GRAKN LABS

MASTER DATA MANAGEMENT CUSTOMER 360

The average Fortune 500 company maintains thousands of database systems in production across their organisation, with data describing customers, employees, suppliers, legal, and much more. Due to its heterogeneous nature, this data is locked away in unconnected silos, making it impossible to leverage all of their valuable insights. As a result, enterprises end up with inconsistent customer data that costs a fortune while missing out on valuable revenue.

One customer record could live simultaneously in many different systems, for example, a CRM, a marketing database, a support system, a billing system, etc. Each can contain a particular customer data point (payment data, transactions, addresses, personal information, email, etc). However, as these systems weren't designed from the ground up, they can contain so many inconsistencies and duplicates that it becomes impossible to create a single view of a customer. This is why 41% (source) of marketing professionals cite inconsistent data as their biggest challenge to maximising return on investment.

As a consequence, marketing executives estimate that 26% (source) of their budgets are lost due to incorrect channel focus and poor customer understanding. Attribution is still the holy grail for marketeers (source), but this is made impossible by incoherent enterprise data infrastructures.

Largely this is due to the fact that many traditional systems are based on relational databases, which make it difficult to query across multiple databases. Writing these queries can be extremely complex and they can take a long time to run.

Master Data Management For Customer 360

To address these problems, enterprises require a Master Data Management solution to consolidate all their systems into one and create one master view of their data. Not only will this push costs down, but significantly drive more revenues. An MDM solution then enables real-time, relevant data of your customer; visible to those who need it and when they need it.

41%

"...of marketing professionals cite inconsistent data as their biggest challenage to maximising ROI."

26%

"...of marketing budgets are lost due to incorrect channel focus and/or customer understanding."

Such a 360 view allows enterprises to get context from departments and their internal applications. This context is essential when making decisions about customers. Moreover, in today's world, customers expect highly personalised services, reflecting who they are and what they may be interested in.

A single customer view informs an organisation which type of customers are most valuable to them and inform targeting decisions. The marketing team would be able to have a single view of every single interaction of a customer across various channels and domains. This can include current activities (orders, deliveries, faults), currencies, support tickets, transactions, online behaviour and billing addresses. They would then be able to focus on specific customer segments leading to an increase in ROI.

This isn't as far fetched; such a system is possible today, as long as you can overcome the challenges required. Primarily, it means pulling together heterogeneous and disparate datasets. This requires a flexible and expressive database infrastructure that can handle this complexity.

An Example of a Banking Customer

Because of this, many banks only analyse a fraction of the data they have at their disposal. Personalisation then becomes more difficult, or worse less accurate; showing their customers something they don't want, chipping away at the trust you've built. However, a system that could deliver accurate personalisation - showing them what they want before they know they want it - that is the dream. If they could predict life and financial events, a customer's loyalty and revenues would increase.

Building an MDM solution to enable this, requires reference data per customer profile. This ensures that the organisation doesn't use multiple and potentially inconsistent versions of the same data in various application systems as part of its operations.

As an example, let's look at customers of a bank. We want to focus on how the bank can generate the insights that will inform how, what and when to present a trigger to a customer in order to elicit the desired action. Modelling this in Grakn, the goal is to connect each data source and create a single customer record. This gives the bank a clear customer picture, with contextual relevance of the customer's needs.

Let's assume there's a bank called NextGen bank which has thousands of current account holders. The bank wants these customers to subscribe to more of the bank's products.

One of these customers is called Susan. Every month she receives emails with promotional offers about credit cards the bank thinks Susan would be interested in or she is qualified for. The bank knows if she "received" email to her server, "opened" an email, "clicked" a link, "read" vs. "skimmed" and so on. As she's not interested in these emails, Susan never opens them and even marks them as junk mail.

However, Susan also liked and commented on one of the bank's social media posts that spoke about buying a new house. She also visited a page on the bank's website regarding their mortgage products. In this specific instance, that information is extremely valuable to the bank in increasing Susan's lifetime value. For example, the bank can proactively send a link on relevant mortgage products which Susan would actually be interested in. This will increase the likelihood she will use one of this bank's mortgage products.

