

DevOps Data Platform for Multi-Cloud

Today's enterprises are choosing to work with multiple clouds including on-premises private clouds and on-demand public clouds.

By embracing multi-cloud strategies, organizations seek to tap into best-of-breed cloud services, harden disaster recovery capabilities, optimize IT costs, and build more dynamic applications. Already, over 81% percent of large enterprises are leveraging multiple cloud providers according to Gartner.



Multi-Cloud Opportunities and Challenges

The optionality inherent to multi-cloud architectures unlocks opportunities for businesses to increase their agility, efficiency, and speed of innovation. Enterprises adopt a multi-cloud approach to:

- » **Access a wider array of best-of-breed cloud services** and tooling in support of analytics, AI, application development, and other use cases.
- » **Increase application survivability** by creating redundancies and failover mechanisms that span multiple locations.
- » **Comply with regulations** including data privacy and residency laws that demand control over the location of data.
- » **Optimize costs** by reducing vendor lock-in pressures, increasing strategic flexibility to choose cloud providers, and enabling teams to select the most cost-efficient cloud service for a given use case.

The emergence of multi-cloud also aligns especially well with the trend in architecting solutions that encompass a distribution of loosely coupled components that, together, make up a cohesive application. Compared to monolithic development approaches, leveraging application components and APIs spread out across multiple clouds affords application teams greater flexibility, reuse opportunity, and extended reach to choose the best available cloud services.

Multi-Cloud Drives New Requirements for Non-Production Data Management

In addition to the application workloads running on cloud-based infrastructure, multi-cloud implementations typically entail multiple, diverse data sources distributed across two or more clouds. The complexity of operating several data source types across multiple locations in cloud environments with different capabilities magnifies the already significant challenge of managing enterprise data.

Data serves as both the fuel for the development and testing of multi-cloud applications, as well as the input for operational cloud services supporting analytics, AI, and other solutions. Multi-cloud architectures create new requirements to consolidate, secure, and govern distributed, sensitive data for compliance purposes. The complexity entailed by such a complex and fast-evolving landscape demands an automated, unified approach to orchestrating data management processes across multiple clouds.



Towards a Multi-Cloud Data Fabric

The Delphix DevOps Data Platform is a data management solution that combines virtualization (for efficient data copy, storage, and delivery) with data masking (for risk mitigation and compliance) to support API-driven data management automation across heterogeneous clouds and data sources. Delphix synchronizes with production data sources, compresses and virtualizes the data it collects, then provisions (and optionally masks) virtual data copies for consumption by data users (e.g. developers, testers, analysts) or cloud-based services, e.g., AI/ML services. With a collection of distributed Delphix engines that synchronize and collaborate to move and secure data across various clouds, enterprises can weave a multicloud data fabric to easily copy, move, and secure their globally distributed data estate.

