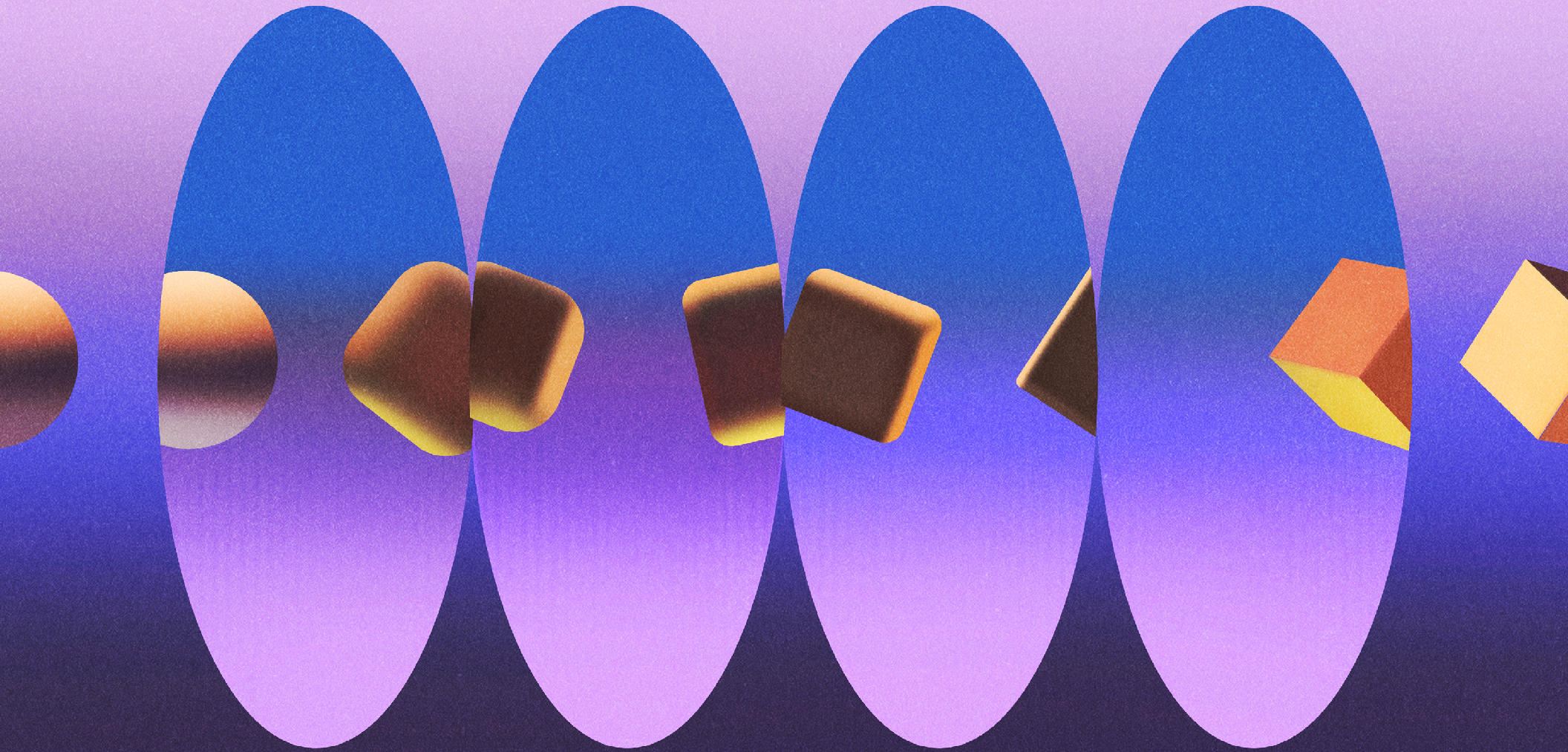
Migrating mission-critical databases to Amazon Web Services



Why organizations are moving their database workloads to AWS

As data volumes continue to grow exponentially, many modern organizations are migrating their mission-critical database workloads to improve cost-effectiveness and benefit from the agility, scalability, and security of AWS.

AWS empowers you to quickly scale your database infrastructure up or down in response to changing needs, avoiding the significant upfront costs and limitations associated with on-premises hardware. Add on the pay-as-you-go pricing model and you'll be able to better manage and predict expenses, aligning your costs more closely with what you're actually using.

Databases running on AWS also benefit from high availability, automatic backups, and disaster recovery options to keep your databases operational and resilient to downtime. More than that, AWS enhances security and compliance, protecting sensitive data and helping you meet your industry's regulatory requirements. By migrating database workloads to a fully managed AWS deployment, database administrators (DBAs) are freed from laborious infrastructure and database management tasks, giving them more time to focus on strategic initiatives within your business.

Better still, migrating to AWS doesn't have to be difficult or time-consuming. In this guide, we will explore how AWS empowers organizations and DBAs to harness these benefits, ensuring robust performance and driving business innovation.