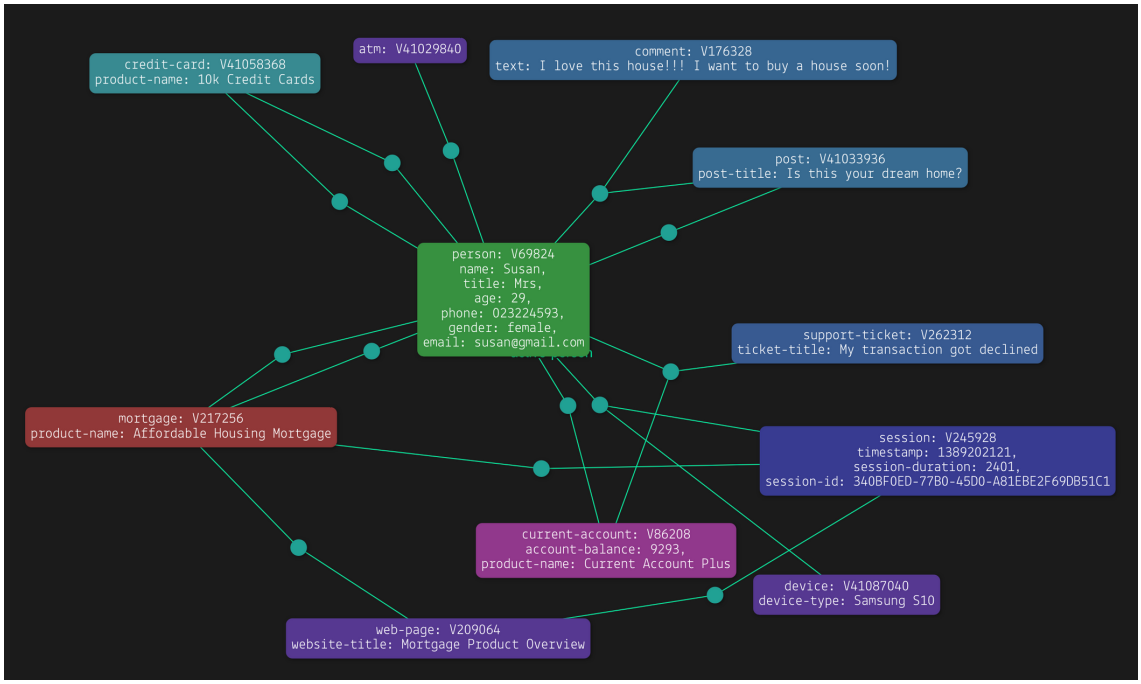
A subsidiary of the bank also knows that Susan is married to Bob, and since they are likely to be buying together, the bank could provide mortgage options for married couples, saving Susan and Bill money as well as increasing loyalty and trust.

However, the challenge for enterprises today is that this data is sitting in unconnected silos. That is, the customer information that is used by the mortgage-lending section within the bank isn't integrated with the customer information used by the team managing the current accounts of the bank. And when personalisation is the key to great marketing, you can't rely on half the data. As a marketing executive, you might use social and email data, website behaviour but what about their spending from the past month? Should they really consider buying a home when maybe they could be saving towards a down payment?

