

# IS YOUR ENTERPRISE DATA READY FOR GENERATIVE AI?

Making the Move to Modernize Your Data  
and Analytics Platform through Hybrid,  
Multi-Cloud Environments



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## INTRODUCTION

In the rapidly changing world of modern business, data has emerged as the lifeblood that is fueling growth and innovation. As organizations strive to stay ahead in a competitive landscape, the strategic use of data and analytics has become a cornerstone of successful business growth strategies. However, in an era where artificial intelligence (AI) is taking center stage, leveraging trusted data for Generative AI initiatives has become the key to unlocking unparalleled insights and driving unprecedented advancements. Generative AI is revolutionizing how businesses leverage data, creating opportunities for automation, personalization, and predictive analytics. From natural language processing to image synthesis, the applications are vast and transformative. In order to harness the full potential of generative AI, a robust and modernized data infrastructure is essential.

Data and analytics are no longer mere buzzwords; they are the catalysts that propel organizations toward informed decision-making and sustainable growth. In the current landscape, the importance of leveraging data to gain a competitive edge cannot be overstated. From customer behavior analysis to predictive modeling, data-driven insights empower businesses to make well-informed decisions, optimize operations, and identify new revenue streams.

### RISE OF GENERATIVE AI AND THE NEED FOR TRUSTED DATA

Generative AI, a subset of artificial intelligence, has revolutionized the way businesses approach innovation. By using algorithms to generate new content, ideas, or solutions, Generative AI has the potential to transform industries. With that in mind, the success of Generative AI initiatives is heavily dependent on the access, quality and trustworthiness of the underlying data.

Organizations must recognize the critical role that trusted data plays in the success of their Generative AI endeavors. Reliable and high-quality data not only enhances the accuracy of AI models but also ensures that the generated outputs align with the organization's goals and ethical standards. As businesses increasingly explore the possibilities of Generative AI, the focus on maintaining and utilizing trustworthy data becomes paramount.

Poor Data  
Quality Costs  
Organizations  
on Average

**\$15**  
MILLION/  
YEAR

## Data Volume

# 46%



Increase in average enterprise data volume annually

## Data Velocity

# 30%



Data that will be generated in real time by 2025

## Data Veracity

# 38%



CDOs that reported a high level of trust in their organization's data and analytics

## Data Variety

# 67%



Expected growth in data formats from 2021-2026

## CHALLENGES WITH TRADITIONAL DATA AND ANALYTICS PLATFORMS

While the benefits of data and analytics are clear, many organizations face challenges with their traditional data and analytics platforms. Legacy systems often struggle to handle the sheer volume and growing complexity of data generated in today's digital landscape. Moreover, the lack of real-time capabilities and scalability limits the potential for quick and agile decision-making.

Additionally, traditional platforms may not be adequately prepared to transition to AI-led models. The integration of Generative AI into existing frameworks requires a robust foundation of trusted data, which may be lacking in organizations relying on outdated systems. This misalignment poses a significant hurdle for businesses aiming to harness the full potential of Generative AI for strategic growth.

## READINESS FOR AI-LED MODELS: THE NEW BUSINESS IMPERATIVE

To overcome the challenges posed by traditional data and analytics platforms, organizations must prioritize their readiness to adopt AI-led models. This involves not only upgrading technological infrastructures but also fostering a data-driven culture within the organization. A strategic approach to data governance, quality assurance, and ethical considerations becomes essential to ensure that the data used for Generative AI is both reliable and aligned with organizational values.

## Over 40% of Fortune 500 Executives see GenAI Investments Increasing in 2024.

Source: McKinsey 'State of AI 2023 Survey'

Investing in solutions that seamlessly integrate with existing data ecosystems allows businesses to overcome the limitations of traditional platforms. By embracing AI-led models, organizations can unlock new dimensions of innovation, drive operational efficiency, and gain a competitive advantage in their respective industries.

