



Reinventing Identity & Access Management

With Graph Databases

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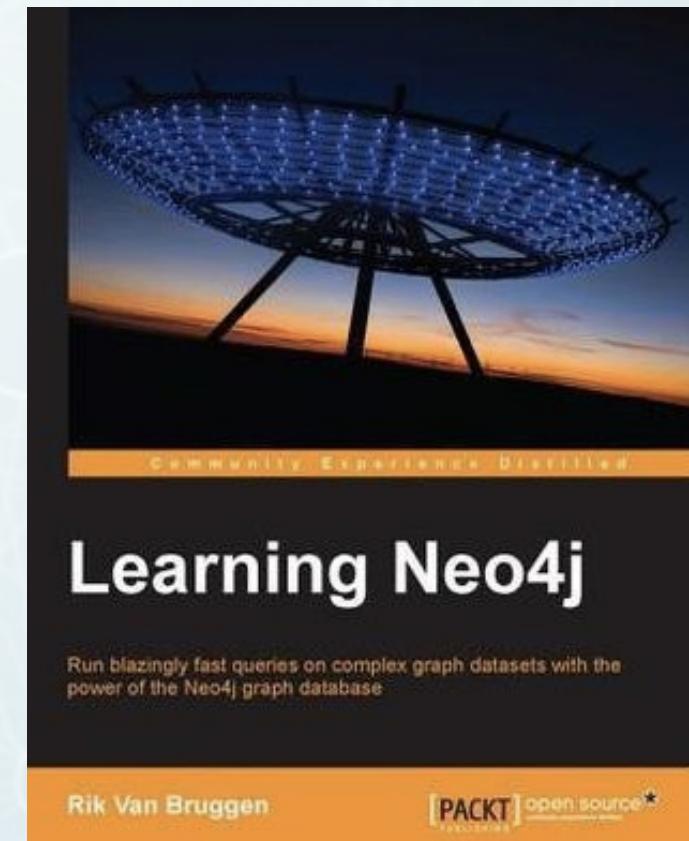
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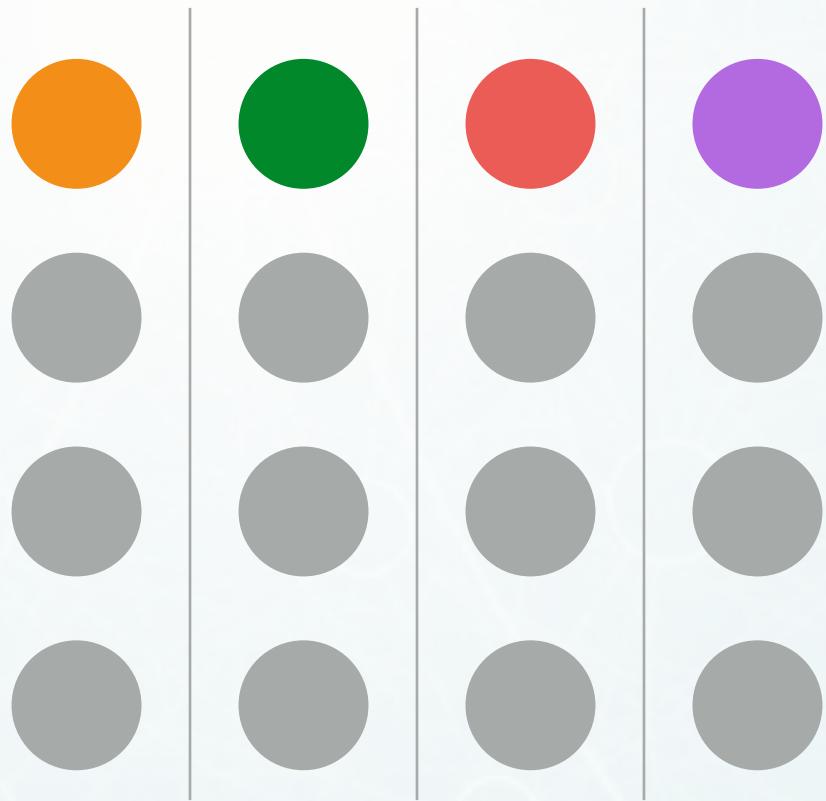
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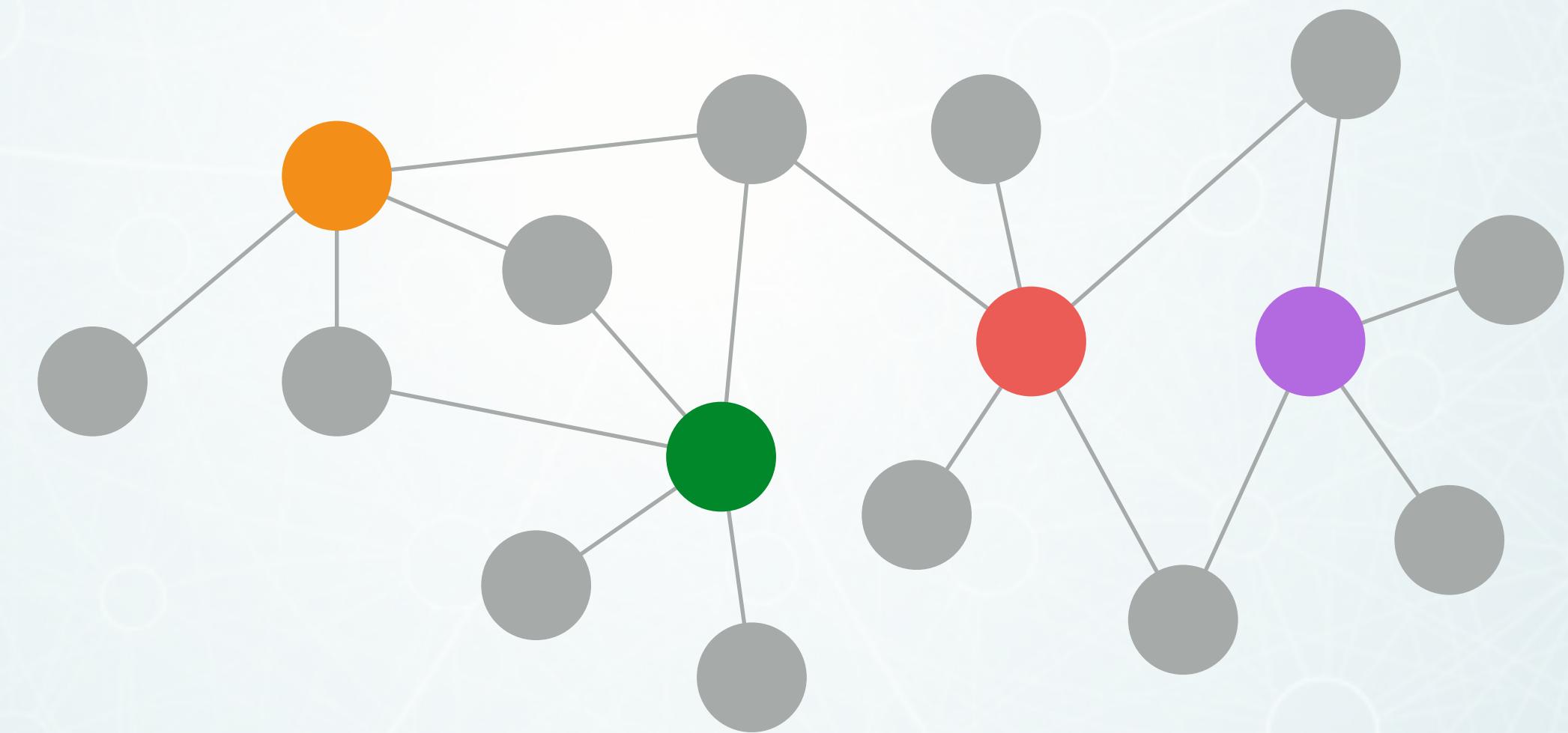
RELATIONAL DATABASES





