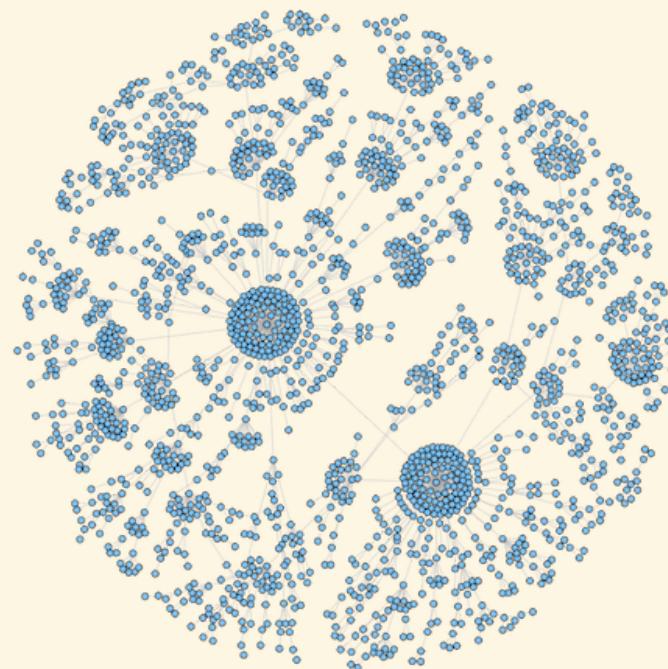


NOSQL GRAPHES

DÉCOUVRIR LES BASES NOSQL ORIENTÉES GRAPHES AVEC NEO4J



Created by Kevin Biger / [@kevin_biger](https://twitter.com/kevin_biger)

KEVIN BIGER

@KEVIN_BIGER

KEVIN@BIGER.BZH



PERSISTENCE - DONNÉES

UN PEU D'HISTOIRE



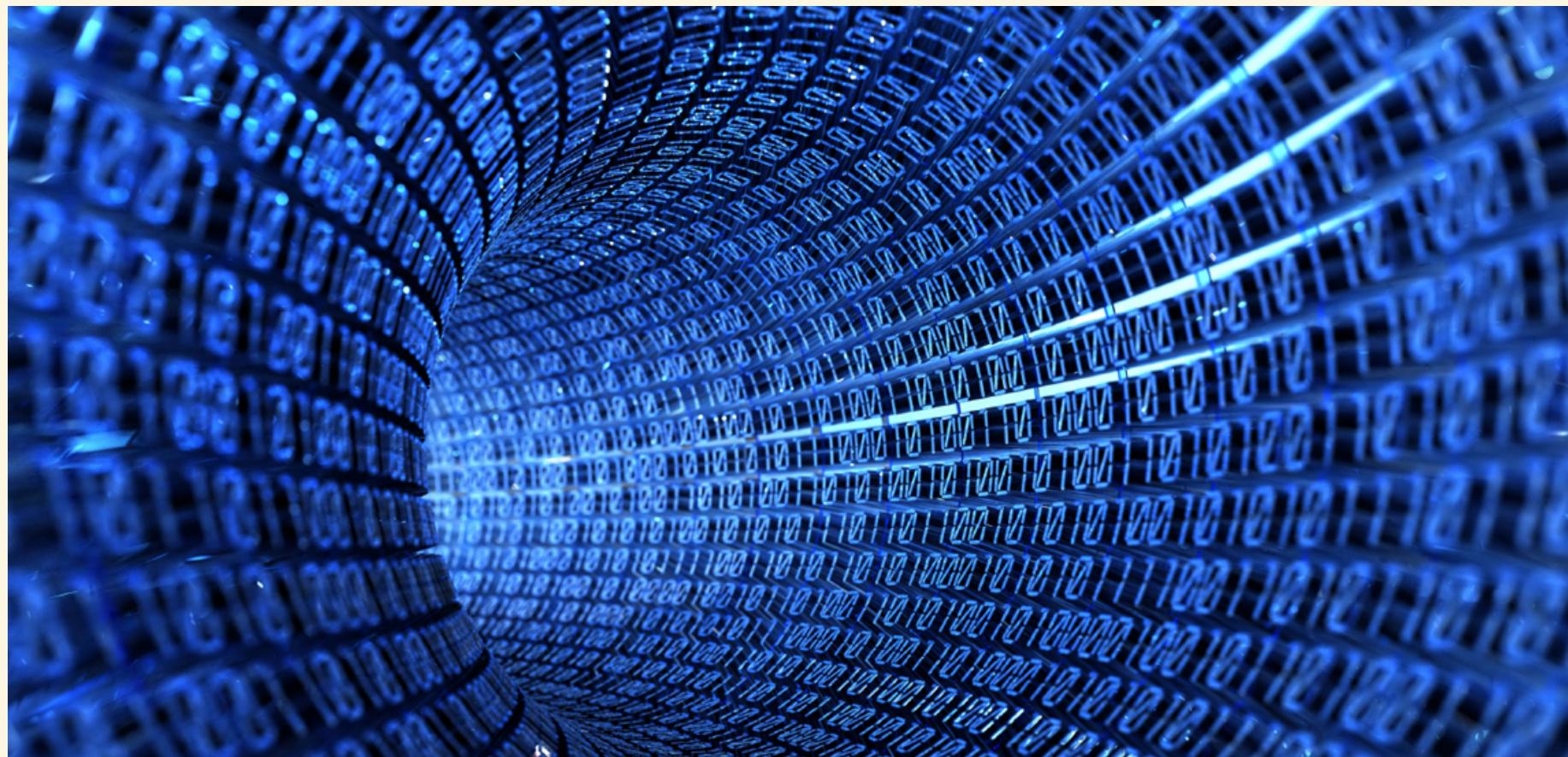


ACID

ATOMICITÉ, COHÉRENCE, ISOLATION,
DURABILITÉ







NOSQL

NOSQL KEZAKO

NOT ONLY SQL

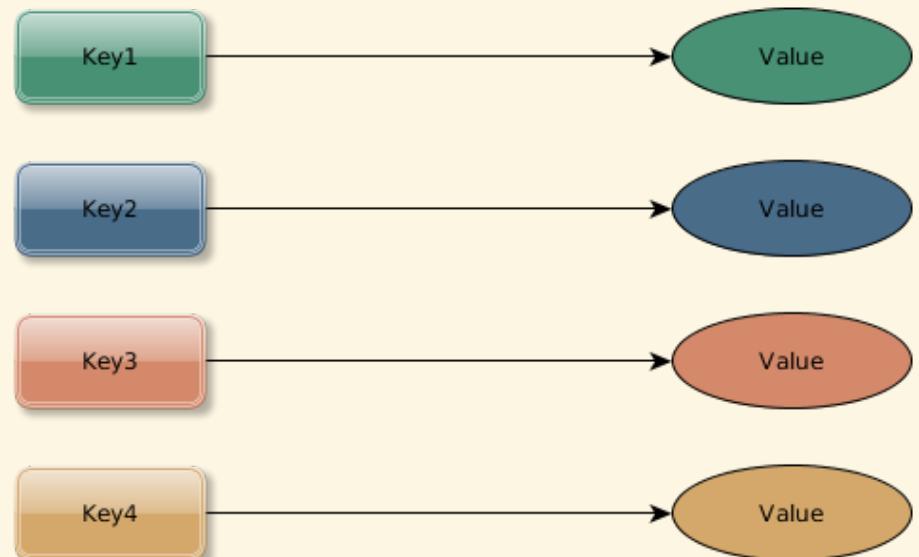
NOSQL KEZAKO

4 GRANDES FAMILLES

NOSQL

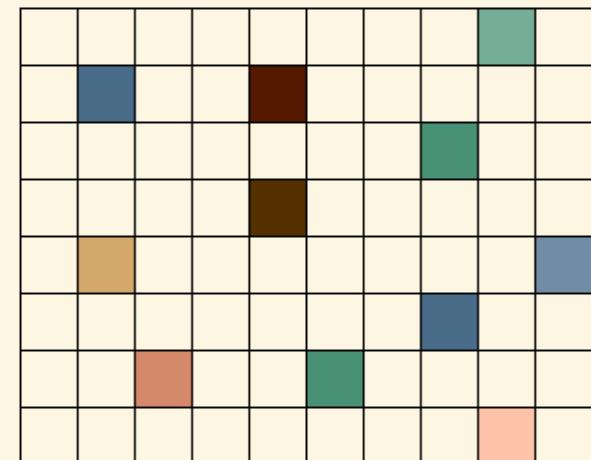
KEY VALUE

Redis, Riak...



NOSQL COLUMNS

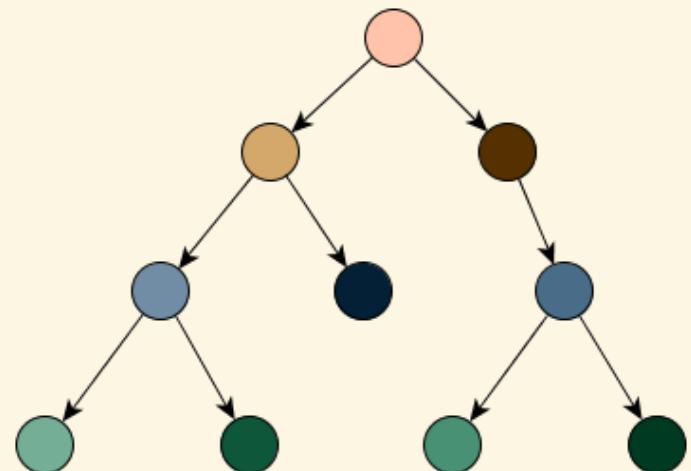
Cassandra, HTable, BigTable...



