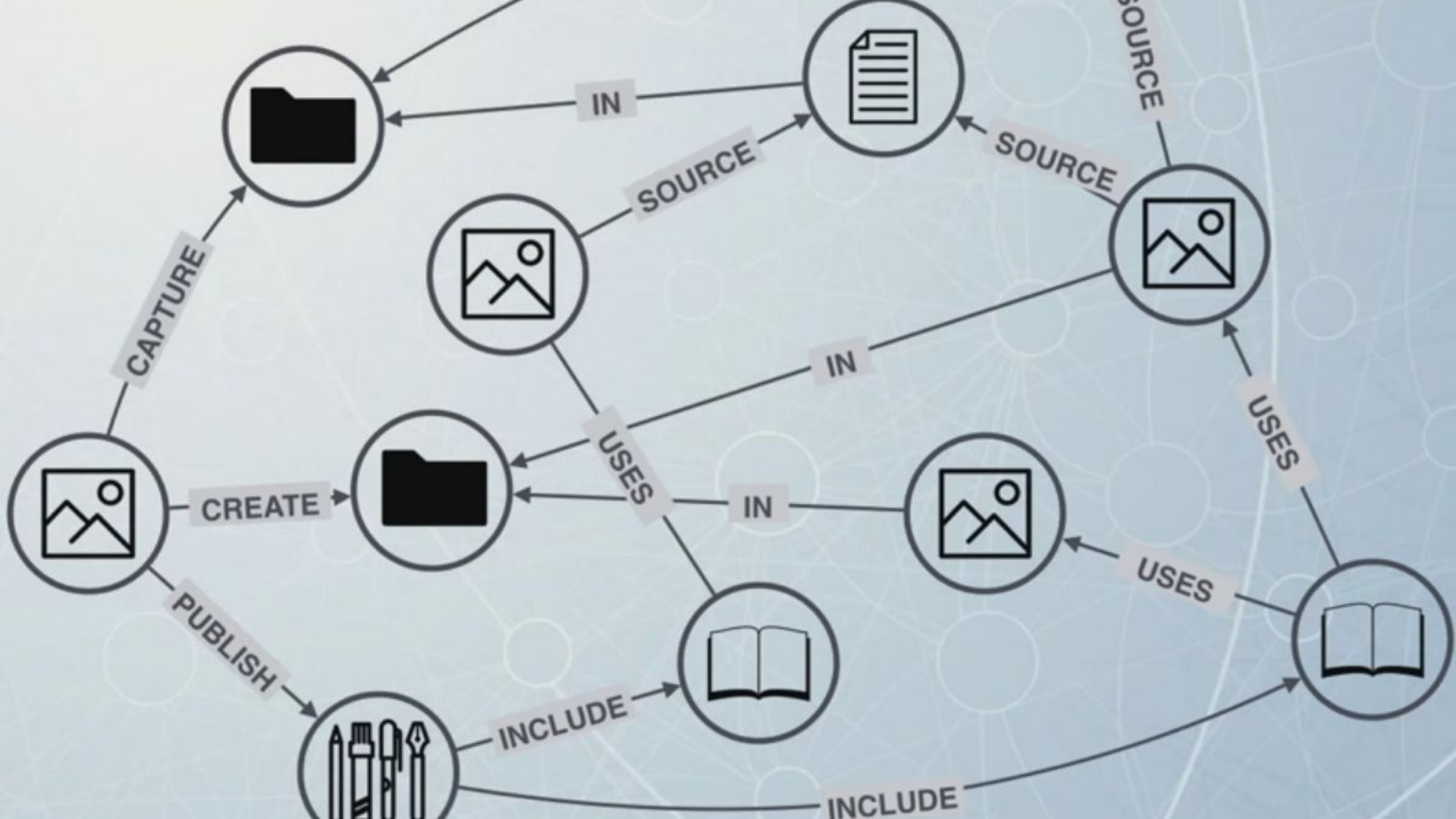
Motivação

- Revolução NoSQL
 - Chave-valor
 - Documentos
 - Columnar
 - Grafos



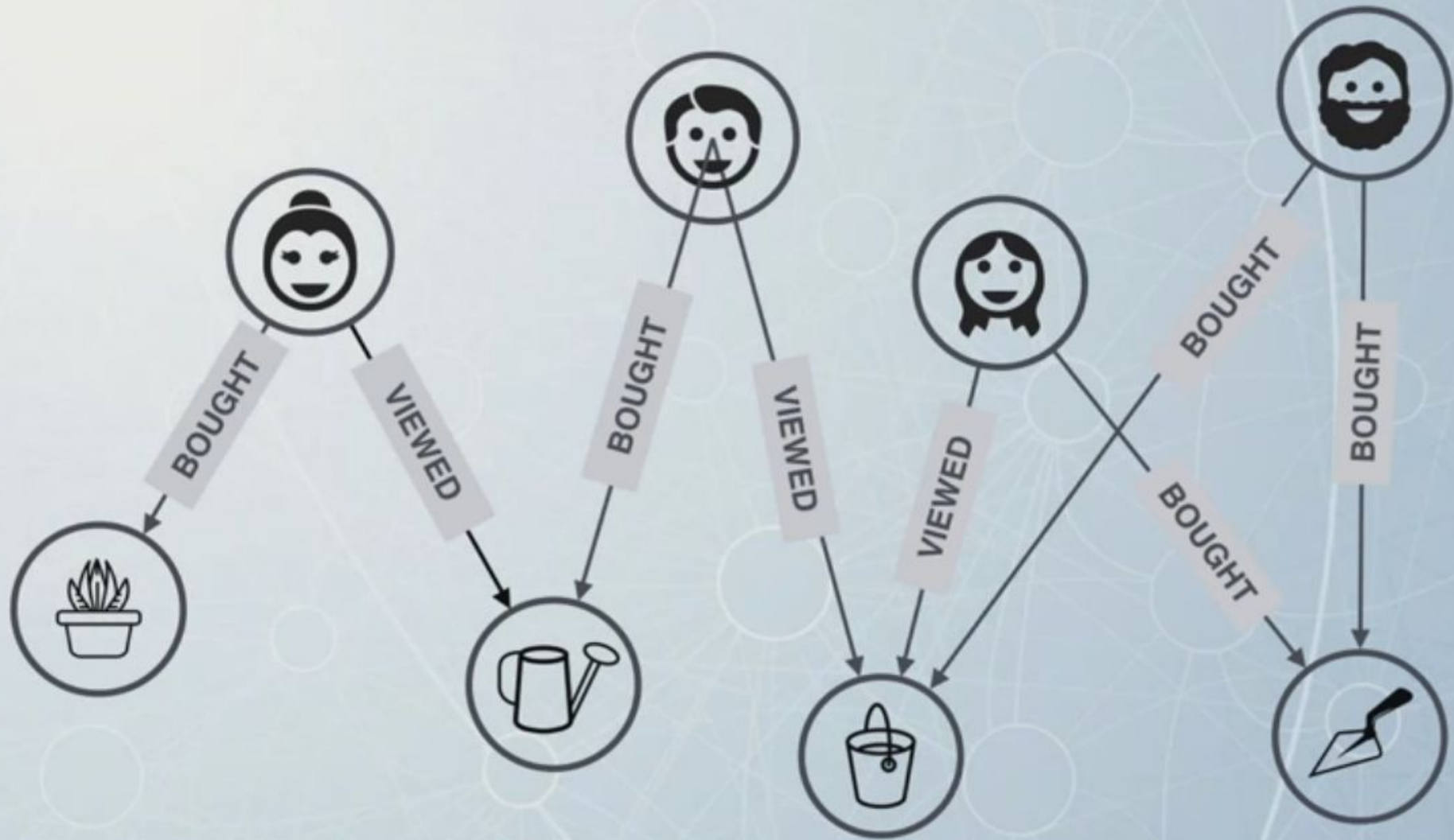
Casos de Uso

Buscas baseadas em
Grafos



Casos de Uso

Recomendações em
Tempo Real



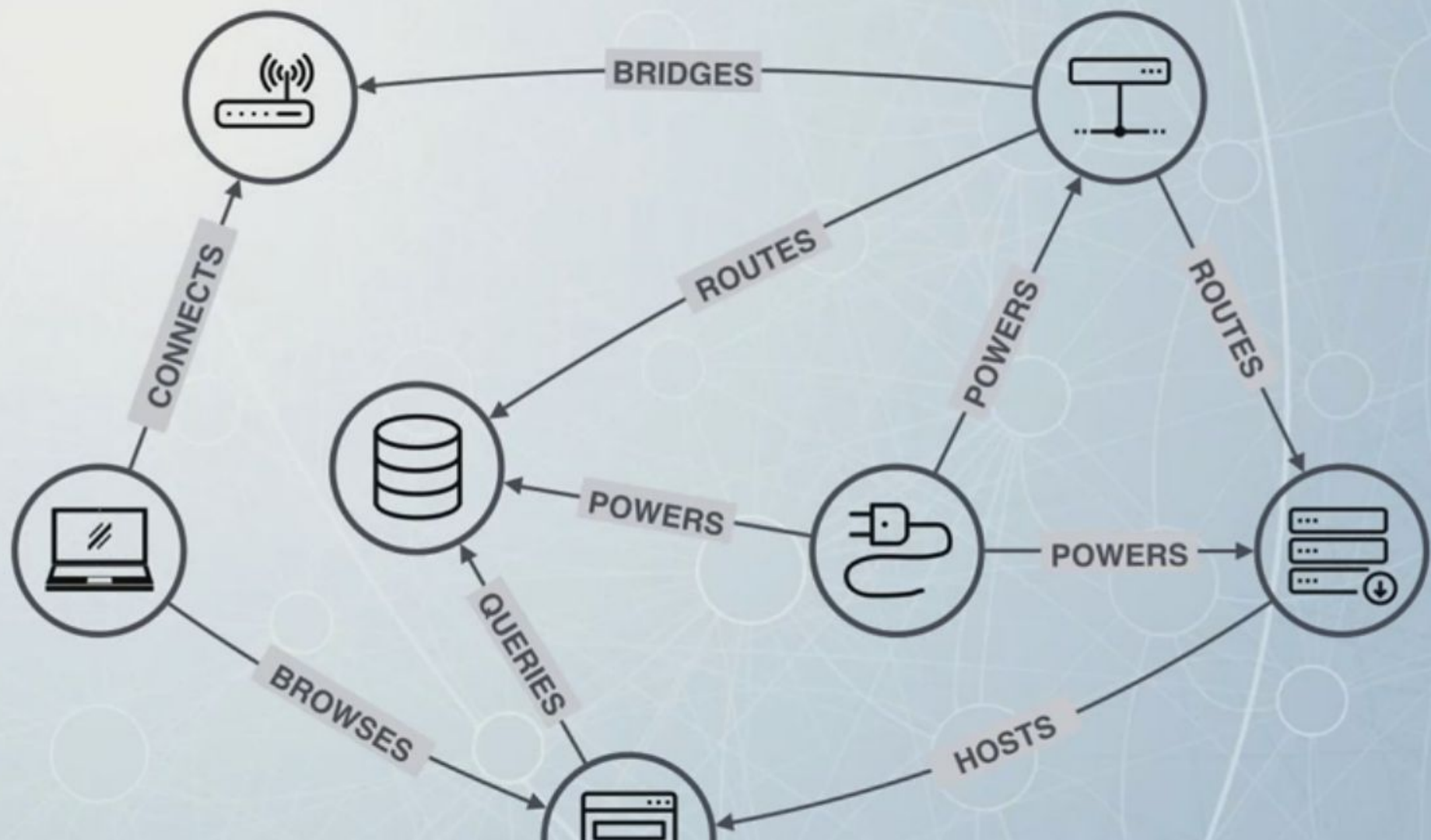
Casos de Uso

Master Data
Management



Casos de Uso

Gerenciamento de Redes e
