



# EDB Postgres<sup>®</sup> AI Use Cases

The first intelligent data platform for unified management  
of transactional, analytical, and AI workloads  
— *powered by Postgres.*



# The first intelligent data platform for unified management of transactional, analytical, and AI workloads — powered by Postgres.

EDB Postgres AI brings unified management, automation, and cloud agility to your critical data infrastructure in private environments. It enables consolidation of structured and unstructured data in a single multi-model data platform to accelerate transactional, analytical, and AI workloads — unleashing innovation and business growth.

EDB Postgres AI offers a single software installation that enables you to deploy, manage, and automate enterprise-grade Postgres transactional databases, a Postgres Lakehouse for data integration and analytics, and end-to-end data pipelines to support AI applications. It provides “single pane of glass” management and observability across your hybrid data estate, helping to unlock the hidden value of enterprise data to enable modern application development, real-time analytics, and sovereign AI deployment.

## BALANCING FLEXIBILITY AND OPERATIONS

Today’s organizations are forced to tackle key challenges that limit innovation, threaten security and compliance, and drive high operational costs and complexity:



### Hybrid management

Organizations are forced to focus on complex database administration for multiple cloud and on-premises deployments instead of value-oriented work.



### Data silos

Next-gen applications require diverse data models, but using multiple purpose-built databases limits innovation due to infrastructure sprawl, high costs, and data silos.



### Supply chain security

Verifying and hardening the open source software is vital to enterprise security but can be complex and time consuming.



### Legacy lock-in

Legacy applications limit innovation, risk security and compliance, and are expensive and difficult to scale.



### Data and AI sovereignty

Bringing sensitive data to cloud-based AI models undermines data governance, and immature, overly specialized AI components add complexity to enterprise ecosystems.

*Learn how operators, engineers, and developers can solve these challenges with EDB Postgres AI.*

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**HYBRID DATABASE-AS-A-SERVICE (DBAAS)**

**The automation and agility  
of cloud services, with the  
flexibility to deploy anywhere:**  
public cloud, hybrid cloud,  
and bare metal



# The automation and agility of cloud services, with the flexibility to deploy anywhere: public cloud, hybrid cloud, and bare metal

## THE CHALLENGES

Modern enterprises manage data across multiple clouds and on-premises deployments. Database administration is often undifferentiated heavy lifting that distracts operators and engineers from more value-oriented work like improving app scalability and accelerating time to market to keep up with the growing demands of customers. Today, organizations often turn to public cloud database-as-a-service (DBaaS) offerings to drive operational efficiency, but these services have major limitations: they limit hybrid deployment flexibility, lock enterprises into costly cloud consumption patterns as they scale, and lack portability to other platforms – creating just another form of vendor lock-in.

- **Limited deployment flexibility:** Organizations manage databases in the public cloud, private cloud, on-premises, and other locations. The environment affects the databases' manageability, compatibility with other technology, scalability, flexibility, and compliance.
- **Complex management:** It is difficult to maintain and manage databases spread across various environments. Managing updates and backups and ensuring availability, security, and performance becomes complex when dealing with disparate legacy and cloud systems.
- **Slow application development:** Siloed data sources contribute to complicated pipelines and slow development, especially when database administration becomes too complex and time consuming.

## THE SOLUTION

EDB Postgres® AI provides the automation, scale, and simplicity of a DBaaS, combined with hybrid deployment flexibility and data sovereignty, helping you to grow and innovate faster. EDB Postgres AI offers centralized management over enterprise data estates using the Hybrid Control Plane, a single software installation to deploy and manage EDB Postgres software and services. The Hybrid Control Plane enables database automation and end-to-end observability, with the freedom to deploy and manage sovereign databases in your environment of choice.

- **Deployment flexibility:** Enable EDB Postgres AI in self-hosted, data sovereign environments – in public or private clouds, multi-cloud, on-premises, or as an integrated hardware appliance.
- **Database automation:** Eliminate database administrative tasks with automated provisioning, backups, user management, point in time recovery, activity logs, and more, ensuring high quality execution at scale. Enable hybrid DBaaS infrastructure – even in your private data center.
- **Single pane of glass:** Monitor, observe, and respond to issues in real time across hybrid and multi-cloud environments to keep databases secure, ensure performance, and provide up to 99.999% availability – all through a single, unified control plane.
- **Hardened Postgres:** Built-in security and disaster recovery features support apps that won't go down, so you can leverage open source technologies for mission-critical applications. Activity logs, user management, data redaction, and SQL injection protection ensure security across your database clusters.

## KEY RESOURCES

- **Related Products and Solutions**
  - [EDB Postgres AI »](#)
  - [EDB Postgres Advanced Server »](#)
  - [EDB Postgres Extended Server »](#)
  - [EDB Postgres Distributed »](#)
- **Blogs**
  - [Characteristics of an Ideal Database as a Service »](#)
  - [What is a Database as a Service? »](#)
- **Webinars and demos**
  - [Navigating Today's Database Management Dilemmas »](#)

## THE BENEFITS

Spend less time on the undifferentiated heavy lifting of database administration to focus more on innovating as your business grows.

- **Grow with data sovereignty:** Achieve data sovereignty and future-proof your data platform for growth and scale with a single control plane for hybrid environments.
- **Improve operational efficiency:** Simplify management of hundreds of database clusters. Advanced automation and observability features keep track of 200+ metrics, speed up app performance up to 8x, identify problems and bottlenecks up to 5x faster, and optimize ownership costs.
- **Performance and availability:** Ensure performance and up to 99.999% availability across your Postgres data estate.
- **Faster app development:** Accelerate modern application development with less complexity through integrated support for diverse data requirements. Leverage open source Postgres technologies with EDB's enhanced extensions and extensive knowledge as the key contributor to Postgres.

## THE OUTCOMES

- Protect customer data. Ensure governance of sensitive data by keeping it in sovereign databases and leveraging access management and activity log features.
- Reduce database administrator (DBA) hours required to manage the system (versus legacy systems) so DBAs can focus on enabling application development.
- Ensure performance and availability of hundreds of database clusters while leaving the majority of database provisioning, administration, security, and other management tasks to EDB.

