Building a scalable Data Mesh framework

Planit's strategic approach

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Key outcomes

- Zero major defects identified in over 1,000 test cases, ensuring a smooth go-live.
- 40+ design and code flaws resolved pre-launch, enhancing data accuracy, visibility, and overall system performance.
- 60+ defects caught before deployment, improving data accuracy and reporting capabilities, leading to advanced decision-making capabilities.
- Significant increase in new customer acquisition, driven by the enhanced quality and visibility of data.
- Multiple internal promotions, directly attributed to the success of the Data Mesh project and its transformative impact on business operations.

Technologies

- Greenplum Big Data
- Python

Delivered

- Quality Engineering
- Test Automation
- Data Transformation
- Developer Training

Tools

- DBT
- Jira
- Confluence
- Tableau

Summary

Enhancing data accuracy and optimising solutions are key to seamless operations and improving the customer experience. In a bid to modernise and optimise their data infrastructure, our client embarked on a pioneering project to implement a Data Mesh framework—an innovative, decentralised approach that assigns ownership to domain experts instead of system owners, ensuring scalability and data integrity.

As a quality-focused delivery partner, we played a key role in supporting the implementation of the Data Mesh framework by embedding quality at every stage, empowering end-users with accurate, powerful, and efficient data systems. Leveraging our expertise in shifting quality left, we established quality gates early in the implementation process. Quality was embedded upfront, meaning we were able to address potential issues before they arose. We rigorously tested both the data and the associated systems. This proactive, quality-first strategy enabled us to deliver a seamless Data Mesh solution, enhancing the customer experience by prioritising reliability from the very beginning.

This comprehensive strategy also led to the successful deployment of a future-proof data infrastructure, ensuring long-term operational efficiencies and significant improvements in customer service. As Data Mesh is a relatively new concept introduced in 2019, this implementation followed in the footsteps of other global successful deployments, highlighting both our client's and Planit's commitment to innovation and adaptability in a rapidly evolving industry landscape.

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Restructuring data management for scalability and accuracy

Our client faced a challenge familiar to many businesses: their data was siloed across multiple domains, each controlled by different teams and vendors, leading to inconsistent data quality, lack of ownership, and no single source of truth. These common complexities threatened the accuracy of data analysis and reporting, risking operational inefficiencies and diminished customer satisfaction.

With data growing exponentially and systems evolving rapidly, the company needed a solution that could scale while ensuring high data accuracy and availability. They sought to restructure their entire data management ecosystem by implementing an innovative data infrastructure solution called Data Mesh. This industry-defined approach adopts a decentralised, domain-oriented data framework. The goal was essentially to enable a seamless flow of accurate, real-time data across its operations, enhancing customer experience through valuable data provided by advanced reporting and analytics resulting in greater decision-making capabilities.

Ensuring the Data Mesh solution was rigorously tested for data accuracy and accessibility was critical to maximising its competitive advantage. By focusing on comprehensive and continuous testing, we ensured the system would perform reliably, functioning as a key tool for improved business performance and customer satisfaction. This proactive approach was designed to empower the client to differentiate themselves in the market, emphasising precision and reliability over simply meeting baseline operational needs.

Harnessing Planit's expertise in building reliable data systems

Planit was engaged as a trusted strategic partner, deeply integrated into the client's journey toward data transformation, to provide testing and quality assurance expertise.

Over the past four years, we had built a strong relationship with our client, delivering SaaS VI and Tableau solutions that significantly enhanced the company's reporting platforms. Our in-depth knowledge of their data landscape and proven ability to consistently deliver high-quality solutions on schedule made us their preferred partner. This trust allowed us to develop a comprehensive quality engineering strategy tailored to the requirements and goals of the Data Mesh project.

Planit's blueprint for data scalability and integrity

Our approach prioritised shifting quality left by embedding it early into the development lifecycle. We designed over 1,000 test cases distributed across all data products, which were selectively executed within the CI/CD pipeline based on priority when code was deployed for specific data products. This targeted testing ensured ongoing accuracy and performance of the Data Mesh solution. Using a local, co-located team (due to data security), we delivered the solution on a time-and-materials basis.

Automation was central to our process, as we integrated testing within the CI/CD pipeline, utilising tools like DBT, Jira, Confluence, and Tableau. This effectively enabled real-time defect detection, accelerating time-to-market while minimising risks. Our hybrid skillset team adapted swiftly to evolving needs throughout the duration of the project.

Additionally, we extended our quality-focused approach across the entire delivery process, guiding not just developers but all relevant teams on integrating quality practices at every stage. By coaching teams on the importance of incorporating quality measures, such as unit testing and process improvements, we ensured the Data Mesh solution was resilient, scalable and robust. Essentially, we ensured that it was ready to meet evolving demands. Our proactive and collaborative engagement fostered a culture of quality, reinforcing the solution's overall effectiveness and sustainability.

Key achievements: Driving business impact with improved data accuracy

Through our quality-first methodology, our client achieved a seamless go-live with zero major critical defects in production. Prior to launch, Planit identified and resolved over 100 critical defects, including more than 40 in the solution's design. This proactive approach mitigated significant risks and averted potential disruptions that could have severely impacted the company's business operations.

The impact on the business was profound. Data accuracy and visibility improved significantly, leading to enhanced performance in data-driven applications and more reliable reporting systems. The ability to provide real-time, accurate insights resulted in better decision-making, improved customer satisfaction, and a tangible increase in operational efficiency.

In addition, our client saw an increase in new customer acquisition, drawn to the advanced capabilities of its data infrastructure. As a self-service platform, Data Mesh provided a single source of truth that could be accessed across the organisation, enhancing decision-making and operational efficiency. This improved data infrastructure enhanced the company's ability to deliver real-time, accurate insights, making it more attractive to potential customers. Throughout the delivery, we received informal acknowledgments from the client, expressing their appreciation for our high-quality work and the seamless execution of the project.

Setting the stage for future-ready data excellence

The implementation of the Data Mesh solution, backed by Planit's expertise in quality assurance and testing, transformed how the client manages its data, providing a significant competitive advantage. This strategic approach not only enhanced data utilisation but also set the foundation for sustained market leadership and future success. Furthermore, the project solidified Planit's reputation as a trusted partner, having demonstrated our ability to deliver high-quality solutions even under rapidly evolving, challenging circumstances.

Our client's next milestone involves migrating the Data Mesh to Google Cloud Platform, a move that will further enhance their capabilities and allow for even greater scalability. Planit remains a critical partner in this journey, poised to support the company in realising their vision for the future of data infrastructure. Together, we have laid the foundation for long-term success, built on a shared commitment to quality, innovation, and excellence.

About Planit

At Planit, we are experts in quality engineering and assurance. With strong retail domain experience, our specialist consultants can help you deliver a seamless omni-channel experience and support the successful implementation and integration of your complex range of backend platforms.

Ask us how we can help you delight your customers and unlock more value from your systems!

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