NOSQL

DOCUMENT

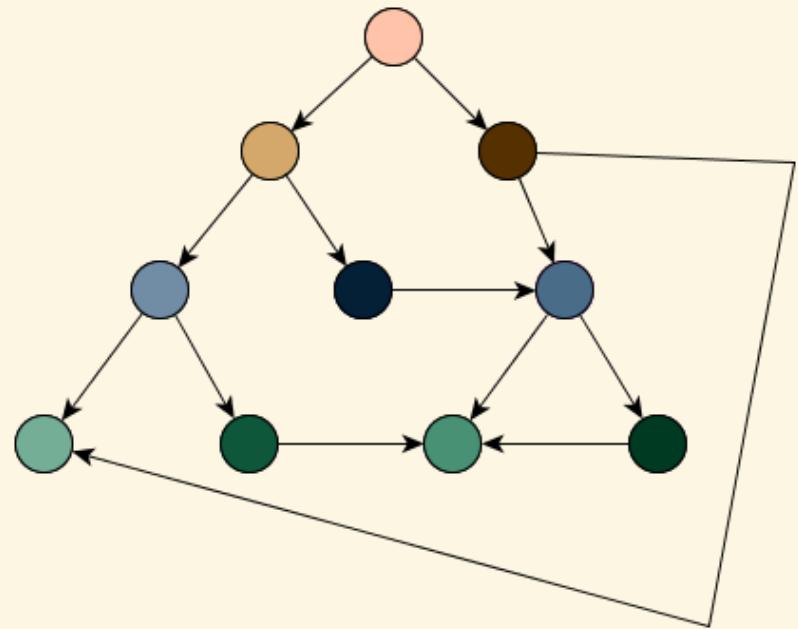
MongoDB, CouchDB,
DocumentDB...



NOSQL

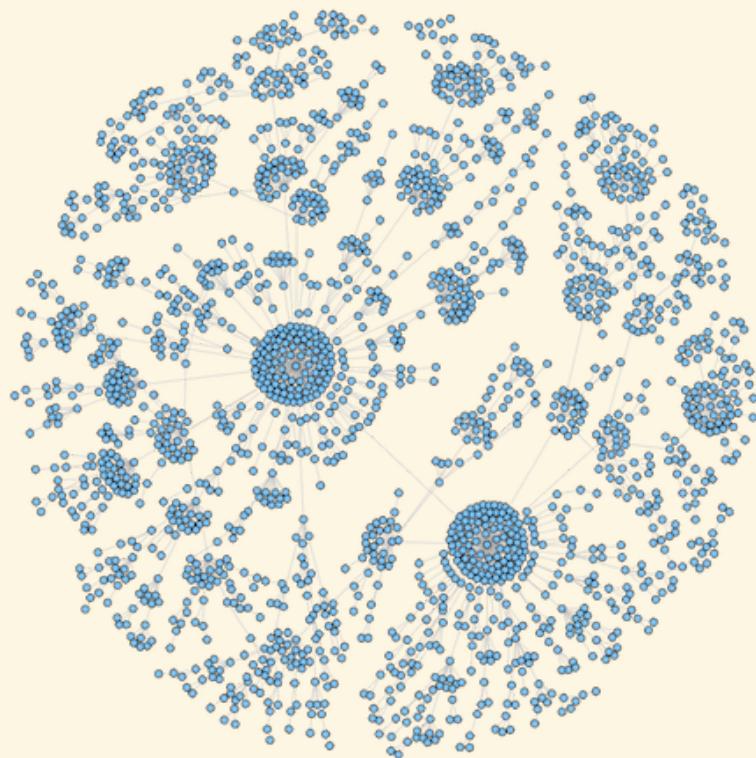
GRAPH

Neo4j, OrientDB...

