Informatica
CLOUD FIRST. DATA ALWAYS.™

Winning with Multi-Cloud: How to Drive a Competitive Advantage and Overcome Data Integration Challenges

Achieve Seamless Cloud Data Management Across Multiple Clouds

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Introduction:

Multi-Cloud Is the New Normal and Is Here to Stay

As organizations' data and analytics efforts become more mature, they collect more diverse data and perform more sophisticated analytics. Today most organizations have either moved to the cloud or are planning to move to the cloud to modernize their data and analytics infrastructures. In some cases, they use more than one provider as part of multi-cloud deployment. In a recent IDC survey, nearly 80% of organizations surveyed store more than half of their data in hybrid and multi-cloud infrastructures.[1]

Forward-thinking, proactive organizations tend to embrace the multi-cloud strategy. There is a 72% increase in hybrid and multiple cloud technologies in optimized data organizations compared to reactive organizations.[2] Those serious about this approach have budgeted accordingly: In a recent survey, Microsoft reported that 86% of organizations plan to increase their spending on hybrid or multi-cloud technology.[3] Multi-cloud is now the default state of business technology, either by accident or design.

For example, financial services companies have adopted hybrid and multi-cloud strategies to be as agile and open minded as their customers in their use of technology, which is set to drive everything from the creation of new business and economic models to personalization and data analysis.[4] Retailers are also embracing a multi-cloud approach to reach their customers and provide omni-channel experiences.[5]

By definition, a multi-cloud deployment involves multiple cloud providers (two or more) to support infrastructure, applications, and critical business functions. Instead of using one vendor for everything—cloud hosting, storage, and the entire application stack—organizations may use several cloud services that include private clouds and hybrid clouds with multiple public cloud components.[6]

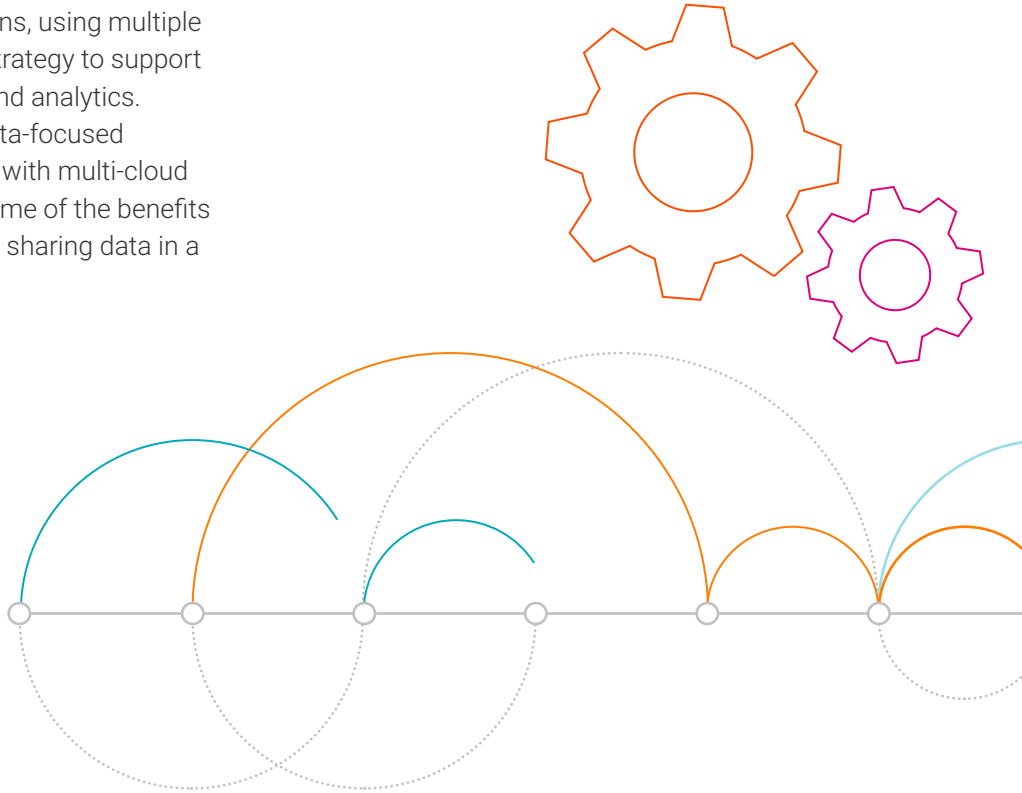
Introduction:

Multi-Cloud Is the New Normal and Is Here to Stay (continued)

From the perspective of cloud data management specifically, multi-cloud strategies enable the adoption of best-of-breed features, which will allow seamless integration among the major cloud platforms. And it's here to stay: Two-thirds of organizations regularly use multiple clouds.

