Data Architecture Evolution: Imperative … or Extinction?

As regulatory pressures continue to increase, customer expectations evolve, and competition intensifies, financial institutions are under increasing pressure to innovate and transform their operations. At the heart of this transformation is data architecture – the foundation upon which financial institutions build their businesses.

INDUSTRY CHALLENGES AND OPPORTUNITIES

Traditional financial data architectures, built around on-premises data warehouses and relational databases, are no longer viable to meet the demands of the digital age. These legacy systems are often siloed and inflexible, hindering financial firms' ability to respond quickly to changing market conditions, customer needs, and the competitive landscape.

In response, firms are turning to cloud data platforms to transform their data architectures and unlock new levels of innovation and competitiveness. Among these platforms, Snowflake has emerged as a key player, serving as a cloud data fabric that enables financial institutions to build a more agile, scalable, and secure data ecosystem. Databricks is well known for its strengths in supporting big data analytics, complex data science applications, and machine learning. Arcesium, a cloud-native, purpose-built platform that enables financial industry-specific data management, investment operations, and analytics capabilities, is a fast-growing financial fintech. Arcesium's platform uses Snowflake as its foundational database design and integrates with many of the financial data vendors including Bloomberg. Big data analytics platforms include Azure Databricks, Apache Hadoop, and Microsoft Azure Synapse, to name a few. Regardless of your favorite flavor in cloud platform provider, whether you are using Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), or a hybrid combination, the future of the financial industry's cloud data architecture is bright and exciting.

REVOLUTION

The financial industry has been undergoing the most dramatic and revolutionary changes in data architecture since the electronic spreadsheet came into existence. Now, applied AI and machine learning present unparalleled opportunities to propel investment management into a new era of dynamic competition to maximize performance returns and value.

However, firms that have yet to modernize their data architectures with cloud computing, simplified data mastering, and use seamless data sharing will be left behind in the race to compete using AI and machine learning tools effectively. Integrating AI into our industry is bringing about a new wave of automation, efficiency, and investment management innovation that redefines competition.

EVOLUTION

Snowflake is a key player in the cloud data platform market, particularly in the financial industry. Snowflake's cloud-native architecture, columnar storage, and scalable and flexible design make it a compelling option for financial institutions looking to transform their data architectures. Cloud and Snowflake are revolutionizing the financial industry's data ecosystem. Together, they now provide the financial industry with a new data fabric where the conceptual limits of cloud computing and data storage are only imaginary, given the light speed at which new GPU chips and data centers are being produced. Snowflake's cloud data fabric is designed to support the complex data needs of financial institutions, providing a scalable, agile, and secure platform for data warehousing, data lakes, and data science.

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EVOLUTION (continued)

Snowflake's architecture is cloud-native, meaning that it is built from the ground up to take advantage of the cloud's scalability and flexibility.

Snowflake's columnar storage engine is optimized for querying and natively analyzing large datasets, making it an attractive option for financial institutions with complex data analytics needs. Using Snowflake as a data transformation layer and unloading data into immutable Parquet formats presents even greater opportunities to access and use approved data depending on your technology and computational requirements while supporting contemporary data governance principles. Additionally, Snowflake's data sharing and governance features enable financial institutions to securely share data with partners and stakeholders while maintaining control over data access and usage.

In just a few short years, we have watched Snowflake and data vendors shatter our industry's archaic use of SFTP and file-based data feeds with Snowflake and its new, instantaneous data-sharing capabilities. We now have an entirely new era of cloud-native applications in Snowflake's data ecosystem using near-infinite computing and data resources. Bye-bye data files?

Databricks is another big data cloud platform industry leader. Their Lakehouse platform enables artificial intelligence and machine learning applications, complex data science, and analytics at scale. Databricks has now delivered read/write integration with Snowflake. Databricks is recognized for its superiority in supporting sophisticated AI and analytical applications while Snowflake excels at data storage and retrieval. Both provide computing and data ecosystems, integrations to many specialized vendor applications, and support for your proprietary applications.

Arcesium takes the power of Snowflake to a whole new level. Arcesium delivers a financial industry-specific data stack, contemporary mastering of unified authoritative data, and cross-function, capital management capabilities from sophisticated investment analytics to performance insights. Built with the power of Snowflake, Arcesium's purpose-built platform for hedge fund and asset managers is specifically designed to support our industry's most complex investment processes at scale. You can envision the limitless evolutionary opportunities of potentially combining one or more of these powerful data architecture platforms.

