



**EDB**  
Postgres<sup>®</sup> for the AI Generation

# Cloud Database Migration Essentials for Financial Services Firms

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# Cloud Database Migration Essentials for Financial Services Firms

The financial services industry is undergoing fundamental change driven by heightened regulatory requirements, increasingly demanding customer expectations, competition from nontraditional financial services sectors, and rapidly evolving technology capabilities.

Public cloud adoption is seen as a key enabler in financial services. In a [Capgemini Research Institute Report](#), 91% of financial services leaders identified adopting a cloud-first strategy as a key to institutional growth.

As part of the move to the cloud, financial services companies that have long invested in traditional, on-premises, enterprise-class databases are now also looking to modernize their technology stack and embrace open source databases, including Postgres.

In the [2022 State of Open Source in Financial Services](#) survey, 87% of senior IT leaders agreed that open source is valuable to the future of the financial services industry. Like other global industries, financial services leaders are turning to open source to quickly establish new services and manage costs.

Yet, for established financial services companies, one of the biggest technological challenges is how to safely and cost-effectively migrate core application legacy databases to cloud platforms in a timely fashion. It's a decision that involves a complex shift of often-sensitive financial data from well-trusted and well-protected database platforms in your data centers to cloud platforms that require a different level of technical due diligence, increased regulatory compliance, and associated shifts in how security is managed.

For financial services leaders evaluating cloud database options, this white paper delves into the advantages of choosing open source Postgres, reviews key cloud challenges, highlights essential considerations in making this transition, and describes how partnering with EnterpriseDB (EDB) helps accelerate Postgres® migrations in the cloud.

# Database modernization and cloud adoption drivers

In the financial services sector, there are many drivers for modernization and cloud adoption—from cost optimization to improving the developer experience to attracting and retaining talent with cutting-edge technology.

## Cost considerations

**Facilities, networking, compute, and storage:** In an attempt to reduce costs in establishing traditional brick-and-mortar data centers, many financial services have already moved to the cloud, with adoption continuing to trend upward.

**Software costs:** Beyond the savings in foundational infrastructure components, adopting cloud services can also lead to optimized software-related costs. Consider systems with erratic usage patterns, characterized by significant peaks and troughs. In such scenarios, pay-as-you-go models are particularly beneficial. They enable scaling up or down to align costs with system usage. This model starkly contrasts with traditional on-premises implementations. Adopting cloud services offers the potential to avoid up-front license purchases and ongoing maintenance costs, especially for software that is not consistently utilized at peak capacity.

## Cloud service provider operating model

Another key benefit of cloud, which also indirectly impacts the bottom line, is the cloud service provider (CSP) operating model. We have all become accustomed to clicking a button or calling an API and being able to quickly spin up a required resource, such as a virtual machine or a database. The ability to spin up a data center with a few clicks has been a game-changer. Especially for companies in a position to leverage fully managed services, outsourcing deployment, operations, and maintenance tasks to a CSP presents a valuable opportunity. This approach not only liberates staff from routine, low-level tasks but also opens avenues for upskilling. It helps empower your teams to focus on more strategic, high-value initiatives, enhancing overall productivity and innovation.

## Developer experience and time-to-market acceleration

At EDB, our perspective on the cloud extends far beyond viewing it as merely an external data center. The on-demand nature of the public cloud has revolutionized how our customers approach technology delivery, impacting not just cloud environments but also on-premises solutions. This transformation influences everything from the processes and tools used to the skills required by staff.

Our customers are on a journey to empower their developers, striving to provide them with the environment and tools that enable teams to deliver business value at an accelerated pace. A common strategy we observe is the implementation of shift-left initiatives. These often go hand-in-hand with investments in continuous integration and continuous deployment (CI/CD) and infrastructure as code (IAC), which are seamlessly supported in cloud environments.

This focus on developer empowerment and enhanced experience is critical. It's not just about driving efficiency; it's also a strategic move to attract and retain top talent. These considerations are among the primary reasons many organizations are choosing Postgres during their transition to the cloud.