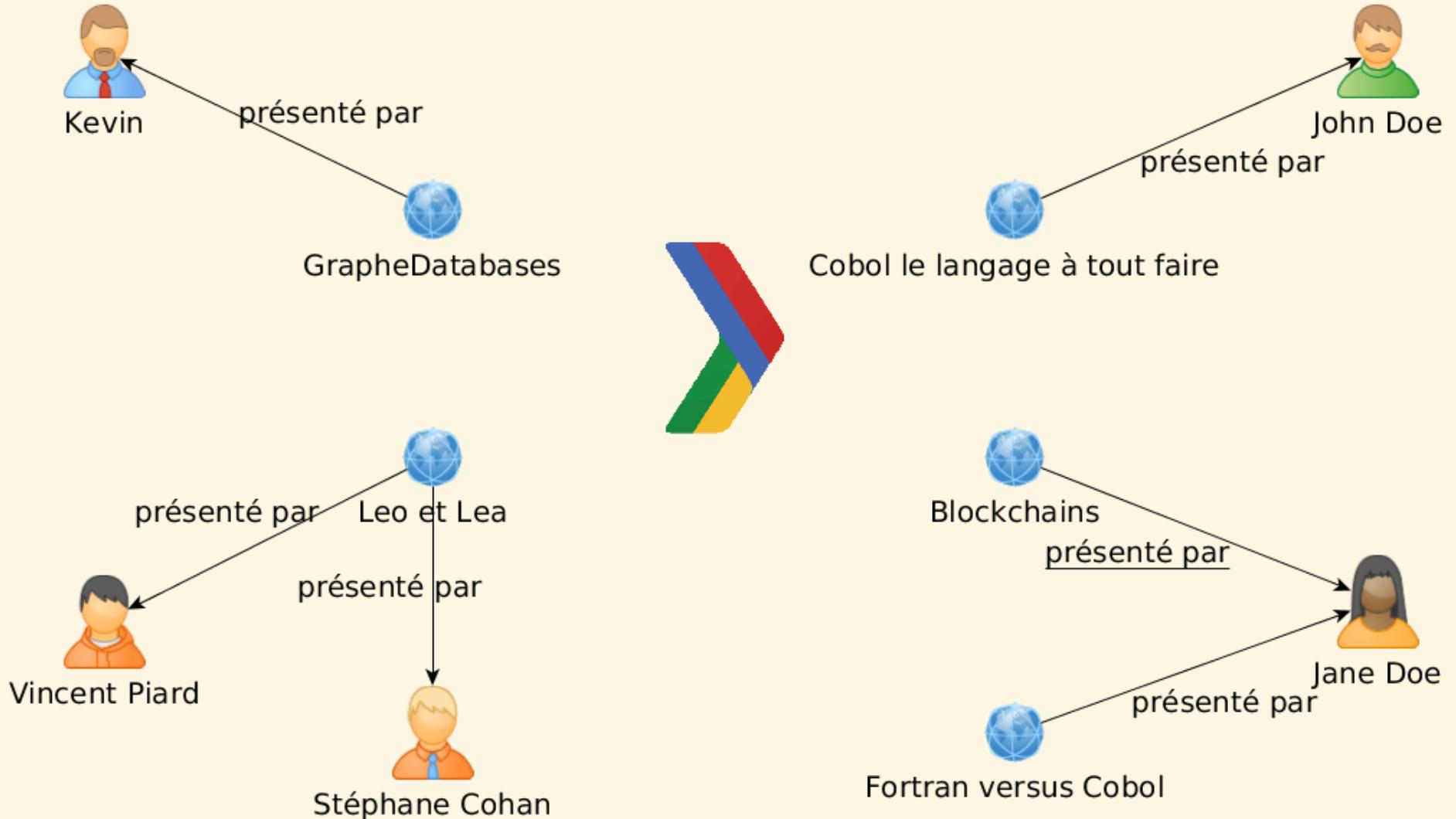


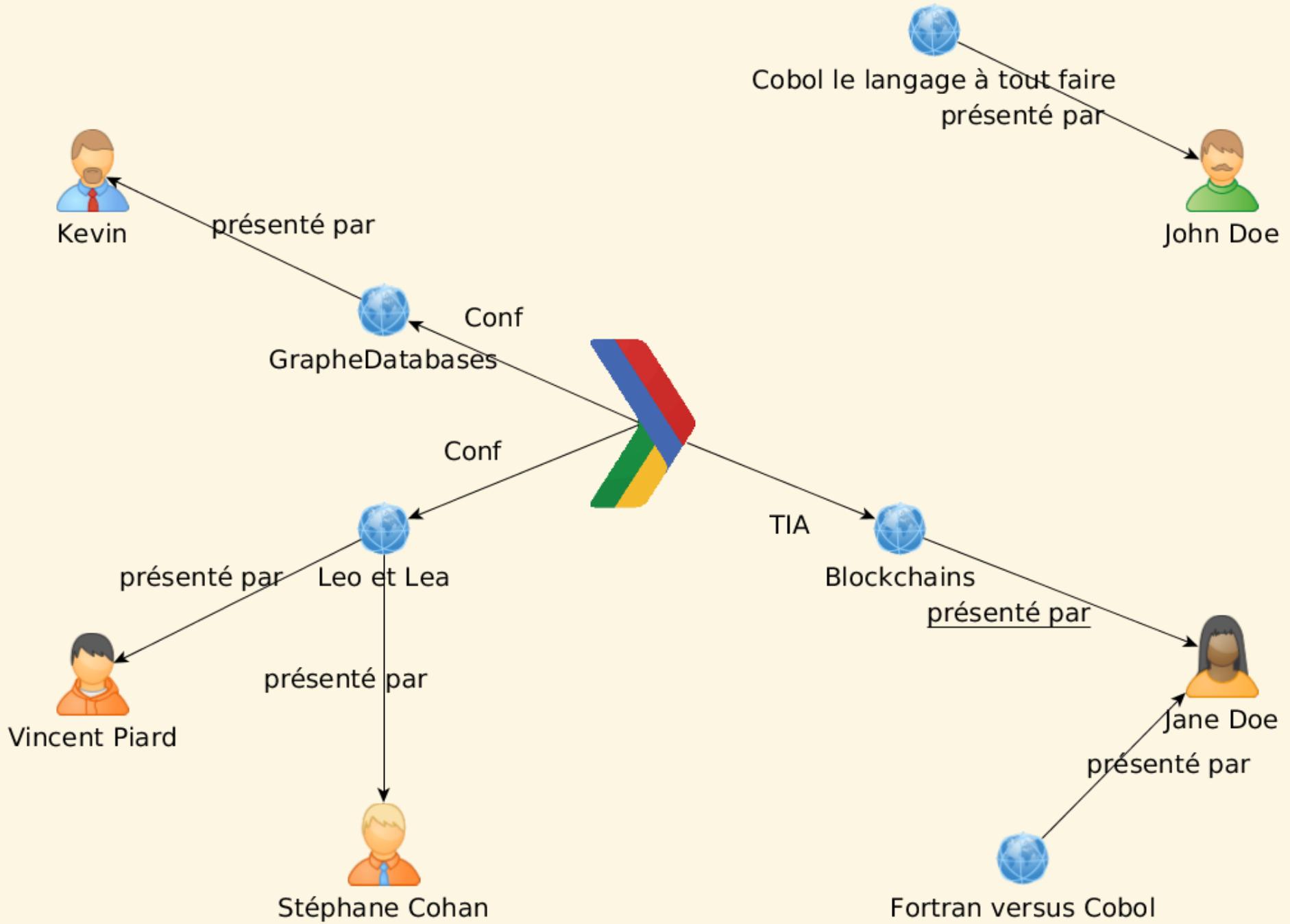
GRAPHES

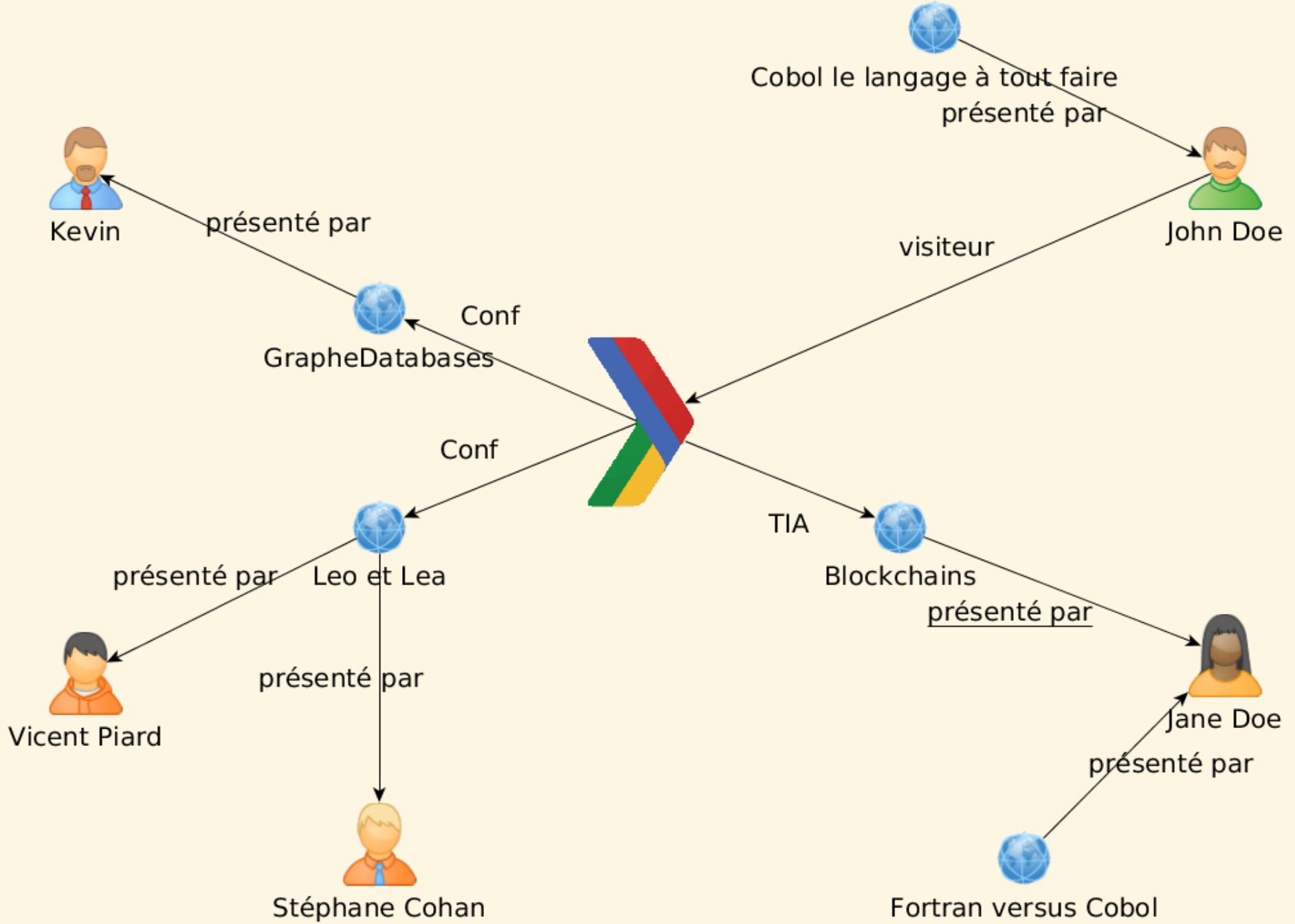
DES NŒUDS ET DES RELATIONS

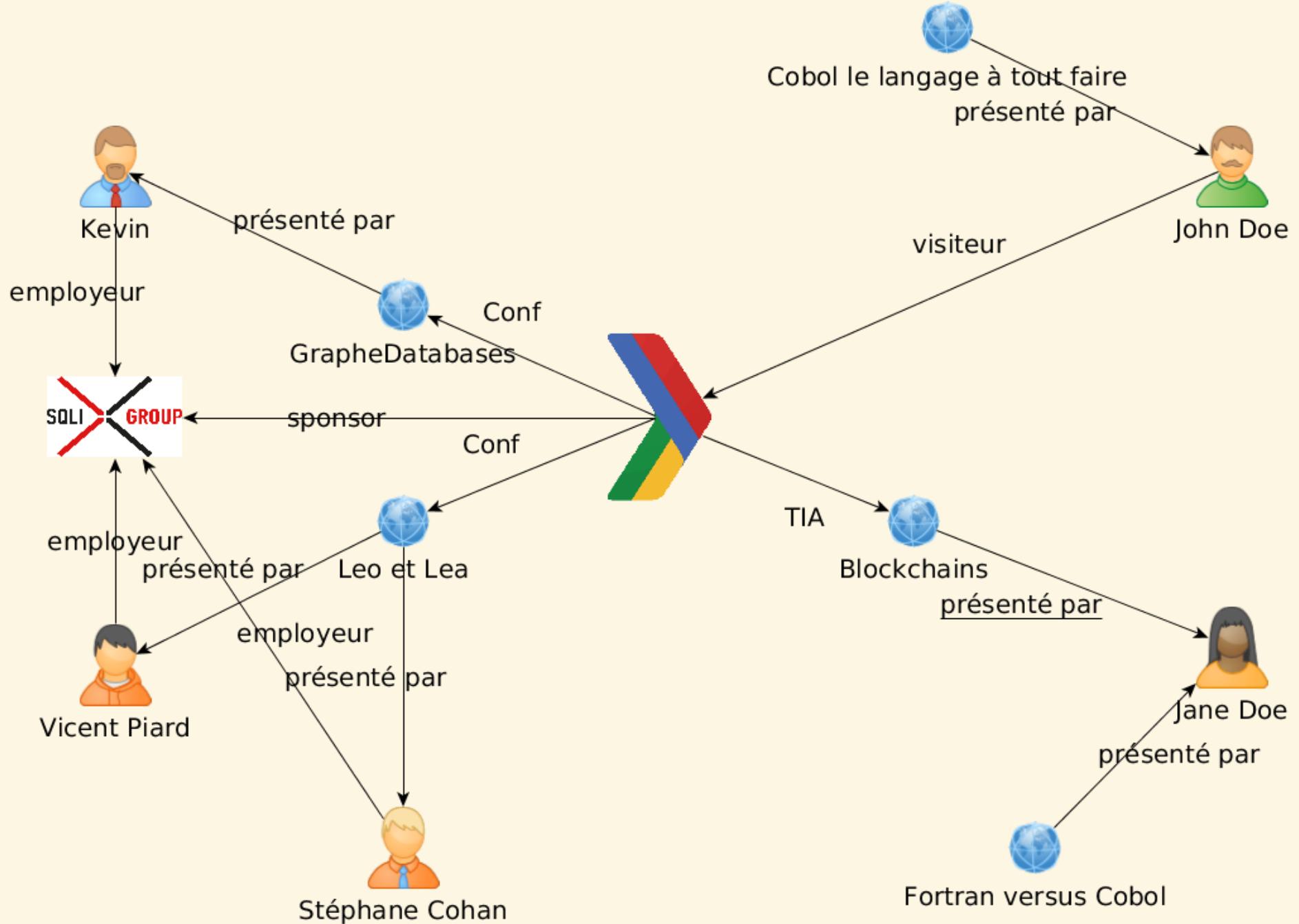