In the pursuit of business growth and innovation, the symbiotic relationship between data, analytics, and Generative AI is undeniable. Organizations that recognize the importance of leveraging trusted data for Generative AI initiatives position themselves at the forefront of the technological evolution. Overcoming the challenges posed by traditional data and analytics platforms is a crucial step toward embracing the transformative power of AI-led models, ensuring a future where data not only informs decisions but also fuels creativity and propels organizations toward unprecedented success.

Generative AI holds tremendous potential for organizations seeking to innovate and stay competitive. However, successful integration requires a strategic approach to modernizing data and analytics platforms. By assessing the readiness of data landscapes and adopting multi-cloud environments, organizations can position themselves to harness the transformative power of Generative AI while addressing associated challenges.

## DRIVING MORE VALUE FROM DATA

### Top 3 Strategic Enterprise Initiatives

 <b>DEMOCRATIZE DATA</b>	 <b>INNOVATE WITH AI &amp; ML</b>	 <b>OPTIMIZE DATA COSTS &amp; EFFICIENCIES</b>
<p><b>Financial Services</b> </p> <ul style="list-style-type: none"> <li>• Improve Regulatory Compliance</li> <li>• Increase Customer Profitability</li> <li>• Mitigate Fraud &amp; Risk Exposure</li> </ul>	<p><b>Healthcare</b> </p> <ul style="list-style-type: none"> <li>• Accelerate Research &amp; Development</li> <li>• Optimize Patient Care</li> <li>• Ensure Regulatory Standards &amp; Compliance</li> </ul>	
<p><b>Public Sector</b> </p> <ul style="list-style-type: none"> <li>• Transform Citizen Services</li> <li>• Data Security &amp; Privacy Compliance</li> <li>• Reduce Waste, Fraud &amp; Abuse</li> </ul>	<p><b>Manufacturing</b> </p> <ul style="list-style-type: none"> <li>• Drive Intelligent Operations</li> <li>• Optimize Production Throughout</li> <li>• Power Connected Supply Chains</li> </ul>	

# UNLEASHING THE POWER OF POSSIBILITIES

## The Benefits of Adopting a Hybrid, Multi-Cloud Strategy for Data and Analytics

In the ever-evolving landscape of data and analytics, businesses are navigating through a sea of opportunities and challenges. One strategy that stands out as a game-changer is the adoption of a hybrid, multi-cloud approach with over 87% of enterprises taking a hybrid, multi-cloud strategy. With the increasing complexity of data management and the growing need for flexibility, scalability, and efficiency, organizations are turning to solutions to harness the full potential of a multi-cloud strategy. Let's delve into the key benefits that come with embracing this approach.



### ENHANCED FLEXIBILITY AND AGILITY

One of the primary advantages of a hybrid, multi-cloud strategy is the flexibility it provides to organizations. By leveraging on-premise and multiple cloud providers, businesses can adapt to changing requirements, unforeseen challenges, and varying workloads seamlessly. Hybrid-cloud solutions can provide a comprehensive data and analytics platform to ensure that data can be managed, processed, and analyzed across legacy servers and multiple cloud providers, offering unparalleled agility in responding to market dynamics.



### OPTIMIZED PERFORMANCE AND RESOURCE UTILIZATION

With a multi-cloud strategy, organizations can optimize performance by strategically distributing workloads across different cloud environments. This not only enhances resource utilization but also mitigates the risk of downtime and performance bottlenecks. Cloudera's expertise in managing data workloads ensures that businesses can achieve peak performance across diverse cloud infrastructures.



### COST-EFFICIENCY AND VENDOR NEUTRALITY

Cost management is a critical factor in any business strategy, and a multi-cloud approach provides a cost-efficient solution. Cloudera's platform allows organizations to choose the most cost-effective cloud services for specific workloads and applications, avoiding vendor lock-in. By maintaining vendor neutrality, both Cloudera and Qlik, help businesses negotiate better pricing, optimize spending, and maximize the return on investment.