## Enablement of fintech innovation

The cloud plays a pivotal role in driving innovation within the fintech sector. It offers a blend of advantages, such as those outlined above—cost efficiency, developer autonomy, and improved time to market. But, additionally, it enables smoother business-to-business collaboration, access to capabilities such as advanced analytics, and the ability to process large volumes of data. This ecosystem supports the “fail-fast” approach, which embraces failure as a learning opportunity and a stepping stone to success rather than as a setback. It allows the exploration of ideas or hypotheses with minimal cost and time investment, enabling quick determination of their viability. In contrast, traditional on-premises methods often involve longer lead times and higher costs for platform development, which can be disappointing if the initial concept proves unfeasible. Fintech companies can leverage prebuilt cloud services and platforms to rapidly test and launch minimum viable products (MVPs). Even in cases of failure, the financial impact is typically much lower than engaging on-premises solutions.

Aside from all of the other practical drivers of cloud adoption, the concept of data gravity means that, for many financial services institutions, it can simply be easier and more efficient to move applications closer to the data (in the cloud) than the other way around. With the balance of data in the cloud, companies can focus more on data-enabled business models, leveraging higher-level cloud services such as AI/ML-driven analytics.

## Why adopt Postgres/retire legacy databases?

While traditional enterprise-class databases such as Oracle have been the foundation for many financial services companies across the past few decades, it's becoming increasingly hard for some financial organizations to justify staying the course. The increasing [total cost of ownership \(TCO\)](#) of legacy database platforms, vendor lock-in, lack of deployment and pricing flexibility, and, in some cases, product deficiencies and deteriorating vendor relationships are common reasons companies cite for reviewing their options.

Companies that do make the move to public cloud frequently want to modernize their application estate as well. This activity can range from deconstruction of monolithic applications for a more modular approach to a refresh of the technology stack to both enable new technical capabilities and attract and retain technology talent. In some cases, traditional database offerings are not easily available in public cloud, and/or there is premium on license portability for existing licenses held on premises.

Generally, we see a rise in open source software adoption. OpenLogic's 2023 [State of Open Source Report](#) found that 80% of survey respondents across a wide range of industries noted increased adoption of open source software in the preceding year.

We also see a number of high-profile and established technology companies acquiring open source providers (examples: IBM acquiring Redhat, Microsoft buying GitHub, and Salesforce purchasing MuleSoft). Postgres is consistently the developers' favorite, as identified in [Stack Overflow's 2023 survey results](#).

While companies are often attracted to Postgres because of the material reduction in operating costs that open source can offer, they typically stay with and expand their Postgres footprint because of the possibilities for innovation that the platform opens up. The net result is that we see customers taking the opportunity to switch to more flexible Postgres database options as part of an application cloud migration.

## Considerations for running Postgres in the cloud

### Cloud service features

Financial services are some of the most sophisticated consumers of technology and require extreme scalability, high availability, uninterrupted performance, strong disaster recovery and robust security, regulatory compliance, and more. The target Postgres database platform running on the cloud must offer financial services organizations:

- High availability, with support for 99.995% SLA coverage
- Disaster recovery features that support multi-availability zone, multi-region resilience
- Always-on architectures capable of near-zero downtime both in the event of unexpected outage and for planned maintenance
- Geographically distributed architectures that enable development of both multi-master and highly resilient Postgres applications across regions
- Increasing flexibility to support hybrid and multi-cloud strategies—maximizing parity of and consistency between on-premises and public cloud implementations
- A functionally rich database offering with access to the latest versions/features
- Access to advanced configuration options and Postgres extensions
- Secure data and robust observability and auditing capabilities
- Postgres subject matter expert (SME) support
- Incident response, remediation, and resolution targets backed by service-level agreements

One minute of downtime can cost a business an average of \$9,000, totaling more than \$500,000 per hour.