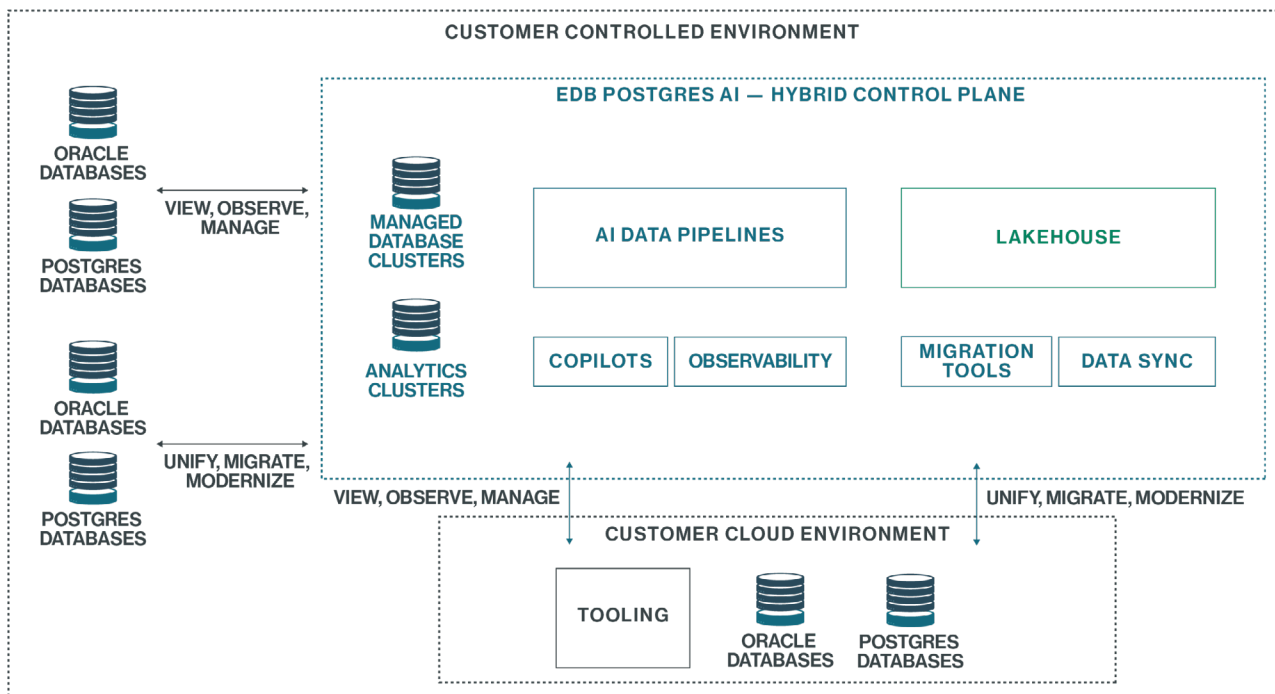


Figure 1. EDB Postgres AI enables a hybrid DBaaS: database automation and advanced observability with hybrid deployment flexibility.

## FREQUENTLY ASKED QUESTIONS

### **Q: What is a DBaaS?**

A: DBaaS, or database-as-a-service, is a model where the database provider performs all or most of the administrative tasks and maintenance of the database and operating system. The user can then focus on utilizing the database. This model is typically only available in the cloud.

Key characteristics include:

- Cloud infrastructure hosting
- Automation of database administration tasks like monitoring and access control
- Self-service capabilities for other database lifecycle operations (backups, patching)

### **Q: What makes EDB Postgres AI different from other DBaaS offerings?**

A: EDB Postgres AI can be used as a hybrid DBaaS, unlike other DBaaS solutions that can only manage cloud databases. Some key differentiators are:

- Hybrid deployment flexibility – organizations are not limited to cloud to have the DBaaS experience
- Support for and enhancements to various Postgres extensions
- Built-in observability across hybrid and multi-cloud environments
- Easy management and administration, including automated backups, point-in-time recovery, provisioning, activity logs, user management, and alerts and notifications — even in your private data center
- Centralized data access, which simplifies data management and enhances security and consistency

### **Q: Can I use a DBaaS for on-premises deployments?**

A: DBaaS offerings are typically for cloud services only. With EDB Postgres AI, however, you can deploy on the infrastructure of your choice – public cloud, hybrid cloud, and on-premises.

### **Q: Does EDB Postgres AI work as a hybrid DBaaS on existing infrastructure?**

A: Yes, you can deploy EDB Postgres AI on your existing infrastructure.

### **Q: What benefits do I get from hybrid DBaaS?**

A: Some key benefits of a hybrid DBaaS include:

- Performance and availability
- Faster app development
- Operational efficiency
- Security and compliance

### **Q: How does a hybrid DBaaS help developers get applications to market faster?**

A: Using a hybrid DBaaS puts power into the hands of developers. EDB Postgres AI makes data management, administration, and access easy. This helps free up time for DBAs so they can focus on mission-critical tasks. This is also helpful for developers who must scale, update, back up, monitor, and secure their databases without DBA oversight. With less time and complexity spent on these tasks, they can focus more on building apps that solve real business challenges. Plus, Postgres is developers' favorite database – EDB supports various Postgres extensions and enhances them with enterprise-grade features, enabling the use of open source technologies for mission-critical applications.

### **Q: Is a hybrid DBaaS a good fit for my industry?**

A: If you are in an industry with highly regulated data that must remain on-premises, like finance, healthcare, or government, you should consider a hybrid DBaaS so you can leverage the security of dedicated deployments with the cost and agility benefits of cloud. A hybrid DBaaS can work for any industry, though – companies who deploy Postgres on multiple environments can consider EDB Postgres AI to help consolidate complex database environments and simplify management, allowing their teams access to data without complexity.



**MODERNIZE LEGACY APPLICATIONS**

**Break free from legacy  
constraints** to grow  
and innovate faster





# Break free from legacy constraints to grow and innovate faster

## THE CHALLENGES

Enterprises were traditionally built around commercial relational databases like Oracle, SQL Server, and DB2, that locked them into monolithic, legacy applications like Oracle Enterprise Resource Planning (ERP) and out-of-date home-grown developments for critical daily processes. These outdated apps are expensive, difficult to scale, and risk security and compliance. They also limit business agility and innovation as they are often not compatible with modern cloud stacks. Today, organizations want to break free from legacy systems to maximize the value of their data and tackle next-gen application development, which requires diverse data models and open standards that integrate seamlessly with modern data stacks.

- **Vendor lock-in and constraints:** Legacy applications are often only compatible with their associated old-guard, commercial relational databases, making them difficult to integrate with other modern tools and reliant on legacy licensing costs.
- **Security and compliance:** As technology progresses, support for older systems slows down – even with manual upgrades, legacy applications risk of security and compliance issues. The alternative of community Postgres® lacks enterprise-grade requirements.
- **Innovation:** Modern applications require diverse data models and the accessibility, interoperability, and cost benefits of open standards.