## IMPROVED DATA SECURITY AND COMPLIANCE

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In an era where data security and compliance are paramount concerns, a multi-cloud strategy ensures robust security measures. Cloudera provides comprehensive data protection capabilities, including encryption, access controls, and auditing, ensuring that sensitive information remains secure across diverse cloud environments. This is particularly crucial for industries with strict regulatory requirements. Likewise, Qlik's commitment to protecting and monitoring data both with dedicated access control and enforcing sovereignty requirements ensures your most valued asset is secured.



## SEAMLESS INTEGRATION AND INTEROPERABILITY

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Cloudera's commitment to open-source technologies facilitates seamless integration and interoperability across various cloud platforms. Organizations can leverage their existing infrastructure investments and integrate Cloudera's platform with ease. This interoperability enables a cohesive data management and analytics ecosystem, empowering businesses to derive insights from data residing in different cloud environments. Qlik's 'no code' platform ensures you can reach beyond your core development expertise, increasing the ease and speed of the creation and distribution of processing tasks as Cloudera workloads.



## SCALABILITY FOR FUTURE GROWTH

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A multi-cloud strategy provides organizations with the scalability needed to accommodate future growth. Whether expanding operations or venturing into new markets, businesses can scale their data and analytics infrastructure dynamically. This scalability ensures that organizations can meet evolving demands without compromising performance or incurring unnecessary costs.



## REAL-TIME ANALYTICS

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Qlik's real-time analytics capabilities empower organizations to derive insights from their data instantaneously. This is invaluable for generative AI applications that require rapid decision-making and feedback loops.

Embracing a hybrid, multi-cloud strategy for data and analytics opens the door to a world of possibilities. The enhanced flexibility, optimized performance, cost-efficiency, improved security, and seamless integration offered by this approach empowers businesses to thrive in the digital era.

## Challenges

- Need to evolve data transformation to deliver customer value
- Increased data requirements for more efficient data management.
- Lacking data platform to process and collect the volume of data generated across its electricity supply chain

## Solution

- Custom Cloudera and Qlik solution - the Meralco Data Platform - a flagship analytics platform that processes data and runs various ML models.
- Modernized data infrastructure and quality to support a new data lake, data warehouses, and new business intelligence solution

## Outcomes

- **Customer Gains**  
Accurate customer data increasing customer satisfaction metrics
- **Predictive Analytics**  
EngineProactive maintenance reduces outages & improves operating efficiencies
- **M-Wing Launch**  
Real-time KPI dashboard



## Modernizing its business infrastructure with Cloudera and Qlik custom solution

When Manila Electric Company (Meralco), the largest electric power distribution company in the Philippines, needed to strengthen its digital transformation efforts by harnessing its vast amount of data to deliver more value to its customers, they chose to partner with Cloudera, the gold-standard for hybrid data companies, and Qlik, a global leader in data integration and data management. Cloudera and Qlik collaborated with Meralco to define business requirements and to develop a custom solution - a flagship analytics platform that processes Meralco's data and runs various machine learning (ML) models. "By unlocking the value of information to insights and harnessing the connected intelligence across Meralco, we bring to light where and how we can drive exceptional service to our customers, streamline our internal operations and create new opportunities for innovation - fully recognizing the power of data as an enabler to business growth," said Rocky D. Bacani, Meralco First Vice President and Head of Information, Communication, Technology and Transformation.

As organizations navigate the complexities of the modern data landscape, the adoption of a hybrid, multi-cloud approach becomes not just a strategy but a strategic imperative for success. Cloudera and Qlik stand at the forefront, guiding businesses towards a future where data is a catalyst for innovation and growth.