However, organizations face critical challenges in realizing the full potential of cloud analytics in a complex, multi-cloud world. As cloud adoption rapidly proliferates, it is becoming clear that a simple "one cloud fits all" approach does not meet most organizations' business needs. A multi-cloud strategy avoids vendor lock-in and offers data sharing, business continuity, and geographic penetration. It caters to some departments' unique needs within an organization that a single cloud provider cannot meet.

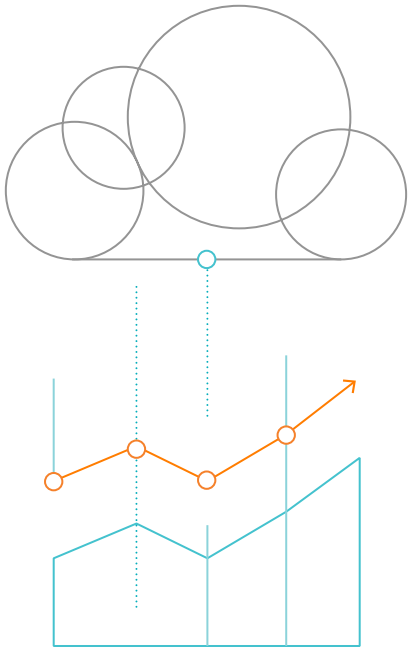
However, for many organizations, using multiple clouds is part of a deliberate strategy to support different user needs for data and analytics. This eBook discusses three data-focused considerations for succeeding with multi-cloud deployments and examines some of the benefits of cross-cloud functionality for sharing data in a multi-cloud environment.



Part One:

Understanding the Benefits of Adopting a Multi-Cloud Strategy

Before your organization implements a multi-cloud strategy, you should evaluate the approach to determine if it suits your needs. Following are some recommendations.



Choose best-of-breed solutions

The multi-cloud strategy enables you to harness the individual strengths of each cloud provider. For example, business units within an organization often have different cloud requirements. Rather than mandate that teams use the same cloud, a multi-cloud strategy enables business units to use the cloud platforms that best match their needs.

Multi-cloud provides organizations the flexibility and freedom of choice to harness and utilize the best capabilities of each cloud provider so that they can host their applications and data anywhere, on any device, and any cloud at a global scale. For example, one data scientist might want to use one analytics tool, while another may have a different preference. A multi-cloud architecture can enable greater flexibility and user efficiency rather than limiting users to one cloud and hosting everything on it.

Avoid or minimize vendor lock-in

As the cloud landscape and technology requirements continue to evolve, companies want the flexibility to respond to market shifts by adding or changing cloud providers. By relying on just one cloud provider, companies might face situations where their data and metadata are shaped by that provider's proprietary systems and protocols–running the risk of becoming locked into that cloud provider's infrastructure and making it very time-consuming, technically challenging, and expensive to switch to another cloud provider.

A multi-cloud strategy enables you to avoid vendor lock-in while capitalizing on major cloud providers' different services, particularly security, analytics, and application development.

Part One:

Understanding the Benefits of Adopting a Multi-Cloud Strategy (continued)

Enable seamless data access across multi-clouds

In a multi-cloud environment, an organization often struggles to move or share data and monitor workloads seamlessly across clouds with speed and confidence. As applications and data are spread across multiple clouds, the new data architecture must ensure that the underlying data moves fluidly and securely across the clouds, irrespective of where it resides (on-premises or on private or public clouds, intercloud, or hybrid cloud).