## THE SOLUTION

EDB Postgres® AI enables modern data infrastructure for next-gen application development within a hybrid, customer-controlled environment. Organizations can modernize their legacy applications with EDB Postgres AI, which brings hardened, enhanced Postgres software to the infrastructure of their choice – in public or private clouds, multi-cloud, on-premises, or as an integrated hardware solution. This helps reduce TCO by cutting down legacy licensing and maintenance costs, enhances performance, and improves security and compliance outcomes while enabling developers to leverage diverse data models for modern apps.

- **Hardened Postgres:** Built-in, automated backups, recovery, activity logs, and user management features support apps that won't go down, so you can leverage open source technologies for mission-critical applications. EDB Postgres AI's enterprise-grade features, multi-layer approach to security, and secure supply chain secures your data and enables compliance readiness.
- **Enhanced data models and pipelines:** Leverage Postgres as a multi-model database with support for relational, document, key-value, time series, and vector data models, bringing analytics and AI closer to core, transactional data.
- **Flexible, developer-friendly features:** EDB Postgres AI automates database management and ensures high-quality execution so developers can focus on building next-gen applications and adopting modern tools and technologies. Developers can seamlessly integrate EDB-enhanced Postgres extensions with other modern data stack components to build next-gen applications.
- **Migration tools:** Easily migrate with a suite of tools including a migration AI Copilot, automatic migration assessments that prep your teams to migrate, and snapshot sync to enable the Postgres Lakehouse.

## KEY RESOURCES

- **Related Products and Solutions**
  - [EDB Postgres AI »](#)
  - [EDB Postgres Advanced Server »](#)
- **Content**
  - [Oracle Migration Calculator »](#)
  - [Oracle Migration to Postgres White Paper »](#)
  - [The USDA Forest Service modernizes its tech stack and moves to EDB Postgres Advanced Server »](#)
  - [5 Key Tech Trends and Predictions for 2024 »](#)
  - [Decoding Oracle Migration: Insights into Scope and ROI »](#)
  - [It's Not You, It's Oracle. Leave Them for Postgres »](#)
- **Webinars and Demos**
  - [How to Modernize your Database »](#)

## THE BENEFITS

Eliminate legacy lock-in without refactoring legacy applications to work with Postgres. Focus your time on building new innovations.

- **Maximize ROI:** Achieve enterprise-grade security in a sovereign, cost-effective environment that reduces TCO up to 80% versus legacy systems.
- **Support next-gen requirements:** Break up monolithic applications while expanding deployment options, adopting technology compatible with modern data stacks, and accelerating AI and analytics application development with multi-model support – all with a unified platform.
- **Improve developer agility:** Quickly adapt to changing market trends and get to market faster as you leverage PostgreSQL's scalability, flexibility, and adaptability while EDB Postgres AI simplifies the management of hundreds of database clusters and enables up to 99.999% availability.
- **Minimize Tier 1 application impacts:** Reduce application rewrites up to 95% and eliminate disruptions when migrating from legacy systems.

## THE OUTCOMES

- Deprecate outdated technology while enhancing security and performance.
- Unlock the agility required to tackle today's growing business demands.
- Speed up application modernization.
- Cut TCO by reducing licensing and maintenance costs.

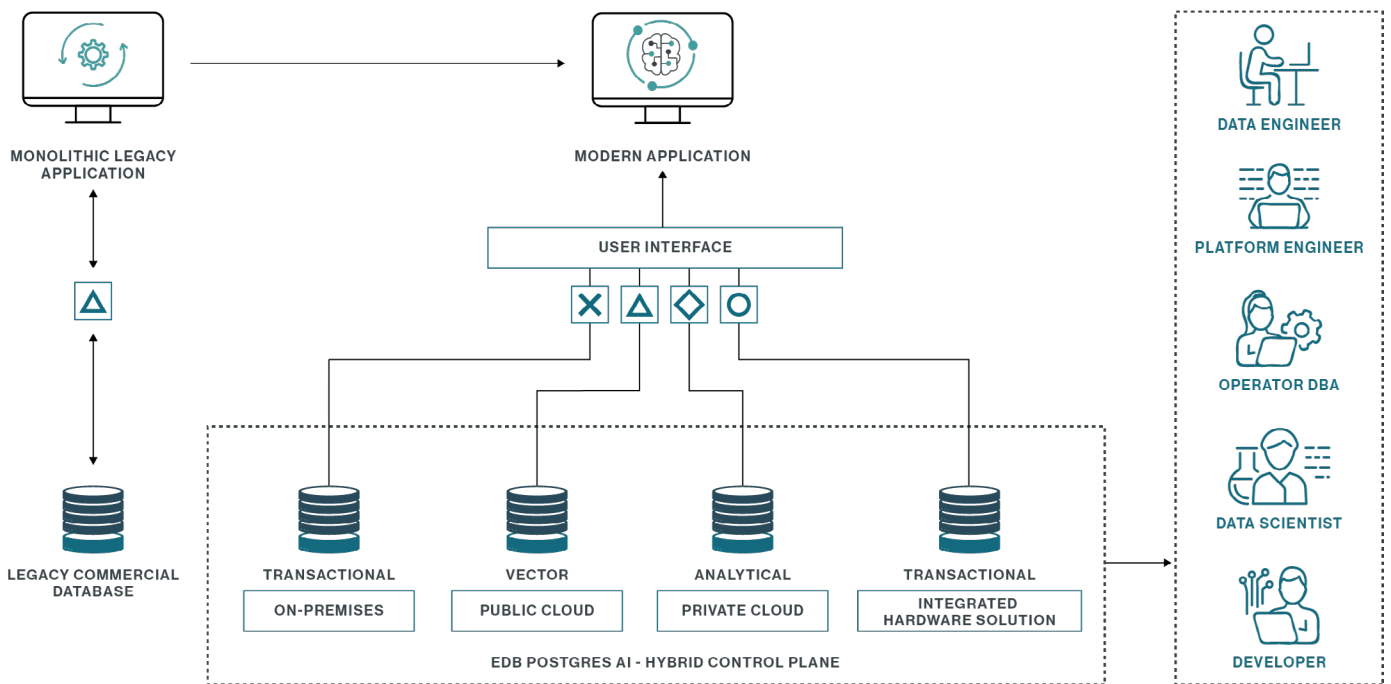


Figure 1. EDB Postgres AI enables legacy application modernization: automate schema and data conversions, reduce rewrites up to 95%, and leverage a migration portal with AI-driven assistance.

## FREQUENTLY ASKED QUESTIONS

### Q: What are legacy applications?

A: Legacy applications are those that are based on outdated based on outdated commercial database technology but may still be crucial to day-to-day operations. They are often monolithic, meaning multiple components are combined into a single application.

### Q: What are modern applications?

A: Modern applications are those that use cloud-native technologies, like containers, and developer best practices. Modern applications are built to be agile and scalable to support the fast-paced nature of business today.

