transACT
TECHNOLOGY SOLUTIONS

Case Study: WrightBus

The Customer

WrightBus is leading the way in zero-emission vehicles by driving the industry into a new era of energy-efficient transport with its fuel-cell vehicles. Along with the busses themselves, WrightBus also harvest IoT data from over 50 unique points of a bus, where they are then streamed into the AWS Cloud for exploration and visualisation.

Our Relationship

We value our relationship with WrightBus as a true partnership characterised by open communication, collaborative problem-solving, and a shared commitment to excellence. Through regular dialogue and a customer-centric approach, we have built a strong foundation that fosters mutual trust and drives the success of both our organisations.

Business Challenges

WrightBus, wanted to leverage sensor IoT data to improve bus service efficiency and maintenance. However, their existing analytics infrastructure relied on costly on-premises servers and lacked scalability for large global data workloads.

> **"Choosing transACT as our AWS Partner was a strategic decision, and the tailored solution they built for us has exceeded our expectations. Not only have we experienced significant cost reductions, but the streamlined processes have also led to a remarkable decrease in costs and data processing time."**

WRIGHT™

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WRIGHT™

Solution

transACT designed a cloud-based IoT analytics platform to achieve the following:

- **Reduce dependency on on-premises hardware.**
- **Enable processing of large volumes of IoT data from buses globally.**
- **Provide faster insights into bus operational metrics.**
- **Ensure business continuity and disaster recovery.**
- **Minimise platform maintenance overheads.**

To solve WrighBus's scaling issues and to future-proof their business, transACT migrated to AWS services, utilising AWS MSK to improve data streaming, Lambda, and Fargate to improve significantly compute scalability. Moving the Database to Aurora Serverless allows for cost-efficient scaling of the data storage. It equips low latency data flow to dashboards, allowing for scaling the read and write of data independently through read and write endpoints.

Additionally, migrating the dashboards to Quicksight alleviates concerns of any on-prem hosting of the dashboards, allowing directly inviting end users to view the dashboards and embedding them within their existing website.

Products

Amazon Simple Storage Service (S3)

Amazon MSK

AWS Lambda

Amazon Fargate

AWS ElastiCache

Amazon QuickSight

Solution Implementation

- **Built fully automated environment deployments on AWS leveraging Infrastructure-as-Code best practices.**
- **Developed a scalable ingestion pipeline to consume >50TB of batch and streaming bus sensor data into S3.**
- **Designed an IoT Analytics platform on EMR, Glue and Athena, providing SQL interface for data scientists.**
- **Enable near real-time dashboards and alerts/ notifications using AWS QuickSight.**
- **Created CI/CD pipelines for automated testing, deployments, and rollback.**

Outcomes

WrightBus wanted to leverage IoT data to optimise bus maintenance costs and service efficiency. Their existing on-premise servers couldn't effectively process large volumes of sensor data.

- **Maintenance costs were reduced by 18% through the automation of manual tasks**
- **Bus uptime improved by enabling proactive repairs**
- **Global IoT analytics providing insights over 2x faster than the old solution**
- **60% lower capital expenditure minimising on-premise infrastructure**
- **Operational efficiency improved by using dashboards for data-driven decision-making**
- **Allow for easier global deployment to process data closer to the buses and gain faster results and insights.**

The solution effectively harnessed IoT data at scale. Analytics empowered maintenance planning, ultimately reducing costs, and improving customer rider experience through higher bus uptimes.