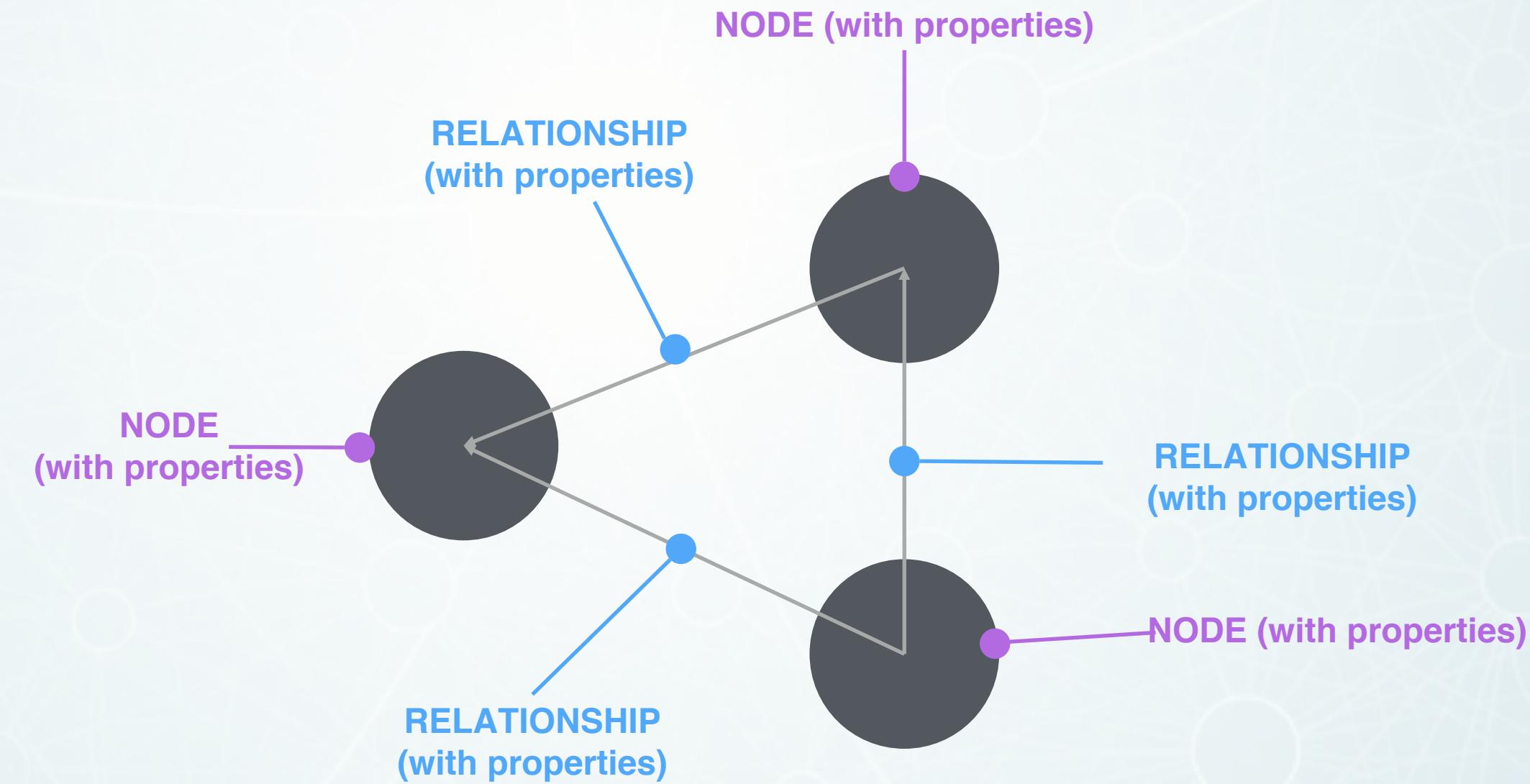
This is data modeled as tables!