### Q: Why modernize legacy applications?

A: Modernizing legacy applications offers a way for businesses to keep their mission-critical operations running while enabling the advantages of newer platforms, tools, and technologies. By modernizing their legacy applications with EDB Postgres AI, organizations can seamlessly integrate with other modern technologies, leverage flexible, developer-friendly features, and align with the most up-to-date industry best practices.

### Q: What is a multi-model database?

A: Multi-model databases can store and process different data models. Postgres, through its extensions, is a multi-model database because it supports relational, key-value, document, and vector data.

### Q: What are the benefits of open standards?

A: Open standard technology can be used by anyone. This allows organizations to choose solutions based on specific challenges, rather than being locked into one company's software or hardware. In general, open source helps reduce TCO since there are no licensing fees, lower the barriers for innovation, and increase interoperability with other tools.

### Q: What are the key technologies of application modernization?

A: Some key technologies used in application modernization are:

- **Hybrid deployments:** Some organizations can't jump from traditional on-premises systems to the cloud due to security and compliance concerns. Modern applications can be built on top of the infrastructure that best fits the organization's use case.
- **Containers and microservices:** Containers and microservices allow organizations to break down monoliths, which avoids bottlenecks of a single, central system, helping them develop quicker and more efficiently.
- **Automation tools:** Developers today need to quickly adapt to changing market trends. It's increasingly important that modern applications are backed by platforms that streamline and automate operational tasks so that teams can sustain these apps at scale.



**OMNI-DATA PLATFORM**

**Accelerate insights and  
launch on-demand workloads  
with the EDB Postgres<sup>®</sup> AI  
multi-model data platform.**



# Accelerate insights and launch on-demand workloads with the EDB Postgres® AI multi-model data platform.

## THE CHALLENGES

As technology reshapes business landscapes, enterprises face increasing pressure to rapidly adapt to diverse data management challenges. These include evolving customer engagement requirements and emerging market demand for real-time insights and personalized customer experiences. To meet these challenges, businesses must implement agile strategies for unified management of structured, semi-structured, and unstructured data. Industries like healthcare, financial services, and telecommunications are particularly dependent on harnessing multiple data models for on-demand workloads, blending structured customer data, semi-structured logs, and unstructured images and documents. However, bringing these data models together often requires deploying multiple purpose-built databases. This results in infrastructure sprawl, added complexity, ballooning costs, and data silos — all of which limit innovation and agility.

- **Blending disparate data:** Enterprises must bring together structured, semi-structured, and unstructured data to meet market demand for next-gen applications.
- **Infrastructure complexity:** Managing different data models often requires deploying multiple purpose-built databases, which increases infrastructure sprawl and operational complexity.
- **Cost and innovation constraints:** Complexity and fragmentation lead to ballooning costs and data silos, which limit innovation and slow down the development of new solutions.

## THE SOLUTION

EDB Postgres AI is an omni-data platform for on-demand business application development — seamlessly unifying structured, semi-structured, and unstructured data in Postgres with built-in observability and enterprise security features. By combining a flexible Postgres Lakehouse architecture with open source Postgres support for various data models like SQL, vector, JSON, and time-series, you can rein in the sprawl of purpose-built databases and eliminate ETL (extract, transform, and load) complexity. Plus, integration with unstructured object storage provides 18x cost-efficiency over Postgres tables, and EDB's Columnar Query Engine delivers real-time insights 30x faster than standard Postgres queries.

- **Enterprise, multi-model Postgres:** Leverage open source Postgres extensions to enable all types of data models — SQL, vector, JSON, time-series, key-value, and more — with enterprise-grade security and observability.
- **Flexible Postgres Lakehouse:** Open Postgres Lakehouse architecture provides seamless integration with unstructured data in an object storage environment that's 18x as cost-efficient as standard Postgres, reducing ETL pipelines and storage costs.
- **Columnar Query Engine:** A vectorized query engine optimized for columnar formats enables complex analytical queries across aggregate data with no lag on existing workloads — 30x faster than standard Postgres.

## KEY RESOURCES

- **Related Products and Solutions**
  - [EDB Postgres AI »](#)
  - [EDB Postgres Distributed »](#)
  - [Postgres for AI application development »](#)
  - [Postgres for rapid analytics »](#)
- **Customer Stories**
  - [State of Maryland »](#)
- **Blogs**
  - [Modern IT Challenges Require a Multi-Model Data Platform »](#)

## THE BENEFITS

With EDB Postgres AI as your omni-data platform, you can run high-performance queries across structured, semi-structured, and unstructured data for on-demand workloads — all while eliminating vendor lock-in and maintaining secure, observable, cost-efficient systems.

- **Empowered decision-making:** Make faster, more informed decisions with all your organization's data unified in Postgres.
- **Faster time to insights:** Get comprehensive insights in real time with fewer ETL pipelines, reduced latency, and 30x faster analytical queries.
- **Simplified data management:** Eliminate vendor lock-in, reduce infrastructure sprawl, and improve operational agility with seamless, secure data management and robust observability across environments.

## THE OUTCOMES

- Drive higher customer lifetime value. With faster, more informed decision-making and real-time insights across diverse data types, your business can rapidly innovate to meet customer demands — improving customer satisfaction and retention.
- Eliminate vendor lock-in and reduce the total cost of ownership so your organization can strategically reinvest resources into growth initiatives while maintaining long-term control over their data and infrastructure.
- Enhanced security, observability, and governance across all environments provide your business with the tools to meet evolving regulatory requirements and industry standards — meaning greater trust from customers and stakeholders.