Operações



Instalação

<https://neo4j.com/download/>



Download Neo4j

Install Neo4j and Take it for a Spin

Experience powerful scalability, blazing speed and unparalleled flexibility – download and try Neo4j today.

For Business

The Neo4j Enterprise Edition offers incredible power and flexibility, with enterprise-grade availability, management and scale-up & scale-out capabilities.

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Neo4j 3.0.7

[Release Notes](#) | [Other Releases](#)

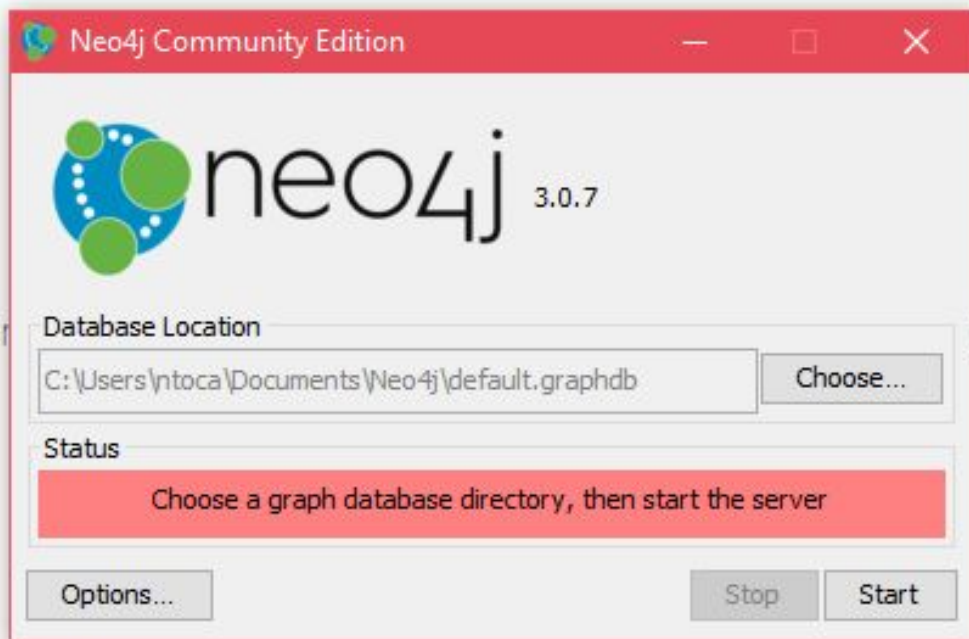
Ideal for learning and smaller do-it-yourself projects that do not require high levels of scaling.

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Get professional support and enterprise-grade availability with management and clustering.



Ideal for learning and

with levels of scaling.



\$



```
$ MATCH (n:Person) RETURN n
```



```
*(4) Person(4)
```

```
*(3) LOVES(3)
```



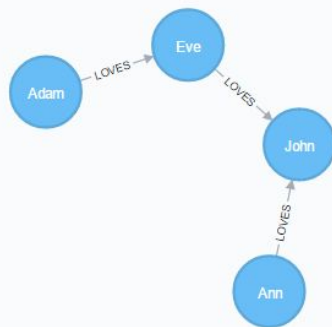
Rows



Text



Code



Displaying 4 nodes, 3 relationships (completed with 3 additional relationships).