Operate anywhere by capitalizing on regional footprints

Each public cloud provider has data centers in different geographical locations. This can be beneficial if, for example, you need proximity to specific branch offices or end users. With end users, you may find it optimal to run workloads on several cloud providers' deployments in specific regions to minimize network latency, maximize networking throughput between users and data, and adhere to geo-residency requirements and sovereignty issues.

Enable business continuity and disaster recovery

Keeping all your cloud resources on a single host can be very risky. By taking advantage of clouds in various geographies or from different cloud providers, enterprises can reduce risk and ensure uptime and adherence to SLAs by creating resilient architectures that ensure their applications stay up despite outages in a particular data center or cloud provider. A multi-cloud strategy lowers the possibility of distributed denial of service attacks, improves reliability, and decreases the likelihood of catastrophic failure.

Part Two:

Understanding the Risks of Adopting a Multi-Cloud Strategy

A multi-cloud approach introduces some thorny data management issues despite its many advantages. In fact, in a recent survey, 73% of respondents agreed that managing a multi-cloud environment is challenging.[7] With exploding data volumes and new data types cropping up, your company's data is sprawled across on-premises systems as well as public and private clouds. This creates more data silos, making it difficult to connect, transform, manage, and sync all that disparate data in real time. Because most organizations today work with multiple cloud service providers, they face common hurdles around accessibility, integration, visibility, security, and data governance.

Let's look at some of the challenges in a highly distributed multi-cloud world:

Data silos: Any time you introduce another cloud provider into your data environment, you also raise the possibility of adding another data silo to your organization. Each cloud provider has different offerings with different APIs, causing a lot of movement and copying of data. It can also make data hard to manage and share with teams, business units, and external partners.

Integration: Some cloud services may operate seamlessly out of the box. Still, many are bound to require some level of integration, especially if you are linking them to other resources within your IT environments, such as a website or database. For optimal operations, you will have to address differences between each cloud in areas such as APIs, containerization, features, functions, and security protocols.

Data portability and interoperability: Once components are moved to a cloud, you may also face interoperability challenges with your on-premises systems. Take the example of a retail business that modernizes its legacy data warehouse to Snowflake. At the same time, their marketing team is using Microsoft Azure Synapse Analytics to run personalized marketing campaigns. And their data science team is using Google BigQuery for machine learning (ML) projects.

As applications are spread across multiple clouds, the new architecture needs to ensure that the underlying data is interoperable and moves seamlessly across the clouds, irrespective of where it resides (on-premises, public or private cloud, or across a multi-cloud environment). The company must ensure interoperability between these systems and, if necessary, troubleshoot if it breaks—without disrupting ongoing business initiatives.

Latency: In a multi-cloud world, data could reside in multiple geographic locations, which could cause lag issues due to its proximity to the user, the distance it must travel, etc. This could lead to decreased productivity, which is counterproductive to an agile, flexible, and efficient multi-cloud approach.

Part Two:

Understanding the Risks of Adopting a Multi-Cloud Strategy (continued)

Security challenges: A multi-cloud approach can increase security risks due to having more opportunities for an attack. For example, there are more interconnections between clouds, more siloed tools that must secure, maintain, monitor, and enforce new cloud services, and consistent role-based policies, processes, and controls. Regardless of which cloud provider you're using, you must consider the need to encrypt data on multiple clouds.

As organizations start deploying various clouds, they lack transparency across divisions or regions, making it critical to have real-time visibility into the entire multi-cloud infrastructure. Additionally, organizations struggle to gain information or knowledge about cost, configuration, usage, and performance in a multi-cloud environment due to the lack of a central console or single pane of glass.

Governance and compliance: Highly scaled, shared, and automated IT platforms such as the cloud can hide the geographic location of data—both from the customer and the service provider, leading to regulatory violations. Organizations need comprehensive, end-to-end data governance, including the consistent application of data, access policies, user security controls, metadata, and data quality standards across clouds.

Common Data Integration Challenges for Multi-Cloud Data Management: Today CIOs and CDOs looking to optimize costs, increase productivity, and share data across the enterprise face three common challenges for data integration for analytics modernization.

Cost overruns: Cost and budget overruns are prevalent in a multi-cloud, multi-hybrid environment due to a lack of visibility into what data resides in which cloud and whether the information is sensitive or not. Moving data into and out of various cloud data warehouses and lakes incurs significant transfer charges.