ORGANIZATIONS THAT MIGRATED TO AWS FROM ON PREMISES ENJOYED:

$11.7M
in average annual benefits per organization[1]

258%
three-year ROI[2]

34%
lower annual database cost[3]

38%
fewer instances of unplanned downtime[4]

63%
more efficient DBA teams[5]

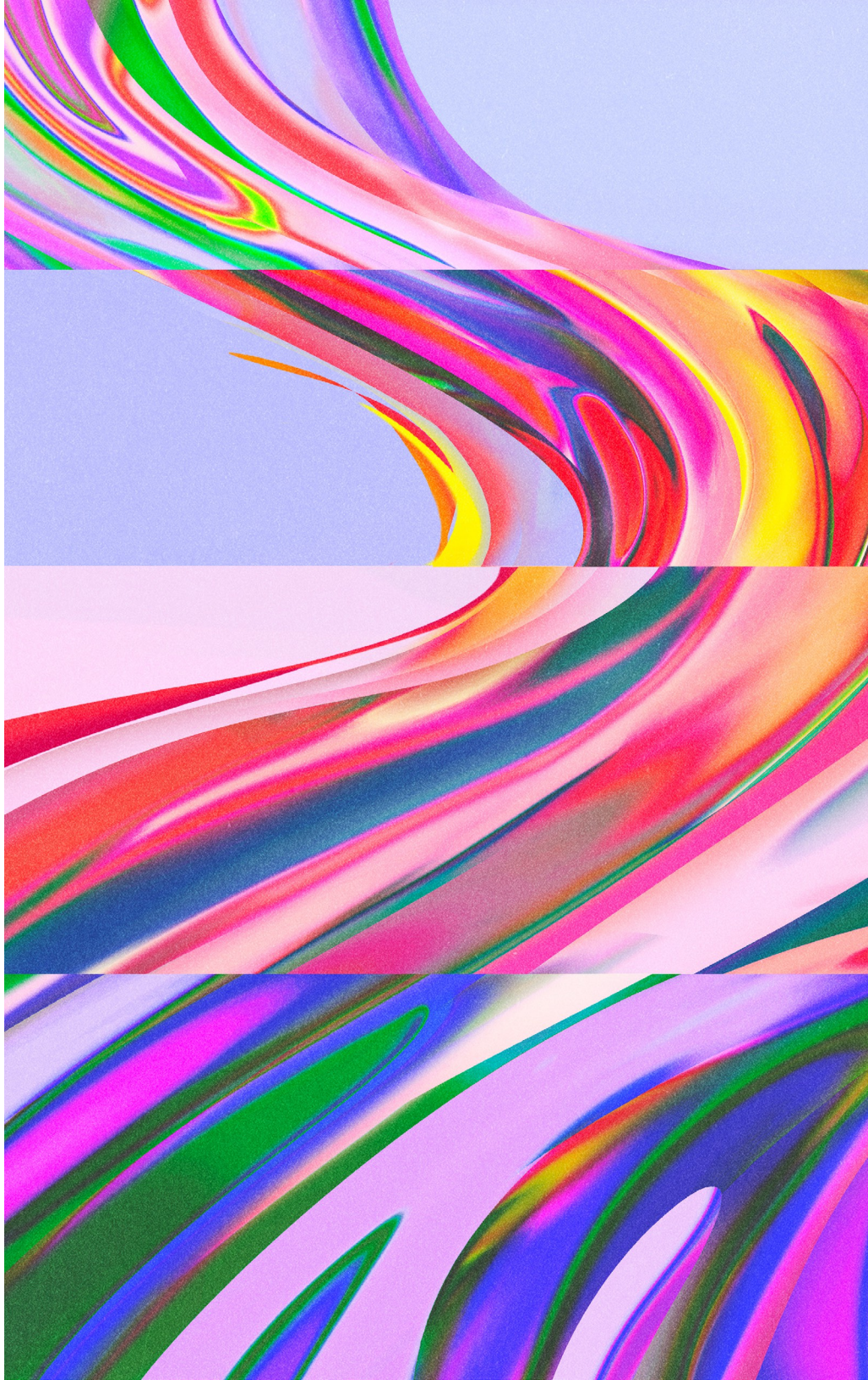
[1] "The Business Value of Amazon Relational Database Service", IDC, May 2024
[2] "The Business Value of Amazon Relational Database Service", IDC, May 2024
[3] "The Business Value of Amazon Relational Database Service", IDC, May 2024
[4] "The Business Value of Amazon Relational Database Service", IDC, May 2024
[5] "The Business Value of Amazon Relational Database Service", IDC, May 2024

Two approaches to migrating onto AWS services:

fully managed infrastructure vs fully managed database

There are two main options for running databases on AWS. The first option is self-deploying your database servers onto AWS. Taking this approach lets you run any database under the sun. AWS enables you to take advantage of a fully managed infrastructure and maintain complete control over your workloads by using a combination of Amazon Elastic Cloud (Amazon EC2) and a storage solution like Amazon Elastic Block Store (Amazon EBS) or Amazon FSx for NetApp ONTAP. Taking this route lets you optimize your configuration for maximum cost efficiency.

