INFOCEPTS

Increasing Customer Service Center Productivity with Big Data Analytics

Type of Project:
Data Virtualization for Big Data

Technologies:
Informatica Data Services, Vertica, Hadoop, MicroStrategy Visual Insight

Team Size:
6 InfoCeptians, 2 Customer Associates

Our Roles:
DI Architect, BI Architect and Quality Analysts, Amazon Web Services Administrator

Users:
Business Analysts

Executive Summary:

During the course of our engagement, we helped our customer – an online marketing and web analytics company – increase the productivity of their customer support chat services by implementing a "Big Data" solution for analyzing unstructured data from their Chat Platform in real-time. Using virtualization with Informatica Data Services, we replaced an inflexible and a non-scalable system that only provided historical analysis of Chat Agent availability and productivity with a highly scalable, database independent system that provides real-time agent monitoring and guided, rapid decision making.

Business Challenge

Our client is an online marketing, web analytics, and advisory services company. It's best known product is a chat platform that is used by its customers for pro-active, intelligent, real time chats across multiple channels including websites, social media, and mobile devices. The online chat sessions between customer service agents and customers generate huge amounts of real time, unstructured, textual data with volume and velocity that characterize the data as "Big".

Previously, chat text was collected in real-time using a Hadoop system and was available in the form of JSON events. The entire raw data was collected and integrated into the Data Warehouse using MapReduce code. Customer service agent productivity and performance was tracked and analyzed along metrics such as duration of login, away time, duration of chat, etc. Reports also helped identify areas where additional training might benefit the agents.

On analyzing agent productivity over time, our customer realized they had an opportunity to increase productivity significantly. The result would be increased client satisfaction and a competitive edge. However to achieve this, our customer needed to address shortcomings of their existing system that included:

- **An inability to support real-time analysis:** While data from Hadoop was assembled in real-time, the system did not support real-time analysis and reporting due to the time required for ETL processing. As a result, they could only analyze historical agent activity. Immediate action and recommendations to the agents based on real-time analysis of chat sessions was not possible.

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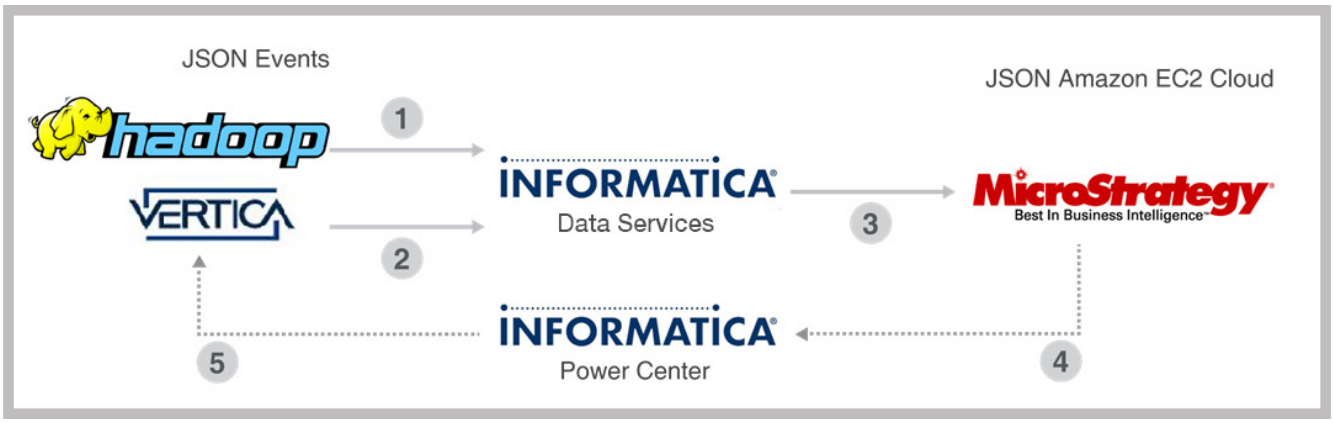
- **Lack of scalability:**
  The terabytes of chat data were collected using Hadoop, available in the form of JSON events in real time. As the sources of data and the frequency of feeds from the sources were increasing, the existing Java based application lacked the capability to handle the massive raw data.