(Source: [Ponemon Institute](#))

## The “default” CSP Postgres deployment option is not always the best fit

Customers often initially opt for the managed Postgres solutions offered by their chosen CSPs, such as AWS, Google Cloud, or Microsoft Azure. This default choice is understandable, given its convenience. However, as customers develop a more nuanced understanding of the offerings and evolve their hybrid or multi-cloud strategies, they begin to reassess those early decisions.

A key consideration in this reassessment is the balance between the simplicity of deploying a CSP’s Postgres technology and the need for a full-featured Postgres architecture that includes advanced functionality and security features tailored for financial services. While CSP-managed Postgres services offer ease of onboarding, they come with certain limitations, including restricted configurability, limited options for enabling extensions, discrepancies in version consistency between on-premises and cloud environments, delayed availability of new versions, and, sometimes, a lack of specialized Postgres support. Increasingly, we see customers seeking to minimize the inconsistencies between on-premises and multiple CSP Postgres implementations while maximizing their database and application portability. Our “[Hybrid and Multi-Cloud: The Future of Cloud Computing](#)” blog provides a deeper dive into these drivers.

We encourage customers to research not just the available technical capabilities but also the sometimes complex pricing models of CSP-managed Postgres offerings. It can be hard to get an accurate forecast of CSP-managed Postgres costs. Maintaining performance requirements can result in CSP recommendations to add cloud infrastructure and unexpected cost upticks. For many financial services organizations, moving their database to the cloud isn’t necessarily cheaper, it’s just “[differently expensive](#).”

## Financial services business migration approach and program mobilization considerations

Cloud and vendor technology factors aside, from a migration program perspective, key business considerations include:

- The business case to migrate, resting on questions such as:
  - How much can I reduce my recurring [OpEx costs for my database estate](#)?
  - How much will it cost me to migrate?
- It is important to note that the business case does not have to be exclusively financial:
  - In some cases, risk reduction, improvement of the developer experience, a lack of innovation in the incumbent product, and even the pull of data gravity can be enough to cement the case to migrate.
- Do you have stakeholder buy-in?
  - Databases clearly do not exist in isolation. They are part of your application landscape, and you need key involvement from your application teams for migration. At a minimum, you need regression testing, but more likely you’ll need application tier integration/remediation for the new database platform.
- We have seen time and again that managing this transformation at scale in financial services requires discipline, often top-down support, and close tracking of metrics and governance to set and drive attainment of migration targets, particularly for any initiative that spans fiscal years.
- It is critical to have technical capabilities at your disposal that minimize application team migration efforts and maximize the speed to migrate. This means having:
  - Tooling to refactor legacy database business logic
  - Application team support to address any required corresponding application tier changes
  - Tooling in place to optimize data migration and minimize production cut over time (e.g., Change Data Capture tooling)
  - Robust data integrity checks for the highly regulated financial services industry

## Partnering with EDB to assure your database migration success

Partnering with EDB helps accelerate financial services Postgres database migrations in the cloud, factoring our fully managed Postgres-as-a-service technology, support for all major cloud platforms, high availability with active-active architecture capabilities, and industry-leading PostgreSQL expertise.

### Reduce your migration effort

Running [EDB Postgres Advanced Server](#) (EPAS) on the fully managed EDB Postgres AI Cloud Service provides financial services organizations with unmatched Oracle compatibility in running Postgres on their choice of cloud platforms. This approach enables financial services companies to spend less time re-coding applications and rapidly move workloads from Oracle to Postgres with few changes and little re-coding.



With EPAS on [EDB Postgres AI Cloud Service](#), you can migrate most Oracle database schemas and data in fewer than 20 days.

### Flexibility for hybrid and multi-cloud Postgres deployments

Some 63% of [Enterprise Strategy Group \(ESG\) survey](#) (EPAS) respondents said they use more than one cloud service infrastructure provider.




