



EDB
Postgres® for the AI Generation

EDB Platform Roadmap

Sergio Romera,
Senior Manager, Sales Engineer (EMEA South)
26th Sept 2024



Sergio Romera

- Senior Manager, Sales Engineer @ EDB
- Based in France
- Database fanatic since 1997
- Developer, DBA, Architect, Sales Engineer
- Companies: BNPParibas, Quest Software, Oracle
- Postgres Certified Professional
- Kubernetes Cloud Native Associate certified
- Oracle Certified Associate
- AWS and Azure certified



Sergio Romera 



Agenda

- Who is EDB
- PostgreSQL is winning
- Our architecture
- Roadmap

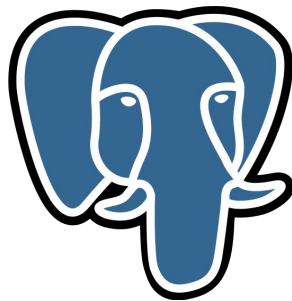


Who is EDB?





An intelligent platform for unified management of transactional, analytical, and AI workloads - powered by Postgres.



EDB POSTGRES AI PLATFORM

UNIFIED WORKLOAD MANAGEMENT

TRANSACTIONAL

ANALYTICAL

ARTIFICIAL INTELLIGENCE

SINGLE PANE OF GLASS ADMINISTRATION

HYBRID DATA ESTATE

INTELLIGENT
OBSERVABILITY

ENTERPRISE SECURITY

HYBRID AND MULTICLOUD DEPLOYMENT

PUBLIC CLOUD
(MANAGED)

PRIVATE CLOUD
(SOFTWARE)

ON PREMISE
(APPLIANCE)

EXTENSIBILITY

CSP INTEGRATIONS

DEVOPS TOOLING

KUBERNETES TOOLING

GENAI & LLM INTEGRATIONS

LAKEHOUSE INTEGRATIONS

PLATFORM TOOLS AND SERVICES

MIGRATION
PORTAL

CONTINUOUS HIGH
AVAILABILITY

BACKUP AND
RECOVERY

Delivered with world class
strategic partners:



Red Hat



NUTANIX



Who is EDB?

1500+ Enterprises and Growing

EDB deeply understands
Enterprise Postgres needs.

79 Countries around the World

Global footprint and employee base.

Millions of people using Postgres in the world

Long-term customers and deep
Postgres capabilities.

3 of 7 Postgres Core Team Members, 7 Committers, 40+ Contributors

EDB is the leading Postgres
community contributor.

30% of Postgres Code Contributed in 2023

Driving the innovation and
foundation of Postgres.

>300 Dedicated Postgres engineers

Unparalleled expertise in Postgres.