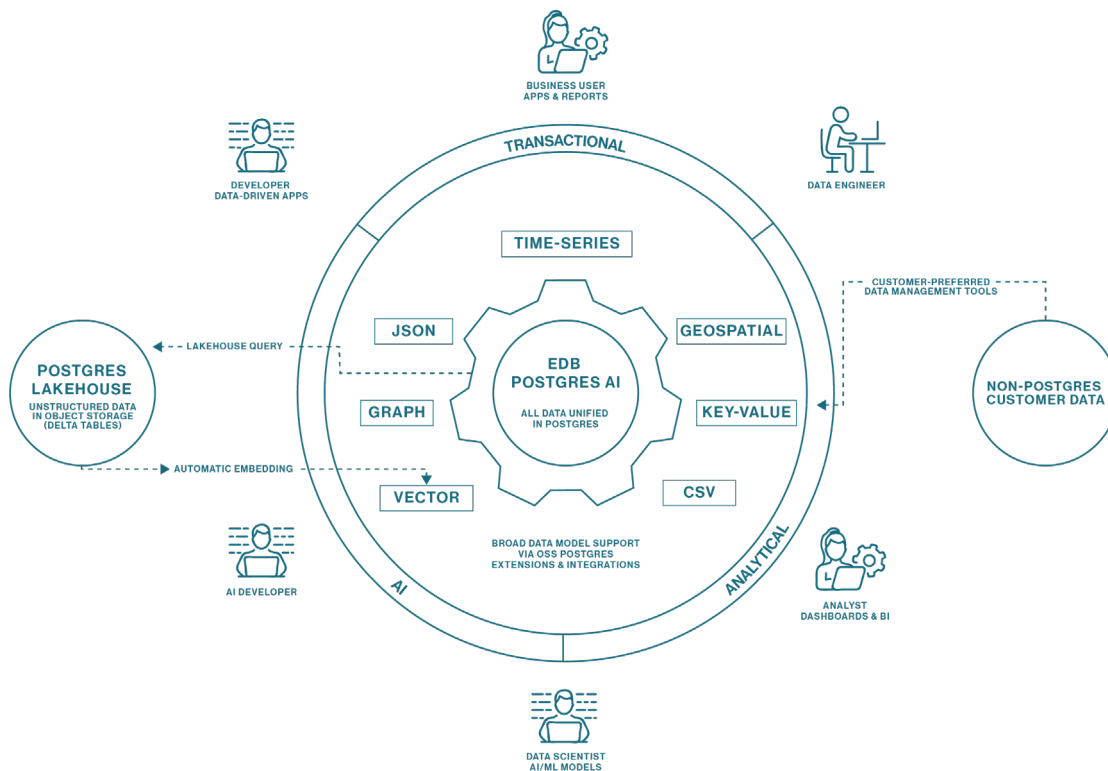


Figure 1. EDB Postgres AI enables an omni-data platform: Unify data silos, drive system consolidation, and unlock cost efficiency while accelerating innovation by your developers

## FREQUENTLY ASKED QUESTIONS

### **Q: What is the EDB Postgres AI omni-data platform?**

A: The EDB Postgres AI omni-data platform is a multi-model data solution that seamlessly integrates structured, semi-structured, and unstructured data into a single Postgres environment. It enables high-performance queries for on-demand workloads, providing real-time insights while offering secure, observable, and cost-efficient systems.

### **Q: What challenges does the platform solve for enterprises?**

A: No more endless searching for the right database to solve your current or emerging business problems. The EDB Postgres AI omni-data platform eliminates the complexity of managing multiple purpose-built databases, which often results in infrastructure sprawl, ballooning costs, and data silos. By unifying various data models, the platform simplifies integration, reduces costs, and accelerates innovation.

### **Q: How does EDB Postgres AI help businesses handle different data models?**

A: The platform supports a wide variety of data models — SQL, vector, JSON, time-series, key-value, and more — by leveraging open source Postgres extensions. This allows enterprises to handle all data types within a single, secure environment, eliminating the need for multiple databases.

### **Q: What are the key features of the omni data platform?**

A: Key features include:

- Extensible open source Postgres with enterprise-grade security, observability, and scale.
- Flexible Postgres Lakehouse architecture for seamless integration with unstructured data in an object storage environment.
- Columnar Query Engine for complex analytical queries across aggregate data with no lag on existing workloads.

### **Q: What benefits does the omni data platform offer to businesses?**

A: Key benefits include:

- Empowered decision-making with all your organization's data unified in Postgres.
- Faster time to insights with fewer ETL pipelines, reduced latency, and 30x faster analytical queries.
- More control via zero vendor lock-in, tighter security, and reduced TCO with 18x more cost-efficient object storage.

### **Q: What are the key benefits of the Postgres Lakehouse architecture?**

A: The Postgres Lakehouse seamlessly integrates operational data in Postgres with unstructured data in an object storage environment that's 18x more cost-efficient versus standard Postgres tables. It reduces the need for complex ETL pipelines, lowering TCO and simplifying data management.

### **Q: How does the Columnar Query Engine enhance query performance?**

A: The Columnar Query Engine is optimized for columnar formats well-suited to complex analytical queries across aggregate data. It performs 30x faster, on average, than standard Postgres, allowing real-time insights without impacting existing workloads.

### **Q: What business outcomes can be achieved with EDB Postgres AI?**

A: The platform helps businesses make faster data-driven decisions, reduces time to insights, and improves operational control by eliminating vendor lock-in. These capabilities drive higher customer satisfaction, sustainable growth, and enhanced business resilience.

### **Q: How does the platform reduce TCO?**

A: By consolidating data into a single platform and utilizing cost-efficient object storage, the platform reduces infrastructure sprawl, lowers operational complexity, and eliminates the high costs associated with managing multiple purpose-built databases.

### **Q: What industries benefit the most from the omni-data platform?**

A: Any business can benefit from the omni-data platform as they work to meet the modern expectations of on-demand workloads and personalized experiences. However, the benefits are especially powerful for heavily regulated industries such as healthcare, financial services, and telecommunications, where structured, semi-structured, and unstructured data must be synthesized from varied — and often sensitive — customer sources.



**SOVEREIGN AI**

**Your controlled, adaptable  
AI platform.** Secure, flexible,  
and cost-effective where  
your data lives.





# Sovereign AI: Your controlled, adaptable AI platform. Secure, flexible, and cost-effective where your data lives.

## THE CHALLENGES

Technology leaders face a complex and expansive landscape of AI tools as they race to operationalize AI in a rapidly evolving market. The pressure to gain a competitive edge is intense — but this ambition is tempered by the need to build robust, scalable AI platforms that can adapt to future business transformations. While some tools enable quick proofs of concept, they often fall short of enterprise-grade requirements. The challenge lies in balancing speed-to-market with a methodical approach that recognizes AI as, fundamentally, a data storage and management problem. This is particularly crucial in sectors like finance, healthcare, and government, where data integrity and regulatory compliance are paramount. Many businesses are wary of exposing sensitive information to cloud-based large language models — and instead are seeking hybrid or private AI solutions that offer flexibility without compromising security. Ultimately, the goal is to create a foundation that not only meets current needs but also supports on-demand AI applications as businesses evolve, without repeated architecture overhauls for each new use case.

- **Compliant, well-governed AI solutions:** Ensuring AI deployments maintain data integrity and regulatory compliance are top priorities for 60% of data leaders.
- **Maintaining security and control:** Addressing CEOs' reluctance to expose sensitive data to cloud-based LLMs but bring their data to a hybrid, private solution.
- **Velocity-vigilance tradeoff:** Balancing AI integration with the need for secure, stable, and observable data in business operations.