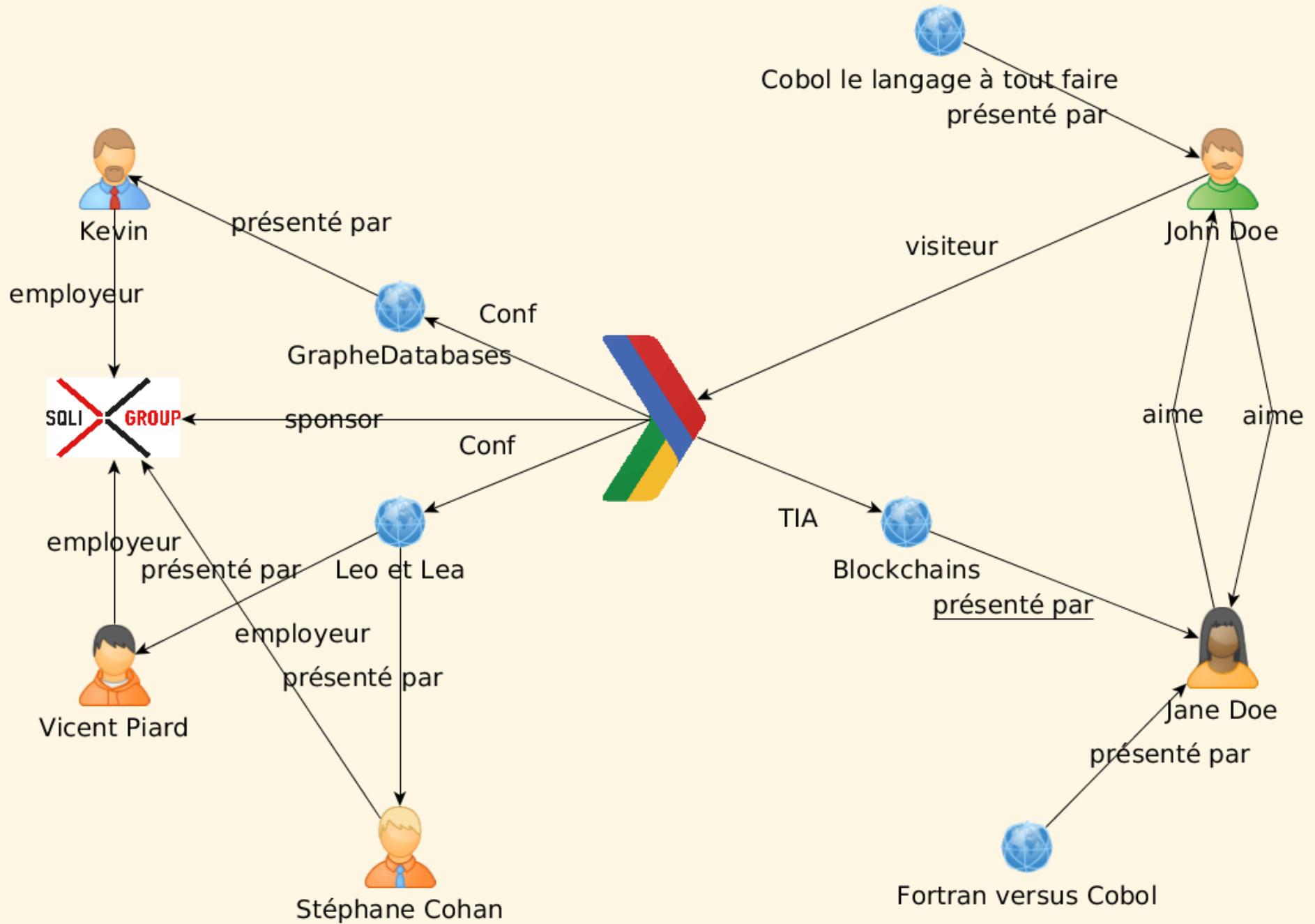
MODELISATION AVEC DES GRAPHES

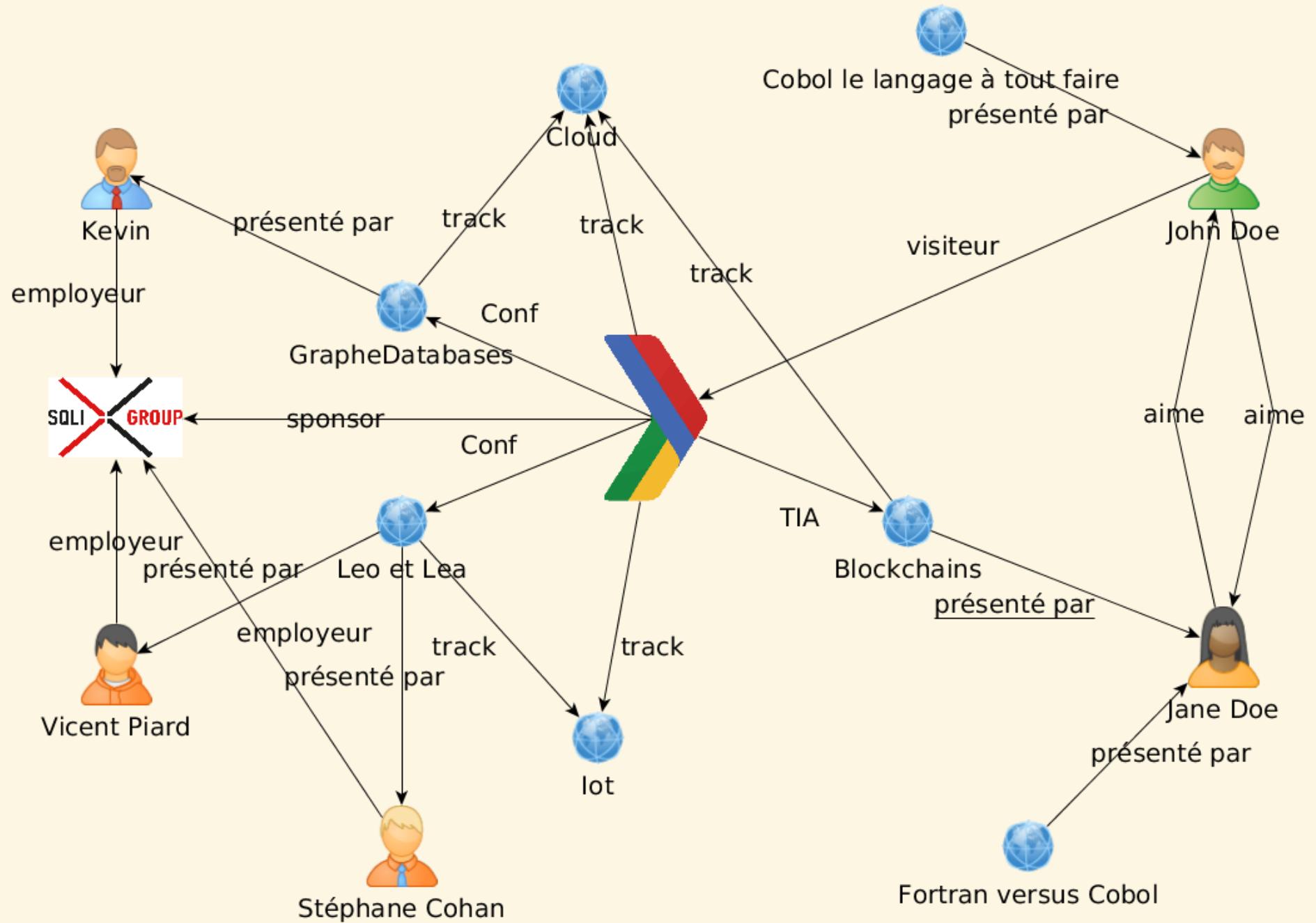








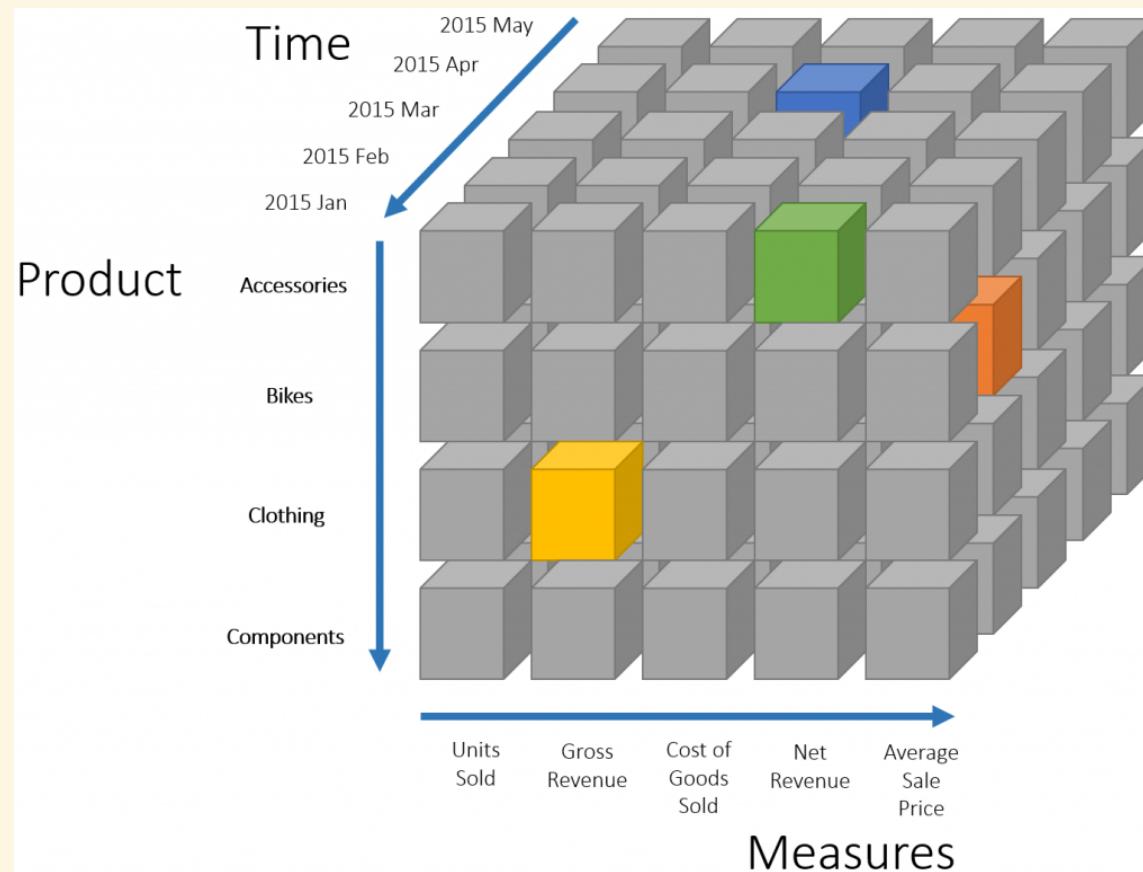




DEMO DANS NEO4J

DIMENSIONS

DIMENSIONS



DIMENSIONS

OLAP CUBE!



