EnterpriseDB Postgres and Red Hat OpenShift

EnterpriseDB (EDB) provides enterprise-ready software and services that help organizations experience the full power of Postgres, the world's leading open source database.[1]

The EDB Postgres Advanced Server database can be provisioned and managed efficiently through Red Hat OpenShift Container Platform.

EDB Postgres for Kubernetes has achieved Red Hat OpenShift Operator certification, validating that developers can safely deploy Postgres using the same tools they use to deploy their applications, and interoperability of EDB, while providing native Red Hat OpenShift backup and recovery.

Automate your Postgres databases, the Kubernetes way

In today's fast-paced software development environment, agility, flexibility, and efficiency are paramount. A key component that often determines the success of application development is the underlying data management system. With the smooth integration of enterprise PostgreSQL on Red Hat® OpenShift®, EnterpriseDB (EDB) and Red Hat introduce the future of agile data management for swift application development.

By allowing developers to run their Postgres databases effortlessly with Red Hat OpenShift, we not only streamline the entire software life cycle but also significantly shorten delivery time. This is achieved by automating critical database processes, including deployment, scaling, and comprehensive management. As a result, teams can direct their energy and expertise toward crafting superior applications without being weighed down by backend data handling intricacies.

Simplify and accelerate software delivery

EDB Postgres for Kubernetes (EP4K) is EDB's distribution of CloudNativePG—"the most popular open source operator for PostgreSQL in 2023,"[2] a Kubernetes operator that manages EDB Postgres clusters on Red Hat OpenShift. EP4K extends Kubernetes with Postgres expertise on the Red Hat OpenShift platform, helping organizations to improve software delivery speed and quality, decrease time to market, providing strengthened security and flexible and resilient hosting of business data critical assets to any business.

Developers can access a production-ready database cluster within minutes through automated and instant delivery of new databases. For testing and development use cases, those new databases can even be based on existing, backed-up data, with actual data in a continuous integration and continuous deployment (CI/CD) pipeline helping development teams deliver software on time and with higher quality.

The EP4K operator not only automates database deployment but implements security practices by default, such as running under restricted security context constraints for Red Hat OpenShift. Creation of backups, backup schedules, and restoring from an existing backup can also be performed by developer teams without requiring database administrator (DBA) involvement. Following EDB best practices, the operator helps DBAs to spend less time on administrative tasks, including the creation of databases and backups, and more to support developer teams by helping with schema design, query optimization, monitoring, storage selection, and architectures.

Deploy security-focused databases and reduce administrative overhead

EP4K is a fully tested and certified Postgres operator for Red Hat OpenShift, which makes the platform capable of running highly available Postgres clusters that are secure by default, replicated, and automatically backed up using object storage buckets or physical volume snapshots. Using

1 *"2023 Developer Survey." Stack Overflow, accessed February 2024.*

2 *"State of PostgreSQL 2023." Timescale, Accessed 15 Feb. 2024.*

EDB Postgres for Kubernetes is designed, developed, and supported by EDB and covers the full life cycle of a highly available PostgreSQL database cluster, with primary and standby architecture and native streaming replication.

EDB Postgres is trusted globally by organizations in industries including:

- Financial services
- Government
- Media and communications
- Information technology

About Red Hat

Red Hat helps customers standardize across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with award-winning support, training, and consulting services.

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standard Kubernetes practices, like using GitOps, policy frameworks, and Tekton pipelines, the operator can create, manage, and control Postgres clusters. This tightly integrates Postgres databases with the rest of the application stack, lowering the cognitive load of developer teams and brings DBAs, DevOps, and developer teams closer together.

Building on years of experience as the world's largest Postgres contributor and professional services provider, a new Postgres cluster created through EP4K survives the destruction of a replica, with EP4K creating a new replica immediately after it detects the old replica is gone. If the current primary fails, the process of promoting a replica to the primary—critical for achieving low recovery time objectives (RTO)—is completed within seconds. EP4K allows the use of asynchronous or synchronous replication. For disaster recovery, archiving write-ahead log files to an object stored at least every 5 minutes—more often in the case of a busy database—a recovery point objective (RPO) of, at most, 5 minutes is achievable without additional configuration.

Through the addition of physical volume snapshots as a backup and restore target, even very large databases—up to terabytes in size—can be safely run on Red Hat OpenShift with instant backups reducing the time required to restore a database to a matter of minutes. Life cycle management is simplified by using the fully automated EP4K distribution, providing the option to perform inconspicuous rolling, and minor upgrades of database software. By hooking into the Red Hat OpenShift operator lifecycle manager (OLM), the operator itself will be kept up to date without human intervention.

One of the most important aspects of the EDB solution with Red Hat OpenShift is that it is the only database operator to take advantage of Red Hat OpenShift security features and run under the restricted security context constraint (SSC), the most secure security context constraint. Finally, EDB uses the universal base images provided by Red Hat to build container images for the database server, the connection pooler, and the operator. These images are continuously monitored and updated for security updates. This approach provides organizations with full support and security coverage from EDB and Red Hat.

Red Hat OpenShift and EDB—a powerful combination

The EDB and Red Hat solution was designed to make database provisioning and management part of core CI/CD elements. EP4K on Red Hat OpenShift ensures uninterrupted integration and database synchronization with application code for production deployment. The self-service feature of our operator shifts the cloud-native database delivery paradigm. Developer and operations teams are now equipped to provision and oversee their Postgres databases whenever the need arises.

Through our partnership, EDB and Red Hat offer a combined platform that provides security-focused operations, safely, and automatically—running even the most complex, stateful workloads. This combined platform consists of Red Hat OpenShift, one of the world's leading hybrid cloud container platforms, and the EP4K operator, a leading Postgres operator, by the world's pioneer Postgres vendor and contributor.

Innovate at every level on developer-preferred PostgreSQL technology[3] by running innovative EDB Postgres database solutions on Red Hat OpenShift, the industry leading multicloud container platform,[4] and experience freedom to innovate at every level.

3 *"PostgreSQL is the DBMS of the Year 2023." DB-Engines, 2 Jan. 2024.*

4 *Forrester. "The Forrester Wave™: Multicloud Container Platforms, Q4 2023." September 2023.*