DRIVING CUSTOMER SATISFACTION THROUGH DATA ANALYTICS

Who Doesn't Want to Satisfy Their Customers?

Delighting customers is a desire of every business and organization, but it's difficult to achieve if you don't know their current satisfaction level or what frustrates them. People have developed all sorts of ways to measure this satisfaction from client surveys to assessment of the competition, and then there's the infamous Net Promoter Score. This case study will show you a new way of obtaining the information you need to measure satisfaction and delight your customers without requesting feedback from them.

BACKGROUND

Meet Barton Associates

Barton Associates is a healthcare staffing company. They assign physicians, physician assistants, nurse practitioners, and dentists to short- and long-term positions at hospitals, medical practices, and organizations across the country. Their clients aren't just individual healthcare professionals, but the healthcare providers as well. That's double the surveys and double the work to satisfy two completely separate types of clients. What's their plan to satisfy everyone across the board? Let's dive in.

BARTON
ASSOCIATES

STAFFING FOR HEALTHCARE

BOSTON HEADQUARTERS

EMPLOYEES: 1,000

Innovate for Satisfaction

Cloudbakers became Barton Associates' Google Premier Partner in 2015 when they made the switch from Microsoft Office 365 to G Suite. Since then, the partnered team has worked together on Chrome for Meetings, encryption solutions, Google Jamboards, and in 2018, data analytics. Stepping into the data space is new territory for many organizations because the use cases become more and more customized for the specific organization making the jump. A data project built for one company will not necessarily satisfy the exact unique needs of another.
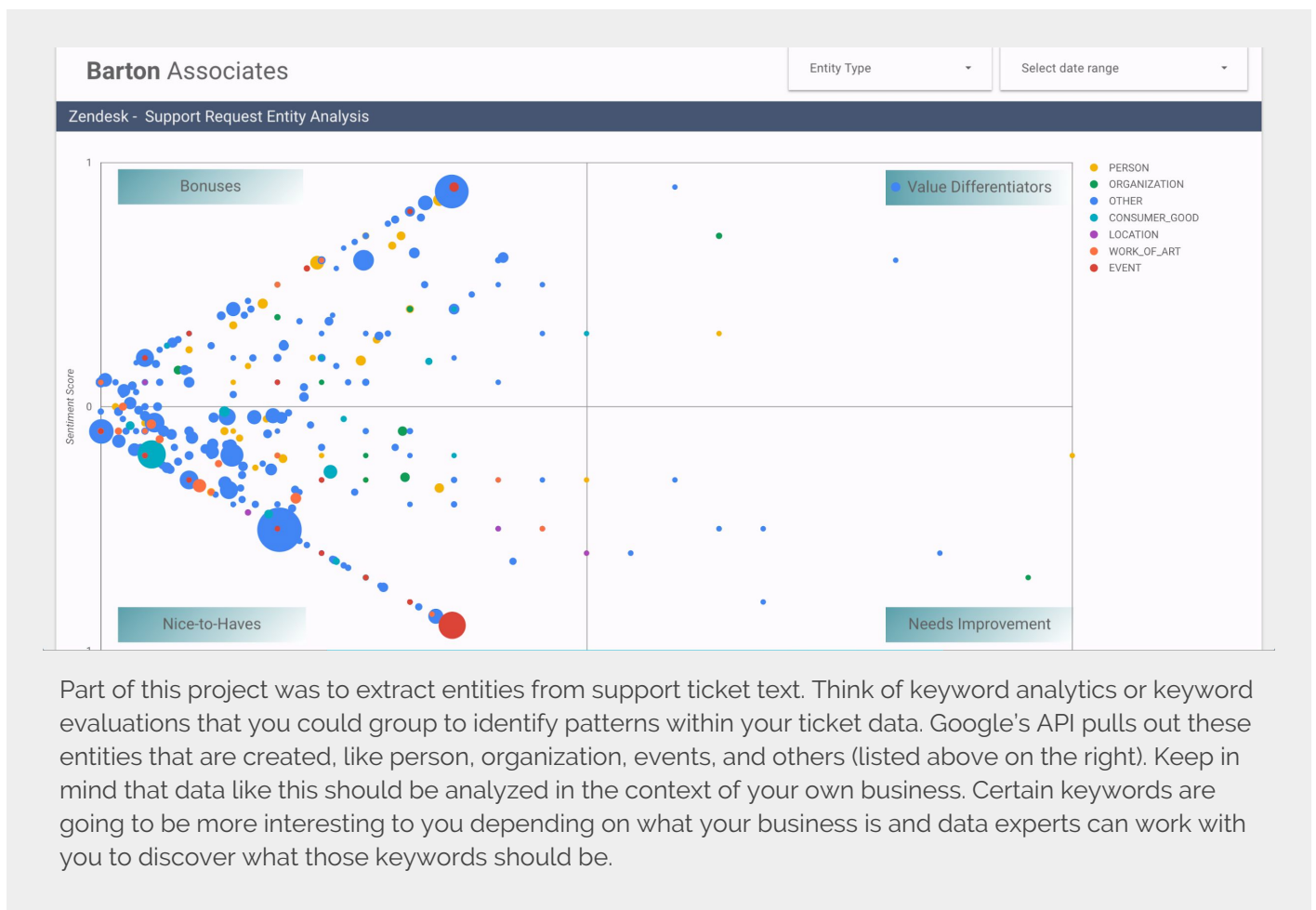
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Taking the Plunge