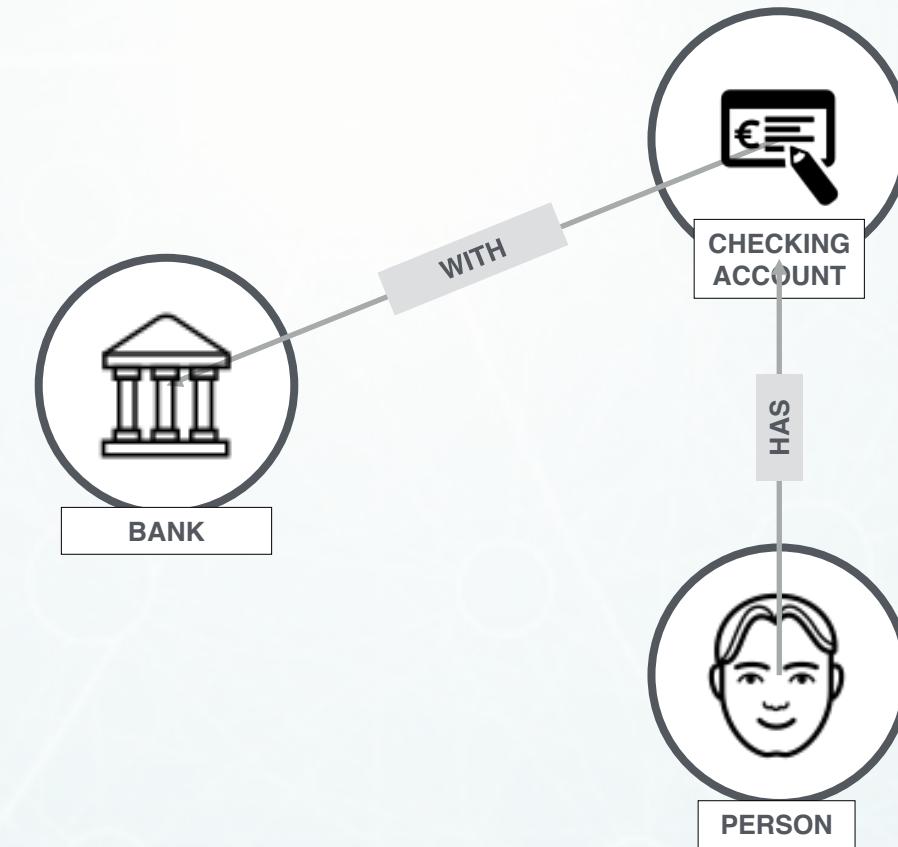


This is data modeled as graph!