- **Inflexible architecture:**
  The client used Vertica for its Data Warehouse platform. Vertica, as a RDBMS platform, required the large volume of unstructured data to be transformed to structured data using a custom ETL solution and MapReduce code prior to loading into Vertica. This required highly skilled MapReduce resources. The customer needed to reduce the dependency on the complex MapReduce code, save development time and add flexibility to the data integration process.

- **Inability to support multi-tenancy:**
  As a platform provider of chat services, our customer needed an architecture that would support many end clients in an integrated, multi-tenant architecture.

How We Helped

We worked closely with our customer to design and develop a scalable, flexible new system for monitoring customer service agent events by incorporating Informatica Data Services. Our approach enabled our customer to analyze in real time the "Big Data" generated during chat sessions. Now, in real-time, our customer can assign available agents, monitor chat sessions and provide real-time proactive advice to customer service agents. The result: Higher quality chat sessions, Higher customer satisfaction and Higher agent productivity and satisfaction.



Overall:

Our services included the following:

- Deploying Informatica Data Services as a single feed data source for MicroStrategy reporting
- Creating the batch processes for loading of historical data into Vertica
- Data Integration to support real time analysis
- Setting up MicroStrategy Visual Insight for real-time reporting
- Developing a multi-tenant platform

Real-time Analysis

Using our solution, business users can perform real-time, ad-hoc analysis. This was achieved by replacing the existing Java application with MicroStrategy Visual Insight. This tool allows on the fly analysis and ad-hoc reporting. Business users can leverage it to analyze raw data and create new business rules based on the analyses.
We enabled real-time analysis by introducing Data Virtualization using Informatica Data Services (IDS).In the new architecture, IDS is used as a staging platform instead of the existing database – Vertica. Chat data from Hadoop, available as JSON events, is loaded

directly into IDS and provides a single scalable architecture for data integration and data federation. Compared to the time required for ETL using a traditional Data Warehouse, IDS can provide data as a service at rapid speed, in any format and using any protocol. With IDS, the unstructured data is not required to be converted into structured data and the time consuming ETL process using MapReduce is eliminated.

Slow Integration :

Real-time analysis using MicroStrategy Visual Insight helps Business Users identify trends from the raw data and define new business rules for improving agent productivity. Only relevant data required for historical reporting to support the new business rules is loaded into the Vertica Data Warehouse. This data, once captured, is cleansed and incrementally integrated into the Data Warehouse. This process is known as “Slow Integration”. We developed workflows in Informatica Power Center to facilitate the batch loads of historical data. This provides our client
with new insights which are included as standard MicroStrategy reports for further analysis and decision making on agent activities.

Multi-Tenancy:

- We provided a multi-tenant environment support that integrated Vertica and Hadoop databases. It can be configured to support various other feeds including Web Services.
- As IDS enables heterogeneous sources of data to act as one source for the consuming application, our solution can support multiple customers having different databases

High ROI BI Delivered

As a result of this effort, we developed a scalable and flexible system for our customer to track agent events and productivity that delivered the following benefits:

- Eliminated the complex ETL with MapReduce code, saving development time and cost
- Developed a scalable system that has the ability to process very high volumes of “Big Data”
- Real time analysis is available every 15 minutes versus the only end of day analysis previously available
- Higher performance is delivered by the new system - the data filtering process is executed in Hadoop and only relevant data is loaded in Vertica. As the data processing requirement has decreased, the system performance improved significantly

About InfoCepts

Since 2004, InfoCepts has delivered on the promise of Business Intelligence. Our consulting capabilities and process oriented approach, with world class governance frameworks have delivered high quality solutions to our customers. Our technology specific methodologies and global delivery model provides exceptional ROI for our customers. Our services include high quality Mobile Apps, award winning Dashboards and end-to-end business intelligence development and support using a host of technologies.

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