Instead of relying on CSPs to provide your Postgres database solution, the higher value for most organizations will come from migrating their database to a fully managed Postgres service such as EDB Postgres AI Cloud Service. EDB's solution reduces vendor lock-in and addresses [hybrid and multi-cloud](#) strategies by providing the flexibility to run on AWS, Google Cloud, and Microsoft cloud infrastructures; on EDB's cloud account; or on any combination of these cloud environments. With EDB Postgres AI Cloud Service, you get the same Postgres experience on any cloud, so you're free to employ a multi-cloud diversification strategy.

For financial services organizations, EDB's solution also supports high transaction volumes and creation of cloud-native applications capable of processing hundreds of thousands of transactions per second, while meeting customer demands for high volume and availability.

## Select the type of cluster you plan to use:

### Cluster Type

Please reference [this page](#) for more information on cluster types.

 <b>Single Node</b> Ideal for non-production workloads; creates a single primary with no standby replicas. <a href="#">Learn More</a>	 <b>Primary/Standby High Availability</b> Creates a cluster with one primary and up to two standby replicas in different availability zones. <a href="#">Learn More</a>	 <b>Distributed High Availability</b> Creates a cluster, powered by EDB Postgres Distributed (PGD), with 3 nodes and up to 2 Data Groups spread across three availability zones. <a href="#">Learn More</a>
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### Where to deploy

Please reference [this page](#) for more information on account types.



 <b>CLOUD SERVICE</b>	 <b>Your Cloud Account</b>
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Figure 1. The EDB Postgres AI Cloud Service console provides at-a-glance Postgres high-availability and cloud service configuration options.

### Industry-leading availability solutions

Running [EDB Postgres Distributed](#) (PGD) technology on EDB Postgres AI Cloud Service allows developers to build highly resilient Postgres applications on any cloud, including active-active use cases and the ability to choose the best environment for the data. EDB is the leader in distributed Postgres, enabling high availability everywhere.

PGD on EDB Postgres AI Cloud Service eases your disaster recovery processes by offering the advantages of multiregion, always-on architectures to ensure that your solution is continually operational. As a result, you benefit from continuous disaster recovery readiness, without the need for database interaction during failover to another region.

Many cloud providers only guarantee from 99.95% to 99.99% availability for Postgres. This poses costly risks for financial services leaders who need to ensure 24/7 distributed high availability to protect data quality and ensure compliance.

PGD on EDB Postgres AI Cloud Service provides best-in-class high availability for organizations migrating to Postgres databases in the cloud. With this approach, EDB improves application uptime, enhances geo-distributed data capabilities, and simplifies Postgres maintenance in any cloud.

With PGD on EDB Postgres AI Cloud Service, financial services leaders can meet the needs of a globally distributed customer base and improve business continuity across multiple data centers while protecting against unplanned outages that cause downtime, with up to 99.995% availability.

### Maintaining uptime and avoiding service disruptions for routine maintenance

PGD on EDB Postgres AI Cloud Service enables you to perform maintenance during the online day with near-zero downtime. Unavoidable tasks, such as infrastructure patching or database maintenance, can be handled on a rolling basis. The solution also provides the capability to perform major version upgrades without downtime.