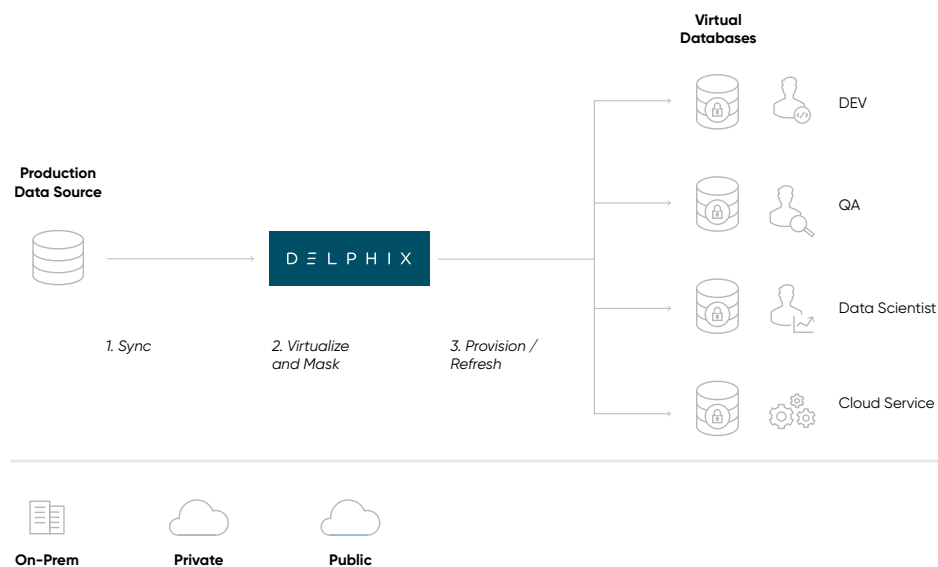


Figure 1. Automatically deliver data environments for multiple use cases across heterogeneous clouds and data sources

Data copies from Delphix are highly space-efficient, readable/writable, and can be controlled (e.g. refreshed, bookmarked/rewound, branched) via API. In addition, Delphix can mask data copies—replacing sensitive data values with fictitious yet realistic values—to irreversibly eliminate confidential information in non-production environments.

With the ability to provision, bookmark, rewind, mask, and otherwise control data across all non-production environments, the Delphix DevOps Data Platform fulfills key requirements driven by multi-cloud solutions:

- » **Continuous Cross-Cloud Data Movement:** Quickly and efficiently move data from one cloud to another, with the ability to maintain synchronization between sources and targets that reside in multiple clouds.
- » **Automated Data Provisioning:** Provision space-efficient, virtual data environments in minutes instead of days or weeks to accelerate application development, analytics, migration testing, or other critical workflows.
- » **Central Management and Governance:** Maintain visibility of data environments across clouds, with the ability to determine who has access to what data, when, where, and for how long.
- » **Sensitive Data Risk Mitigation:** Discover sensitive data values such as names, email addresses, and payment information, then consistently mask those values while preserving both realism and referential integrity of the data.
- » **Heterogeneous Data Sources Support:** Broad support for RDBMS, NoSQL, PaaS databases or flat files, with the ability to build integrations into additional sources.

Delphix Multi-Cloud Use Cases

Delphix capabilities for moving, masking, and managing enterprise data can be brought to bear across a number of key multi-cloud use cases.

Cross-Cloud Application Migration

Enterprises migrating production workloads from one cloud to another must move large volumes of data across clouds, then provision the data environments needed to iteratively test and validate workloads ahead of cutover. Delphix continuously replicates fresh data across clouds, then lets teams quickly spin up migration testing environments with sensitive data masked in order to accelerate cutover rehearsal and execution. Following go-live, Delphix lets SRE or other operations teams easily deploy ad hoc production support environments to triage and troubleshoot defects.

Multi-Cloud DevOps Acceleration

Containerization solutions, cloud-based infrastructure, and other modern tooling enables teams to stand up lightweight application instances with little time and effort. Provisioning integrated test data is a far slower and more manual task. This is particularly true for multi-cloud applications that are comprised of multiple modules or microservices, each associated with their own unique data sources or perhaps even their own SDLC pipelines that reside in different clouds.