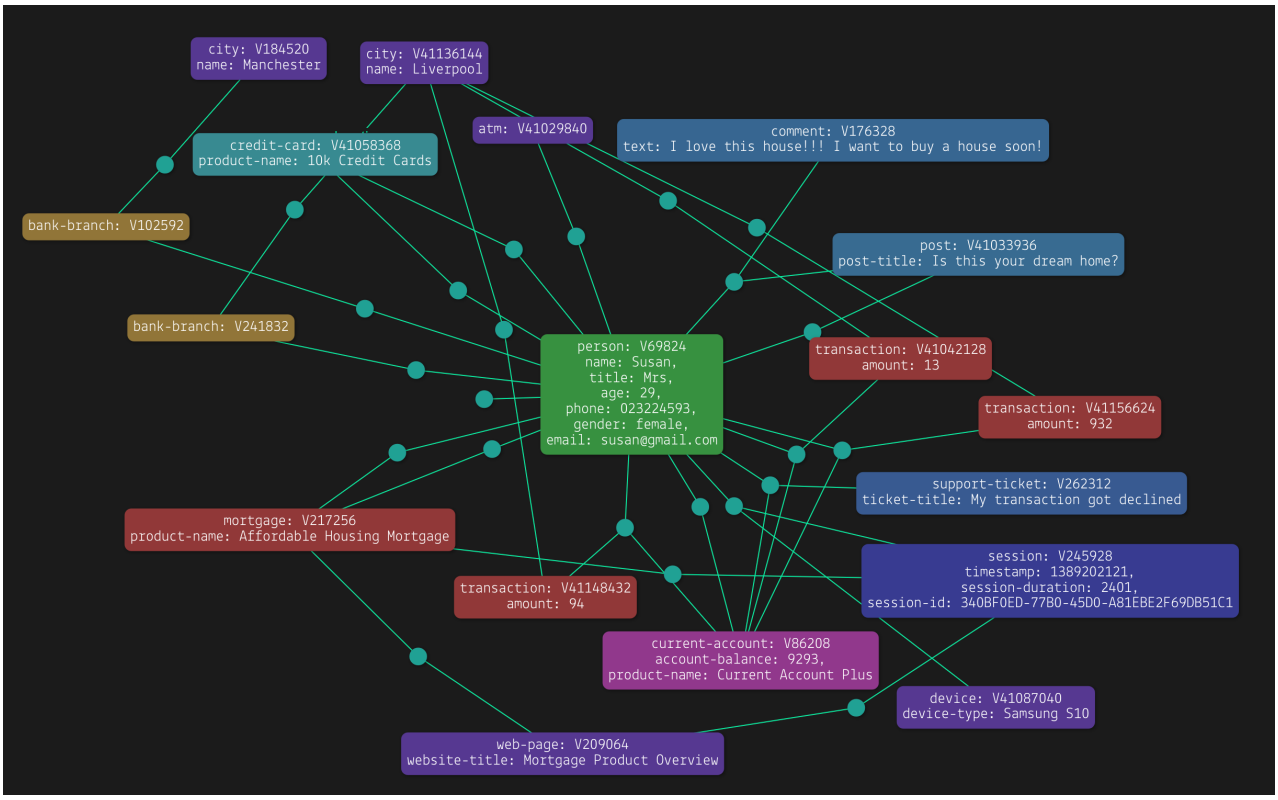
Integrated information at this scale is extremely powerful for the enterprise. Traditionally, this information creates distrusts in an organisation as it's so often incorrect and misleading. Integrating this data into Grakn, helps to create that trust and enables employees to see the larger picture.

Generating Insights

To do this in Grakn, we create a schema that can represent this domain and gives us a full contextual view, which we can start to see in the screenshot of Workbase below. Susan has a current account, where at one point she submitted a customer support ticket. She also visited the bank's website on mortgage products with her Samsung S10 device, withdrew from an ATM machine, and has received several promotions for one of the bank's credit cards.