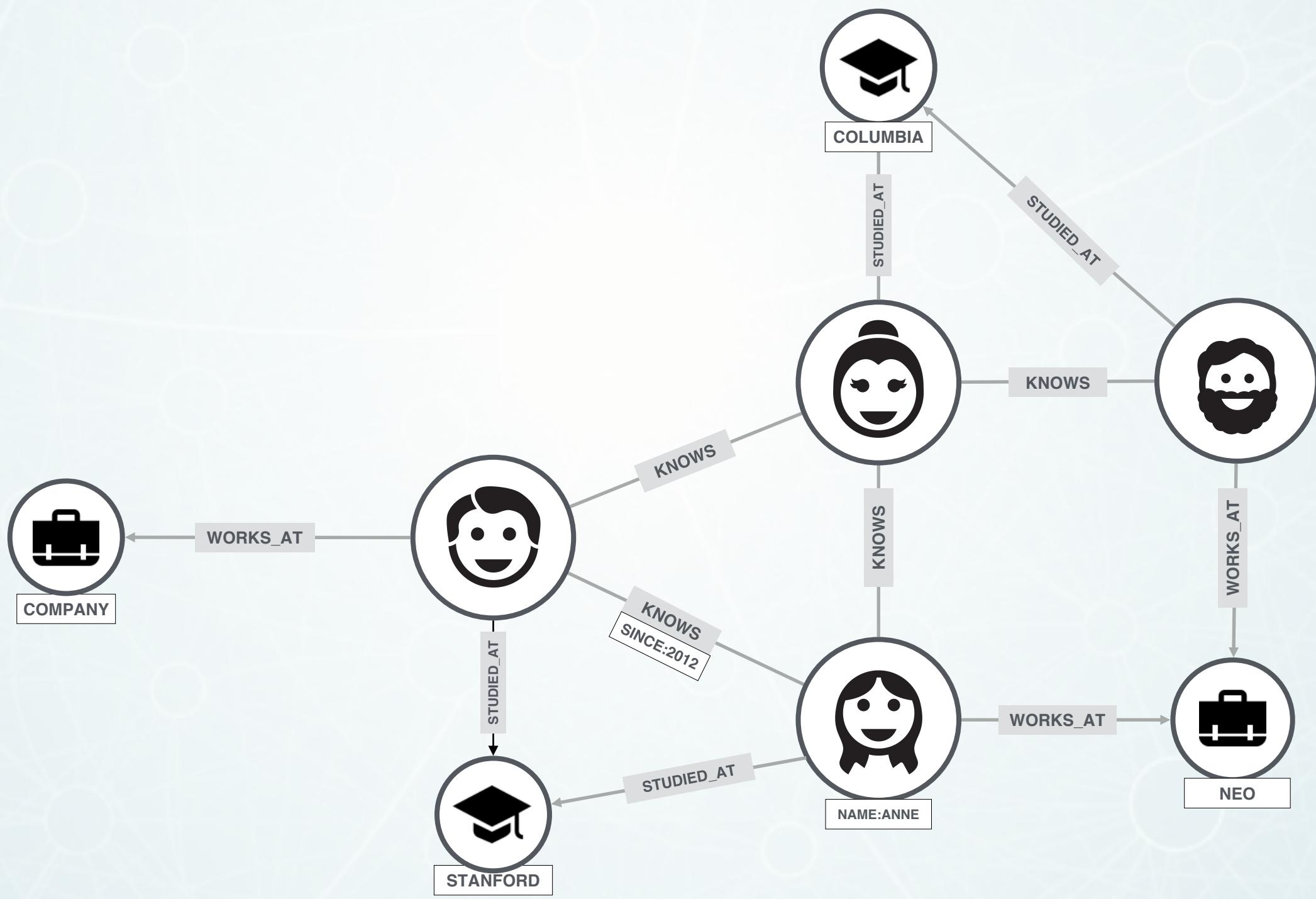




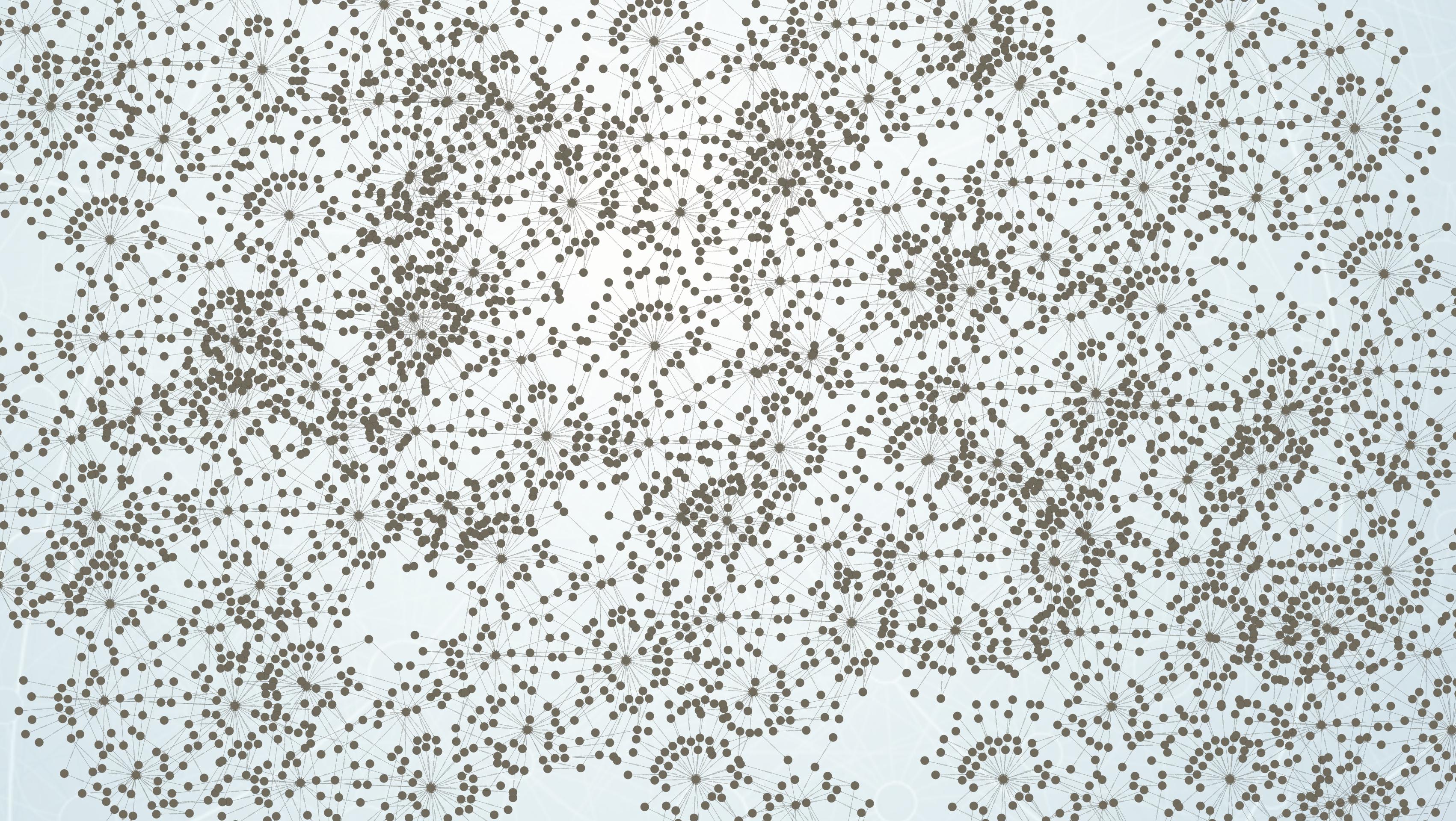
A Property Graph Is



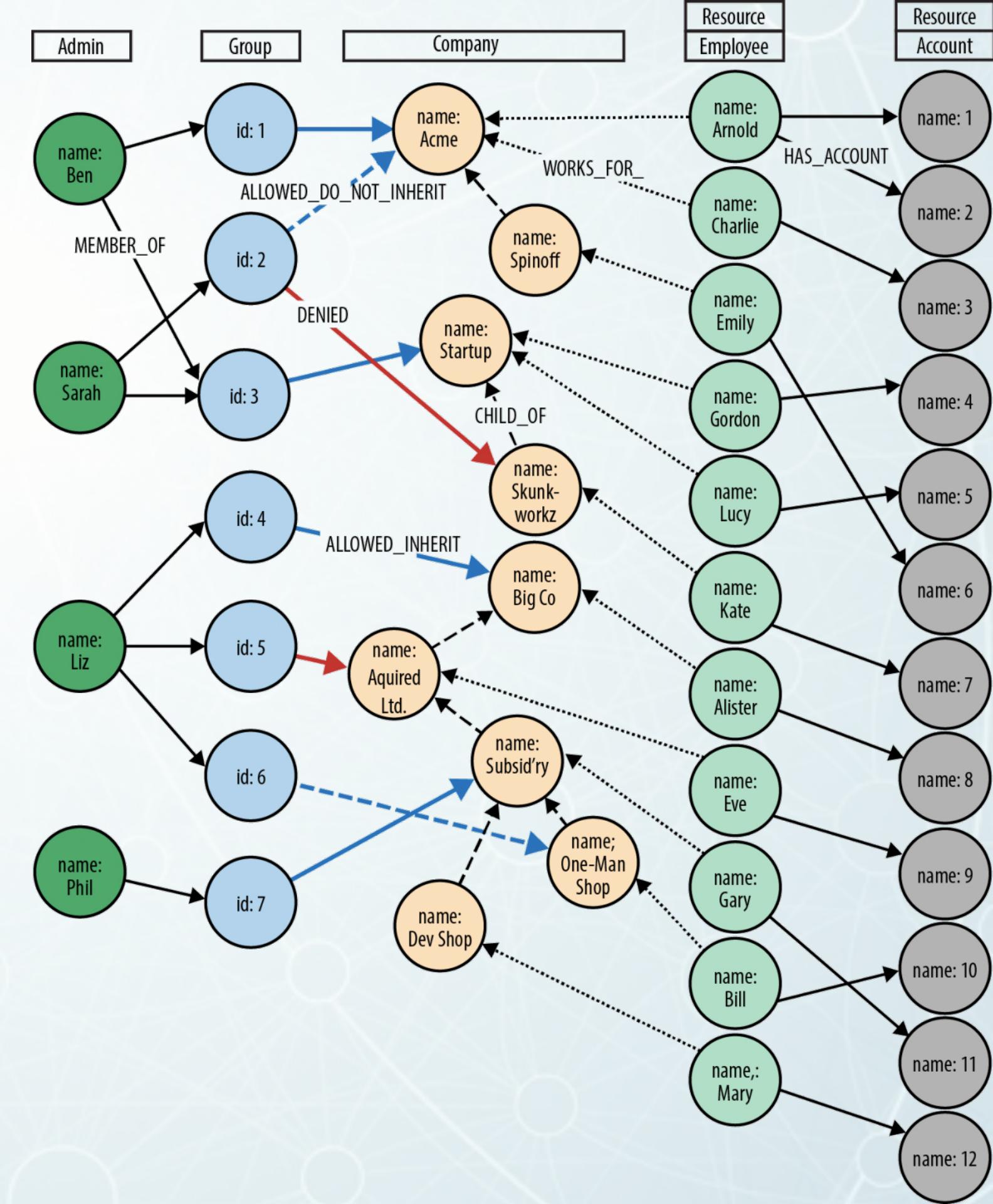
A Property Graph Is



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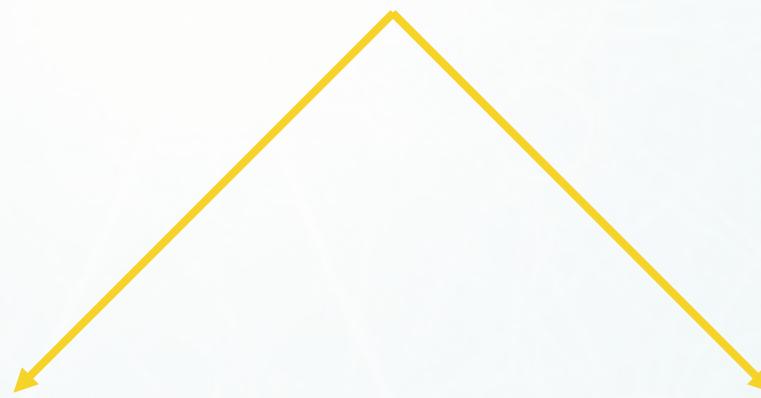
A Property Graph Is Also Very Applicable To IAM