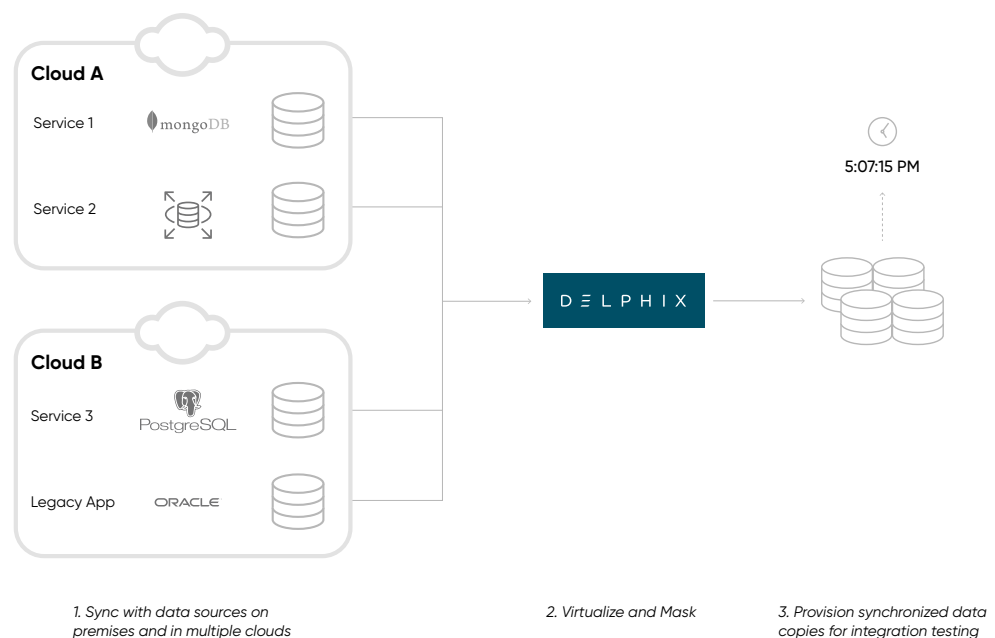


Figure 2. Provisioning synchronized data copies underlying application components that reside in multiple clouds—in a single motion

Delphix lets teams deliver data at the same pace and with the same level of API automation as virtual machines are configured or as cloud infrastructure is made available. They can provision complete application environments through a single motion in just minutes—including synchronized copies of production data sources that reside in multiple clouds. The ability to rapidly provision test data environments then bookmark, rewind, or restore them, facilitates fast and accurate testing. Moreover, these capabilities can be easily integrated with the tooling and workflows already used in modern CI/CD pipelines.

Data Portability for Cloud-Based Services

The major cloud providers offer broad portfolios of services in support of business analytics, AI/ML, application development, and industry-specific initiatives—but oftentimes with significant differences in capabilities from one cloud to another. Building an optimal business solution, then, can mean moving data from a source cloud to a specific target cloud that offers a differentiated platform or service. Delphix enables such workflows by non-disruptively synchronizing with data repositories in a source cloud, then securely replicating the data that serves as the input for a service in the target cloud. As source data changes over time, Delphix can replicate changed data to the target to ensure that services are continually and efficiently powered with fresh, high-quality data.

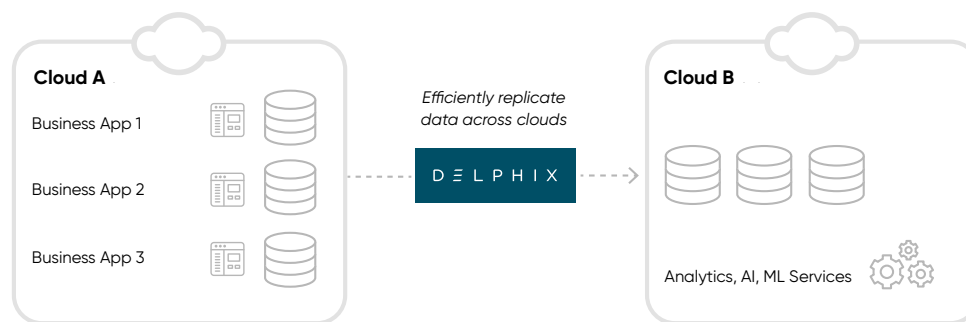


Figure 3. Deliver data across clouds to leverage best-of-breed services

Multi-Cloud Data Protection

Operational mistakes have taken down entire clouds or multiple regions of a public cloud, making multi-cloud deployments an important approach for preventing system failures. Delphix can serve as the centerpiece of a backup or disaster recovery solution, providing continuous data protection across multiple clouds: By configuring Delphix to continuously and efficiently replicate data from one cloud to another, Delphix ensures that current application data is always available in a secondary location.

Data Governance and Compliance

The Delphix platform serves as a single point of management that provides visibility and control over data environments in multiple clouds. Once synchronized with cloud data sources, Delphix can orchestrate data movement across regions and clouds to support data sovereignty requirements, or govern access to non-production data environments—including the ability to determine and audit who has access to what data, in what cloud, and for how long. In addition, Delphix lets security teams easily define data masking policies that can be applied consistently across multiple clouds, ensuring that the realism and referential integrity of the data is preserved while also supporting compliance with privacy regulations such as GDPR and CCPA.