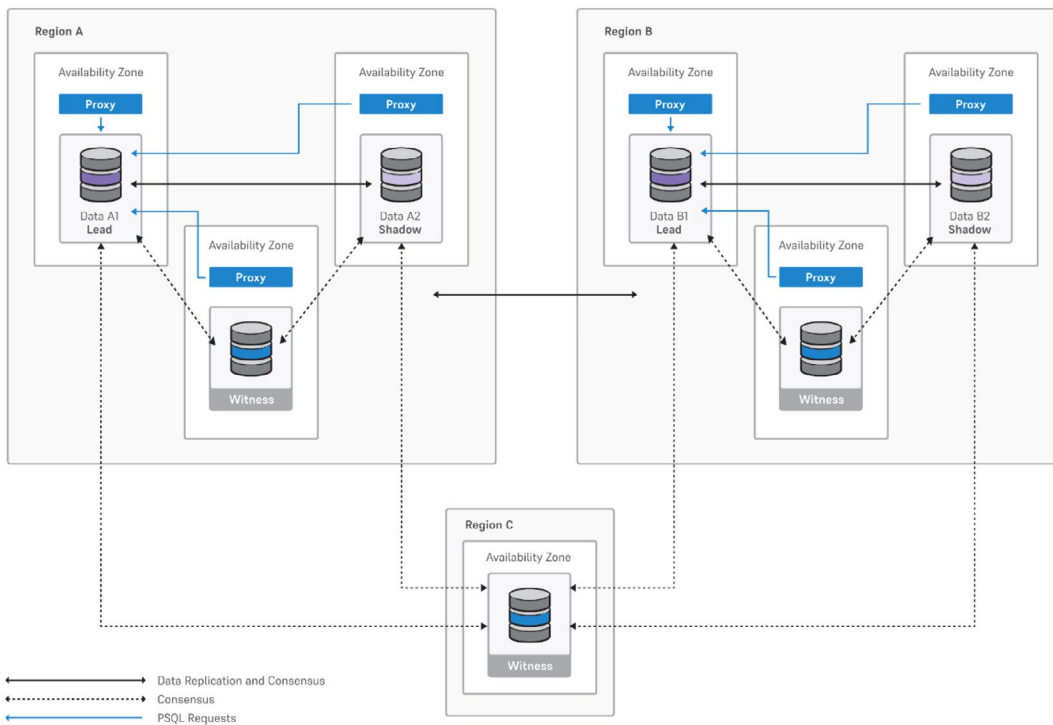


Figure 2. PGD on EDB Postgres AI Cloud Service, showing an extreme high availability, multi-region configuration, with three data nodes (x2) and one witness

### Meeting data sovereignty, localization, and residency requirements

By running PGD on EDB Postgres AI Cloud Service, you can take advantage of geo-distributed, active-active architectures that enable you to meet data sovereignty, localization, and residency requirements. You can manage protected data and meet business or regional data compliance requirements by enabling replication at the schema, table, or transaction level.



## Mitigating risk

EDB Postgres AI Cloud Service helps reduce risk with EDB support coverage features that include 24x7 monitoring, network configuration, automatic backups, and expert break-fix support. Risks can be mitigated through improved management capabilities, extreme high availability delivered by running PGD on EDB Postgres AI Cloud Service, and other solutions that protect data integrity. From preproduction environments to mission-critical applications that cannot go down, EDB provides availability options to meet your application requirements.

In further reducing migration risk, EDB's Postgres experts can help financial services organizations balance Postgres performance vs. infrastructure cost concerns by providing best-practices guidance on storage IOPS and backup storage infrastructure decisions in AWS, Google Cloud, and Azure, as well as in the EDB Postgres AI Cloud Service account.

## Conclusion

For financial services leaders evaluating cloud database options, the EDB Postgres AI Cloud Service solution can deliver a range of benefits, including cost reduction, increased scalability and flexibility, improved security and data protection, and enhanced data management and analytics capabilities. With PGD on EDB Postgres AI Cloud Service, you get best-in-class high-availability, geo-distributed (active-active) architectures and the ability to confidently evolve Postgres maintenance and releases.



### About EDB

EDB provides a data and AI platform that enables organizations to harness the full power of Postgres for transactional, analytical, and AI workloads across any cloud, anywhere. EDB empowers enterprises to control risk, manage costs and scale efficiently for a data and AI-led world. Serving more than 1,500 customers globally and as the leading contributor to the vibrant and fast-growing PostgreSQL community, EDB supports major government organizations, financial services, media and information technology companies. EDB's data-driven solutions enable customers to modernize legacy systems and break data silos while leveraging enterprise-grade open source technologies. EDB delivers the confidence of up to 99.999% high availability with mission-critical capabilities built in such as security, compliance controls, and observability. For more information, visit [www.enterprisedb.com](http://www.enterprisedb.com).