



DevOps Data Platform for Cloud Migration

An API-driven data infrastructure increases efficiency and effectiveness of CI/CD workflows for workload migrations and accelerated cloud adoption

Enterprises today have a cloud-first approach when implementing new technology initiatives, shedding legacy systems and processes to increase agility in a competitive digital market. Leveraging the flexibility of a cloud infrastructure introduces operational efficiencies that are unattainable in an on-premises data center.

Moving application development to the cloud is often the first step in the cloud journey, where DevOps teams can quickly spin up and tear down test environments for a multi-stage release pipeline.

The experience gained from cloud-based lower-level environments provides an opportunity to refine and re-architect IT procedures, prior to migration of production workloads, and address data security concerns that hinder wide-scale cloud adoption.

As application teams begin working in single, hybrid, or multi-cloud models, DevOps practices are evaluated to avoid processes that add complexity and overhead, and the same should be true for the data pipeline that feeds the release train.

A data for DevOps platform enables fast and secure movement of data through automation and API controls. Data automation has modernized test data management, eliminating long-standing wait-states that limit release velocity. Establishing new governance models for securing sensitive information in cloud-based non-production environments instills confidence that compliance will be maintained when production systems move off-premises.

Data for DevOps automates data access, delivery, and compliance, enabling faster, less risky cloud migration.

Common Data Challenges in Cloud Migration Projects

Whether your migration strategy is lift and shift or rip and refactor, migrating and modernizing applications requires careful planning to ensure a smooth transition to stable operations. Complex enterprise migration projects involve extensive development, testing, and rehearsals prior to cutover from a physical installation.

DevOps teams strive to increase efficiency and effectiveness of CI/CD workflows before, during, and after workload migration. But timely and secure delivery of test data remains an obstacle to maintaining schedules and ensuring comprehensive testing. Implementing a data for DevOps platform helps solve these common data challenges in lower-level environments:

Slow Data Provisioning

Manual processes for consolidating, securing, and distributing data delay migration project timelines when automated DevOps workflows are stuck waiting on data to be provisioned into test environments—or worse, applications teams simply forge ahead using outdated test data which increases the risk of data-related defects escaping into production. Heterogeneous data sources dispersed across multiple locations, coupled with serial ticketing systems for database backup and restore, means data provisioning can add days or even weeks to the schedule.

Risk of Sensitive Data Exposure

Non-production environments are often less secure, simply for reasons of cost and convenience, which heightens the risk of sensitive data exposure. But up to 80% of the sensitive data exists in lower environments, making the risk of exposure high. Data privacy regulations, such as GDPR, CCPA, HIPAA and others require companies to protect personal information wherever it is stored, whether on-premises or cloud, or face potentially huge fines and penalties as well as reputational damage. Data such as social security numbers, age, and addresses should be obfuscated or anonymized prior to deploying to cloud migration test environments.



Reasons why non-production environments are at higher risk of exposing PII and sensitive data

Instead of relying on a patchwork of manual processes, enterprises are adopting an automated approach to sensitive data discovery and compliance with data privacy regulations.

Limited Access to Production-Quality Data

DevOps teams leverage small batch sizes to increase agility and maintain a tighter feedback loop. Shifting left keeps defects from moving down the pipeline, where they get harder and more expensive to triage, especially in a complex migration scenario. To find issues sooner in the development lifecycle, the spectrum of test environments used should closely simulate production, including data. Without other options, developers often use synthetic data or subsets for testing which significantly weakens results.