## THE SOLUTION

Sovereign AI from EDB Postgres® AI accelerates GenAI innovation while keeping all data in a controlled, private environment — ensuring well-governed AI models on your organization's own terms. By running preferred models alongside existing data in Postgres, sovereign AI eliminates data movement and enhances security through robust encryption, logging, and auditing. The solution adapts to your existing infrastructure with deployment options across on-premises, private cloud, or hybrid environments. Plus, sovereign AI helps with cost optimization by eliminating cloud data access fees and enabling locally hosted models — empowering you to leverage AI securely and efficiently within your organization's own environment.

- **Private AI environment:** Avoid exposing sensitive data to public cloud-based models. Instead, bring a wide range of models close to well-governed data in Postgres — enabling vector search and a wide variety of AI applications with comprehensive observability and audit logging.
- **Deployment options:** Deploy sovereign AI anywhere across private infrastructure — in private data centers, VPC enclosures in the cloud, or hybrid.
- **Access controls and encryption:** Protect business data with features like role-based access control (RBAC), row-level security (RLS), and transparent data encryption (TDE).
- **Locally hosted open source models:** Open source AI models sit right alongside business data unified in a private Postgres environment, eliminating vendor lock-in and cloud access fees.

## KEY RESOURCES

- **Related Products and Solutions**
  - [EDB Postgres AI »](#)
  - [Postgres for AI applications »](#)
  - [EDB Postgres Distributed »](#)
  - [EDB Postgres Extended Server »](#)
  - [EDB Postgres Advanced Server »](#)
- **Blogs**
  - [Using Postgres for Analytics, Search, and AI »](#)
  - [The Expanding World of AI and Postgres »](#)
- **Whitepapers**
  - [Intelligent Data: Unleashing AI with PostgreSQL »](#)
  - [Security Best Practices for Postgres »](#)
- **Webinars**
  - [Operationalizing AI for Postgres »](#)

## THE BENEFITS

EDB Postgres AI empowers businesses with full control, enhanced flexibility, optimized costs, and advanced security — enabling cutting-edge AI solutions while maintaining strong data governance and deploying AI strategies with maximum efficiency across private or hybrid environments.

- **Full control:** Build cutting-edge AI functionality while retaining strong data governance practices with all data and models retained in a controlled, highly observable Postgres environment.
- **Greater flexibility:** Comprehensive private deployment options offer your business the versatility to pivot AI strategies in response to market, regulatory, or operational changes.
- **Enhanced data security and compliance:** Protect sensitive data while pursuing cutting-edge GenAI functionality, ensuring regulatory compliance and minimizing security risks.
- **Cost optimization:** Reduce total cost of ownership (TCO) by voiding unpredictable cloud fees and optimizing AI spending with storage formats that are 18x cost-effective versus standard Postgres — unified in a single data platform built on open source technologies.

## THE OUTCOMES

- Leverage strong data control, end-to-end observability, and enhanced security to reduce the risk of data breaches and compliance violations, protecting company reputation and avoiding costly penalties.
- Rapidly deploy AI solutions using proprietary data, accelerating time-to-market. Swap models effortlessly, adapt to business needs instantly, and implement AI across business units.
- Maximize ROI on AI with end-to-end control over AI applications. You can fine-tune costs, scalability, and deployment to ensure optimal cost-performance.

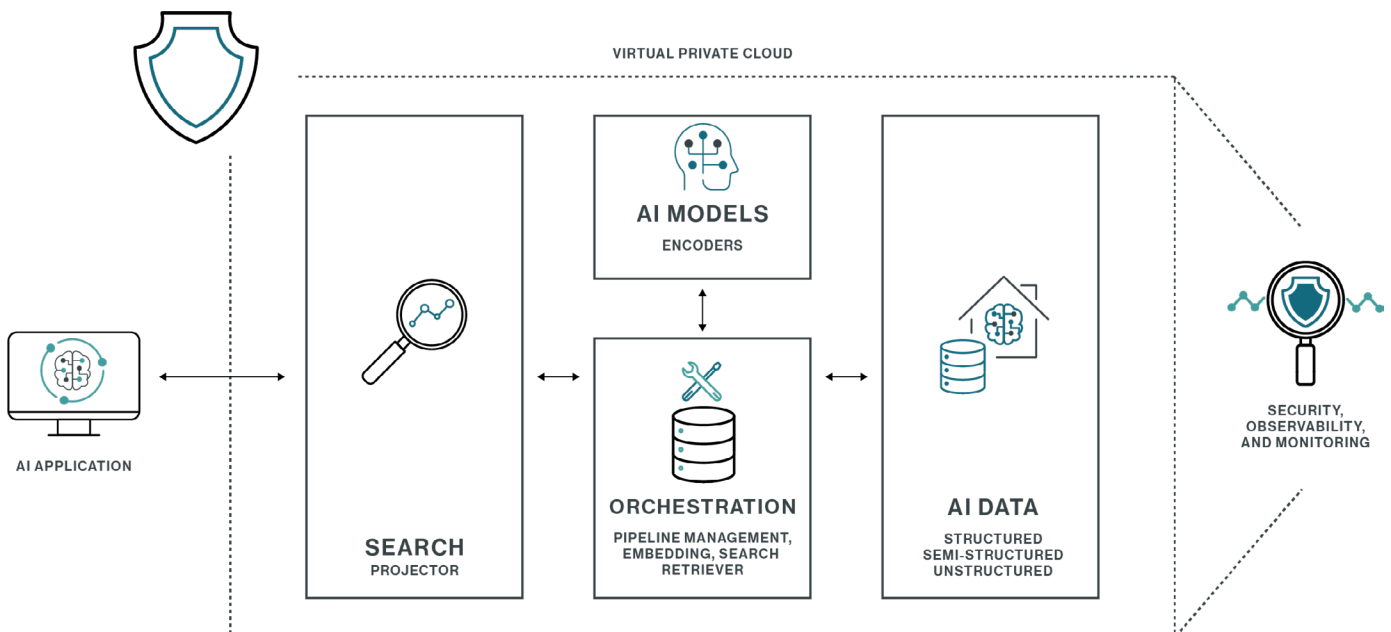


Figure 1. EDB Postgres AI enables sovereign AI: Maintain control of data in a private environment – ensuring well-governed AI models on the organization's own terms. Build AI applications faster, with fewer lines of code.

## FREQUENTLY ASKED QUESTIONS

### **Q: What is sovereign AI?**

A: Sovereign AI, powered by EDB Postgres AI, is a private AI solution that allows businesses to maintain full control over their data and AI operations by bringing GenAI models to a secure Postgres environment — providing flexible deployment options, enhanced security, and cost efficiency without relying on cloud-based services.