Resource constraints: In a recent survey, more than 57% of respondents cited skills shortage as a significant challenge in adopting and operationalizing multi-cloud strategy due to inconsistent workflows across cloud environments and teams working in silos. Unfortunately, this makes hiring specialized technical resources fluent in multi-cloud environments challenging.[8]

Technical and operational complexity: As cloud adoption accelerates, data and IT leaders can find connecting cloud and multi-cloud with on-premises environments challenging. Stitching together these disjointed products can lead to constant do-it-yourself integration, changing roadmaps, project overruns, and inconsistent data governance and quality.

Part Three:

How a Cloud-Neutral Data Management Platform Bridges the Multi-Cloud Divide

Whether a multi-cloud environment comes about because of data sovereignty issues, the desire to avoid vendor lock-in, or mergers and acquisitions, organizations want the flexibility of running their data management services across cloud ecosystems.

Intercloud data management enables services running on different cloud ecosystems to work seamlessly. For example, a data engineer can find data through a data catalog and marketplace service running on AWS, which uses a data integration service running on Microsoft Azure to access data from Snowflake and move it into Google Cloud for use in a TensorFlow project. See Figure 1 for an illustration of multi-cloud and intercloud data management.

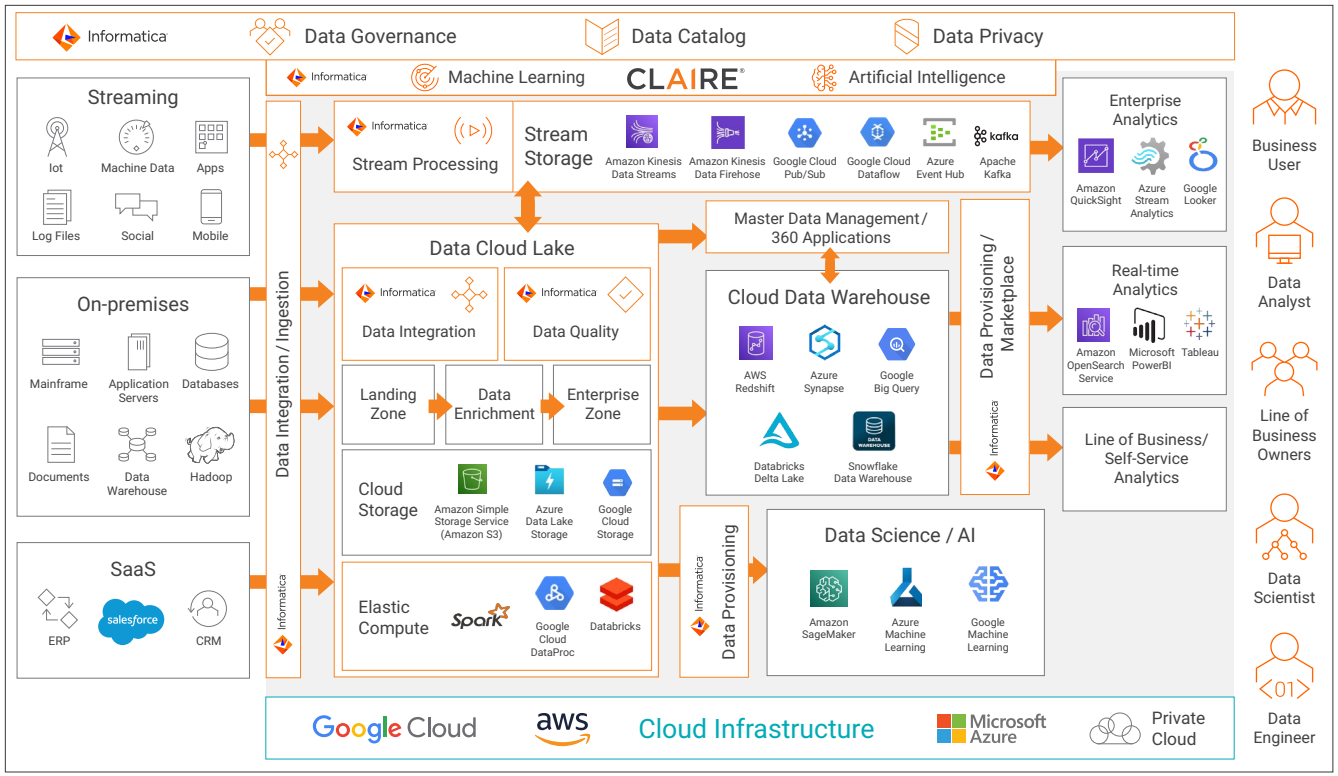


Figure 1: Example of reference architecture for end-to-end, multi-cloud data management.