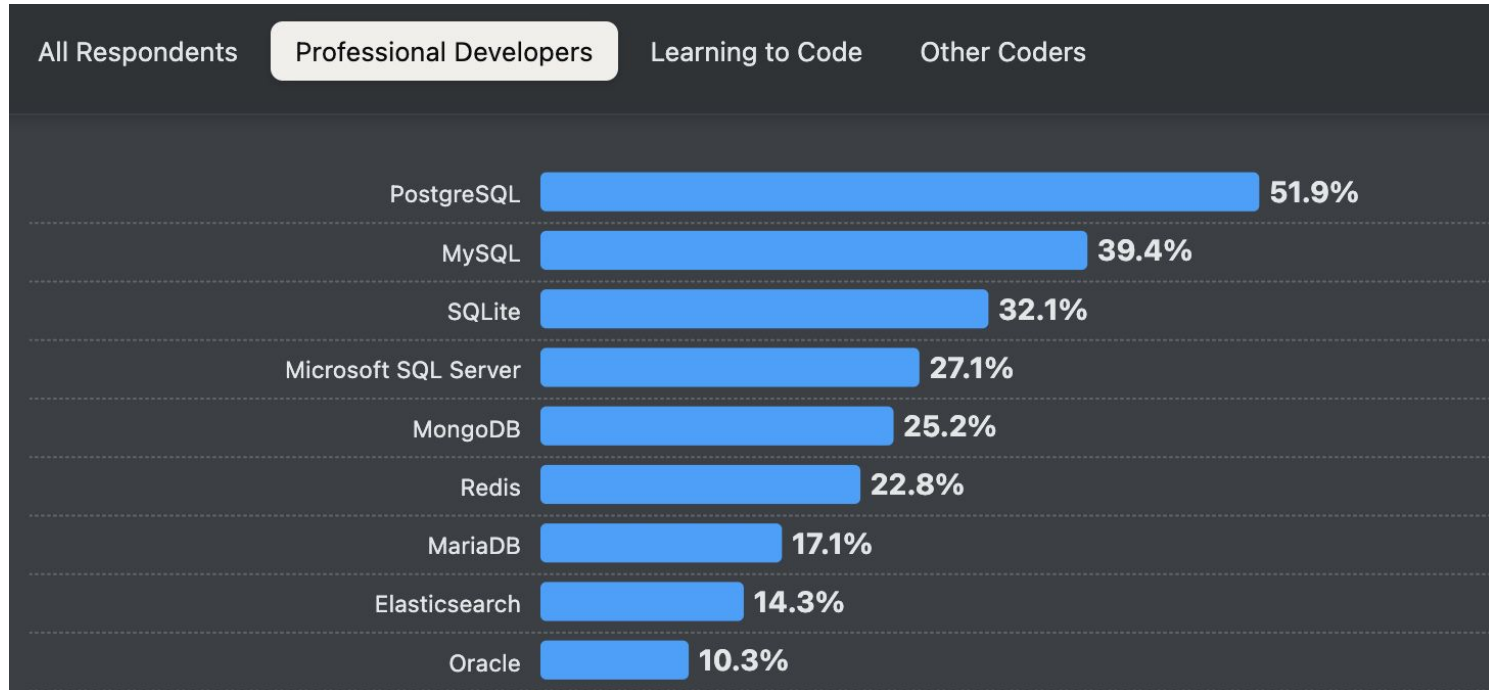


PostgreSQL is Winning



PostgreSQL Is Winning

The most admired, desired & used database - Source: Stack Overflow Developer Survey, 2024

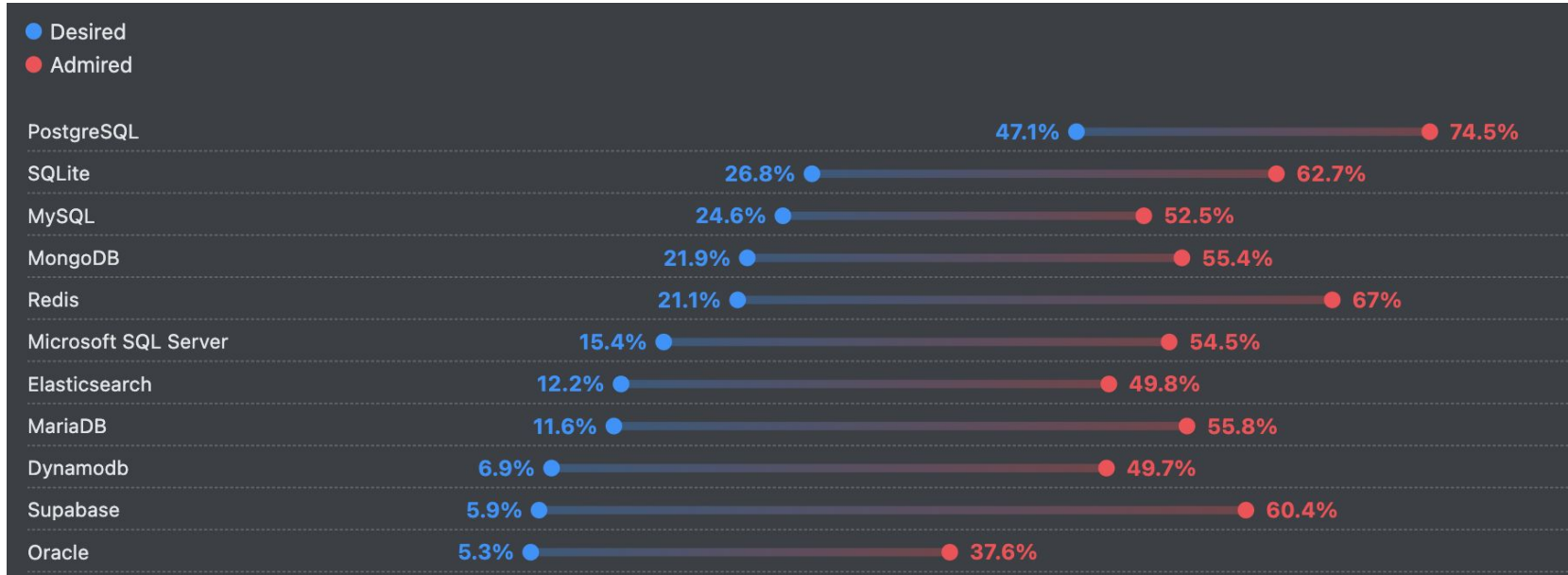


Source: [Stack Overflow](#)