To test out what was possible using Google Cloud Platform, Barton Associates started with a Proof of Concept with Cloudbakers. The project consisted of the development of a cloud analytics platform to analyze sentiment of internal and external support tickets. Three goals of this project were to:

1. Determine if the solution was viable for their business and data warehousing needs
2. Serve as a pilot for other analytics use cases at Barton, such as (1) the analysis of data from Salesforce and Gmail to better understand the productivity of sales staff and the profiles of potential recruits and (2) using Google's Redaction API to redact sensitive data (PII and PHI) from box files
3. Allow Barton to evaluate the operational costs of running a data warehouse on top of Google's managed data services

By gathering insights into the sentiment of these [Zendesk](#) tickets (SaaS helpdesk system), Barton's IT staff could make data-driven decisions to better serve their clients and employees. Here's an example of how they visualize this data.

Part of this project was to extract entities from support ticket text. Think of keyword analytics or keyword evaluations that you could group to identify patterns within your ticket data. Google's API pulls out these entities that are created, like person, organization, events, and others (listed above on the right). Keep in mind that data like this should be analyzed in the context of your own business. Certain keywords are going to be more interesting to you depending on what your business is and data experts can work with you to discover what those keywords should be.

Referring back to the visual, the average magnitude and average sentiment for each of the entities are plotted as well as the number of tickets that have been sent in that the entity was identified for. Right away you can interpret the information and assume that the more tickets (the bigger the dot) identified with a particular entity could be a problem area that your team should focus on. If you were to hover over a dot on the graph, it provides you with the entity name and an average sentiment, anywhere from 10 to -10.

From a technical standpoint, these analytics needed to be generated on a real-time basis, so that if a particularly negative customer sentiment was identified, Barton could identify the potential issue and intervene before it escalated. Historical data was also analyzed for sentiment and the results were stored in the data warehouse.

As Cloudbakers was able implement this lightweight pipeline at zero operational cost, it gave Barton Associates the power to test this initiative without risking budget. They could focus on the ways in which this solution could be tweaked for other areas of their business while Cloudbakers created the backend of the solution. Here's where we get a little more technical.

You can think of Google Cloud Platform (GCP) as a box of puzzle pieces. It's made up of numerous services that can be pieced together in an endless amount of ways to create customized solutions for businesses (processes, products, integrations, etc.). For Barton's ability to focus on the sentiment of their customers, Cloudbakers chose a very specific set of these tools to make the solution both valuable and cost effective for Barton. Read on to see what GCP services were used and follow along via the diagram on the next page:

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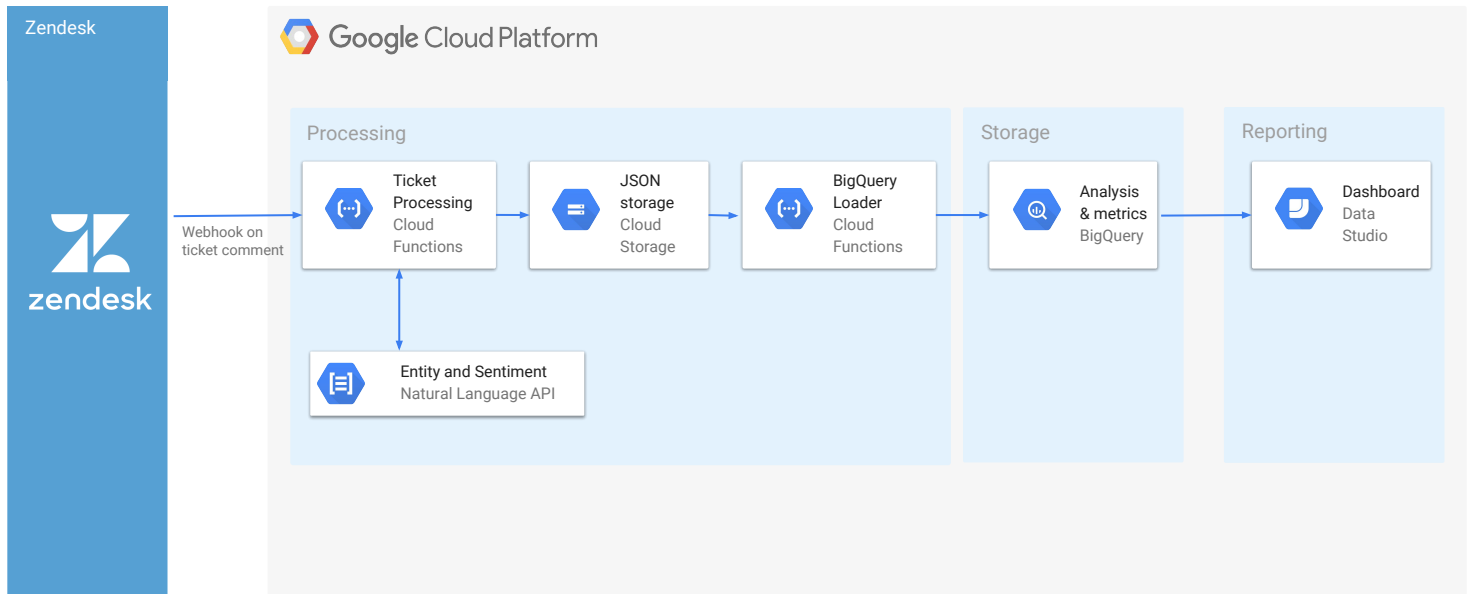
Google Cloud Functions

Cloudbakers chose to utilize Google Cloud Functions for their functionality as a lightweight ETL tool. Part of this project was to introduce Barton Associates to GCP and familiarize them with the flexibility and cost effectiveness of the different tools available. By triggering two different Cloud Functions via webhooks in Zendesk and the subsequent creation of objects in a Google Cloud Storage bucket, Cloudbakers was able to quickly set up a scalable, real-time pipeline written entirely in Node.js. This is how Barton was able to maintain their new pipeline without incurring the cost of training their IT staff on unfamiliar technology.

Google Natural Language API

The evaluation of the Google Natural Language API was another one of the primary goals of this project. It was chosen not only for it's capability to assess the overall sentiment and magnitude (i.e., level of emotional content) for the customer support messages, but also for its ability to extract entities from the text and provide sentiment analysis on those as well.

Google Cloud Storage

Cloudbakers chose Google Cloud Storage as a repository for an intermediate data state, both for its flexibility as object storage and for the ability to trigger Cloud Functions when objects are written to it.

Google BigQuery

Cloudbakers chose Google BigQuery as the data warehouse for this pipeline for its ability to process large amounts of data quickly, and also for its ability to easily handle nested and repeated data structures.

Once the sentiment analysis was conducted on the customer support text, Barton Associates needed to be able to analyze not only the overall ticket sentiment and magnitude, but also the entity-level sentiment and magnitude. They also needed to be able to perform these analyses against dimensions such as the customer name, agent name, date of submission, etc. Utilizing BigQuery meant they were able to easily switch between entity-level and ticket-level analysis.

As Barton Associates looks ahead to expand their data warehouse and add data sources from other systems, BigQuery will able to handle the expansion with ease..

Google Data Studio

Google Data Studio was chosen as the visualization layer for this data pipeline for two reasons:
1. As a G Suite customer, Barton Associates already had access to Google Data Studio and wanted to evaluate it as a Business Intelligence tool.
2. Google Data Studio comes with out-of-the-box connectors for Google BigQuery that allow for easy setup.

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Conclusion

One data source, six GCP services, minimum cost and a starting point for endless possibilities put Barton Associates in a very strategic position for growth and success against its competition. Their choice to begin with a Proof of Concept gave them the ability to test their use case ahead of time. They could continue to find areas for improvement like this while using Cloudbakers' product knowledge and expertise to help navigate Google Cloud and develop a solution incorporating Barton's special sauce.

Tip from Cloudbakers:

It's not about re-inventing projects done before. It's about identifying where your greatest value is and incorporating data initiatives into that.