### **Q: How does sovereign AI address data security concerns?**

A: Sovereign AI uses a model-to-data approach, enabling you to fine tune models in well-governed Postgres without exposing sensitive information to cloud-based models. EDB Postgres AI also comes with robust security features like RBAC and encryption at rest and in transit. This eliminates data movement and ensures compliance with data privacy regulations.

### **Q: What are the key features of sovereign AI?**

A: Key features include:

- A private AI environment where Gen AI models run close to well-governed data in Postgres with full observability and audit logging.
- Deployment options across on-prem, private cloud, or hybrid infrastructure to suit your business needs.
- Access controls and encryption features like RBAC, RLS, TDE, and more.
- Locally hosted open source models that eliminate vendor lock-in and cloud fees.

### **Q: Can sovereign AI work with existing data infrastructure?**

A: Yes, sovereign AI's flexible lakehouse architecture allows for seamless incorporation of data into AI-driven applications without requiring multiple databases or performance-degrading data pipelines.

### **Q: What benefits does sovereign AI offer to businesses?**

A: Sovereign AI offers:

- Full control of data for stronger governance.
- Greater flexibility to meet shifting market, regulatory, and operational demands.
- Enhanced security and compliance for minimized risk.
- Cost optimization via 18x cost-efficient storage formats and eliminating vendor lock-in.

### **Q: Is sovereign AI suitable for specific industries?**

A: While beneficial for many industries, sovereign AI is particularly valuable in sectors like finance, healthcare, and government, where data security and compliance are critical and heavily regulated.

### **Q: How can sovereign AI accelerate time-to-market for AI solutions?**

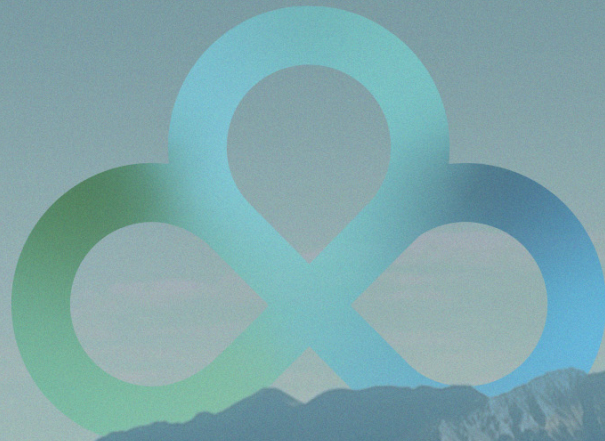
A: Sovereign AI is a unified platform for storing, managing, and interacting with your data, serving as an ideal AI base layer that won't require future changes. This approach keeps AI simple and under your control. It enables rapid deployment of customizable AI by allowing businesses to swap models with minimal code, instantly adapt to changing business needs, and implement AI across different business units seamlessly.

### **Q: How does sovereign AI help optimize costs while scaling AI operations?**

A: With full control over deployment and resource management, sovereign AI reduces costs by avoiding cloud data access fees, optimizing storage, and enabling scalable AI solutions — ensuring maximum return on investment.

### **Q: Can sovereign AI help balance AI integration with data security?**

A: Yes, sovereign AI addresses the velocity-vigilance tradeoff by enabling rapid AI integration while maintaining secure, stable, and observable data in business operations.



## SECURE OPEN SOURCE SOFTWARE (OSS)

**Data protection, access controls, and a hardened, secure Postgres** that protects against all known vulnerabilities, so you can build with confidence.



# Data protection, access controls, and a hardened, secure Postgres that protects against all known vulnerabilities, so you can build with confidence.

## THE CHALLENGES

Postgres® has become famous among many developers as Stack Overflow's favorite database. Today's developers and database administrators prefer open source solutions like PostgreSQL over legacy databases because of its cost-effectiveness, customization, active community support, rapid innovation, and adherence to SQL standards. But while PostgreSQL provides many benefits, it also introduces a challenge in identifying and mitigating potential security vulnerabilities in open source software deployments. Enterprises must ensure their applications use hardened versions of PostgreSQL that have gone through extensive testing, comply with industry certifications, and reduce the risk of malware attacks. Enterprises must also ensure that customer data is protected and access to databases is controlled.

- **Managing OSS vulnerability:** Identifying and mitigating potential security vulnerabilities in Postgres deployments is a critical and demanding task. Organizations need to prioritize using trusted and vetted sources for open source components to reduce the risk of introducing vulnerabilities or exploits into their deployments.
- **Protecting customer data:** Securing customer data is paramount. Encrypting data at rest and in transit is essential to protect against unauthorized access and data breaches, as the attack surface extends to the database itself, the infrastructure it runs on, and the applications that interact with it.
- **Enforcing Zero Trust Access:** Large organizations face challenges in controlling database access due to multiple teams seeking to use customer data for analytics and AI products.

## THE SOLUTION

EDB Postgres AI is a trusted enterprise provider for hardened Postgres software packages, protecting against all known vulnerabilities and enabling you to operate confidently with open source. Also, additional enterprise security features protect customer data and limit database access providing additional layers of security.

- **Hardened Postgres:** Obtain a secured Postgres distribution that goes through secure design principles in coding practices, comprehensive testing, verification, and other activities to minimize vulnerabilities.
- **Trust Center:** Get access to EDB's responses to enterprise-grade security concerns and an overview of EDB's commitment to embedding data privacy and security in every part of the business.
- **Enterprise-grade security:** Protect your application and customer data with transparent data encryption (TDE), SQL protection, audit trails, and data redaction. Control access with role-based access control (RBAC) and fine-grained data access control down to specific rows.
- **Software bill of materials (SBOM):** Gain visibility with EDB's SBOM, which offers a detailed inventory of components and dependencies that comprise a software package, including up-to-date license reporting.

## KEY RESOURCES

- **Related Products and Solutions**
  - [EDB Postgres AI »](#)
  - [EDB Postgres Advanced Server »](#)
  - [Enterprise-Grade Postgres »](#)
- **Blogs and Content**
  - [How to Secure PostgreSQL: Security Hardening Best Practices & Tips »](#)
  - [EnterpriseDB Raises the Bar for Postgres Security and Compliance with Transparent Data Encryption »](#)
  - [Elevating Postgres Security with the EDB Trust Center »](#)
  - [Security Best Practices for Postgres 2023 Update »](#)
  - [Trust Center »](#)
  - [AI Data Security with Postgres: Best Practices and Compliance »](#)
  - [Documentation for Security Features »](#)
  - [EDB CVE Assessments »](#)
- **Webinars and Demos**
  - [EPAS15 - The Most Secure Postgres »](#)
  - [Best Practices in Security with PostgreSQL »](#)

## THE BENEFITS

Enjoy rapid value delivery with automated security safeguards. Code, deploy, and release new software with hardened Postgres and other enterprise security features to develop confidently, ensure customer trust, and keep customer data secure.

