Graphs help Qualia Dig Deeper into Big Data Across Devices

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Biography

Emil Eifrem is CEO and co-founder of Neo4j (http://neo4j.com/). Previously Chief Technology Officer of Sweden's Windh AB, where he headed up the development of highly complex information architectures for Enterprise Content Management Systems, Emil famously sketched out what today is known as the property graph model on a flight to Mumbai in 2000.

Emil is a frequent conference speaker and a well-known author and blogger on NoSQL and graph databases, as well as co-author of the agreed Bible on graph databases, O'Reilly's Graph Databases (http://graphdatabases.com/).

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Abstract

This case study looks at how leading omni-channel data intelligence company Qualia is using the power of graph databases to offer highly targeted advertising opportunities to brands.

Introduction

Today we are all 'multi-screeners' using more devices than ever before to run our daily lives – and with the advent of Internet of Things (IoT) we are going to get more devices, not less, to accomplish those goals.

According to market research firm Gartner, by 2018 we will own more than three personal devices made up of 'main' and 'niche' devices. The former will include smartphones and tablets, whilst the latter will cover wearables such as smart watches and smart glasses. By 2021, Gartner forecasts that 1 million IoT devices will be purchased and installed very single hour. These devices will churn out a huge amount of big data for companies to sift through, looking for valuable nuggets of information about their customer base to create innovative, absorbing ad campaigns.

Marketing in a multi-screen world provides unique opportunities for companies to connect with their target audience and drive the growth of their brand. But to do this they need to know who their followers are and what makes them tick. Qualia Media, which provides consumer insight to enterprises in a vast array of markets, from automotive to beauty, was quick to spot that consumers were spending more time multi-screening. The company also knew that to stay ahead of the curve it also needed a powerful platform that would quickly and easily map big data

connections across devices and make the links between them to help marketers optimize their advertising budgets.

When the company first started seven years ago, it analysed public declarations of locations on social media. But mobile usage has grown significantly in that time, with users using more devices and performing different actions on each. Qualia saw that its platform was suddenly outmoded as it was not optimized to recognize consumer actions across all devices. The company needed to be able to capture data from multiple devices and associate it with an individual user to win a competitive edge.

The big challenge, however, was that this data was in a state of flux and continually changing. This was down to users frequently purchasing new devices and clearing out the cookies from their browsers.

Uncovering graphs

Qualia studied the directional flow of data and the relationship between devices, cookies and users and realized that its data model was graph-like. For simplicity reasons, it could have adopted traditional relational database technology, but it realized that the multiple operations and joins would have made the whole system cumbersome, clunky and slow to use.

After much debate and testing, Qualia opted to go down the graph database route. The Qualia team now relies on over one terabyte of graph data in Neo4j and nine billion relationships, combined with larger amounts of non-graph data to provide its multinational clients with consumer intelligence for marketing and advertising opportunities. Graphs have proved they are the only technology powerful enough to effectively query relationships in such large volumes of data.

Understanding how much time consumers spend on which screen is paramount in building a media plan in today's multi-screen environment. Qualia's big data, cross-device insight enables marketers to deliver consistent, integrated marketing campaigns as consumers shift from one screen to another.

Graph technology has enabled Qualia to synchronize its data analysis across multi-screens, harvesting information that enables marketing departments to instigate successful campaigns that engage and move with consumers from one device to another.

Now Qualia clients have a 360-degree view of their customers, their entry point all the way through to conversion pinpointed on specific devices. This allows various device channels to be combined effectively and gives clear evaluation metrics to measure how well advertising reaches intended audiences. With digital marketing pulling advertising dollars from traditional media it is imperative to keep check to see if budget is being spent in the right areas.

Graph technology has given Qualia deeper analytical insight across multi-screens that is enabling companies to understand their customers better and make data-driven decisions. These meaningful connections have resulted in a higher return on investment for Qualia's client base.