Alternatively, you could deploy with a fully managed database service using Amazon Relational Database Service (Amazon RDS) and one of its eight managed services like Amazon Aurora. Here, AWS handles the setup, management, maintenance, and database scaling infrastructure, allowing you to optimize your workloads and focus on application development or other strategic initiatives.




SELF MANAGED
AWS MANAGED
Schema design
Industry compliance
Query construction
Push-button scaling
Query optimization
Automated patching
Automatic fail-over
Advanced monitoring
Backup & recovery
Routine maintenance
Isolation & security
Built-in best practices
APPLICATIONS
OPERATION SYSTEM
STORAGE
COMPUTE
NETWORKING
FACILITIES
Self-managed databases on premises
Self-deployed databases on fully managed infrastructure services
Fully managed databases in the cloud

Fully managed shared storage:

Amazon FSx for NetApp ONTAP

Amazon FSx for NetApp ONTAP combines fully managed shared storage in the AWS Cloud with the popular data access and management capabilities of NetApp's file system technology, ONTAP. Access your data from Linux, macOS, or Windows clients by mounting your file systems using either the NFS or SMB protocols to enable multiprotocol access. Additionally, you can use iSCSI or NVMe-over-TCP for shared block storage. FSx for NetApp ONTAP provides you with a performant shared storage solution for well-architected databases and complex enterprise workloads. It offers data management features like application-consistent snapshots, thin provisioning, cloning, deduplication, compression, SnapMirror replication, and scalable performance.

FSx for ONTAP also supports Multi-AZ architectures with automated failover and failback for enhanced availability and resilience. Its intelligent tiering capabilities significantly reduce costs by automatically moving data between high-performance SSDs and cost-optimized storage based on usage patterns.

In addition, FSx for ONTAP provides robust management features that benefit every popular on-premises database, whether you're using NetApp ONTAP or other comparable storage systems. These features streamline database management, reduce downtime, and significantly cut your storage costs. DBAs can quickly create new database environments for development, testing, and production, thereby accelerating time-to-market for new applications. The robust data protection features of FSx for ONTAP, including meeting strict RPO and RTO requirements, ensure business continuity and data integrity during data loss events.

CASE STUDY

CHALLENGE:

Sportswear giant adidas needed to consolidate and automate its core SAP enterprise resource planning (ERP) systems to transition away from legacy solutions.

SOLUTION:

Consolidating adidas's legacy solutions with AWS provided fully managed, resilient, and high-performing storage that led to a 59% reduction in data recovery times. This was also the largest SAP S/4HANA installation in the world.

RESULT:

"We want to be cutting edge. We understand that we are hitting records on AWS in instance sizes, volume size, processing speed, memory, and CPUs. We see the sheer speed of the infrastructure, allowing us to restart and restore the system in an impressive amount of time."

Dominik Meir, Senior Director of Platform Engineering at adidas

Read more →

aws

Why choose Amazon FSx for NetApp ONTAP?

- **Migrate apps and data with ease:** Simplify the migration of your apps and data to the cloud while ensuring compatibility with your existing workflows using FSx for NetApp ONTAP's robust multiprotocol support.
- **Seamless integration and management:** FSx for NetApp ONTAP integrates perfectly with on-premises NetApp systems and other AWS services. Its comprehensive management features simplify database operations and reduce the complexities of hybrid cloud environments.
- **High performance with dynamic scaling:** Experience the consistently low latencies bundled with high throughput that's essential for mission-critical databases. Leverage in-memory and NVMe caches to dynamically scale performance and meet your workload demands faster.
- **Enhances availability and resilience:** FSx for NetApp ONTAP's high availability design ensures you can always access your data with multi-AZ architectures and automated failover and failback.
- **Robust data protection with snapshots:** Integration with AWS Backup and SnapMirror protect your data with application-consistent snapshots for cross-region disaster recovery. Even better, these features meet strict RPO and RTO requirements to ensure data integrity.
- **Automated storage scaling and tiering:** Intelligent tiering capabilities automatically move data between high-performance SSDs and cost-optimized storage based on your access patterns to reduce costs and maintain peak performance.
- **Resource and cost optimization:** Minimize storage costs and maintain high reliability with advanced storage features like deduplication, compression, and thin cloning.
- **Business value for DBAs:** Quick creation of new database environments frees your DBAs from routine tasks and gives them more time to focus on strategic initiatives for your business. Even better, this efficient model accelerates development and reduces optional costs.

> *"Amazon FSx for NetApp ONTAP provides us the ideal high-availability, cost-effective shared storage solution for our SQL Server FCI DR strategy. The SnapMirror functionality helped reduce our RPO and we only pay for the storage we use now - high availability SQL Server and DR made easy!"*
>
> **Nishanth Charlakola,**
> Associate Director at S&P Global Market Intelligence

Begin your database migration journey today with AWS

Ready to learn how your organization can become more agile and innovative by migrating your data to the cloud?

Get in touch today