- **Build secure applications:** Develop secure applications with EDB as a trusted Postgres provider that follows National Institute of Standards and Technology (NIST)'s Secure Software Development framework. Get over 50 signed repositories covering 10 various Postgres extensions used by over 1,500 companies.
- **Customer trust:** Increase trust in your company's care of customer data. Adhere to local compliance rules to expand the user base and increase retention.
- **Secured data:** Reduce risk of vulnerabilities and eliminate the effort required to build a secure data environment. Operate confidently, knowing that 100% of the EDB code base is hardened and backed by enterprise-grade security best practices.
- **Compliance adherence:** Keep up with compliance requirements, even with industry-specific regulations such as PCI-DSS, HIPPA, or other government Zero Trust framework requirements.
- **Transparency and visibility into your software supply chain:** EDB's SBOM reports help track changes in Postgres deployments, making it easier to identify and mitigate potential security vulnerabilities.

## THE OUTCOMES

- Program with confidence, knowing that your version of Postgres has gone through extensive testing and verification.
- Protect customer data with additional safety and security measures, providing peace of mind for both the organization and its end-users.
- Prevent unauthorized access to databases and customer data.
- Maintain a log of all activity to help adhere to compliance standards.

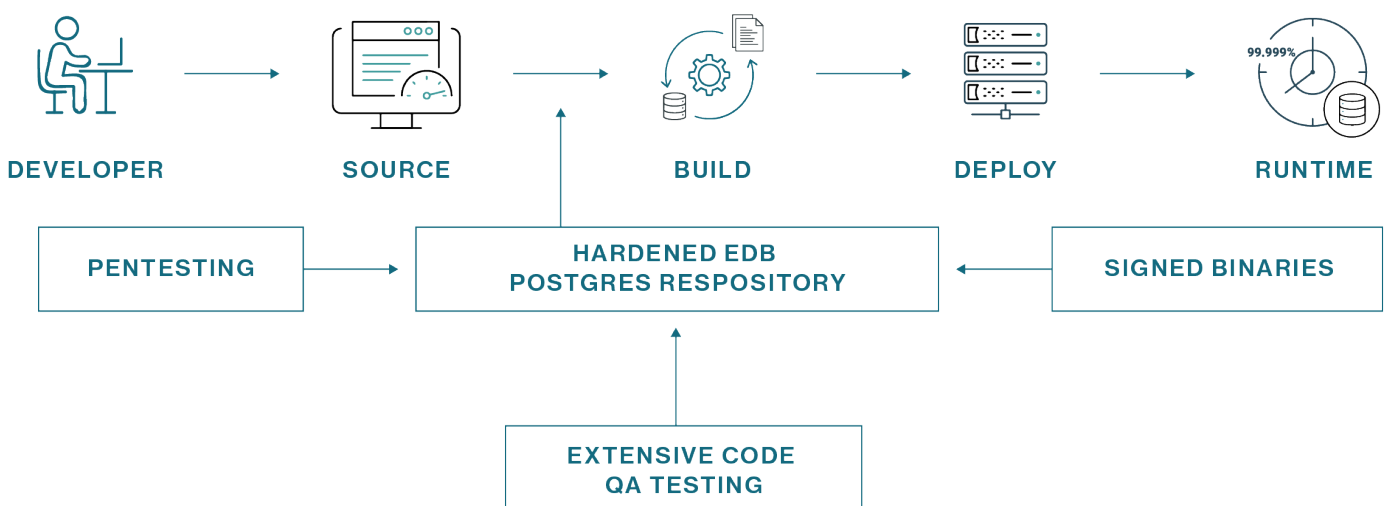


Figure 1. EDB Postgres AI supports secure open source software: 100% of the EDB codebase undergoes extensive checks, testing, and QA processes to protect against all known vulnerabilities.

## FREQUENTLY ASKED QUESTIONS

### **Q: What do we mean by “hardened Postgres”?**

A: Hardened Postgres refers to EDB reviewing Postgres and related extensions, building and signing packages, and hosting in our own repo to ensure that SLAs can be met for bug fixes and security updates. We ensure that 100% of the codebase undergoes extensive checks, internal testing, external pen-testing, and other QA processes to check for common vulnerabilities and other issues. Then, we patch the vulnerabilities and undertake other preventive measures to ensure that the repository is safe against any vulnerabilities. The checked repository is then built into a signed package, which gives enterprises peace of mind.

### **Q: How does EDB provide data protection and access controls?**

A: Here’s how EDB can help:

- Data protection: Customers can protect their data with TDE, data redaction, and using a hardened version of Postgres.
- Access Controls: EDB provides RBAC and fine-grained data access down to specific rows.

### **Q: What is TDE?**

A: Transparent data encryption (TDE) encrypts any user data stored in the database system. This encryption is transparent to the user. User data includes the actual data stored in tables and other objects as well as system catalog data such as the names of objects.

### **Q: What do we mean by audit logging?**

A: Audit logging refers to allowing database and security administrators, auditors, and operators to track and analyze database activities. EDB audit logging generates audit log files, which can be configured to record information such as:

- When a role establishes a connection to an EDB Postgres database
- The database object role creates, modifies, or deletes when connected to EDB
- When any failed authentication attempts occur

### **Q: What is meant by data redaction?**

A: Data redaction limits sensitive data exposure by dynamically changing data as it is displayed for certain users. For example, a social security number (SSN) is stored as 021-23-9567. Privileged users can see the full SSN, while other users see only the last four digits: xxx-xx-9567.

### **Q: How does EDB help protect against SQL injection attacks?**

A: EDB does two things:

- Provides a layer of security in addition to the normal database security policies by examining incoming queries for common SQL injection profiles.
- Gives the control back to the database administrator by alerting the administrator to potentially dangerous queries and by blocking these queries.

### **Q: Where can someone go to read about EDB’s compliance and gain more information about EDB’s approach to security?**

A: Customers and others can go to the [EDB Trust Center](#), which provides at-a-glance visibility into EDB’s security posture. The Trust Center enables easy navigation into public documents that attest to EDB’s security policies, compliance certifications, and other relevant documents, streamlining security reviews from customers, partners, and prospects alike.

### **Q: What is an SBOM?**

A: Software bill of materials (SBOM) reports offer a detailed inventory of components and dependencies that comprise a software package, enabling you to more easily identify and mitigate potential security vulnerabilities.

### **Q: How does someone get access to SBOM reports?**

A: The SBOM reports will be available for software customers who are entitled to them in the EDB Repos browsing page once they have logged in with their [enterprisedb.com](#) account.