BUSINESS NEED
AEG Worldwide's customer and sales data were siloed in many disparate systems. They needed an integrated view of their customers so they could send them the most relevant offers for events at the right time, and fulfill their vision to deliver a frictionless, end-to-end customer experience.

SOLUTION
Pythian's Enterprise Data Platform (EDP) enabled AEG to integrate data from multiple systems— including their sales, marketing, financial system—then identify who would respond best to offers intended to fill empty seats at the last minute before a concert or other events.

RESULT
The benefits derived from implementing EDP were many, and included:

- New capability to develop preference profiles and identify potential ticket buyers using data from disparate sources
- Ability to identify opportunities to promote events to clients based on past purchases in an intelligent and timely way
- Data lake capabilities that enable data scientists to explore and develop predictive models to further enhance the customer experience
- Increased revenues–from tickets to

AEG WORLDWIDE USES PYTHIAN'S ENTERPRISE DATA PLATFORM TO DELIVER A FRICTIONLESS FAN EXPERIENCE

AEG is a leader in the live entertainment industry, with a global network of venues, sports franchises, music brands, integrated entertainment districts, and ticketing platforms. Every year, AEG promotes 32,000 shows and live events at hundreds of AEG-affiliated venues, entertaining more than 100 million guests.

AEG CIO Bill Martin had a vision for connecting with customers and enhancing the fan experience, which would in turn boost AEG's brand and bottom line. AEG had a massive opportunity to use big data to communicate with clients in a more personalized and timely way, fundamentally changing the customer's experience for the better at AEG events and venues.

Martin identified simple but important changes that could be made, such as simplifying the parking experience, helping people find their seats quickly and ultimately even engaging in real-time with the event itself. In order to gain the insights needed to turn this vision into reality, AEG chose Pythian's Enterprise Data Platform (EDP).

BUSINESS NEED

Richard Battersby, Vice President of Business Intelligence and Digital Analytics at AEG, was well aware of how hard it would be to turn data into business value, and streamlining the fan experience. To align AEG's marketing programs with the individual ticket buyer, AEG had to get a complete view of their customers, from what events they

concession purchases

Capture (Ingestion and Storage Layers)

- Azure Key Vault (to store encryption/decryption keys for sensitive data)
- Apache NiFi
- Azure Blob Storage
- Azure VMs
- Encryption Server

Curation (Processing Layer)

- Apache Spark (running on Azure VMs)
- Apache Airflow (tasks-scheduling and orchestration)

Data Access Layer

- Azure SQL Data Warehouse via Power BI and Tableau
- Azure Blob storage via Azure ML

Operations

- Azure OMS (for logs collection and monitoring)
- Terraform (to automatically provision required cloud resource)
- Ansible (to automatically configure provisioned resources)

attended and with how many people, to what they ate and did at the events. The data they needed to create this integrated view was locked in multiple silos—a number of ticketing systems, several email marketing systems, point of sale systems from the venues, and web traffic data, to name just a few. The team was doing reporting and analytics, but only on a silo by silo basis. Even then, data was difficult to analyze since it wasn't always structured for easy analysis.

The data was also in various states of consistency, formats, and types, and stored in both AEG data warehouses and in third-party SaaS systems. Quite simply, it was a tangled mess and their on-premises data warehouse simply wasn't capable of delivering the flexibility and agility they needed. Added to the data complexity was the incredibly high bar set by AEG for security and the protection of their customer's personal information.

SOLUTION

AEG's experience in 2017 with using Microsoft Azure cloud for collaboration had been a very positive one as their productivity improvement exceeded their expectations. Now the company wanted to continue seeing these benefits by using Azure as the foundation of their data platform. They turned to Pythian for help for three reasons: Pythian's more than 20 years of experience with mission-critical data systems in general, their big data and analytics experience in the cloud in particular, and their commitment to acting as a partner, not just a vendor.

Pythian worked with AEG and Microsoft to implement a cloud-native customer data platform called EDP, a big data and analytics solution. EDP brought millions of rows of data from eight different data sources in more than two dozen data formats together into a data lake (capture), then cleaned and integrated the data to create an organized and incredibly rich view of the AEG customer base (curation). This data was then made available in Azure SQL Data Warehouse to business analysts who used Power BI and other tools to create marketing programs that could be completely personalized (consumption).

> *"With 100 million guests and more than 32,000 live events every year, we were swimming in data. Pythian has played a key role in helping us manage and make use of this trove. Their (EDP) on Azure empowers us to, among other things, cut costs, integrate our ticketing and sales data, and better target our marketing efforts. Thanks to Pythian and Azure, we finally have the big data partners we need to support our growth.""*
>
> **Richard Battersby,**
> *Vice President, Business Intelligence & Digital Analytics at AEG Worldwide*

Pythian tailored the EDP solution to AEG's specific needs, using Azure Blob Storage as the data lake, some open source tools for curation, and Azure SQL Data Warehouse for consumption.

WHY PYTHIAN?

Pythian's knowledge of big data and cloud meant that the system was designed and implemented in a much shorter time than AEG could have done themselves, accelerating the time to value. AEG gained peace of mind because of Pythian's experience with large-scale mission-critical data systems and 24/7 support systems. This allowed them to focus on the data, while Pythian ensured that the system would be reliable, secure, and could scale as needed.

Pythian shared AEG's obsession with data security. They incorporated an encryption service into the EDP solution that met AEG's rigorous requirements, ensuring all personally identifiable information (PII) was encrypted not just in the data hub, but before it even entered the hub. Even in the unlikely event of a breach, no PII data would be exposed. Pythian's team operated in partnership with AEG in an agile manner, which meant that as the project evolved and new developments arose, the team was able to collaboratively adjust their tactics while keeping the end goal in sight

WHY PYTHIAN?

For the first time, AEG could see the entirety of the customer's behavior and preferences, allowing for the creation of personalized, timely communications. Having all data cleaned, organized, and available in SQL Data Warehouse meant that self-service analytics had become a reality, with business users able to perform analytics and create visualizations using Power BI, without requiring help from a specialized BI team.

EDP provided a data lake in addition to a data warehouse, enabling data scientists to access the raw data they need to create machine learning models without impacting the performance of the data warehouse. With EDP in the Microsoft Azure Cloud, AEG could take advantage of the flexibility, elasticity, and scalability that only cloud can bring.

ABOUT PYTHIAN

Pythian excels at helping businesses around the world use data and the cloud to transform how they compete and win in the data economy. From cloud automation to machine learning, Pythian leads the industry with proven innovative technologies and deep data expertise. For more than 20 years Pythian has built its reputation by delivering solutions to the toughest data challenges faster and better than anyone else.

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