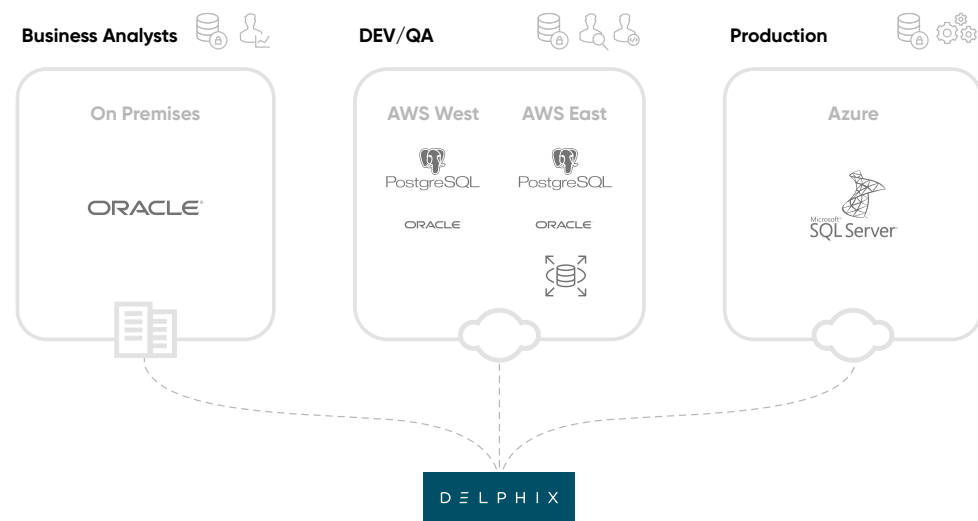


Figure 4. Gain visibility and governance over non-production data environments across multiple locations

Key Benefits:

The optionality inherent to multi-cloud architectures unlocks opportunities for businesses to increase their agility, efficiency, and speed of innovation. Enterprises adopt a multi-cloud approach to:

- » **Release Faster:** Deliver data 100x faster within and across cloud environments, eliminating a key dev/test bottleneck.
- » **Build Smarter Apps and Analytics:** Easily migrate datasets to leverage best-of-breed cloud services for analytics, application development, and AI.
- » **Achieve Compliance:** Find and mask sensitive data for compliance with data privacy regulations such as GDPR or CCPA.



To protect cloud data from breach and to enable regulatory compliance, Delta Dental needed to secure sensitive data before moving it to AWS. The Delphix platform collects data from Delta Dental's production applications, then applies masking to that data before replicating it to AWS.

"The combination of Delphix and AWS gives us the agility we need to succeed in today's application-driven economy. By easily and securely moving data to the cloud, we're able to release new features to the market faster, while also lowering cost and risk."

Shan Swaminathan

VP of Application Delivery and DevOps, Delta Dental



Delphix addresses the first crucial step in securing sensitive data for Boeing employees' credit union: discovering where the risk lies by using a built-in data profiling tool. Next, Delphix masks hundreds of millions of rows of data across thousands of database columns.

"Not only does Delphix allow us to reduce our risk footprint by masking sensitive data, but we can also give developers realistic, production-like environments, which ensures we're not introducing defects because of bad data."

Kyle Welsh

Chief Information Security Officer, BECU

DELPHIX

Delphix is the industry leading data company for DevOps.

Data is critical for testing application releases, modernization, cloud adoption, and AI/ML programs. We provide an automated DevOps data platform for all enterprise applications. Delphix masks data for privacy compliance, secures data from ransomware, and delivers efficient, virtualized data for CI/CD.

Our platform includes essential DevOps APIs for data provisioning, refresh, rewind, integration, and version control. Leading companies, including UKG, Choice Hotels, J.B. Hunt, and Fannie Mae, use Delphix to accelerate digital transformation. For more information, visit www.delphix.com or follow us on [LinkedIn](#), [Twitter](#), and [Facebook](#).

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