Part Three:

The Need for an Independent and Neutral Data Management Cloud

Managing and innovating with your data determines whether you become an industry disruptor or get left behind. The Informatica Intelligent Data Management Cloud (IDMC) is designed to help businesses efficiently handle the complex challenges of dispersed and fragmented data to innovate with their data on any platform, any cloud—multi-cloud and multi-hybrid.

IDMC is the industry's most comprehensive, AI-powered, end-to-end data management platform offering over 260 intelligent cloud services (IICS) to discover all your data, access and ingest your data wherever it is, process it any way you want, ensure it's trusted, democratize on a foundation of governance, and deliver intelligent insights with 360 views of your business.

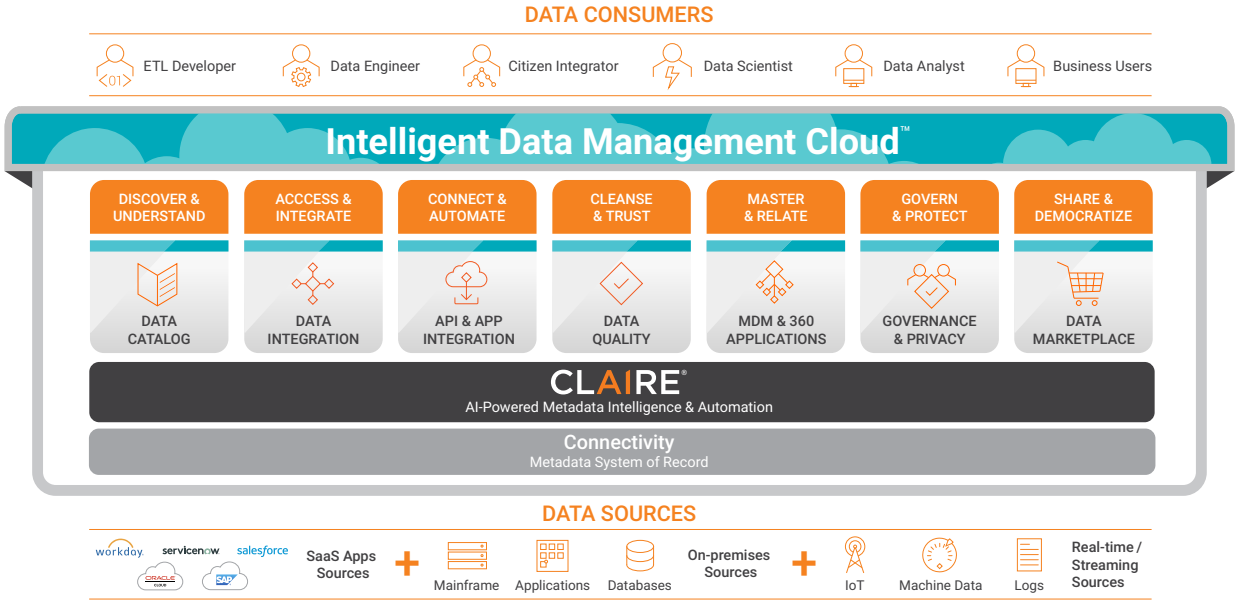


Figure 2: Informatica IDMC is the single and most complete platform you will ever need for multi-cloud, modern data management.

Part Three:

The Need for an Independent and Neutral Data Management Cloud (continued)

Only Informatica offers one comprehensive platform that supports all your cloud data management needs. Even as integration requirements evolve and technology changes, IDMC enables you to accelerate deployment, move projects into production, and improve decision-making and AI-driven predictive analytics.

