

## Improving Analytics Reporting and Performance Efficiencies While Reducing Costs for a Digital Marketing Agency



### Summary

We enhanced system performance, reduced operating costs, and improved the reporting of advertising campaign analytics via optimization and automation. The near real-time campaign performance analysis provides our client with a remarkable advantage in a competitive marketplace.

### Industry

Digital Marketing

### Users

Business Analysts and Account Managers

### Technologies

SQL Server, Azure SQL Database, SQL Scripts, Microsoft SSIS, Talend, PowerShell, Batch Scripts, Tableau

### Team Size

40 InfoCeptions, 4 Customer Associate

### → The Challenge

In today's changing digital advertising landscape, advertisers demand systems to measure campaign return on investment (ROI). Digital marketing agencies don't just make ad campaigns; they increasingly provide campaign performance analysis to show ROI. Our client, a leading digital marketing agency, creates digital advertising campaigns, but it had no efficient system to track near real-time campaign performance. The client's system tracked data at the cookie level using Atlas (an ad serving technology) and other reference data.

The client faced the following challenges:

- Slow performance of the legacy system delayed reports, which led to missed service level agreements (SLAs).
- The system didn't meet users' needs for ever-changing, complex querying and reporting.
- High dependence on other data source systems, which frequently experienced errors and faults, led to incorrect analyses.
- Frequent updates to the data and data formats within source systems caused the ETL process to fail.
- With limited or no flexibility to modify how Atlas sourced the data, virtually any shortcomings in new data formats required workarounds.

### → The Solution

Our client needed a system with the ability to provide complex reports on ad campaigns' performance in near real time using cookie-level data. The client's team also needed training to effectively perform campaign analyses and report findings to their clients.

To achieve these goals, we did the following:

- Designed a data warehouse and modeled the data, creating 700+ tables and 50+ views.
- Consolidated heterogeneous sources into a single system by performing ETL using Stored Procedures, Talend, and scheduled SQL server integration services (SSIS) jobs.
- Created a SQL server analysis services (SSAS) cube to enable self-detailed analysis.
- Created separate SSAS querying server and processing servers for better query results and less downtime for users.
- Performed database administration (DBA) on the servers, including performance monitoring and improvement; database/cube backup and restore; as-needed condensing of logs and files; and implementation of change requests.
- Worked on upgrades to SQL server reporting environment and migration of cloud server.
- Introduced optimization and automation by creating transformation processes and warehouse tables performance optimizers like indexes and partitions; restructuring the database design for improved query and cube processing performance; tuning Stored Procedures and view structures to reduce execution time.
- Automated process to restate historical data following system reload, enabling accurate reporting.
- Automated validation checks for data quality.
- To eliminate downtime during archiving and performance optimization of huge tables, created indexes to partition the non-partitioned tables and then implemented sliding partitions for data archiving.
- Automated incoming file verification process on File Transfer Protocol (FTP) server.
- Created and scheduled batch script to check AWS servers' health.
- Despite their use for a single processing job weekly, client's AWS servers historically remained on 24/7, which had cost implications. We automated AWS server start/stop activity using a Curl script, which turned on cube processing servers only when needed.

### → The Results

The client's data science team now has an optimized system for performing advanced reporting via tools like Tableau and Microsoft Excel. In addition, the solution provided:

- More effective management of warehouse maintenance, data retention and ETLs
- Increased time to work on analytics via system optimization and automation
- 45% cost reduction in AWS infrastructure via automated start/stop script
- Easier onboarding of new clients via highly scalable database designs
- 50% performance increase via optimization of data loads and system
- Improved user queries that are no longer affected by running background jobs
- Cost savings via effective, automated data retention and archival policies