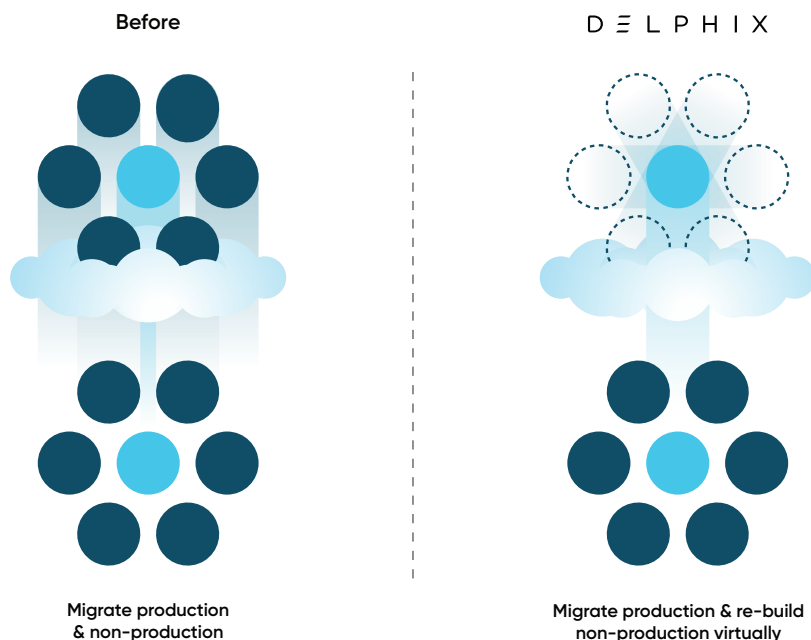
A data for DevOps provides an automated approach for orchestrating test data management to address these challenges. As application development teams transition to the cloud and prepare for application migration, the same processes and tools established for data mobility and security in test environments can be used to support other non-production environments such as ML and AI initiatives.

DevOps Data Platform for Cloud Migration

Delphix is a data for DevOps platform for application development teams, delivering secure virtual copies of production-quality data for test environments to streamline cloud migration projects and increase efficiency of DevOps workflows. Delphix provides development and test teams with API access to production-quality data, keeping test environments compliant by automatically identifying and protecting sensitive information. Digital transformation requires data transformation, and Delphix ensures data is portable, accessible, and secure.

Faster, More Efficient Cloud Migration

Delphix enables DevOps teams to migrate production workloads to the cloud faster and with greater confidence. Instead of migrating all of your data environments, execute a thin migration using APIs to sync production data to non-prod in the cloud, then provision databases to rebuild environments for development, testing, and AI.



Accelerate Application Development for Cloud Migrations

DevOps teams have brought speed to every part of the software delivery lifecycle, except when it comes to data delivery. Agility is lost when test data delivery doesn't match an optimized app dev model in the cloud, putting the brakes on productivity. Delphix integrates into an automated CI/CD toolchain so data delivery can keep pace with development, eliminating data bottlenecks that impact migration project timelines.

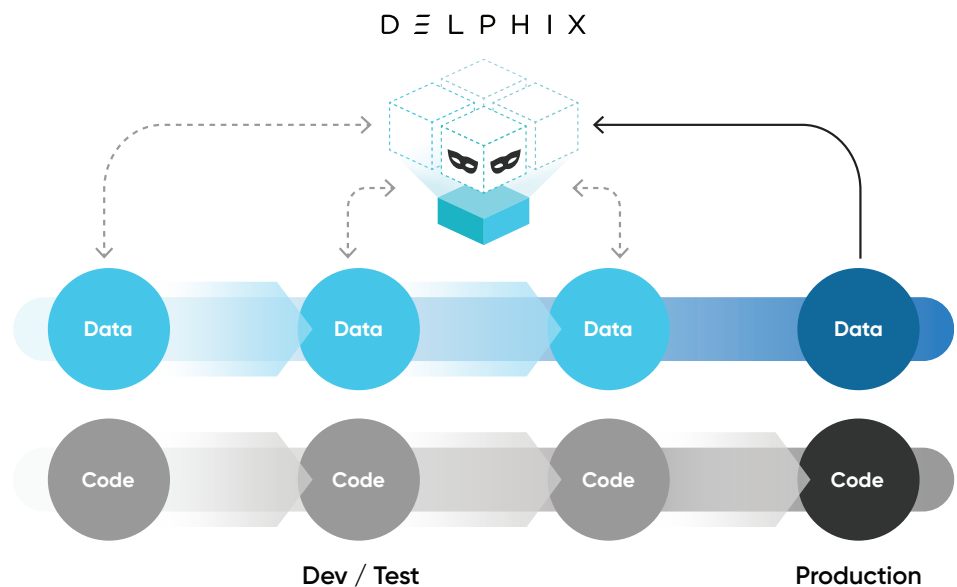
Shift Left to Find Data-Related Defects Earlier

Brittle scripts and time-consuming processes limit the flow of data into cloud-based test environments, resulting in inferior test coverage. Delphix non-disruptively ingests data to create lightweight copies that are kept in-sync with the production instance. Test teams shift left using higher-quality data to uncover data-related defects earlier in the release cycle. API access to the production-quality data maximizes release velocity without sacrificing application quality.

