Supply Chain Transparency

Automotive Customer

AWS DevOps for Logistics

CUSTOMER — Automotive Manufacturer

The client is a automotive manufacturer, renowned for their high-performance vehicles. They have strategically implemented a Shipment Tracking System designed to monitor the trajectory of all dispatched materials. Given the nature of the materials, diverse carriers are commissioned to manage the deliveries, each bearing the responsibility of reporting the real-time status of a shipment. This enables the provision of crucial data such as the current location of a shipment and an estimated time of arrival, furnished by the respective carrier. The system has been meticulously designed with a core purpose - to proficiently track the shipment of vehicle components.

CHALLENGE — Transparency of the Supply Chain

The challenges faced by the client, a top-tier automotive manufacturer specializing in high-performance vehicles, are multi-faceted.

- Integration Challenge: One of the primary issues was integrating the different carriers using a uniformed investigation layer.

- Automation Challenge: Each client provides shipment information in a different format. The provided information needs to be preprocessed and transformed to a pre-defined common schema.

- Scaling Challenge: The amount of carriers should be flexible. Therefore new carriers can use the solution to provide information about the shipments.

- Security Challenge: Securing and managing the endpoint from unauthorized and malicious usage. Furthermore the information sent by each carrier must be distinguishable from each other.

SOLUTION — AWS Services for a transparent Supply Chain

To tackle these obstacles, MHP implemented a solution based on AWS, yielding a scalable and transparent Supply Chain that gleans information from various sources.

A flexible architecture was established using AWS services, including AWS Lambda, Amazon API Gateway, AWS Cognito, Amazon S3, Amazon SQS, and Amazon Firehose. This framework supports smooth integration of diverse carriers, supplying data about shipment locations and more. The system is easily scalable and adaptable, well-prepared to handle alterations and growth.

Key components of the solution include:

- **AWS Lambda** for business logic.
- **Amazon API Gateway** for seamless receiving the shipment details.
- **Amazon Firehose for** batching and forwarding received shipment information from the carriers.
- **Amazon S3** for storing the processed shipment information.
- **Amazon SQS** for decoupling the various system components.
- **Amazon Datasync** for synchronizing the results from the S3 bucket to another S3 bucket in another aws account for further processing and monitoring.

Monitoring and Logging:

- **Amazon CloudWatch** for logging, monitoring metrics, and setting alarms.
- **AWS X-Ray** for detailed monitoring and tracing of requests, helping identify performance bottlenecks.

OUTCOMES – Enhanced Transparency in Supply Chain

Leveraging AWS services and MHP's expertise, the client, a distinguished automotive manufacturer, achieved significant enhancements in their supply chain operations. Streamlined Integration: The AWS-based solution helped overcome the integration challenge by efficiently synchronizing the varying shipment information provided by different carriers. This enabled seamless consolidation of data, regardless of the channel through which it was provided.

- **Advanced Automation:** Through AWS Lambda and Amazon API Gateway, data from different formats was efficiently preprocessed and transformed into a predefined common schema, effectively overcoming the automation challenge.
- **Scalability:** The implemented solution leveraged the flexibility of AWS services, allowing for an easily adaptable and scalable system that can accommodate new carriers and an increasing volume of shipment information.
- **Reliability:** Using leveraging serverless services such as AWS SQS as a temporary storage for failed messages led to zero downtime operations and deployments
- **Enhanced Security:** Using Amazon SQS and other AWS services, the system ensured secure transmission of information. Not only were unauthorized parties prevented from sending information, but also data sent by each carrier was made distinguishable, thus enhancing data integrity.
- **Improved Storage and Syncing:** Amazon S3 provided secure and scalable storage for processed shipment information, while Amazon Datasync ensured synchronization of the results to another bucket in a separate AWS account for further processing and monitoring.
- **Comprehensive Monitoring and Logging:** The use of Amazon CloudWatch and AWS X-Ray provided extensive logging and monitoring capabilities. This offered insights into system metrics, set alarms for critical events, and helped identify performance bottlenecks, thus ensuring system robustness and efficiency.

The successful implementation of the solution has brought about a notable enhancement in supply chain transparency and operational efficiency for the client. It marks a significant step in their journey towards digital transformation and continued excellence in the automotive industry.

ABOUT THE PARTNER - "ENABLING YOU TO SHAPE A BETTER TOMORROW"

Functioning as a technology and business partner, MHP digitalizes its customers' processes and products, and guides them through IT transformations along their entire value-creation chain. MHP is a digitalization pioneer for the mobility and manufacturing sectors with expertise that can be transferred to a wide range of industries. MHP is a distinguished AWS partner, currently holding the advanced tier status and offering Consulting as well as Software services to its customers. Additionally, MHP is a member of the APN Immersion Day program as well as AWS Well-Architected Partner, 2 AWS Competencies (DevOps and Migration) and to date obtained 13 AWS Service Delivery Program Validations (SDPs) two of which MHP achieved as a launch partner.

MHP serves over 300 customers worldwide, including large corporations and innovative SMEs. MHP advises on both operational and strategic issues, offering proven IT and technology expertise as well as specific industry know-how. MHP operates internationally as OneTeam with headquarters in Germany and subsidiaries in the USA (since 2011), UK (since 2016), Romania (since 2014), and China (since 2013).

The MHP Group has been shaping the future alongside its customers for over 25 years. The MHP team of over 3,300 employees is united by the company's promise of excellence and sustainable success. This promise continues to drive MHP – today, tomorrow, and in the future.

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