DIMENSIONS

GRAPHE À PLUSIEURS DIMENSIONS!

AGGRÉGATS

Discrete Data
*Minimally
Connected Data*

Other NoSQL

Connected Data
*Focused on
Data Relationships*

Relational Databases

Graph Databases



UN PEU DE THÉORIE DES GRAPHES

JE N'AI PAS PU M'EN EMPÊCHER ;)

TRIANGLES DE STABILITÉ

LES GRAPHES ADORENT LES TRIANGLES,
SURTOUT LES GRAPHES "HUMAINS"

**LES TRIADIC CLOSURES
SONT STABLES AVEC :**

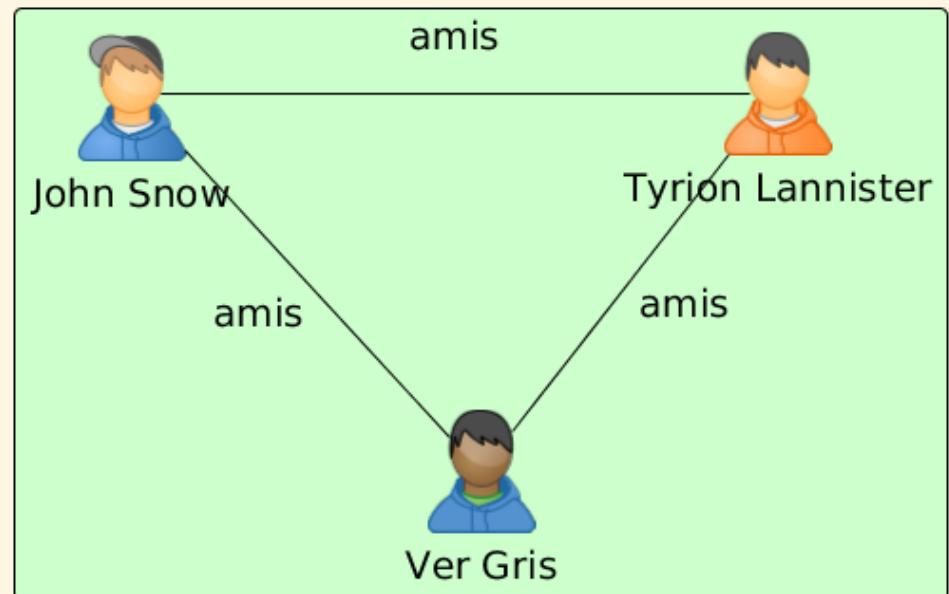
3 RELATIONS POSITIVES

OU 2 NÉGATIVES ET 1 POSITIVE

3 RELATIONS POSITIVES

3 relations positives sur le triangle

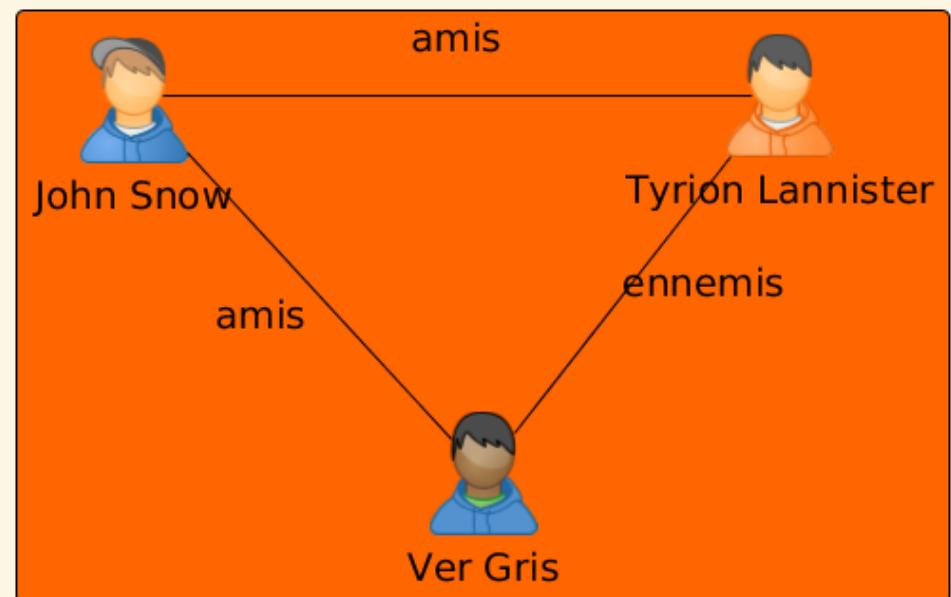
ou 2 relations négatives et une positive



2 POSITIVES ET 1 NÉGATIVE

3 relations positives sur le triangle

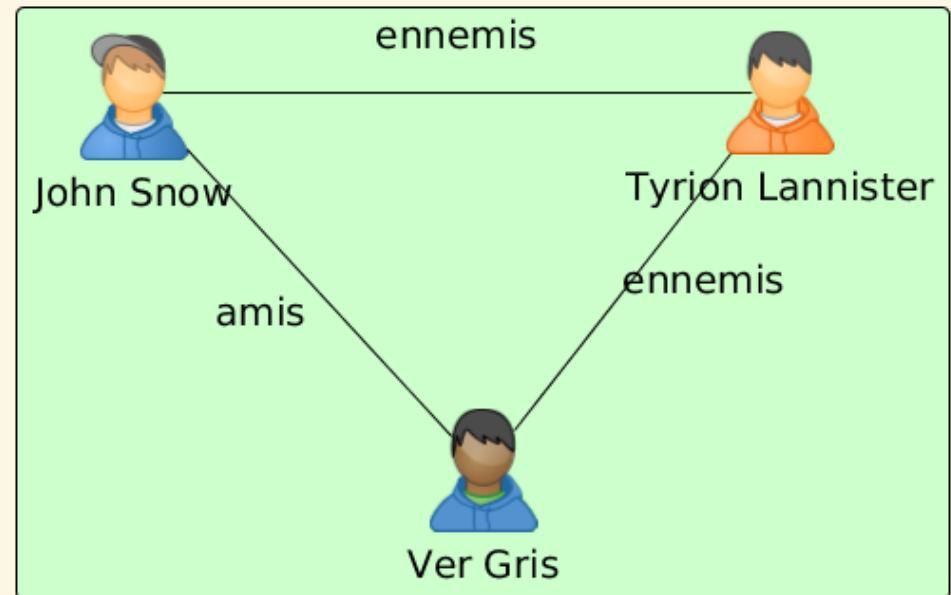
ou 2 relations négatives et une positive



