



Case Study

Transformative big data and analytics solution for school districts

CASE STUDY



Built a BI platform that is being used daily by over 2000 schools, processing millions of students and thousands of teacher's data every hour.



Services Used

- Data Analytics And Consulting
- DevOps Engineering
- Cloud Migration Services
- Microservices Architecture And Development

Technology Stack

React.js

Node.js

Apache Spark

AWS Glue

AWS Athena

Redshift

Redux SAGA

AWS RDS

AWS lambda

Storybook



Challenges

They wanted to completely rehaul and rebuild the solution, this required redesigning their entire platform and bringing it to a newer cloud-based stack. Integrating 50+ systems and bring all their data to a single source of truth for performing actionable BI and Analytics operations for accurate insights was a challenge in itself.

Architect a scalable and optimized solution

The older system had an outdated stack and huge technical debt. The older SQL-based system was taking minutes and sometimes hours to process all this data. Naturally, this was not a scalable solution.

Define good implementation & DevOps practices

Migrating from older legacy data and systems also meant migrating DevOps and QA practices. Define and implement good DevOps practices.

Migration by keeping performance intact

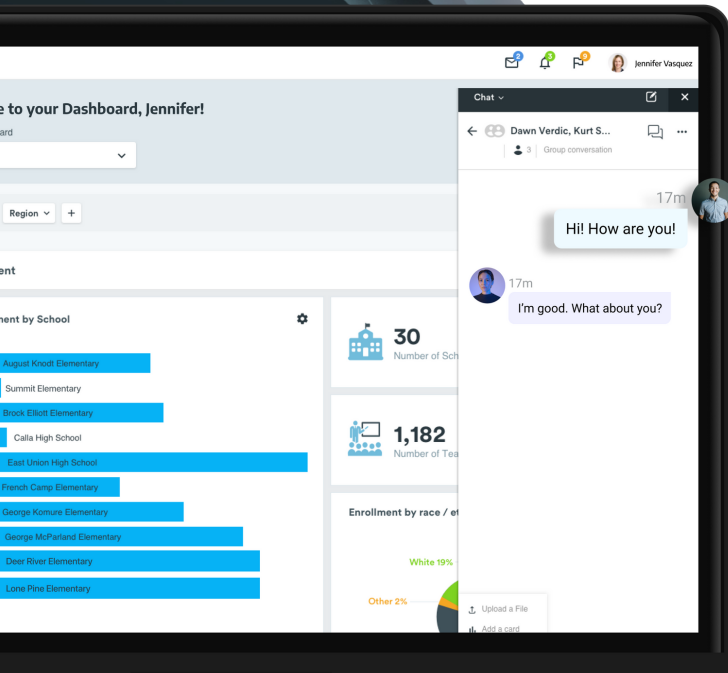
Migrating application to AWS Cloud and rearchitecting without affecting the performance of existing users.

Updating the data to run dynamic queries

Users could not perform dynamic queries or advanced filters over reports and data to generate more powerful analytics. The data was outdated and static.



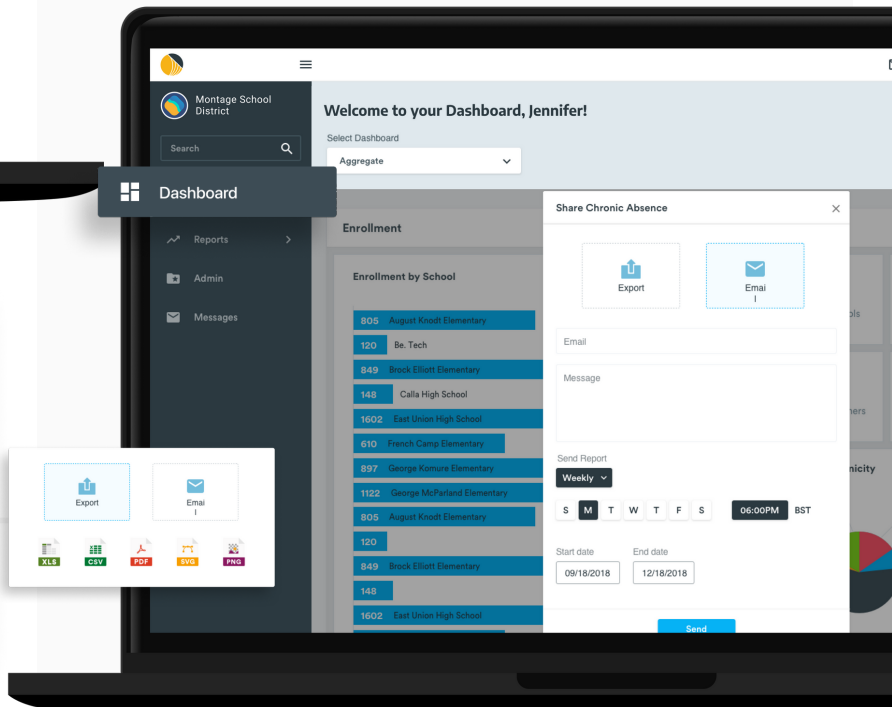
We felt like we had a true partner throughout the process. They were clearly interested on our long-term success.



Dashboard

CONVERSATIONS

- Dashboard
- Dawn Verdic, Kurt Smith, Nina...
- Kurt Smith
- Enrollment by School Type (sample)
- General
- Chat



Our Solution

Well-architected framework for scalable solution

Being an AWS Advanced Partner, we used a well-architected framework to design a **scalable ETL architecture** using AWS Glue, AWS Athena, and Amazon Redshift using Apache Airflow.

Data warehousing followed by microservices architecture

We designed a database architecture to enable a cloud-based data warehouse using Amazon Redshift. Microservices architecture was used to trigger independent syncing jobs for various system integrations.

Implement best DevOps practices & CI/CD pipeline

A clean slate gave us an opportunity to implement better DevOps and QA practices by building a CI/CD pipeline using Jenkins that would trigger Glue jobs or System integration Microservices.

ETL processing to generate dynamic reports

AWS Glue triggers ETL processes to bring everything into **Redshift clusters process data with lightning-fast speed** for insights generation. Dynamic report generation and generating reports was done using AWS Athena.

We are Simform

Simform is a leading digital product engineering company. Over the last decade, our world-class tech teams have refined engineering practices for Fortune 1000 companies and successful startups.

Let's get in touch to extend your tech team with top talent!

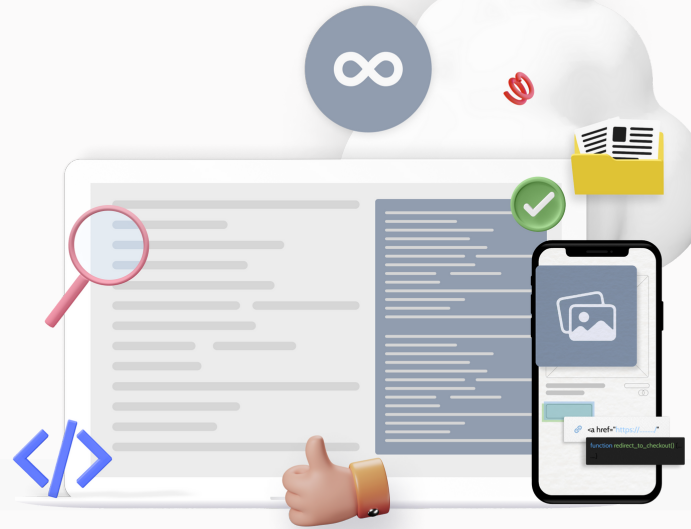
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