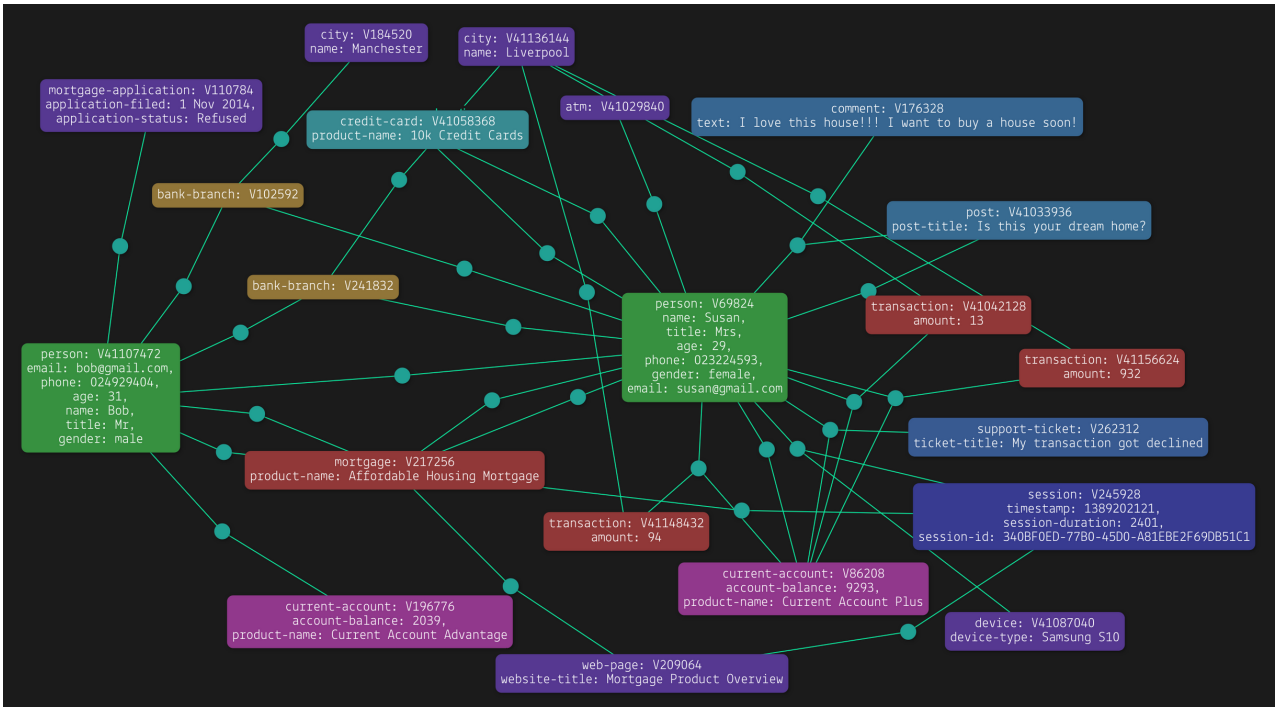


We can also traverse this graph and find out more about Susan, for example information regarding previous transactions. In the screenshot below, we see that she made several transactions with her current account in Manchester and Liverpool, and visited two branches in those cities.