IDMC helps organizations deliver on their digital-first initiatives and build a competitive edge with these critical attributes:

- **Gain elastic scale to meet accelerating business demands:** IDMC is microservices-based and API-driven, scaling all enterprise workloads with elastic and serverless processing to further the democratization of data and empower business users with data-led insights.
- **Accelerate time to insights with AI-powered, metadata-driven intelligence:** Informatica's AI-powered metadata engine, CLAIRE™, is the core of the IDMC and enables customers with AI and ML capabilities to derive insights from troves of data in minutes instead of months.
- **Access and share data on any cloud or platform:** IDMC runs all workloads at enterprise-scale in the cloud and currently processes over 22 trillion transactions each month, empowering organizations to connect, access, consume, and govern data wherever it flows—the cloud, cloud-to-on-premises environments, or on-premises-to-on-premises environments.
- **Connect and automate data with low-code, no-code cloud data management:** IDMC maximizes agility and collaboration with a low-code or no-code experience, allowing you to respond to dynamic business requirements and changes in real time, without the overhead of developing and maintaining code.
- **Protect and consume data securely:** IDMC offers some of the highest industry data security standards and governance to define and enforce regulatory and privacy policies that ensure appropriate teams can quickly access and understand data and other artifacts such as AI models and pipelines.
- **Choose any cloud services at any time:** Informatica's new pricing model, Informatica Processing Unit (IPU), lets you consume services across IDMC based on the amount of capacity you need at any time for any service and from any source as your requirements change.

Part Three:

Benefits of the Informatica Approach

IDMC helps you become more data-driven, develop more innovative products and services, and deliver exceptional customer experiences.

Here's how:

- Increase workforce productivity by empowering governed, trusted, self-service access for all data consumers.
- Boost revenue and profitability by operationalizing AI models and improving their accuracy by fueling them with high-quality, authoritative, trustworthy data.
- Enhance operational efficiency by simplifying and streamlining business processes and workflows.
- Reduce regulatory risk by ensuring the accuracy and protection of sensitive data.
- Increase agility and resilience by enabling 360-degree views of relationships between customers, products, and suppliers across the business.

What (Who?!) is CLAIRE?

CLAIRE is the intelligence in our Intelligent Data Management Cloud. Our AI engine, CLAIRE, is built on a modern, elastic, serverless microservices stack that connects data consumers to the data sources they need. The CLAIRE engine enables you to intelligently discover and understand all the data within and outside the enterprise, access and ingest all types of data wherever and whenever you want, curate, and prepare data in a self-service fashion, and deliver a trusted single view.

Figure 3: The CLAIRE engine is the industry's first metadata-driven AI-powered technology for data management.

Part Four:

Case Studies

JDRF

Integrate Data to Help Fight Type 1 Diabetes

JDRF is the leading global organization funding type 1 diabetes (T1D) research, with an exclusive focus and singular influence on the worldwide effort to end T1D.

Challenge:
Increase productivity and meet future needs for fundraising, research, and advocacy.

Solution:
Use Informatica Intelligent Cloud Services to connect and integrate on-premises systems across multi-cloud platforms, including AWS, Microsoft Azure, Salesforce, web, and mobile; and boost engagement with donors, volunteers, and the T1D community.

Results:
Improved productivity up to 40%, helping focus more of the nonprofit's resources on fundraising, research, and advocacy.

"With Informatica, we're taking control of our data to become the premier global diabetes therapy accelerator so we can make life-changing breakthroughs possible sooner."

— **Sri Mishra,** CTO, JDRF

Part Four:

Case Studies

Deliver a Better Customer and Employee Experience Using Informatica's Cloud Data Management Solution for AWS

Founded in 2009, **SendGrid** developed an industry-disrupting, cloud-based email service to solve the challenges of reliably delivering emails on behalf of growing companies.

Challenge:
Improve business decision-making with modern analytics and empower business users to find and use the data they need to provide the best customer experiences.

Solution:
Paired with Amazon Redshift and Looker for cloud analytics and a data warehouse architecture.

Results:
SendGrid can now integrate SaaS endpoints like Salesforce and Zuora into Amazon Redshift, enable self-service for "citizen integrators" with simple data integrations, develop and execute ETL mappings for Amazon Redshift, and easily migrate data to AWS.