The following is a list of leading financial industry service providers and platform/ data vendors who have strategically integrated Snowflake and cloud-native capabilities into their propositions, and the list seems to be growing daily.

- **JP Morgan Fusion**
- **BNY Data Vault**
- **State Street Alpha**
- **Arcesium**
- **BlackRock Aladdin Data Cloud**
- **SimCorp**
- **LSEG**
- **Bloomberg and Data License**
- **FactSet**

NOT IF, BUT WHEN AND HOW

Traditional thinking about legacy data architecture transformation has typically centered around the choice between reengineering, refactoring, and upgrade vs. wholesale platform replacement. I suggest the time and ROI to salvage brittle legacy data platforms is in the past. The digital transformation race to evolve our data architectures for innovation,

operational efficiency, and the potential to maximize client satisfaction and investment returns is well underway. Today's capital is better spent evolving to the future rather than duct-taping the past.

WHERE ARE YOU IN THE RACE?

If you are only now starting to think about data architecture transformation, you are already behind. The immediate priority is to define your data strategy that includes the strategic vision of your future-state data architecture.

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WHERE ARE YOU IN THE RACE?

That is arguably the easy part. You will then need to assess your current data platforms, data quality and governance frameworks, and data management operations to baseline your plans for change. The tricky part is planning the transformation initiatives and roadmap where you can introduce and capitalize on contemporary cloud-based capabilities while minimizing operational disruption in a cost-effective way.

If you are in the process of transformation, you're on your way and have a fighting chance to compete. Major considerations include your approach to balancing the need to maintain legacy data platforms while adopting modern technologies and expanding native technical abilities. The introduction of new cloud and data technologies, including Snowflake and Databricks, often requires reengineering your data quality controls, literacy and governance frameworks, and data management operations.

If you are already using contemporary cloud data platforms, you are not only positioned to compete but may be one of the winners. You're well-positioned to explore and evaluate new vendor applications and major advances in artificial intelligence, including GenAI, NLP, and ML. The onboarding and integration of new data sources, as well as the deployment of new applications, are significantly easier, leading to faster time-to-insights and enhanced business value creation.

We see tremendous opportunities where Snowflake and vendor platform integrations are playing key roles in the industry's data fabric evolution. Meradia has partnered with Snowflake and has invested in our certifications and data platform expertise. We are committed to enhancing Meradia's value to our clients who are using Snowflake and many of these modern data platforms. Meradia is also engaged with several exciting new vendors that are using applied AI and ML to deliver measurable improvements in investment analytics, operational workflows, and data processing.

WHAT IS THE FUTURE VISION? – OUR FUTURE IS NOW!

- Near infinite cloud computing and storage capability.
- Seamless, instantaneous access to data-feeding proprietary applications.
- Unbounded human innovation enabled by artificial intelligence.
- Transformational improvements in operational efficiency and competitive advantage.
- Hyper-optimization to achieve superior investment performance.

The pace of evolution in our financial data fabric with Snowflake and Databricks' cloud data platforms, combined with new, applied AI-based applications like Arcesium and our industry's unparalleled creativity and innovation, are accelerating at break-neck speed. Ray Dalio once said, ***"The key is to fail, learn, and improve quickly. If you're constantly learning and improving, your evolutionary process will be ascending. Do it poorly, it will be descending."*** Success is highly correlated to the speed at which we iterate between investment hypotheses and then evaluate resulting profitability and investment returns while also being nimble and efficient in responding to the industry's regulatory, client, and business innovation demands.

Avoid extinction! This is one race where fortunes from data architecture evolution and transformation favor the bold and the brave.

Give us a call. We'd love to help you with your data strategy and assessments to design, plan, and build your future data architecture.

Brian Buzzelli is an accomplished leader in financial data management with more than 27 years of experience in the financial services and asset management industry. He has a deep background in data strategy, quality, architecture, governance, and data management operations. Brian has championed data quality and pre-use data validation, allowing investment and operation professionals to focus on their core responsibilities. His innovative approach drives a data-driven culture, treating data as an asset that involves leveraging manufacturing techniques to engineer a robust data quality control framework, ensuring accuracy and precision. Brian's strategic focus revolves around driving data and architecture transformation in investment management operations, simplifying data architecture, reducing operational risk, and increasing overall operational efficiency. His commitment to data quality and control frameworks empowers investment management flexibility, supporting enterprise data integrations, new products, and services, and aligns data efficiently with vendors.

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