Version Data Like Code

Destructive testing during a migration project requires datasets to be returned to the original state so tests can resume. Delphix version controls data to create a reference point in time so test data can be automatically rolled back to the original state. Following the go-live date, SREs

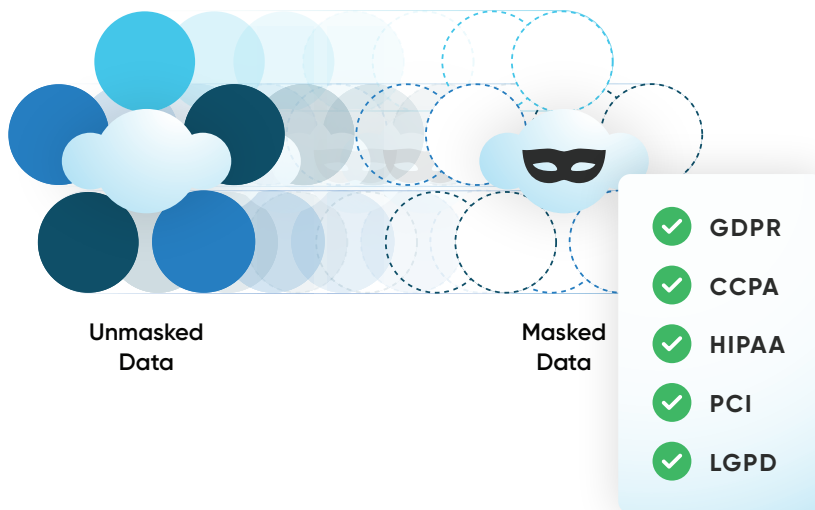
or other ops teams can quickly spin up support environments for post-migration debugging and triage to improve MTTR metrics. Linking the state of the test database to specific application changes increases the flow of planned work because data is as agile as your code.



API access and controls provide data agility to application development in the cloud.

Maintain Regulatory Compliance

Data delivered to lower-level environments in the cloud must remain compliant with privacy laws such as HIPAA, PCI, CCPA, LGPD, and GDPR. Delphix automatically identifies and replaces PII data prior to distribution. Masking replaces sensitive data with fictitious but realistic equivalents to maintain referential integrity across data sources and locations. Pre-configured templates for regulation-specific profiles can be triggered by policy via an API to continuously monitor compliance risk in the cloud.



Centralize Access Control

Siloed procedures for provisioning test data means organizations don't always have a clear picture of what data they have and who has access, and moving application development to the cloud increases management complexity. Delphix centralizes data governance to bring