1 POSITIVE ET 2 NÉGATIVES

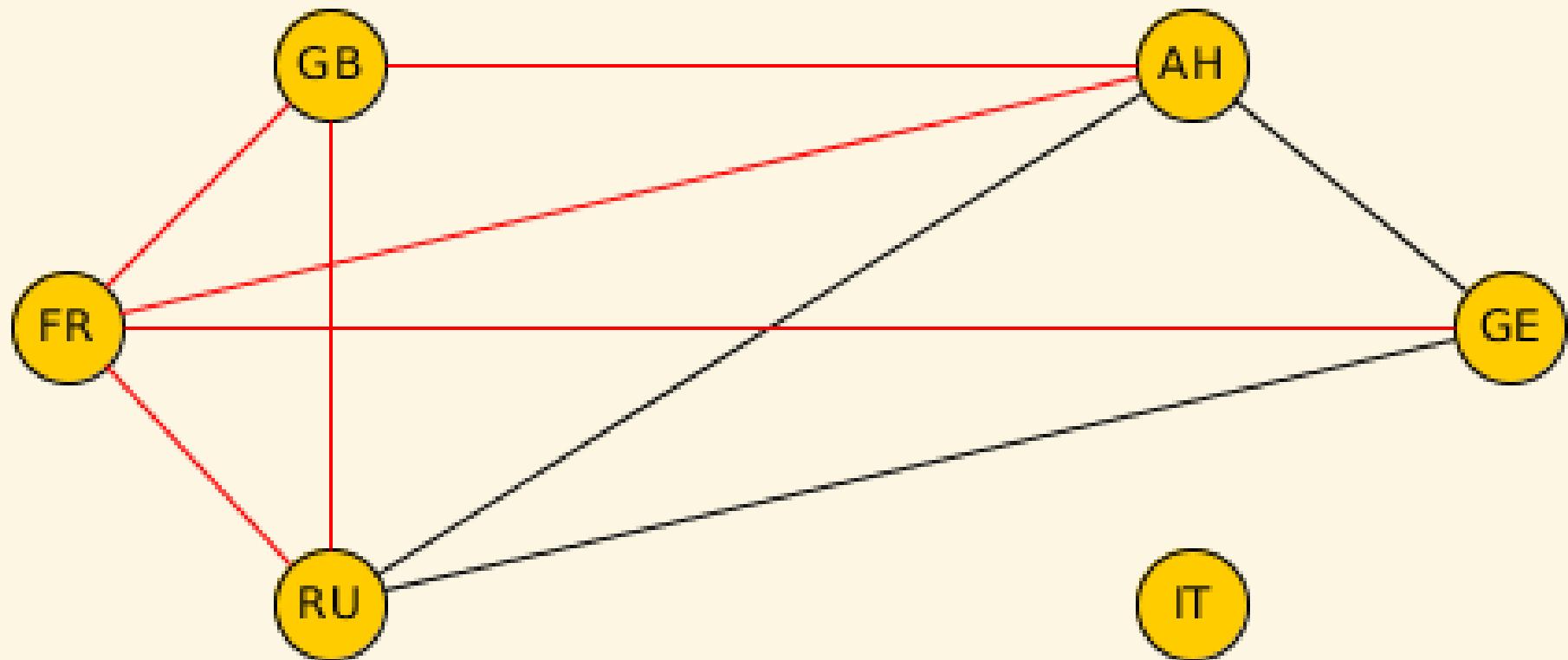
3 relations positives sur le triangle

ou 2 relations négatives et une positive



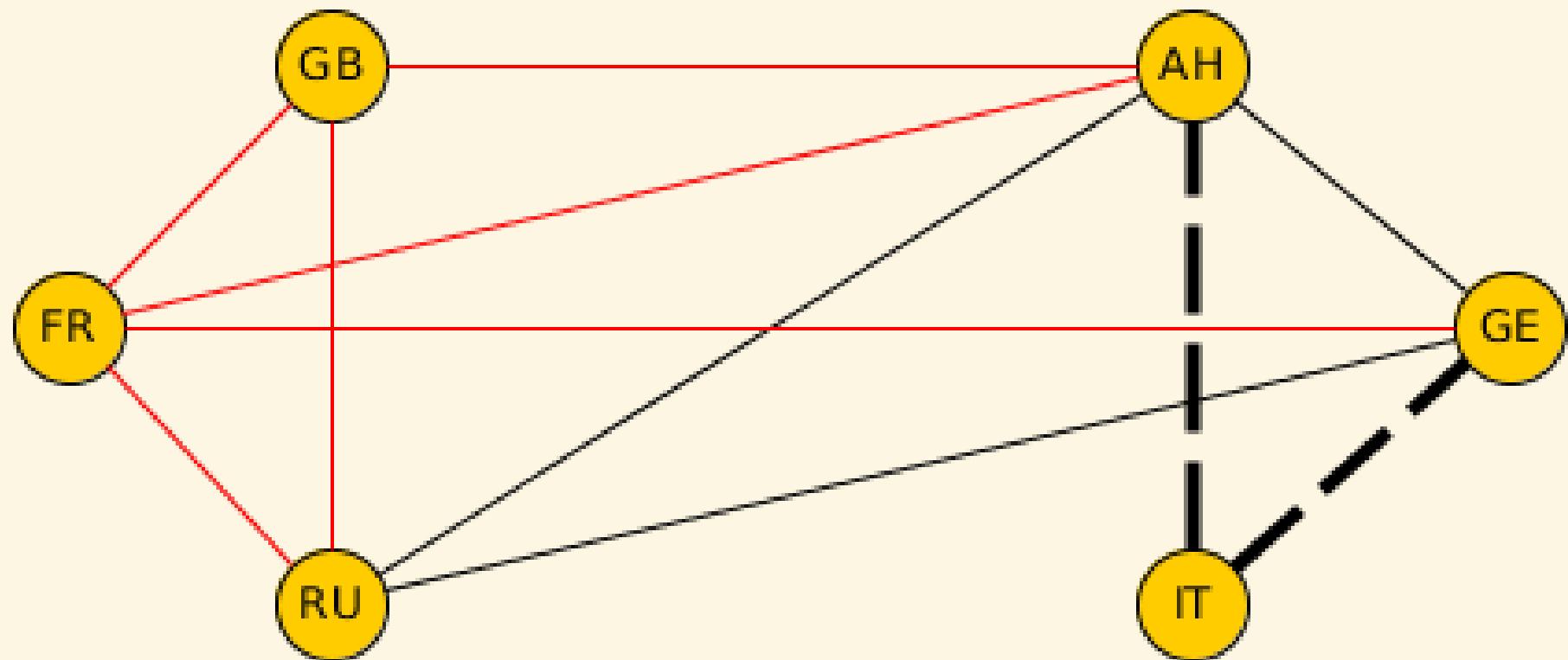
WW1

WW1



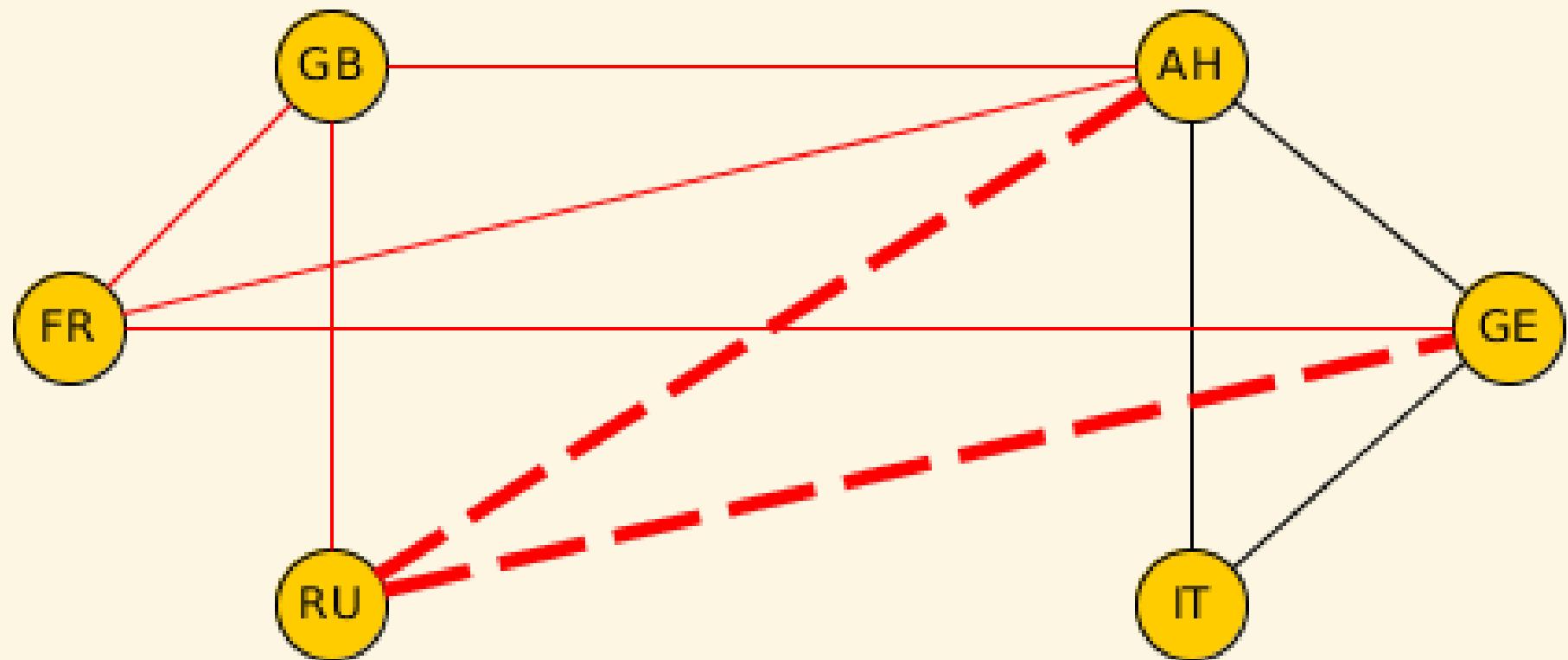
Entente des 3 Empereurs 1872-1881

WW1



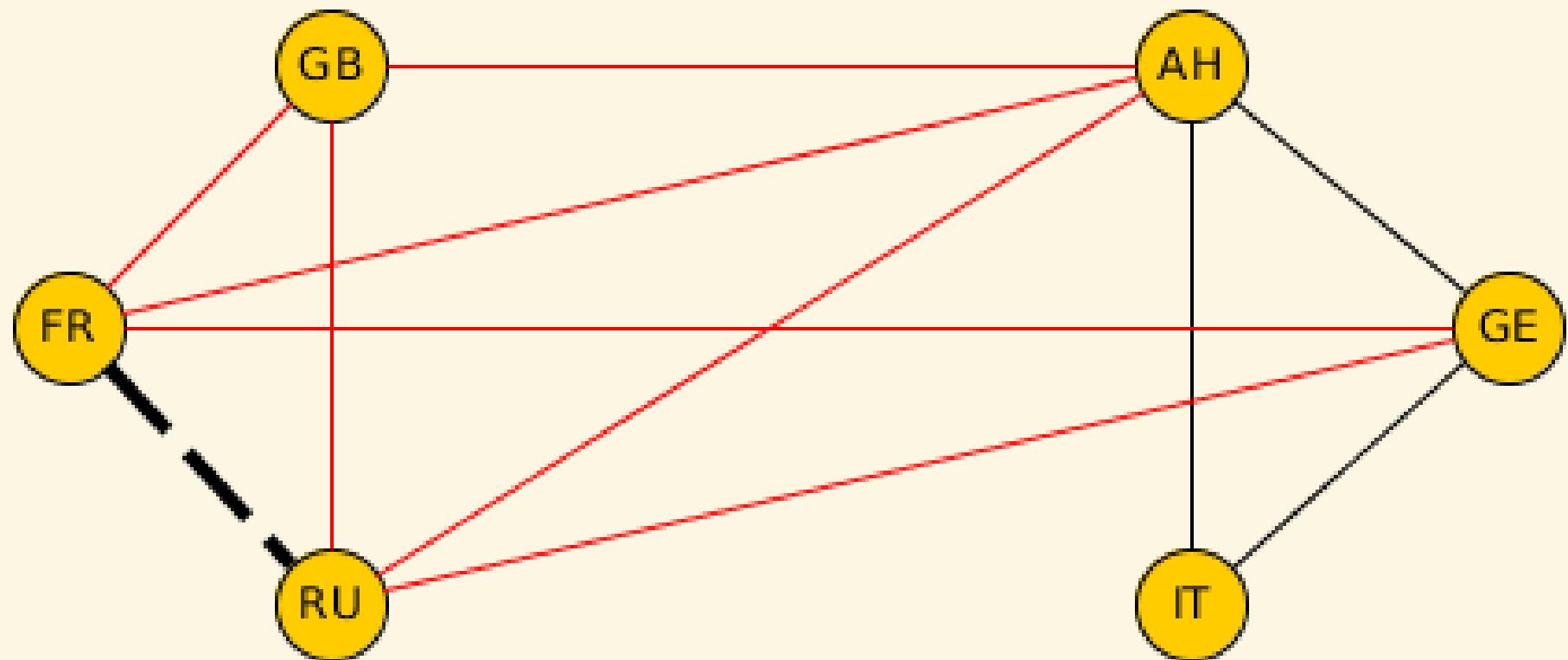
Triple alliance 1882

WW1



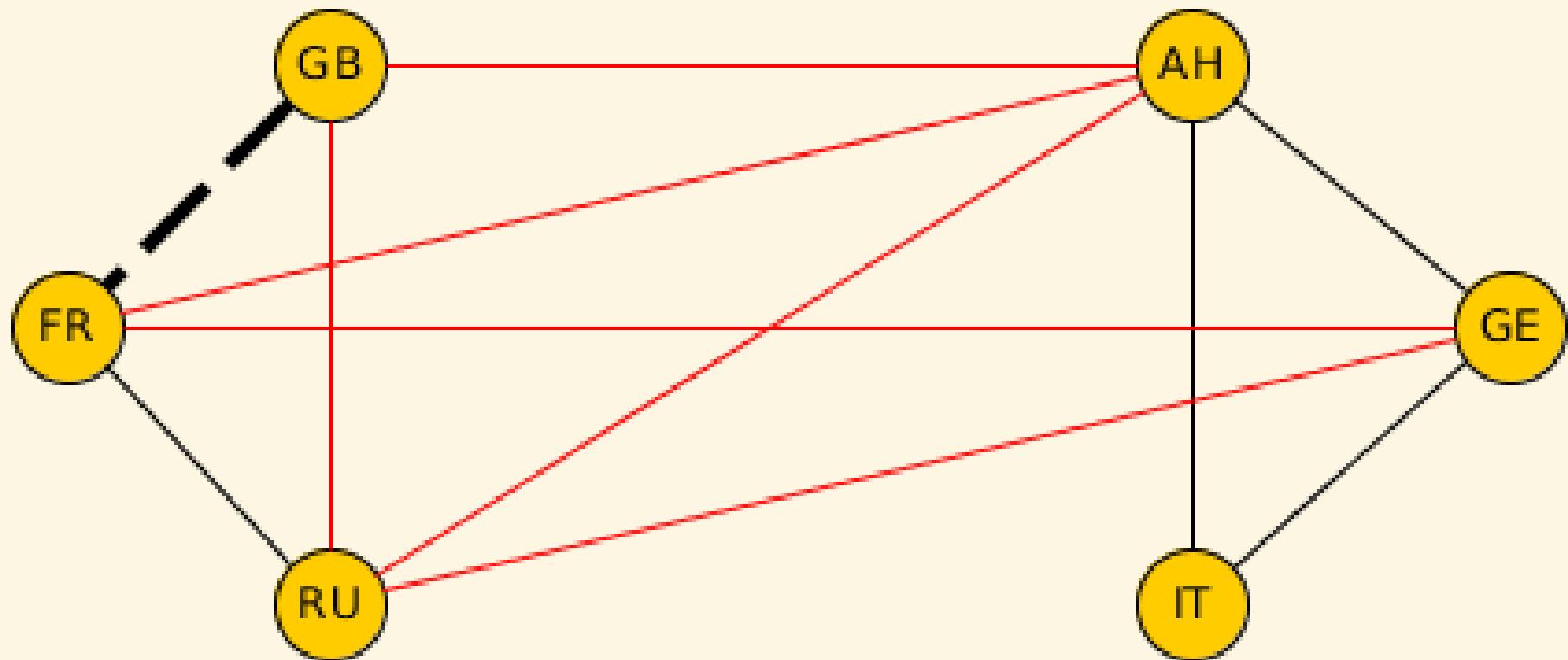