AUTO-COMPLETE 

```
$ match (a :Person)-[r :LOVES*]->(b :Person) where a.name = 'Adam' and b.name = 'John' return r
```



Exemplos

Cypher Query Language

Criando nós

```
$ CREATE (:Person {name: 'João', age: 22, gender: 'male'})
```

```
1 CREATE
```

```
2     (maria :Person {name: 'Maria', gender: 'female'}),
```

```
3     (joselito :Person {name: 'Joselito', age: 22})
```

```
4 RETURN maria, joselito
```

Criando nós com relacionamento

```
1 CREATE
2     (:Person {name: 'Severino', age: 60})
3     -[r :LOVES]->
4     (:Person {name: 'Severina', age: 60})
5 RETURN r
```

Criando relacionamento entre dois nós existentes

```
1 MATCH (a :Person), (b :Person)
2 WHERE a.name = 'Severino' AND b.name = 'Severina'
3 CREATE (b)-[r :LOVES]->(a)
4 RETURN r
```

Criando relacionamento entre dois nós existentes

```
1 MATCH (a :Person), (b :Person)
2 WHERE a.name = 'Joselito' AND b.name = 'Maria'
3 CREATE (a)-[r: LOVES]->(b)
4 RETURN r
```

Criando relacionamento entre dois nós existentes

```
1 MATCH (a :Person), (b :Person)
2 WHERE a.name = 'Maria' AND b.name = 'João'
3 CREATE (a)-[r: LOVES]->(b)
4 RETURN r
```

Removendo relacionamento existente

```
1 MATCH (a :Person)-[r :LOVES]->(b :Person)
2 WHERE a.name = 'Joselito' AND b.name = 'Maria'
3 DELETE r
```

Removendo relacionamento existente

```
1 MATCH (j :Person)
2 WHERE j.name = 'Joselito'
3 SET j.name = 'Joãselito'
4 RETURN j
```



```
$ MATCH (n:Person) RETURN n LIMIT 25
```



Graph

*(5) **Person(5)**

*(3) **LOVES(3)**



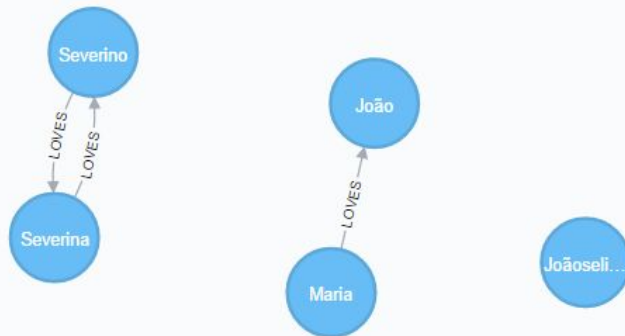
Rows



Text



Code



Displaying 5 nodes, 3 relationships (completed with 3 additional relationships).

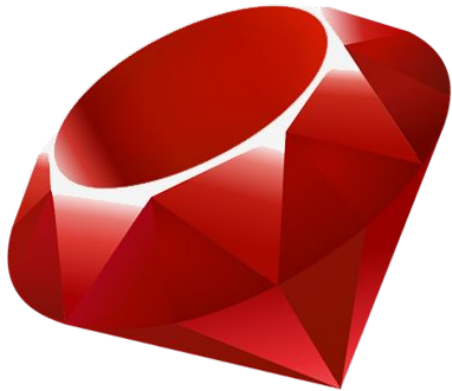
AUTO-COMPLETE

ON

Drivers oficiais



Drivers não-oficiais



php

Conclusões

- Grande poder se tratando de representação e computação de conexões
- Extremamente intuitivo:
“Your whiteboard is your model”
- Linguagem de consulta SQL-like (CQL)
- Data Browser

Referências

- Documentação oficial do Neo4j
<http://neo4j.com/docs/>
- Página do Neo4j no Quora
<https://www.quora.com/topic/Neo4j>
- “Intro to Neo4j”
<https://www.youtube.com/watch?v=U8ZGVx1NmQg>
- “Intro to Graphs and Neo4j”
<https://www.youtube.com/watch?v=Go3P73-KV30>