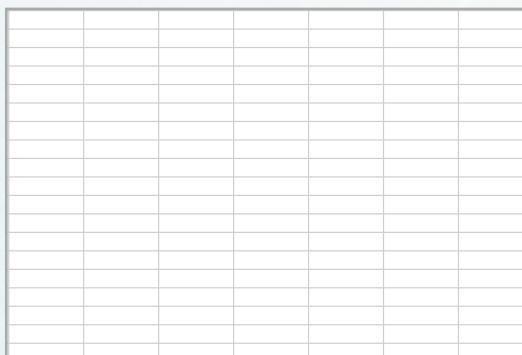
Identity & Access Management (IAM)

Who gets access to what, at the right time,
and for the right reason

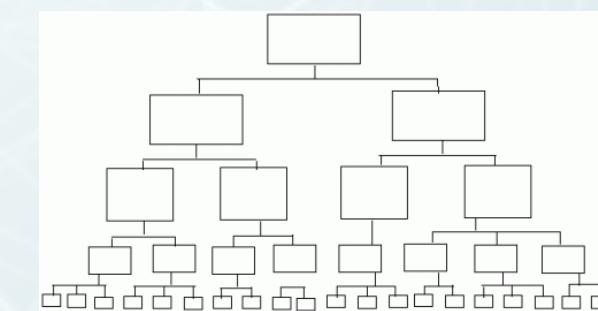
Traditional IAM-systems



1) Static idea of Identity



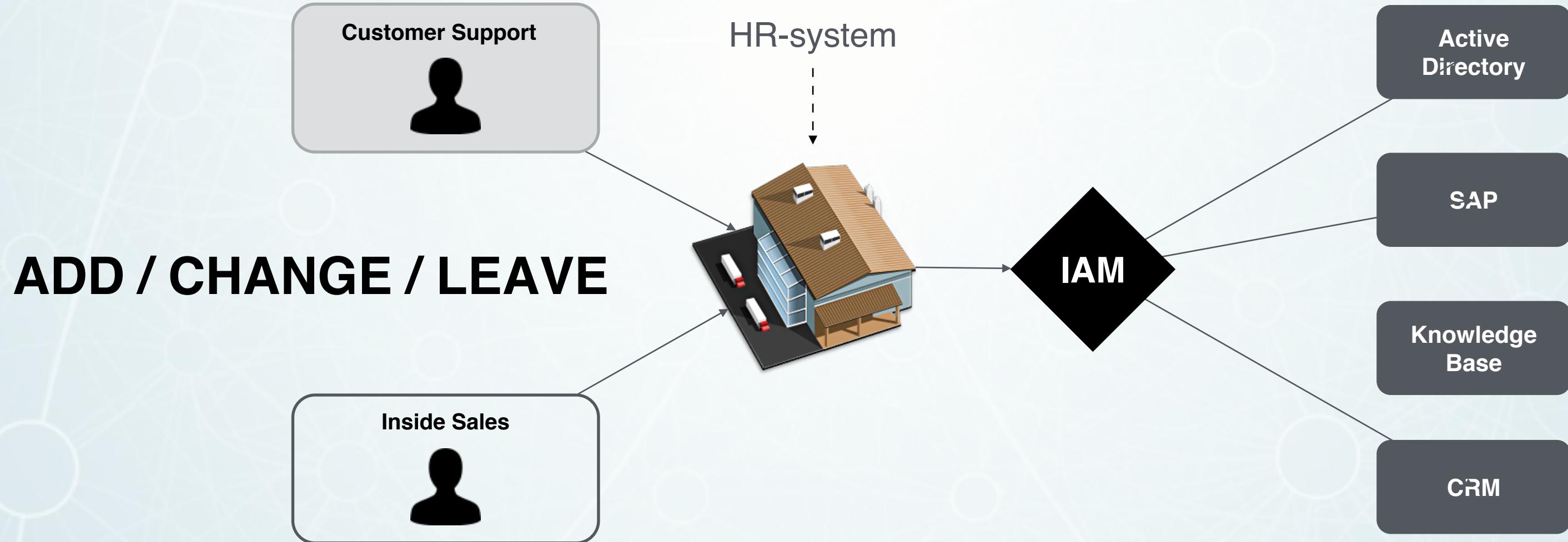
**2) Underlying assumption
that organisations are
hierarchal**



Why we need to reinvent IAM?

1) Identity is increasingly complex

Static identities left the building!



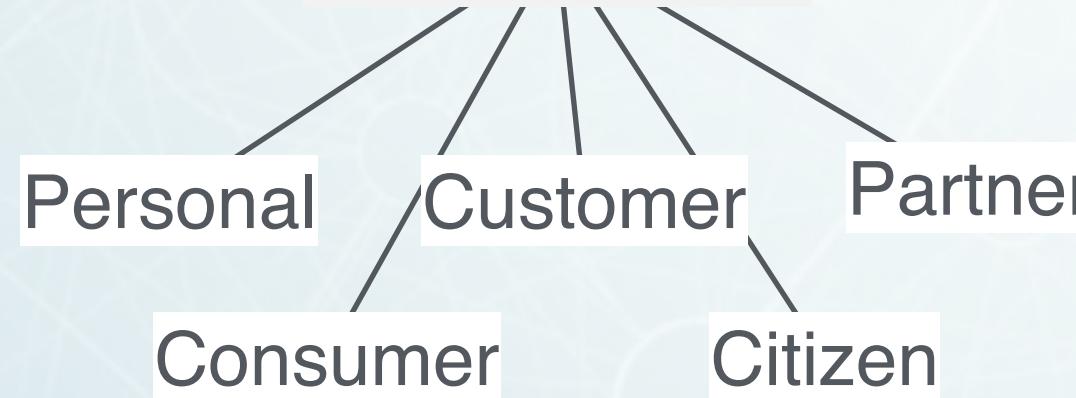
Gartner®

<http://blogs.gartner.com/ian-glazer/2013/02/08/killing-iam-in-order-to-save-it/>

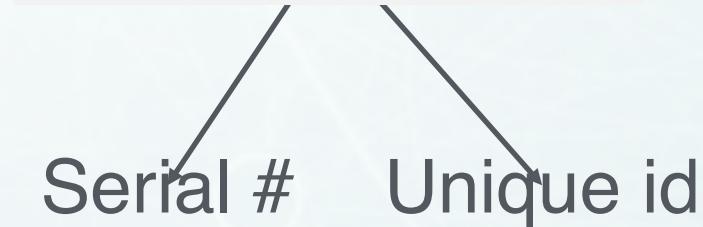
Dynamic Complexity of Digital Identities



