

# TravelBird

Vertica Analytics Platform optimizes customer experience for TravelBird through high performance analytics and open source integrations.

### Overview

TravelBird is a European travel website helping customers book the perfect holiday in a simple and personal way. Every day, TravelBird offers several inspiring, good value for money deals with a unique theme, offering flexibility, choice, and most of all, the ultimate travel experience.

### Challenge

Supporting over seven million travelers since its inception in 2010, TravelBird is a company with a high dependency on email, sending out over 2.5 million highly personalized emails daily, each with its own unique planned content, format, and subject line. 90 percent of TravelBird

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Head of Data Science  
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customers will recommend the company and this translates into a Net Promoter Score (NPS) of 50, which is regarded as high within the travel industry.

TravelBird's mission is to bring the joy of travel to customers by instilling an inspiration to explore, and providing simplicity in discovering new destinations. Simplicity means that TravelBird narrows the vast array of travel options down to six highly personalized offers per day for each individual, using advanced data analytics. Data inputs for this comprise customer interaction observations, including page views, searches, image clicks, favorites and more. TravelBird will also analyze other important attributes, such as seasonal preferences, time since last activity, and the interests of similar customers. All factors are used to create a customer score that defines their six personal offers each day.

Rob Winters, Head of Data Science for TravelBird, explains how the creation of the daily planning and email was using a large amount of time and resources: “Three years ago, when I first joined TravelBird, the whole process was managed manually. We didn't have a data warehouse, event tracking, and no Business Intelligence (BI) was applied to our data. We had enormous overhead to facilitate a process that was neither cost-effective nor scalable in the long run. We soon realized we



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### At a Glance

- **Industry**  
Hospitality and Travel
- **Location**  
The Netherlands
- **Challenge**  
Generate and send over 2.5 million highly personalized emails daily and manage a multi-touch marketing attribution model, in a cost-effective and scalable environment.
- **Products and Services**  
Vertica Analytics Platform
- **Results**
  - + Reduced operational costs while providing streamlined and targeted marketing
  - + Exceptionally high customer satisfaction rating
  - + User-friendly interface for business users
  - + Effective integration of Vertica, Spark, and Keras, leveraging AWS infrastructure



needed to be much smarter and use automation and advanced data analytics to support our processes.”

Winters’ aim was to provide (near) real time web and advertising optimization via data feeds and predictive models. Data science can be applied to create deep personalization and this could also help TravelBird manage its marketing effort via a multi-touch attribution model.

TravelBird favors open source tools when possible and its cloud infrastructure is based on Amazon Web Services (AWS), leveraging Amazon S3 shared storage. Sending millions of emails each day means TravelBird’s workloads are very volatile, with significant capacity required in the mornings during the email run, but far less capacity needed for the rest of the day. Dynamic scaling on AWS infrastructure works perfectly in this scenario.

### Solution

Winters had previous experience working with Vertica, and liked the product’s ease of administration, backup automation, and fine-grained resource management. He explains: “I don’t have a database administrator, so the ease of management is absolutely critical for me. The fact that Vertica offers good automation and fine-grained resource management makes my life a lot easier.”

He adds: “We ingest the bulk of our data with JSON, in a semi-structured format. Amazon Redshift, which we briefly used, supports this as well in theory, but it requires you to define your structure in advance which defeats the benefit of a semi-structured format. The point is that we often don’t actually know how our data will look or how we will use it until we load the data. Vertica Flex Tables remove the need for coding-intensive schemas to be defined or

applied before the data is loaded for exploration. This allows anyone on my team to write data to the database and figure out what to do with it afterwards.”

TravelBird often has 50-70 concurrent queries running for production jobs, reporting updates and ad hoc analyses, and this would cause serious queueing issues with Redshift. Vertica’s fine-tuned resourcing is built for extreme concurrency and allows this easily. Performance tuning was another concern for Winters: “In Redshift you have to declare your table structure in advance. If you want to change this you have to create a new table, move your data from table A to table B, and then delete the old table. When you have several terabytes of data in a single table this is just not practical. Because Vertica does not combine table definitions and structures, we can physically alter tables on the fly for better performance.”

Winters appreciates the fact that many of TravelBird’s 350+ employees can interact directly with Vertica, concurrently if required: “We have a small team of data scientists and data analysts and it’s great that our product owners can write their own SQL queries and do their own data exploration and dialogue in a simple way. Through a direct interface with the database using front-end BI tools they can look at events, create visualizations, and receive valuable information from the data to support strategic decision making. Our production workflow generates a high daily data turnover and we are delighted with Vertica’s performance, enabling us to produce the highest level of analytical functionality.”

Vertica on AWS now acts as the primary data warehouse and operational data store. It provides event tracking, BI, email and CRM history, event-based customer segmentation, and multi-touch marketing revenue attribution.



for this purpose, as Winters explains: “I haven’t found any other database that would allow me to build a model with that complexity in SQL and also have it be so incredibly performant. It only takes a few minutes daily to update my attribution model for all visits in the last week.”

### Results

The benefits are clear to Winters: “Our technology decisions have given us a competitive advantage over larger companies in our space. We run a huge revenue channel with very few people and are able to optimize our profitability. Vertica’s advanced analytics have helped us streamline and target our marketing so that we can reduce our operating costs, and significantly lower our marketing spend, without affecting revenue.”

TravelBird is passionate about using the right solution for the right job, and Vertica, used for big data storage and processing, integrates seamlessly with Spark, used for advanced machine learning, and Keras, the Python deep learning library.

The Spark integration is particularly valuable to Winters: “There are things that I do in Vertica that I can’t do in Spark and things that I do in Spark that I can’t do in Vertica. It’s about how the two work in a symbiotic fashion that allows me to do my job; accelerating deployment and easing management.”

Amazon S3 is infinitely scalable so TravelBird can keep as many snapshots of the database as it wants and configure these backups easily through the Vertica console. TravelBird applies an attribution-based model with dynamic sessionization, segmentation, and channel mapping. Vertica can leverage simple SQL calls



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“Vertica is a very cost-effective solution for us,” he adds, “Vertica is one of only three software solutions we choose to pay for, but when we compared the cost of usage, support, and maintenance for open-source, it was cheaper for us to go with Vertica, given our data size.

Winters concludes: “Our goal is to take advantage of every opportunity to connect with our

customers. We describe Vertica as the beating heart of all things personal; everything to do with our customer experience is managed through the Vertica platform. Our increased click-through rate, lower unsubscribe rates, and increased purchase rates, show that our customers love us for it.”