Tensions Allemagne-Russie 1890

WW1



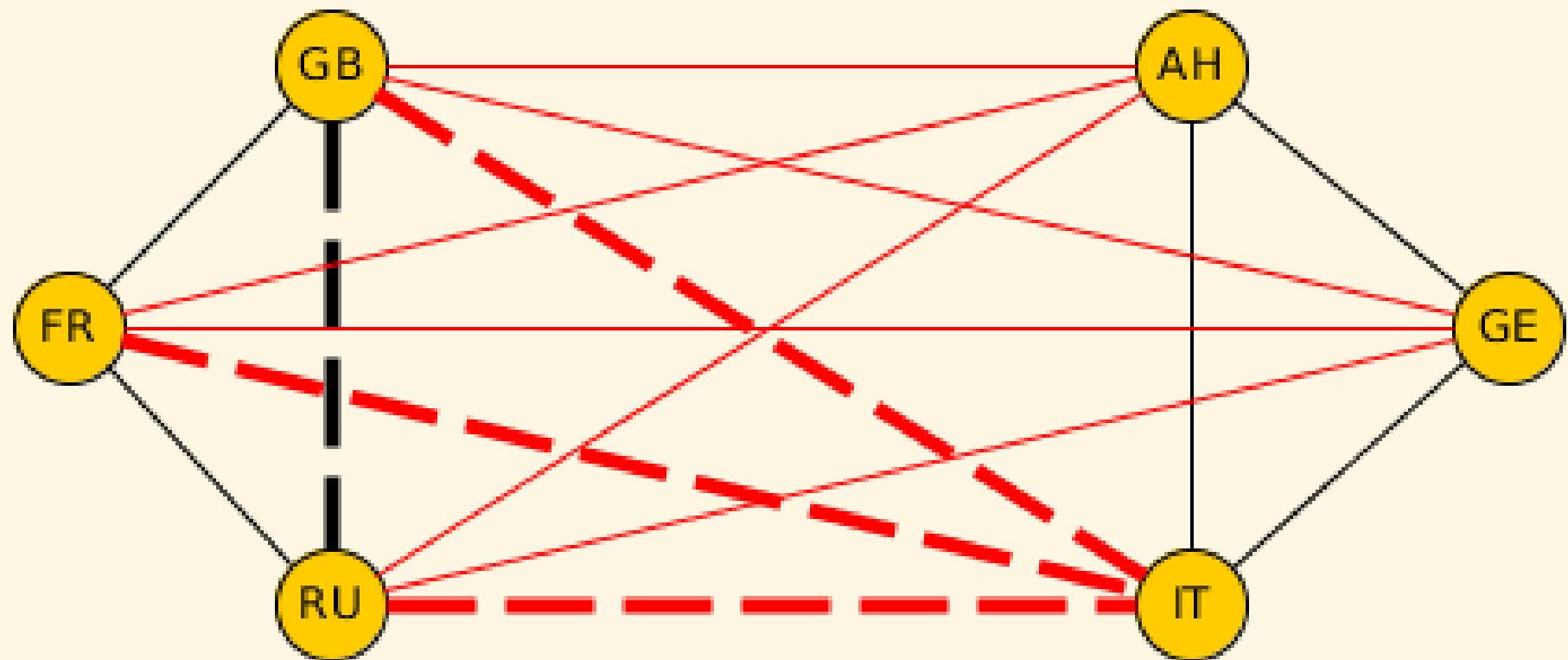
Alliance Franco-Russe 1891-1894

WW1



Entente cordiale 1904

WW1



Alliance Russie Grande-Bretagne 1907

GRAPHEDB



...

NEO4J - USE CASES

- SFR → GRAPHE RÉSEAU
- MEETIC → RECOMMANDATIONS
- WALMART → RECOMMANDATIONS
- EBAY → LIVRAISONS
- PANAMAPAPERS →
INVESTIGATIONS
- ...

NEO4J - DRIVERS

- REST
- BOLT
- JAVA
- JAVASCRIPT
- PYTHON
- ...