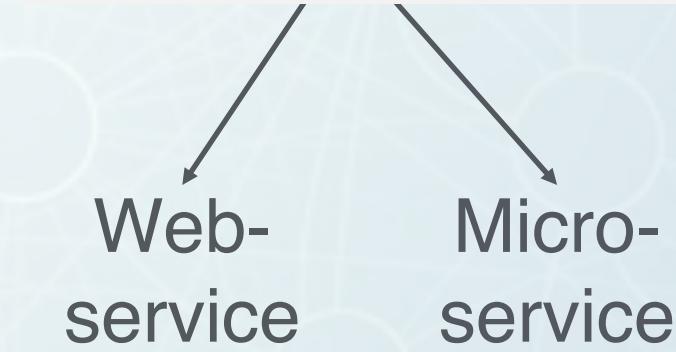
User identities



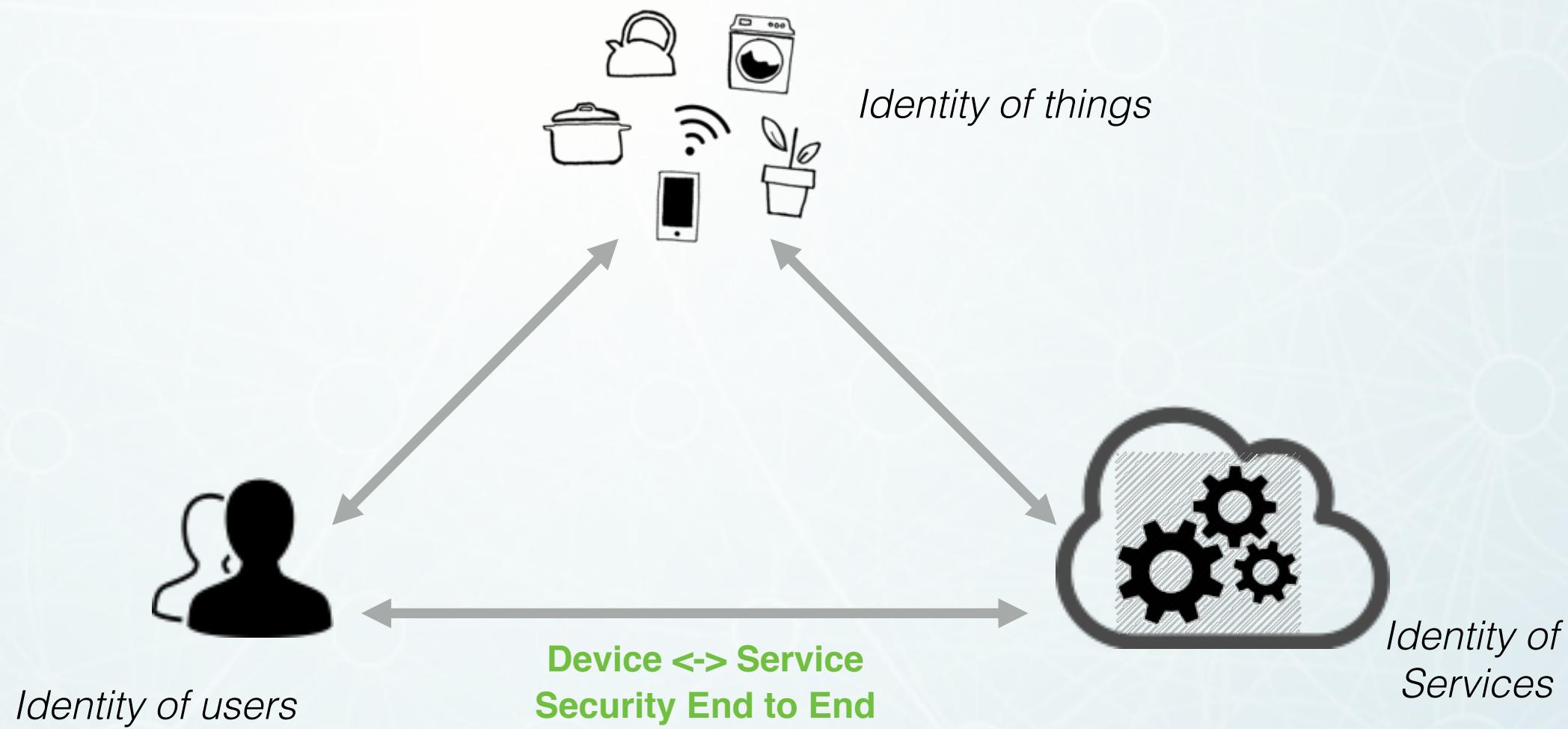
Identity of Things



Identity of Services



Dynamic Complexity of Digital Identities



“RBAC on steroids”

Why we need to reinvent IAM?

- 1) Identity is increasingly complex
- 2) Traditional hierarchies are being revised



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FEATURE

It Takes a Network

The new front line of modern warfare.

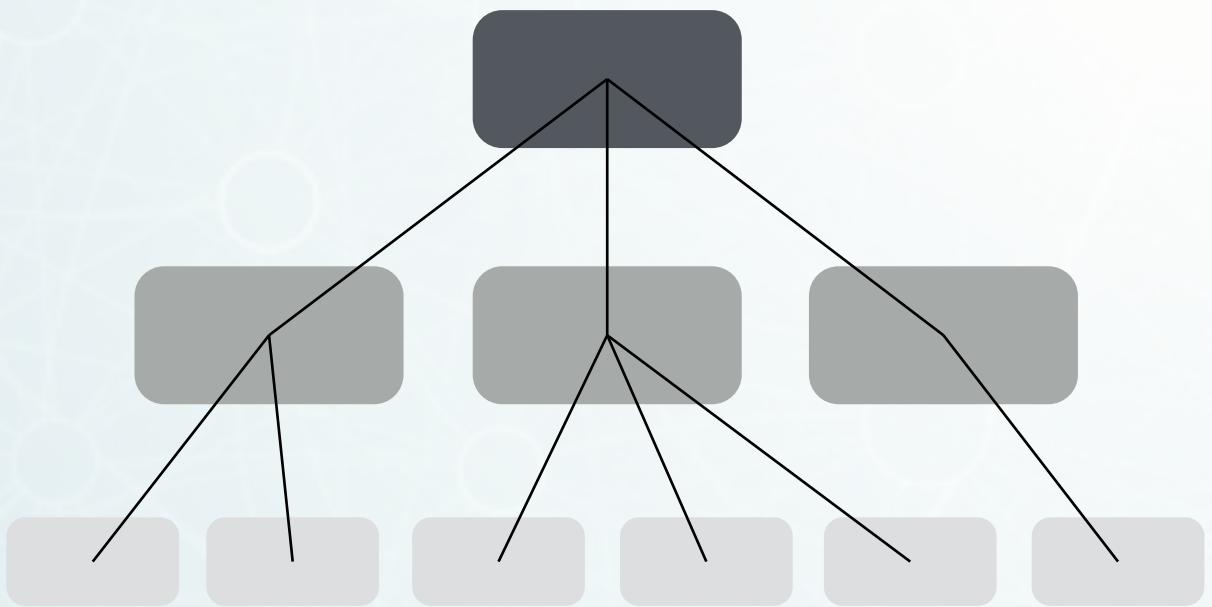
BY STANLEY A. MCCHRISTAL | FEBRUARY 21, 2011 | [Email](#) | [Facebook](#) | [Twitter](#) | [Google](#) | [LinkedIn](#) | [Email](#)