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**"By unlocking the value of information to insights and harnessing the connected intelligence across Meralco, we bring to light where and how we can drive exceptional service to our customers, streamline our internal operations and create new opportunities for innovation."**

— Rocky D. Bacani, First Vice President and Head of Information, Communication, Technology and Transformation, Meralco

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## UNLOCKING SUCCESS

### The Invaluable Role of Integration and Interoperability in Multi-Cloud Environments

As organizations move through the rapidly evolving landscape of modern business, they are increasingly turning to hybrid and multi-cloud environments to harness the power of diverse cloud services and optimize their operations. However, the true potential of multi-cloud strategies can only be realized when integration and interoperability take center stage. Cloudera, a leader in data management and analytics, recognizes the pivotal role these factors play in driving success in the complex world of multi-cloud environments.

#### THE HYBRID, MULTI-CLOUD ADVANTAGE

Multi-cloud environments offer organizations the flexibility to choose the best-of-breed solutions from various cloud providers, avoiding vendor lock-in and optimizing costs. This approach allows businesses to leverage specialized services, enhance resilience, and scale operations efficiently. The real challenge lies in seamlessly integrating diverse cloud services and ensuring interoperability across the entire ecosystem.

#### BREAKING DOWN SILOS WITH INTEGRATION

Integration is the key to breaking down silos that can hinder collaboration and efficiency in a multi-cloud setup. Cloudera's robust integration solutions provide a unified platform that enables seamless connectivity across on-premise and cloud environments. Whether it's connecting on-premises data centers, private clouds, or public clouds, Cloudera ensures a cohesive data fabric that empowers organizations to derive actionable insights from their data, regardless of where it resides.

#### ACHIEVING SEAMLESS INTEROPERABILITY

Interoperability is the linchpin of a successful multi-cloud strategy. Cloudera's commitment to open standards ensures that data and applications can seamlessly flow across multiple cloud providers. This not only enhances operational efficiency, but also mitigates the risk of vendor lock-in, giving organizations the freedom to adapt to changing business needs without the constraints of a single cloud provider.

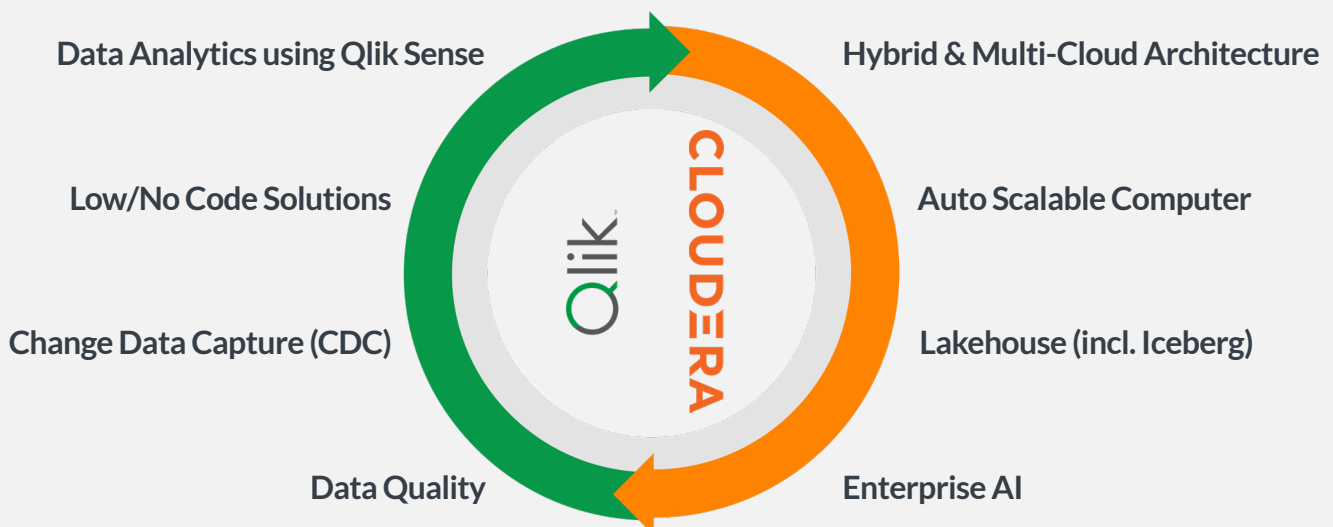
### DRIVING INNOVATION AND AGILITY

In the dynamic business landscape, innovation and agility are paramount. Cludera's integration and interoperability solutions empower organizations to stay ahead of the curve by facilitating the rapid deployment of new applications and services. This agility not only accelerates time-to-market but also enables businesses to respond swiftly to changing market demands and reduce TCO.