REQUÊTAGE AVEC CYpher

ASCII COMPATIBLE

(A) - - (B)

(A) - - > (B)

(A) - [:LOVES] -> (B)

(Leo) - [:LOVES] -> (Lea)

(Leo:ROBOT) - [:LOVES] -> (Lea:ROB

```
MATCH (foo:ROBOT) -  
      [rel:LOVES] ->(bar :ROBOT)  
WHERE rel.duration > 5  
RETURN foo.name,  
       bar.name,  
       rel.duration
```

```
CREATE (you:PERSON {name:"You'  
RETURN you
```

```
MATCH (you:PERSON {name:"You"})
CREATE (you)-[like:LIKE]->
      (neo:DATABASE{name:"Neo4j"})
RETURN you, like, neo
```

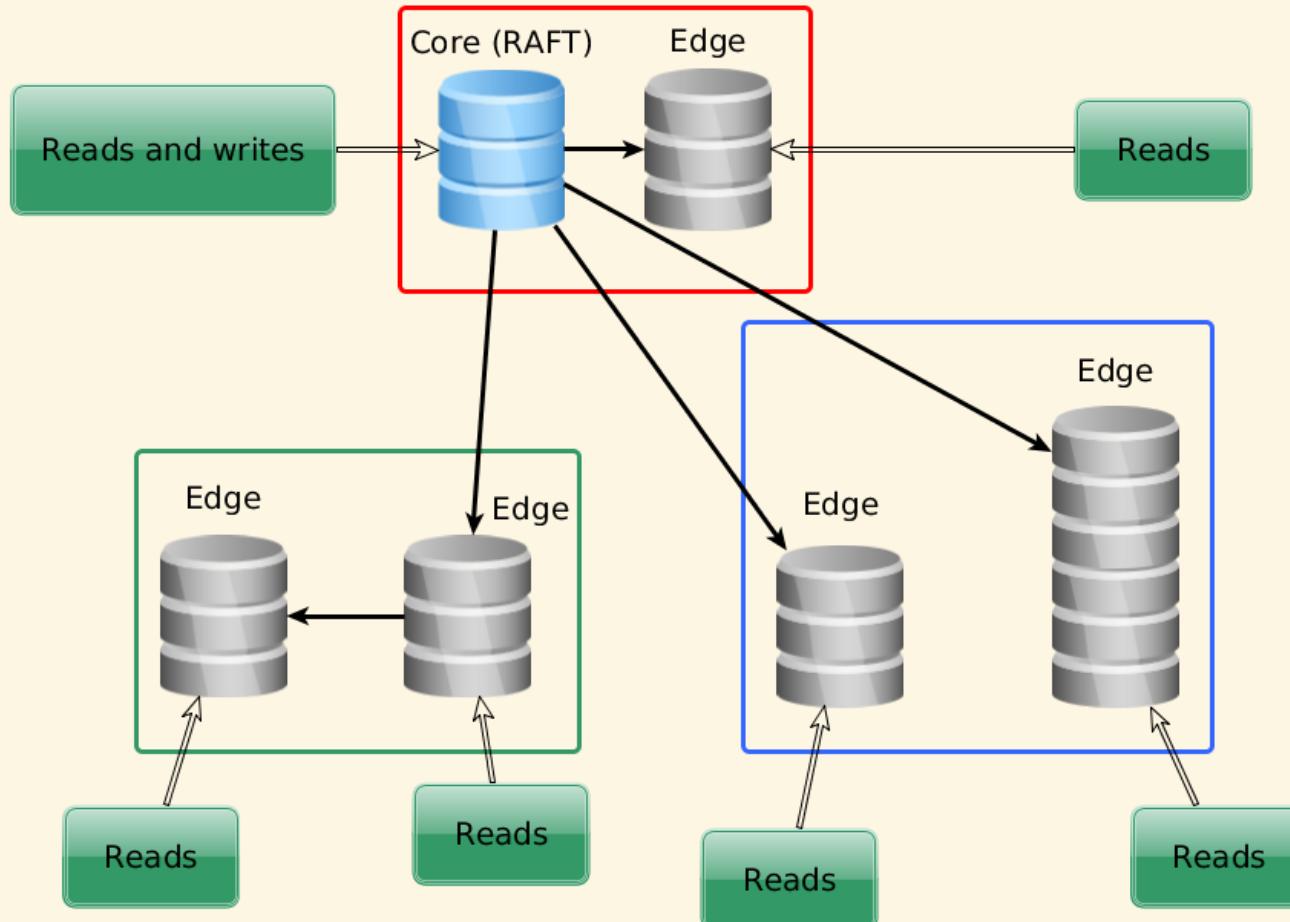
ARCHITECTURE
DEUX CONCEPTS SONT INCOMPATIBLES :
DISPONIBILITÉ & FIABILITÉ

ARCHITECTURE

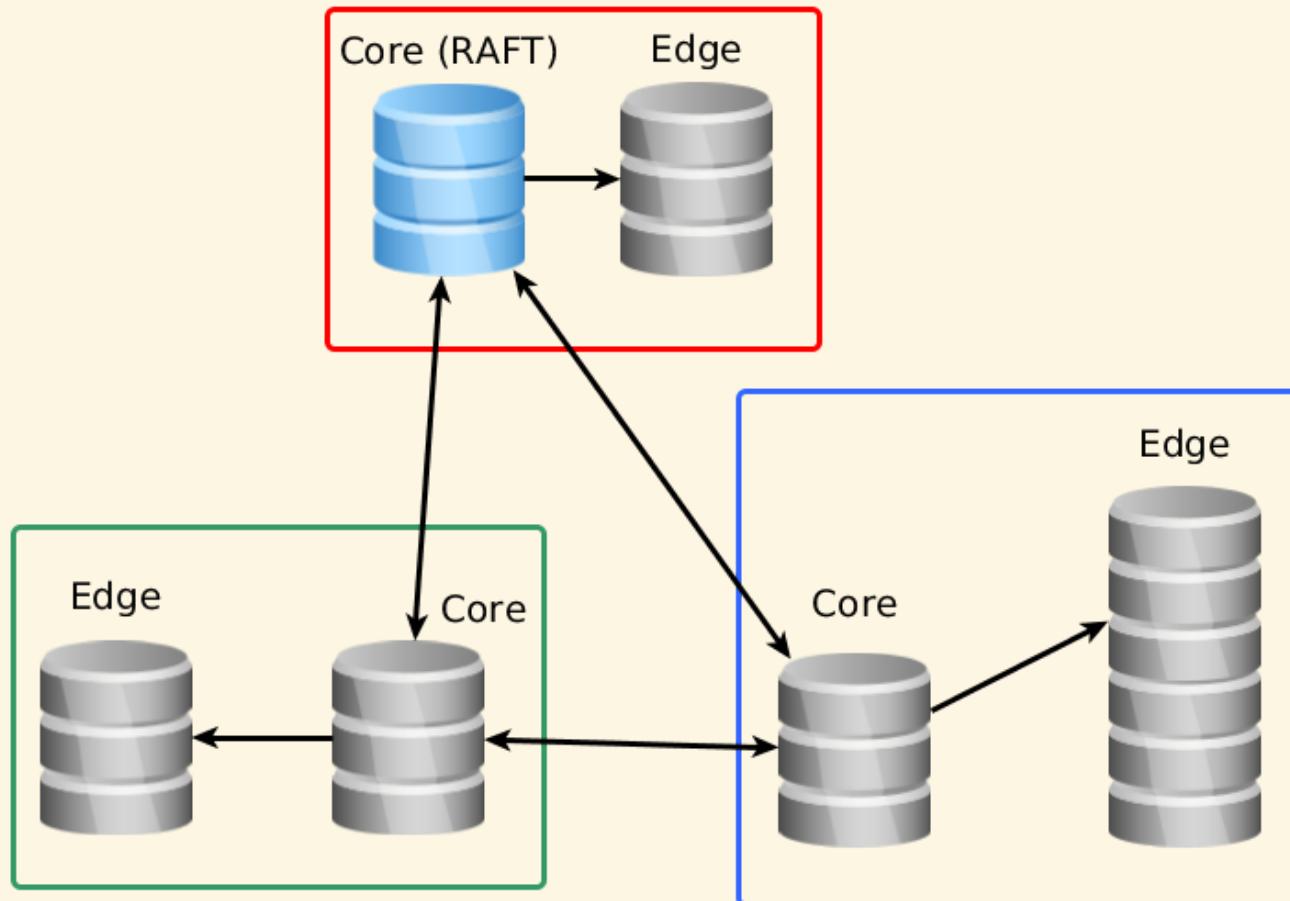
POUR LES GRAPHS

FIABILITÉ > DISPONIBILITÉ

ARCHITECTURE



ARCHITECTURE

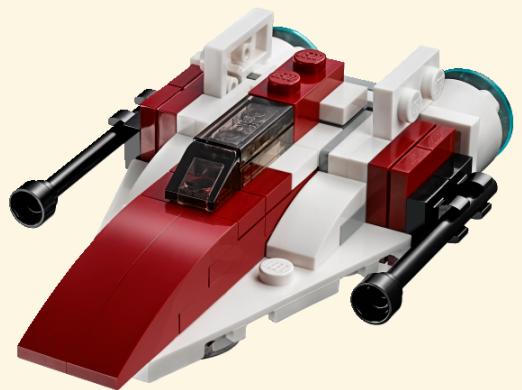


ARCHITECTURE

CHOISIR AU MOMENT DE LA REQUÊTE

1. READ ANY (EDGE)
2. RYOW (EDGE)
3. READ ANY (CORE)
4. READ LEADER (CORE)
5. LINEARIZABLE (QUORATE
CORE)

DÉMO



(me :Person) - [:Thank] -> (you :Person)

QUESTIONS?