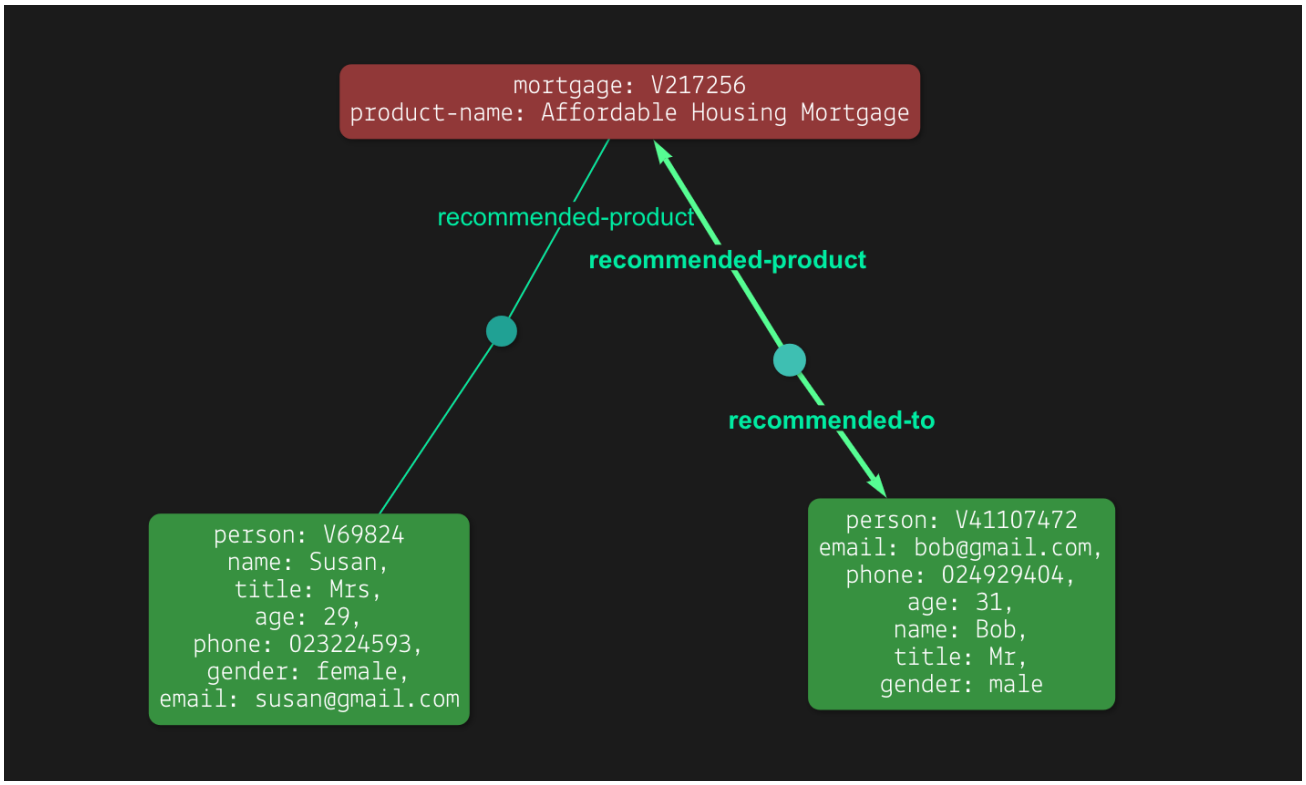


Finally, one of the bank's subsidiary's has integrated one of their datasets that records to whom Susan is married — Bob. We can see that he's also a customer at the bank and also has a current account. We can also see that he previously applied for a mortgage but was refused in 2016.