### ENSURING SECURITY AND COMPLIANCE

Security and compliance are non-negotiable in today's data-centric environment. Cludera's comprehensive approach to security ensures that data remains protected, regardless of where it resides in a multi-cloud setup. With robust encryption, access controls, and monitoring capabilities, Cludera and Qlik enable organizations to meet stringent compliance requirements while maintaining the highest standards of data security and health.

In the multi-cloud era, organizations can truly unlock the full potential of their data by prioritizing integration and interoperability. Cludera's innovative solutions provide the foundation for a seamless, secure, and agile multi-cloud environment while Qlik's change data capture maintains visibility and control. By breaking down silos, fostering interoperability, and empowering organizations to adapt to change with ease, Cludera and Qlik are leading the way in helping businesses thrive in the era of multi-cloud complexity. Leading enterprises are now able to embrace the power of integration and interoperability to drive success in their multi-cloud journey.



# NAVIGATING THE HORIZON

## Security and Compliance Considerations in Multi-Cloud Data and Analytics

In the dynamic landscape of data and analytics, organizations are increasingly leveraging multi-cloud environments to harness the power of diverse data sources. Cludera and Qlik are at the forefront of enabling seamless data management and analytics across multiple clouds. As businesses embark on this transformative journey, it is crucial to prioritize security and compliance. This article explores the key considerations when it comes to safeguarding your data in a multi-cloud ecosystem with Cludera and Qlik.



### COMPREHENSIVE DATA ENCRYPTION

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Data security starts with robust encryption mechanisms. Cludera's platform offers end-to-end encryption for data at rest and in transit, ensuring that sensitive information remains confidential across various cloud environments. Qlik, in tandem, integrates with Cludera to provide a secure analytics layer that respects the encryption protocols set by the underlying infrastructure. This collaborative approach ensures that your data is shielded from potential threats, whether it resides in public, private, or hybrid clouds.



### UNIFIED IDENTITY AND ACCESS MANAGEMENT

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In a multi-cloud setting, managing user identities and access becomes a complex challenge. Cludera and Qlik address this concern through seamless integration with identity and access management (IAM) solutions. With unified IAM controls, organizations can enforce consistent security policies and streamline access to data and analytics resources across different cloud platforms. This not only enhances security but also simplifies administration, reducing the risk of unauthorized access.



## COMPLIANCE WITH REGULATORY STANDARDS

Meeting regulatory compliance requirements is paramount in today's data-driven world. Cloudera's adherence to industry standards, such as GDPR and HIPAA, ensures that your data practices align with legal frameworks. Qlik complements this by providing auditing capabilities, enabling organizations to track and report on data access and usage (<https://www.qlik.com/us/trust>). Together, Cloudera and Qlik empower businesses to navigate the intricate web of compliance mandates seamlessly.

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**The total cost of non-compliance data protection can average \$14.7M while compared to a \$5.47M cost of compliance.**

Source: Ponemon Cost of Data Compliance Report

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## DATA GOVERNANCE AND LIFECYCLE MANAGEMENT

Effectively managing the lifecycle of data is a critical aspect of security and compliance. Cloudera's Data Catalog and Data Lifecycle Manager enable organizations to govern data efficiently, ensuring proper classification, lineage, and access controls. Qlik's associative analytics approach further enhances governance by providing a clear understanding of how data is used and shared within the analytics ecosystem. Together, they create a robust framework for maintaining data integrity throughout its lifecycle.



