

Amgen Improves the Quality of Healthcare by Identifying Influencers and Referral Networks using TigerGraph



THE CUSTOMER

Amgen, one of the world's biggest biotechnology companies, is focused on the cutting edge of molecular biology and biochemistry. The company's goal is to provide a healthcare business based on recombinant DNA technology. Founded in 1980, Amgen is the largest employer in Ventura County, CA with over 5,000 employees. Amgen has terabytes of data on drug trials and turned to TigerGraph to find the inferences in that data.

THE CHALLENGE

Amgen's data deals with doctors, patients and the interactions between them, as well as the drugs and diagnoses for the patients. The amount of information available to the data scientists at Amgen runs into terabytes and finding the connections among the data was challenging. In particular, Amgen wanted to create a social network of providers and, though the company had claims data and provider data, it lacked the ability to know which patient was referred from one doctor, perhaps a general practitioner, to another doctor, such as a specialist.

"We deal with a humongous amount of data, EMRs (electronic medical records), and CHRs (comprehensive health records)," according to Vishnu Maddileti, Amgen's Director of Data Sciences and Analytics. "It's in the terabytes - and combing through that in RDBMSs (relational database management systems) would be a nightmare."

THE SOLUTION

The company quickly saw the benefits of using graph database and analytics to manage its data, but quickly ran into problems scaling with its initial graph database vendor. Loading the data took a lot of time and once it was loaded, computing either didn't finish or was extremely slow. TigerGraph provided Amgen with the speed and scale they were looking for.

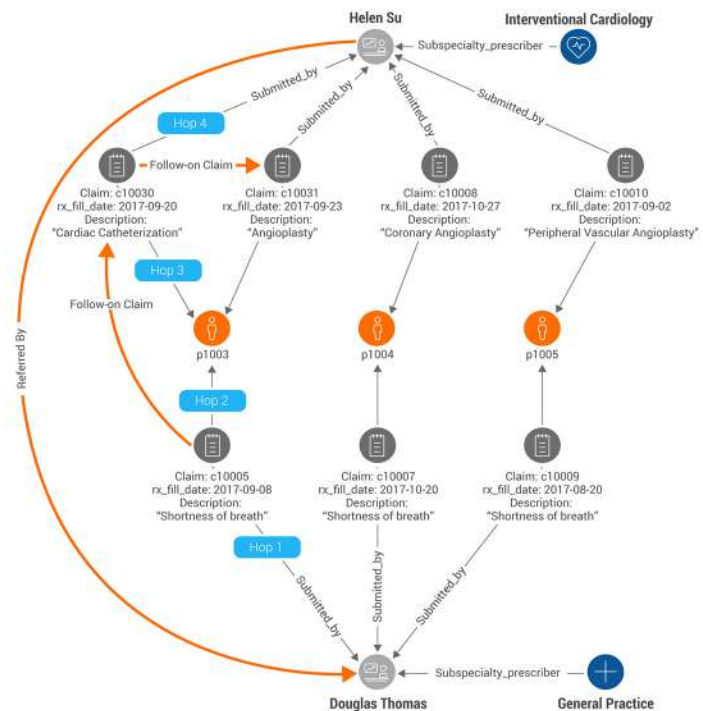
"With 5 billion vertices and 20 billion edges, it's huge data and finding inferences in that data is not easy, but TigerGraph has scaled for us."

Vishnu Maddileti, Director of Data Sciences and Analytics, Amgen

THE RESULTS

After upgrading to TigerGraph, Amgen was able to load the data a lot faster and identified referral networks, common patients and the most influential providers in a massive dataset in terabytes. "With 5 billion vertices and 20 billion edges, it's huge data and finding inferences in that data is not easy, but TigerGraph has scaled for us," says Maddileti.

The data sciences team at Amgen is now able to support its colleagues in marketing and branding with the insights they need about the referral networks and influential doctors and ensures everyone is fully informed about the medicines that can positively affect the quality of care of millions of patients.



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CUSTOMER QUOTES

"It's huge data (terabytes) and finding influencers in that data, it's not easy, but TigerGraph has scaled for us."

- Vishnu Maddileti
Director of Data Sciences and Analytics
Amgen

"Some of the questions that graph databases answer are hard to come to conclusion with in RDBMS or it takes forever. We needed a better tool to find relationships and TigerGraph was just that."

- Ely Turkenitz, IS Manager
Santa Clara County

"TigerGraph's speed and scalability and graph model have enabled many applications for us that we previously thought were overly challenging"

- Jack Xie, Head of Data
Wish.com

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TigerGraph Cloud graph database as a service is built for agile teams who'd rather be building innovative applications to deliver new insights than managing databases.

CLOUD STARTER KITS

TigerGraph Cloud Starter Kits are built with sample graph data schema, dataset, and queries focused on specific use cases such as fraud detection, recommendation engine, supply chain analysis and/or a specific industry such as healthcare, pharmaceutical or financial services.

STARTER KIT	OVERVIEW
Customer 360 – Attribution and Engagement Graph	Create a real-time 360-degree view of the customer journey for attribution and engagement insights
Enterprise Knowledge Graph (Corporate Data)	Analysis of corporate data including investors and key stakeholders
Enterprise Knowledge Graph (Crunchbase)	Knowledge Graph example featuring Crunchbase data with startups, founders and companies
Entity Resolution (MDM)	Identify, link and merge entities such as customers with analysis of attributes and relationships
Fraud and Money Laundering Detection (Fin. Services)	Multiple types of fraud and money laundering patterns
GSQl 101	Introduction to TigerGraph's powerful graph query language
Healthcare Graph (Drug Interaction/FAERS)	Healthcare example focused on public (FAERS) and private data for pharmaceutical drugs
Healthcare – Referral Networks, Hub (PageRank) & Community Detection	Analyze member claims to establish referral networks, identify most influential prescribers and discover the connected prescriber communities
Machine Learning and Real-time Fraud Detection	Mobile industry example for detecting fraud in real-time and generating graph-based features for training the machine learning solution
Network and IT Resource Optimization	Network and IT resource graph for modeling and analyzing the impact of the hardware outage on workloads
Recommendation Engine (Movie Recommendation)	Graph-based movie recommendation engine built with public data
Scratch	No pre-populated schema, dataset or queries
Social Network Analysis	Social network example for understanding and analyzing relationships
Supply Chain Analysis	Example covering inventory planning and impact analysis

CONTACT

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About TigerGraph

TigerGraph is the only scalable graph database for the enterprise. Based on the industry's first Native and Parallel Graph technology, TigerGraph unleashes the power of interconnected data, offering organizations deeper insights and better outcomes. TigerGraph fulfills the true promise and benefits of the graph platform by tackling the toughest data challenges in real-time, no matter how large or complex the dataset. TigerGraph's proven technology supports applications such as fraud detection, customer 360, MDM, IoT, AI and machine learning to make sense of ever-changing big data, and is used by customers including Amgen, China Mobile, Intuit, Wish and Zillow, along with some of the world's largest healthcare, entertainment and financial institutions. The company is headquartered in Redwood City, CA. Follow TigerGraph on Twitter at @TigerGraphDB or visit www.tigergraph.com.