The Midland - Manchester Manchester
From £112 View

Malmaison Birmingham Birmingham
From £129 View

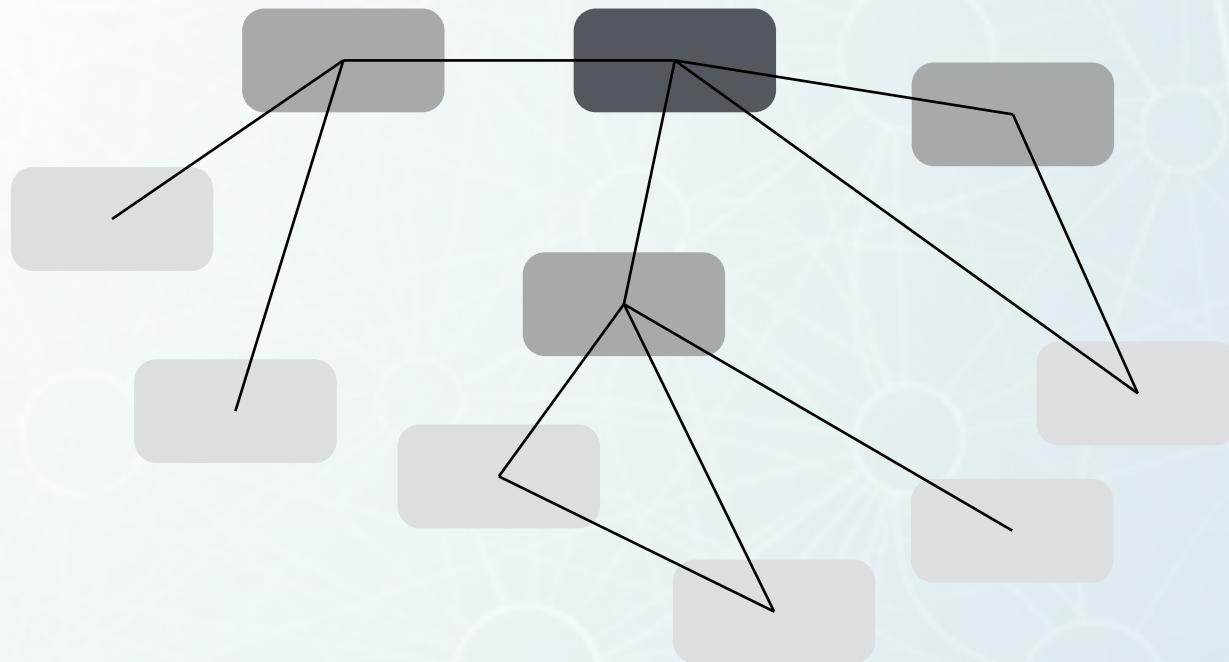
DoubleTree by Hilton Milton Keynes Milton Keynes
From £50 View