## PROACTIVE THREAT DETECTION AND RESPONSE

In the ever-evolving landscape of cybersecurity, proactive threat detection is crucial. Cloudera's machine learning-powered anomaly detection capabilities, coupled with Qlik's analytics-driven insights, empower organizations to identify and respond to potential threats swiftly. By leveraging real-time analytics across multi-cloud environments, businesses can stay ahead of security challenges and safeguard their data assets effectively.

## Challenges

- Voluminous amounts of customer data in siloed environments (3+ petabytes and growing)
- Poor integration of trusted data from over 25 million customers across business units to leverage predictive analytics and ML

## Solution

- Implemented modern data platform for analytics and machine learning that ingests and analyzes data from over 100 corporate systems for use in customer marketing, fraud analytics and cybersecurity
- Implemented cost-efficient, compliant, cloud-based data infrastructure to accelerate customer modeling and experience

## Outcomes

**50X / GB** data delivery cost reduction

**98% / TB** storage cost reduction

**\$13 million** realized from data transformation and delivery speed

**CX Gains** 30% reduction in repeat customer complaints + 90% productivity improvement for analytics projects



## Delivering Legendary Customer Experience with Cloudera and Qlik

As organizations embrace the possibilities of multi-cloud data and analytics, the partnership between Cloudera and Qlik can play an instrumental role in ensuring robust security and compliance measures. By prioritizing comprehensive encryption, unified identity management, regulatory adherence, effective governance, and proactive threat detection, businesses can confidently navigate the complexities of multi-cloud environments.

When a leading Fortune 500 Financial Services company with 25 million customers and a desire to integrate data (3+ Petabytes and counting) from across its business units and use advanced predictive analytics and machine learning for a variety of activities, from marketing to fraud detection, they turned to Cloudera and Qlik. Cloudera and Qlik developed and implemented a custom enterprise solution built around a modern data platform for analytics and machine learning that ingests and analyzes data from over 100 corporate systems for use in customer marketing, fraud analytics and cybersecurity. The modern multi-cloud solution realized \$13 million in savings from their data transformation and a dramatic increase in speed of delivery.

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**“Cloudera and Qlik allowed us to bring thousands of data sources together in one place at a fraction of the cost. That allows us to get the data into the hands of those who need it much more quickly, and much more cost-effectively.”**

