

WHITEPAPER



MODERNIZATION: **OPTIMIZING BI WITH** HYBRID DATA INTEGRATION

Introduction: Modernizing Your Future

In an era where data is the currency of business, staying ahead means not just adapting to change, but embracing and leading it. Additionally, businesses often grapple with the challenge of integrating disparate data systems. Our latest project for a client illustrates our expertise in bridging this gap, by integrating data from a SaaS cloud platform with their on-premise data warehouse. This whitepaper delves into the technicalities and business advantages of this modernization initiative.

At Cloudstak, we know modernization is more than a technical endeavor; it's a strategic imperative that shapes the future of businesses. Our modernization offering is born from this understanding and our commitment to leading enterprises into a new age of efficiency, insight, and agility.

Why Modernization?

Systems modernization is the cornerstone of digital transformation. In a landscape where legacy systems often hinder the flow of information and stifle innovation, modernizing systems infrastructures is essential. It's about turning data into a strategic asset - accessible, secure, and primed for insights that drive business decisions. We help businesses unlock the full potential of their data, transforming challenges into opportunities and insights into action.

Our Expertise: Blending Innovation with Experience

Our strength lies in our blend of cutting-edge technology expertise and deep industry experience. With a team of seasoned professionals, we approach each project with a unique mix of innovation and practicality. Our mastery in cloud computing, serverless architectures, and advanced data management techniques ensures that we deliver solutions that are not just state-of-the-art but also tailored to the unique needs of each business.

Empowering Businesses: The Cloudstak Edge

Partnering with Cloudstak for data modernization means more than just upgrading technology - it's about empowering businesses. Our solutions are designed to improve operational efficiency, enhance data security, and provide scalable architectures that grow with your business. We enable faster, data-driven decision-making, helping businesses stay agile and responsive in a rapidly evolving market.

In essence, our data modernization offering is more than a service; it's a partnership for the future. It's about laying a strong foundation for your business's growth, driven by data, powered by technology, and guided by expertise.

Customer Story

This company had recently transitioned one of their systems from an archaic on-premise system to a cutting-edge, cloud-based SaaS platform. This move marked a pivotal moment, a leap into the future, yet with it came an unforeseen challenge that threatened to undermine their progress.

As the dust of transition settled, a chasm became evident, a gap where a crucial lifeline of data once flowed. The company's data warehouse, the bedrock of their revenue reporting system, was no longer obtaining the vital information it once thrived on. In this new SaaS realm, the traditional tools and methods, particularly SQL queries that had been the backbone of data retrieval, found themselves outpaced and incompatible. A vital piece of the puzzle was missing

The integration of data between this new platform and the existing data warehouse had been overlooked. This gap was not just a technical oversight; it was a rift that threatened the seamless flow of essential data, the lifeblood on which the company's decision-making processes depended.

Faced with this daunting scenario, the need for an innovative, robust solution became paramount. It was a call to action for ingenuity, a challenge that demanded not just a fix, but a reinvention of the process to bridge the divide between the new cloud-based frontier and the foundational data warehouse. The journey ahead was clear yet complex - to forge a path where data could once again flow unimpeded, ensuring the seamless and efficient operation of the business in its new, modernized form..



Our Solution

Cloudstak prescribed three possible options for data integration with the new SaaS platform, with a single, strong recommendation. The chosen path was not the easiest, but the most thorough and effective: a REST API, selected for its precision in sourcing mission-critical data.

Our plan was methodical and innovative. After careful evaluation of the legacy code, the old database, and the new API, we identified key points to refactor the existing functions. These functions previously executed SQL server queries, and were replaced with comparable equivalents for the platform through RESTful API calls. A comprehensive understanding of all components was required to ensure data could fluently move between two distinct systems.

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A python based REST client built on AWS Lambda forms the basis of our serverless architecture. This choice underscored our commitment to scalability and cost-efficiency. We first built out a common layer for managing tokens and encryption, an essential aspect for authentication and secure data handling. Next came the actual data retrieval, mapping and handling. DynamoDB was employed to hold and manage the dynamic mapping data. This component was pivotal for efficiently managing and accurately translating data, ensuring that every data piece was correctly aligned and reported.

Outside of the business logic, but equally important, was our comprehensive error handling and logging system. Centralized and efficient, it was the watchdog of system reliability, designed to capture and address any discrepancies or issues in real-time. We captured rejects, missing mappings, performance, and other monitoring data. We found we can even keep tabs on the SaaS vendor's API performance!

In essence, we didn't just bridge a gap; we built a new, more efficient and secure pathway for data to flow, enhancing the company's operational capabilities in their modernized IT environment.

Benefits

In the world of modern enterprise technology, the integration solution forged by Cloudstak not only addressed the immediate challenge of data integration but also brought with it a host of transformative benefits, reshaping the way the company approached their data infrastructure.



Major components:

Serverless Architecture:

Leveraging AWS Lambda for core functionalities, ensuring scalability and cost-efficiency

Dynamic Data Mapping and Storage:

Utilizing DynamoDB for efficient data handling and mapping, crucial for accurate data translation and reporting

Comprehensive Error Handling and Logging:

Centralized mechanisms for capturing and managing system errors, essential for maintaining system reliability

serverless  framework



Scalability

At the heart of this solution is a serverless architecture, a system designed not just to function but to flourish under varying demands. This architecture allowed the company's data handling capabilities to automatically scale in response to fluctuating data loads. This seamless adaptability ensured that the system remained robust and responsive, without the need for constant human oversight or manual intervention.

Cost Efficiency

Incorporating AWS Lambda, the solution embraced a pay-per-use model, a strategy that fundamentally altered the company's financial approach to data management. This model ensures that the company only expends resources commensurate with their actual usage.

Flexibility and Maintainability

This design allowed the company to navigate the ever-evolving digital landscape with ease, adapting to new requirements and integrating updates without disrupting the existing system. It was a testament to the foresight of Cloudstak, anticipating the need for a solution that was not just effective today but adaptable for the challenges and opportunities of tomorrow.

Enhanced Data Security

In an era where data security is paramount, the solution's robust authentication mechanisms and IAM roles guard the sanctity of the company's data. This security framework ensures that every bit of data is handled via encrypted channels and transferred with utmost security. It is these measures that instill confidence in the integrity and confidentiality of the company's critical information. Last

The Cloudstak Advantage: A Partnership for the Future

Choosing Cloudstak as a partner in this endeavor was not merely a decision; it was an investment in the future. With Cloudstak's expertise and guidance, the company was not just implementing a solution; they were embracing a vision of technological excellence and innovation. The benefits delivered by this integration solution were a testament to the synergy between the company's aspirations and Cloudstak's expertise, paving the way for a future of enhanced efficiency, security, and strategic agility in the ever-evolving world of enterprise technology.

The integration solution delivered several key benefits:

Scalability: The serverless architecture allowed for automatic scaling, accommodating varying data loads without manual intervention

Cost Efficiency: The pay-per-use model of AWS Lambda significantly reduced operational costs

Flexibility and Maintainability: The modular design of the solution facilitated easy updates and customizations, ensuring long-term sustainability

Enhanced Data Security: Robust authentication mechanisms and IAM roles ensured secure data handling and transfer



Conclusion

This project exemplifies our expertise in software modernization and our commitment to providing solutions that not only address immediate technical challenges but also offer long-term strategic benefits. By seamlessly integrating cloud and on-premise data systems, we empower businesses with reliable, scalable, and cost-effective data management solutions, paving the way for informed decision-making and enhanced operational efficiency.





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Contact Us

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