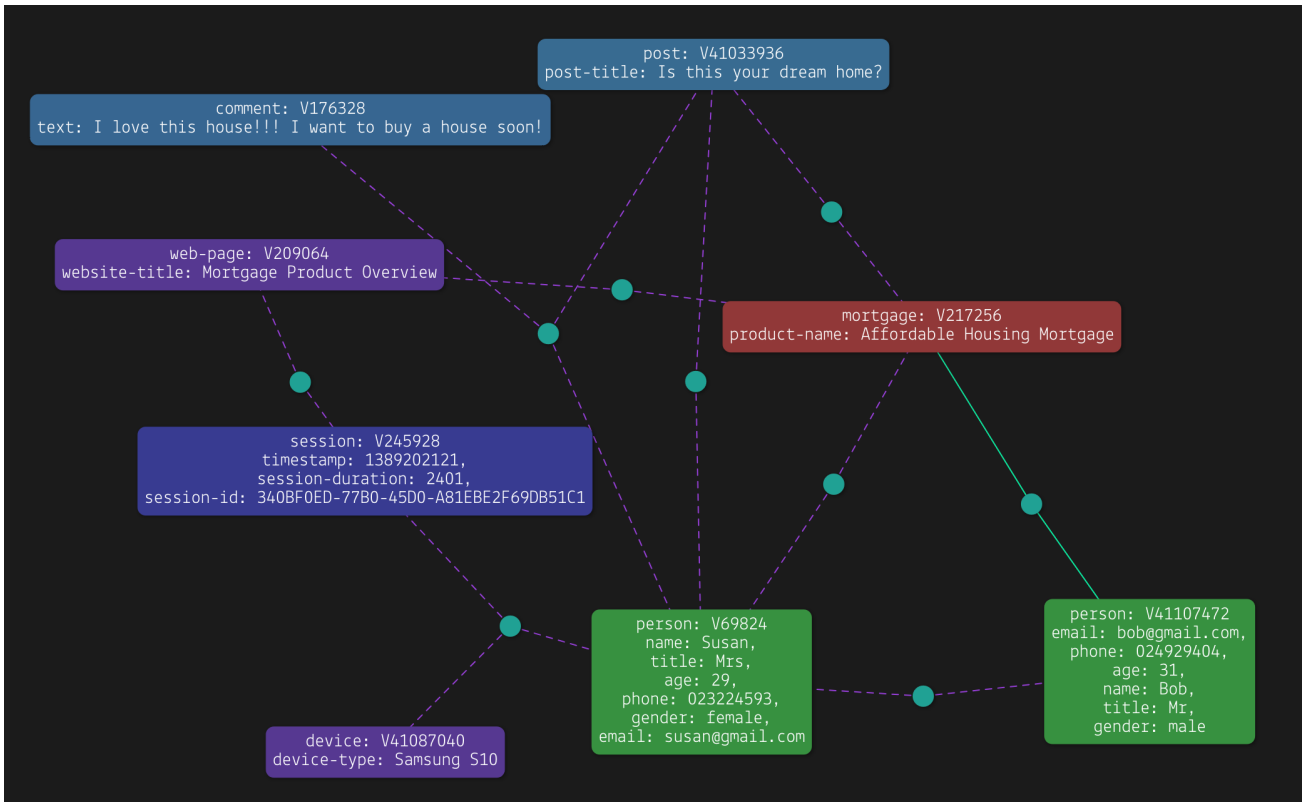
As this data is traditionally located in various unconnected databases, we need an MDM solution to enable this customer 360 view. With such a view in place, we avoid the need to write queries that have to query across multiple heterogeneous data stores.



Using Grakn's reasoning engine, we can also generate new and valuable insights. For example, we can ask for product recommendations, and Grakn will infer that one of the bank's mortgage products should be recommended to Bob and Susan:



When we ask Grakn for an explanation of this inference, we see that this is because she commented and liked a social media post that talked about the positives of purchasing houses, and she visited the bank's mortgage products page. Based on this, Grakn created the insight that a mortgage product should be recommended to Susan. As she's also married to Bob, Grakn generated another insight, which is to recommend a mortgage product to him as well. In the screenshot below, we can see these explanations as the dotted lines in the graph.



Conclusions

Grakn serves as the database to represent all of an enterprise's disparate data sources, enabling and empowering employees to capture more insights from the data at their disposal. Grakn makes it possible to build an enterprise Master Data Management system with Customer 360 views. The potential of which isn't limited to just one area, but enables other use cases such as:

- Access and analyse every touchpoint any customer will have with your organisation in near-real time.
- With all of your customer data in an MDM solution, we can build recommendation engines, which will find similar and overlapping customers to whom we can market similar products.
- We can conduct segmentation analysis based on many personalised data points to understand our current and future market opportunities.
- We can build fraud detection systems that leverage all customer data, making it easier to find bad actors and flag these for further investigation.

In this article, we've only scratched the surface of what you can do with Grakn for Master Data Management and Customer 360. If you'd like to learn more please contact us on **enterprise@grakn.ai**.

Grakn is a distributed knowledge graph: a logical database to organise large and complex networks of data as one body of knowledge. Grakn provides the knowledge engineering tools for developers to easily leverage the power of Knowledge Representation and Reasoning when building complex systems. Our enterprise product, Grakn Cluster, is available on any cloud provider and on premise.

Grakn is used in numerous applications from tax automation bots to complex use cases in drug discovery via protein pathways, a knowledge network of drones and robots, cybersecurity and financial services. Users include organisations such as AstraZeneca, Cisco, the French Intelligent Services, Bayer and Nestlé.