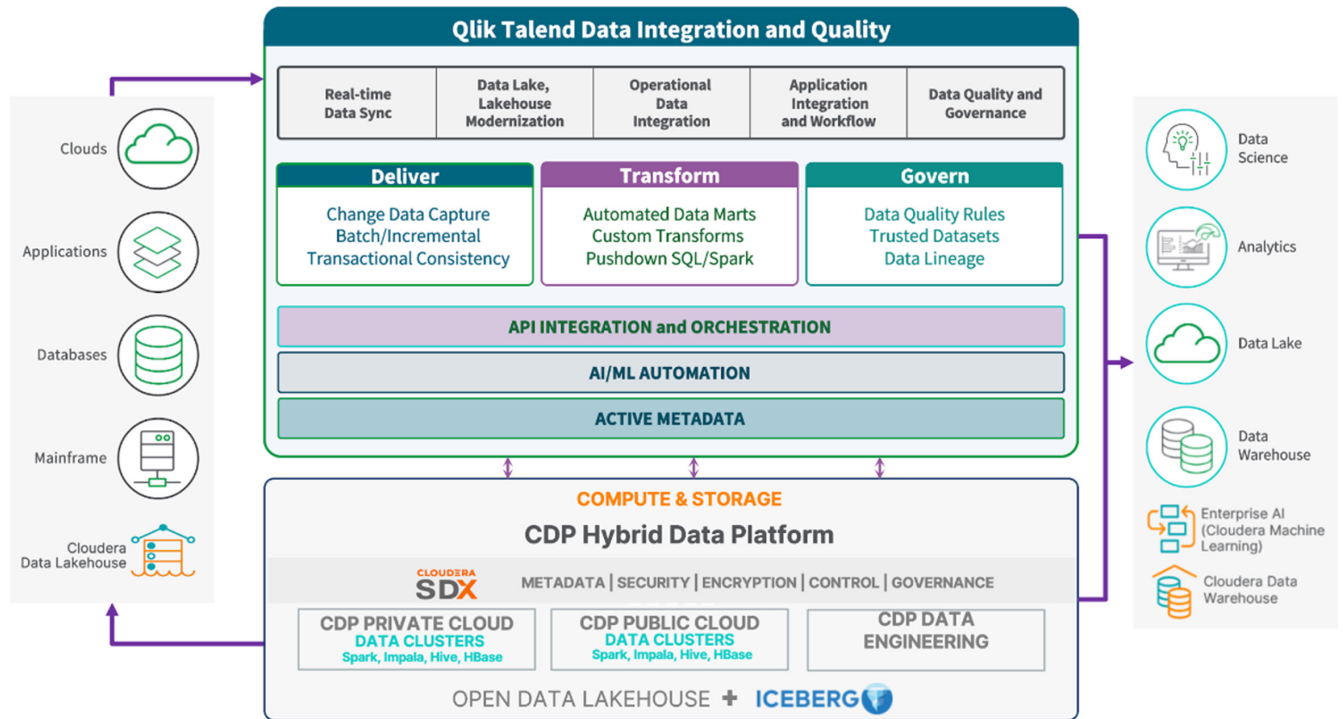
— SVP of US operations group

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With Cloudera and Qlik, the horizon of possibilities for secure and compliant data and analytics in the multi-cloud era is brighter than ever.

# A LOOK TO THE FUTURE

## The Move to a Modernized Data Platform



Now is the time for organizations to harness the awesome power of data through hybrid, multi-cloud environments. Leading organizations are embracing modern data architectures and trusted data pipelines to accelerate business innovation and growth. As the era of Generative AI unfolds, the readiness of your data landscape becomes a strategic imperative. With data volumes increasing by petabytes, having a flexible and open table format, such as Apache Iceberg, becomes imperative to accommodate high performance analytics and workloads in a secure, scalable and cost-effective manner. Apache Iceberg supercharges Cloudera’s Data Lakehouse to enable the next-gen architecture which is essential for the Generative AI landscape and future-proofing of your data architecture.

Cloudera and Qlik, through their robust hybrid, multi-cloud solutions, offer organizations the tools needed to modernize their data and analytics platforms in the environments of their choosing. By embracing these technologies, enterprises can position themselves at the forefront of innovation, unlocking the full potential of generative AI in the dynamic and evolving business landscape.

# CLUDERA

At Cludera, we believe data can make what is impossible today, possible tomorrow. We empower people to transform data anywhere into trusted enterprise AI so they can reduce costs and risks, increase productivity, and accelerate business performance. Our open data lakehouse enables secure data management and portable cloud-native data analytics helping organizations manage and analyze data of all types, on any cloud, public or private. With as much data under management as the hyperscalers, we're the preferred data partner for the top companies in almost every industry. Cludera has guided the world on the value and future of data and continues to lead a vibrant ecosystem powered by the relentless innovation of the open source community. Learn more at <https://www.cludera.com/partners/solutions/qlik.html>.



Qlik converts complex data landscapes into actionable insights, driving strategic business outcomes. Serving over 40,000 global customers, our portfolio provides advanced, enterprise-grade AI/ML and data management. We excel in data integration and governance, offering comprehensive solutions that work with diverse data sources. Intuitive analytics from Qlik uncover hidden patterns, empowering teams to address complex challenges and seize new opportunities. Our AI/ML tools, both practical and scalable, lead to better decisions, faster. As strategic partners, our platform-agnostic technology and expertise make our customers more competitive. Learn more at <https://www.qlik.com/us/products/technology/cludera>.