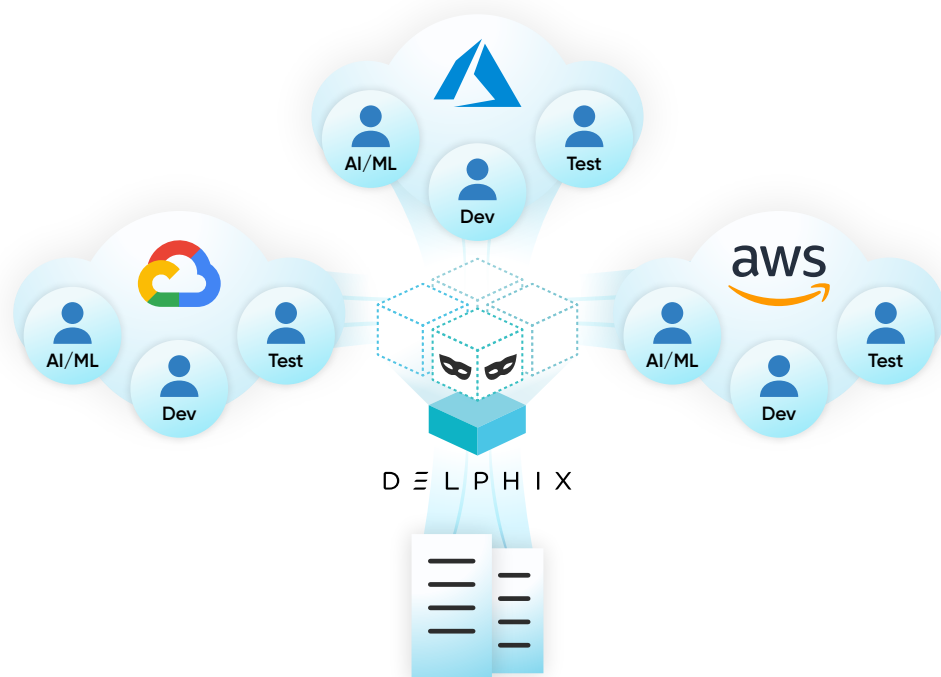
visibility and standardized control of who has access to what data, when, and for how long—no matter where environments are located.

Policy-based processes and infrastructure-wide administration creates traceability for audits and reporting.

Build a Multi-Cloud Data Fabric with Fast, Secure Data Delivery

A multi-cloud model matches the optimal cloud service with a specific workload, geographic region, or cost structure. Delphix is data source and cloud agnostic, supporting a fit-for-purpose strategy across public or private cloud options. Data remains mobile and secure across a multi-cloud data estate. Non-production datasets

are easily portable and non-disruptively sync with production instances in any infrastructure configuration. Using a single point of management across clouds, Delphix engines synchronize, secure, and deliver data to meet the unique use cases across cloud providers.



Delphix in the Cloud: How it Works

The models for application development in the cloud vary. Delphix supports hybrid, single cloud, and multi-cloud strategies to future-proof your software testing as your cloud model evolves.

Rapidly provision secure test environments in the cloud to optimize CI/CD pipelines, support workload migrations, and ease the transition to cloud-native development.

- » The Delphix engine creates lightweight virtual copies of the production data source.
- » Sensitive data is automatically masked prior to distribution into lower-level environments.
- » Test data continuously and non-disruptively syncs with the production instance.
- » Secure data is available on-demand or via API for integration into the CI/CD toolchain.

There are two models when using Delphix for a hybrid model where production remains on-premises and application development has moved to the cloud:

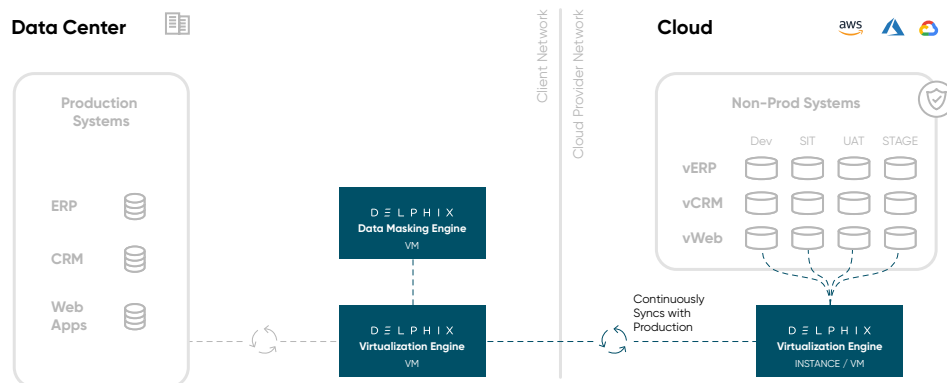


Figure 1. Hybrid model #1: Delphix Virtualization and Masking engines on-premises.