"Business leaders are excited about the new analytics capabilities we're enabling with Informatica and AWS. What used to be a dream is now a reality."

— **Ken Apple,** VP of Support and Business Operations, SendGrid

Part Four:

Case Studies

Tech Giant Powers Marketing Automation Across a Multi-Cloud Environment

Lenovo Group Ltd. or Lenovo PC International is a Chinese multinational technology company headquartered in Beijing, China, and Morrisville, North Carolina. Founded in 1984, Lenovo grew to become China's leading PC company and then acquired IBM's Personal Computing Division, the creators of the first personal computer.

Challenge:
Support product innovation and business agility by adopting new cloud-based marketing technologies and deliver relevant customer data faster to business users with limited IT involvement.

Solution:
Synchronize customer data residing in multiple clouds such as Salesforce, Eloqua, Marketo, and Microsoft SQL Server, and integrate with more than 30 marketing data sources and platforms using Informatica Intelligent Cloud Services.

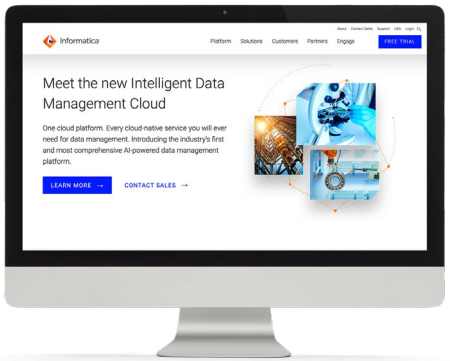
Results:
Lenovo now can create integrations 4x faster, giving marketers timely access to trusted and actionable data.

"Informatica Intelligent Cloud Services allowed us to meet much quicker timelines and achieve our goals as a marketing team without significant development effort."

— **Demian Hardister,** Marketing Data and Technology Strategy Senior Manager, Lenovo

Conclusion

As data moves to the cloud, so too must data technology. A multi-cloud approach promises many benefits, but it also involves risks and complexities. A multi-cloud environment should provide a way to collect, share, and collaborate with data seamlessly. A unified, neutral, AI-powered multi-cloud data management platform can provide organizations with self-service access to reliable data and real-time analytics across any cloud, anywhere, and at any scale.



Visit us to learn how Intelligent Data Management Cloud can empower you to meet the demands of data-driven transformation in a hybrid, multi-cloud ecosystem.

LEARN MORE

About Informatica®

At Informatica (NYSE: INFA), we believe data is the soul of business transformation. That's why we help you transform it from simply binary information to extraordinary innovation with our Informatica Intelligent Data Management Cloud™. Powered by AI, it's the only cloud dedicated to managing data of any type, pattern, complexity, or workload across any location—all on a single platform. Whether you're driving next-gen analytics, delivering perfectly timed customer experiences, or ensuring governance and privacy, you can always know your data is accurate, your insights are actionable, and your possibilities are limitless. Informatica. Cloud First. Data Always™.

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[1] IDC InfoBrief, sponsored by Informatica, Driving Business Value from Data in the Face of Fragmentation and Complexity, doc #US48293521, November 2021
[2] IDC InfoBrief, sponsored by Informatica, Driving Business Value from Data in the Face of Fragmentation and Complexity, doc #US48293521, November 2021
[3] Hybrid & Multicloud Perceptions Survey, https://blogs.microsoft.com/wp-content/uploads/prod/2022/01/Microsoft-Cloud-Survey-Results-Final.pdf, October 2021
[4] https://www.cxotoday.com/cloud/why-multi-cloud-is-becoming-the-new-norm-for-financial-companies
[5] https://risnews.com/retailers-continue-lean-cloud-win-battle-multiple-fronts
[6] IDC InfoBrief, sponsored by Informatica, Driving Business Value from Data in the Face of Fragmentation and Complexity, doc #US48293521, November 2021
[7] Hybrid & Multicloud Perceptions Survey, https://blogs.microsoft.com/wp-content/uploads/prod/2022/01/Microsoft-Cloud-Survey-Results-Final.pdf, October 2021
[8] https://www.hashicorp.com/state-of-the-cloud

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