Ideal World



*Running up and down the tree:
Parent-Child relationships*

Real World

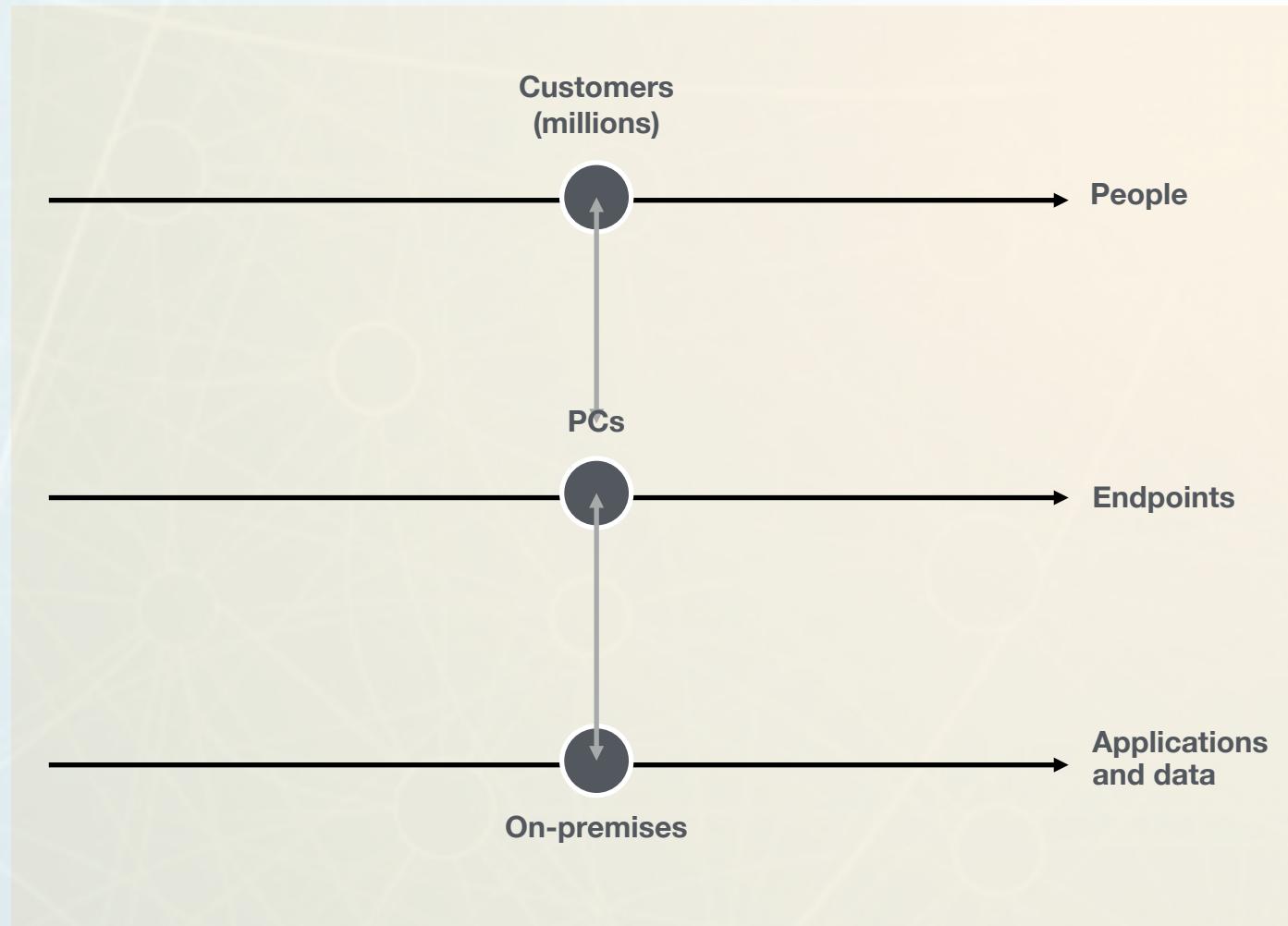


Query complex, multi-dimensional
relationships that traverse multiple hierarchies
in real-time

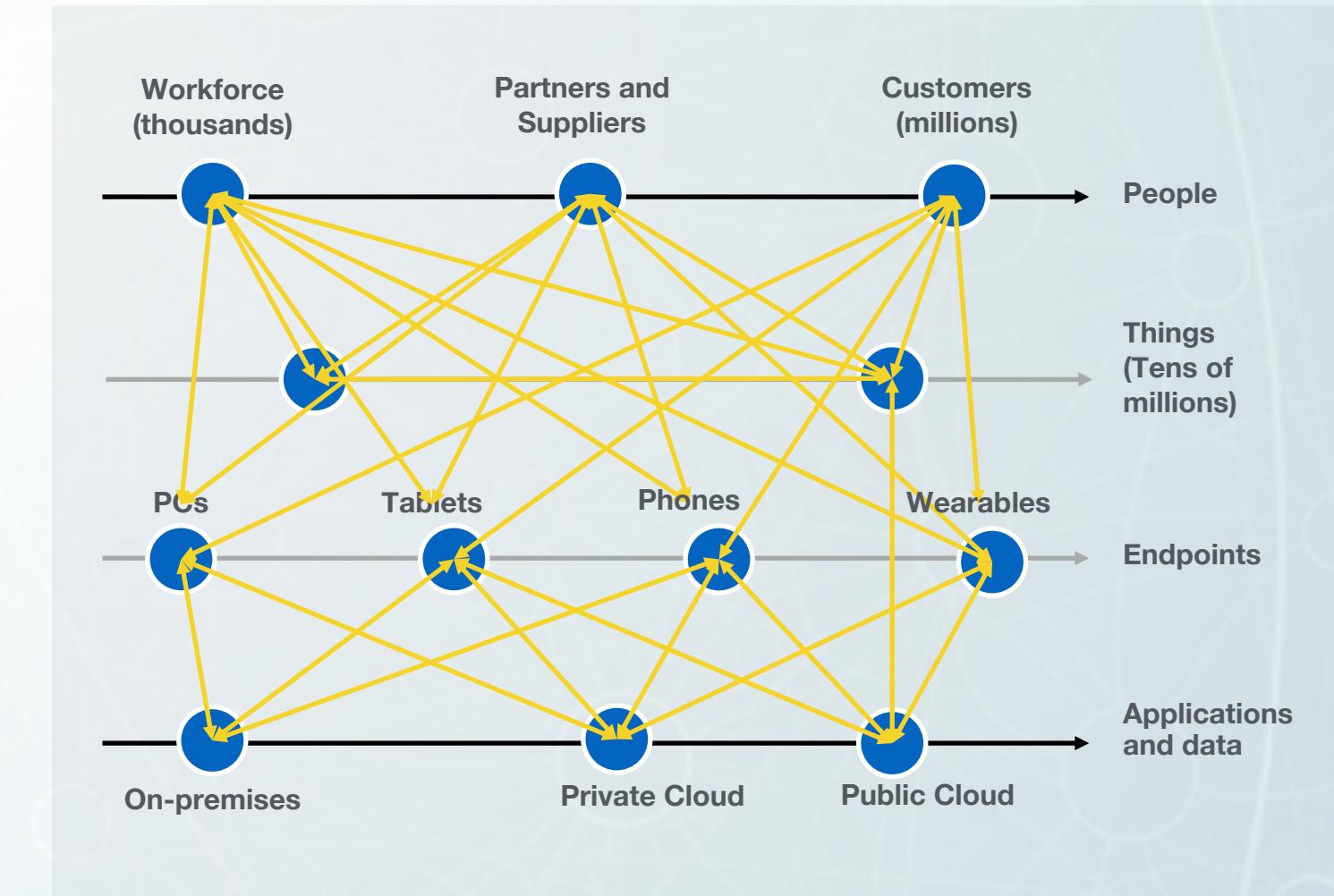
Why we need to reinvent IAM?

- 1) Identity is increasingly complex
- 2) Traditional hierarchies are being revised
- 3) Access Management is more and more about the relationships between users, partners, customers, things and their different touchpoint within organisations and eco-systems – and will need to provide REAL-TIME checks

Identity Access Management



Identity Relationship Management



“GDPR compliance will largely depend on our ability to check complex relationship patterns in real-time.”

How does Neo4j help?



Hi-Fi model of reality

- I&AM can be described in as many dimensions as we need
 - Multiple hierarchies form one graph: departments, suppliers, partners, assets, roles, projects...
- Cross-cutting concerns (eg. roles in multi-functional teams) can be easily described
- This flexibility removes the need for application specific directories / user+role management in the long run

Complex traversals = graph affined

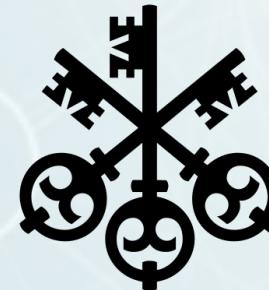
- Access control, modeled as a graph, is a perfect graph database application
- **Traversals** can be multi-dimensional – and pretty deep: combining different hierarchies in one query
 - Asset Hierarchy
 - Organisational Hierarchy
 - Partner Hierarchy
- Added value of “**impact analysis**” questions to prevent accidental service disruption
- Typical access control questions are very “local”, and have excellent **performance** characteristics
 - Yes/No answers to authorisation questions

Who's using Neo4j?





Case Studies



UBS



Thank you!



neo4j