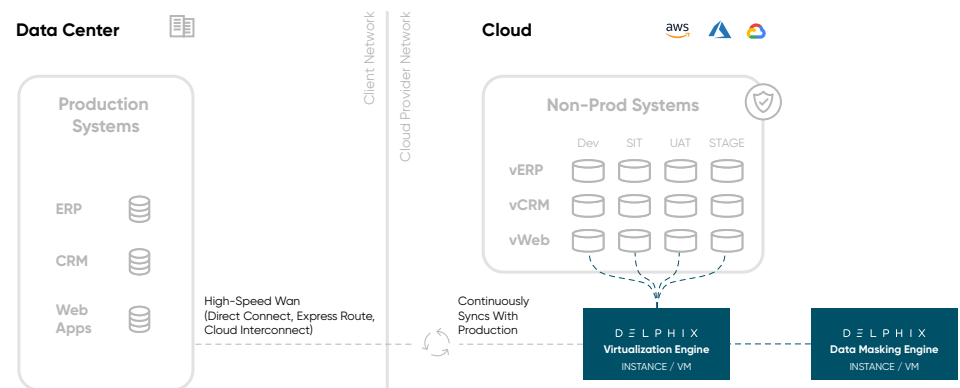


Figure 2. Hybrid model #2: Delphix Virtualization and Masking engines in the cloud.

After using Delphix to optimize cloud-based CI/CD pipelines, Delphix customers have expanded their access to fast, secure data mobility to facilitate digital initiatives such as Data as a Service, business intelligence, and multi-cloud best of breed strategies.

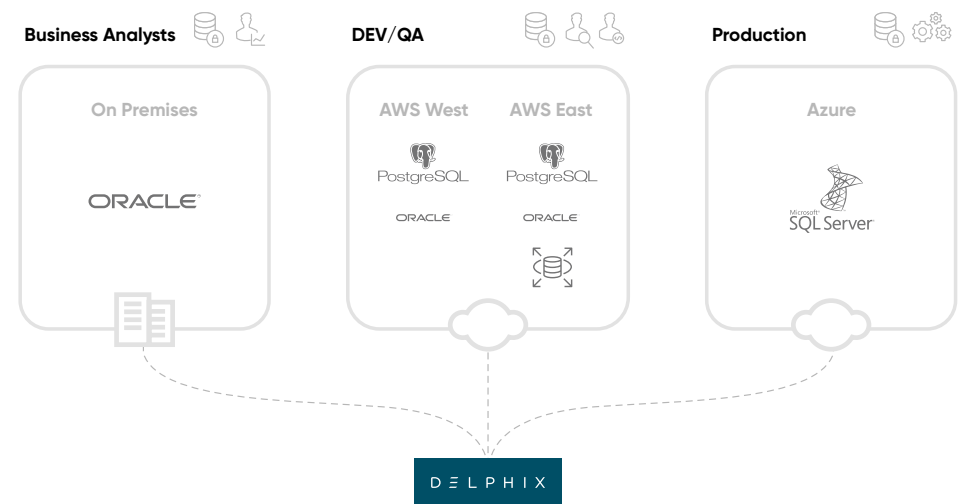


Figure 3. Build a multi-cloud data framework with Delphix.



The largest dental benefits system in the US uses Delphix and AWS to stay competitive in an application-driven economy, releasing new features faster for core business applications while reducing compliance risk.

- » **Decreased cloud migration** times by 20X
- » **Achieved cloud data compliance** by masking PII and PHI data prior to distribution in AWS
- » Provided developers and testers with on-demand access to secure, production-quality data in minutes, resulting in **faster and higher quality releases**



One of the largest hotel chains in the world uses Delphix and AWS to deliver better digital experiences and fuel business growth.

- » **Accelerated application migration to the cloud** by 20% after removing data bottlenecks
- » **Reduced application release cycle times** by 30-50%
- » **Improved customer experience** after reducing production defects by 80%



The California State University

The largest university system in the US uses Delphix in AWS to bring new digital experiences to half a million students.

- » **Improved graduation rates** by consolidating diverse data sources to identify at-risk students
- » **Eliminated manual processes** to deliver secure data to test environments 99%
- » **Streamlined software delivery** in AWS and saved over \$2m in development storage costs

D E L P H I X

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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