PostgreSQL Is Winning

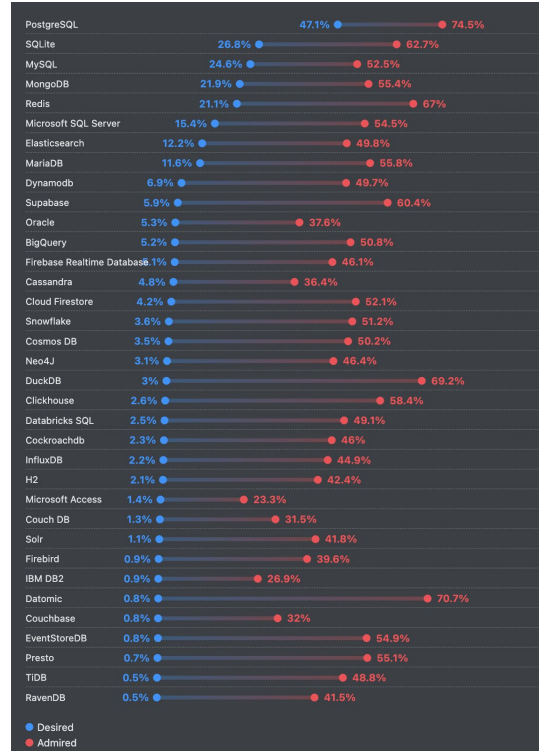
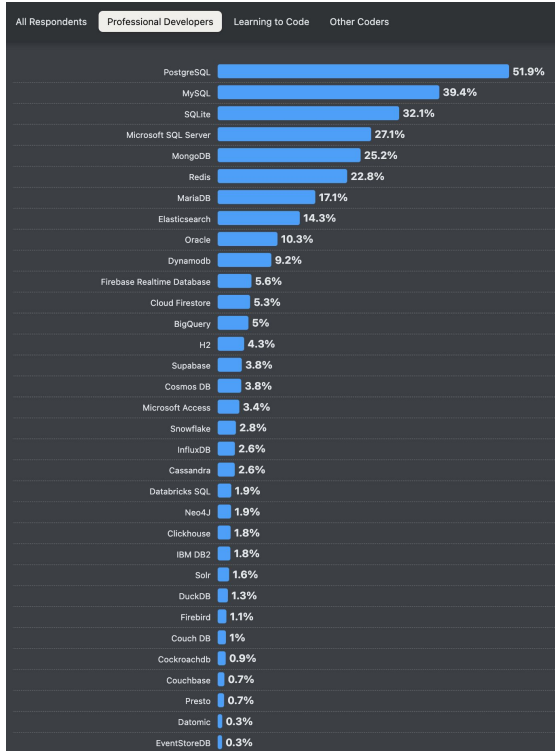
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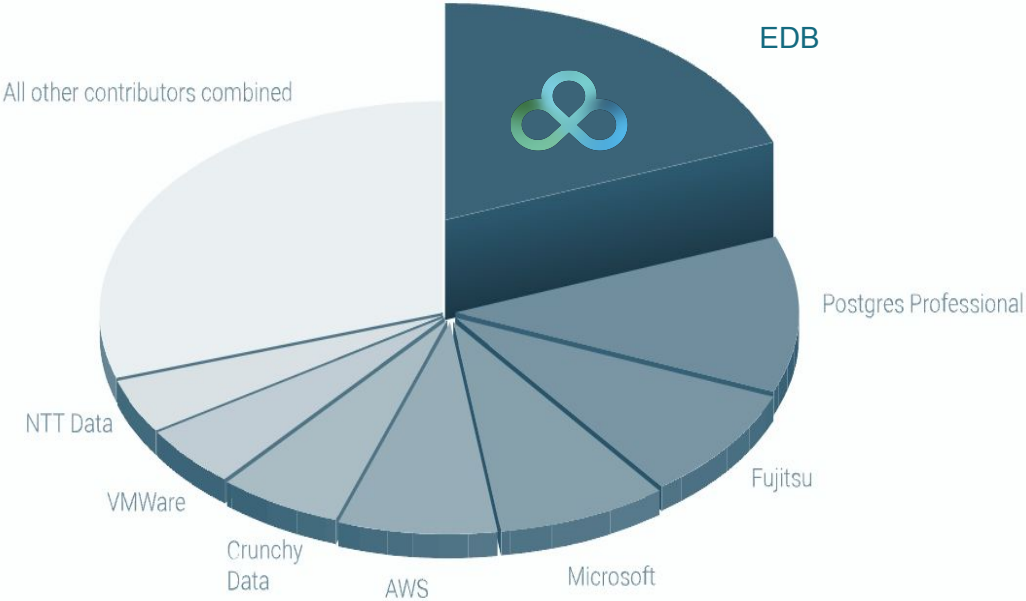
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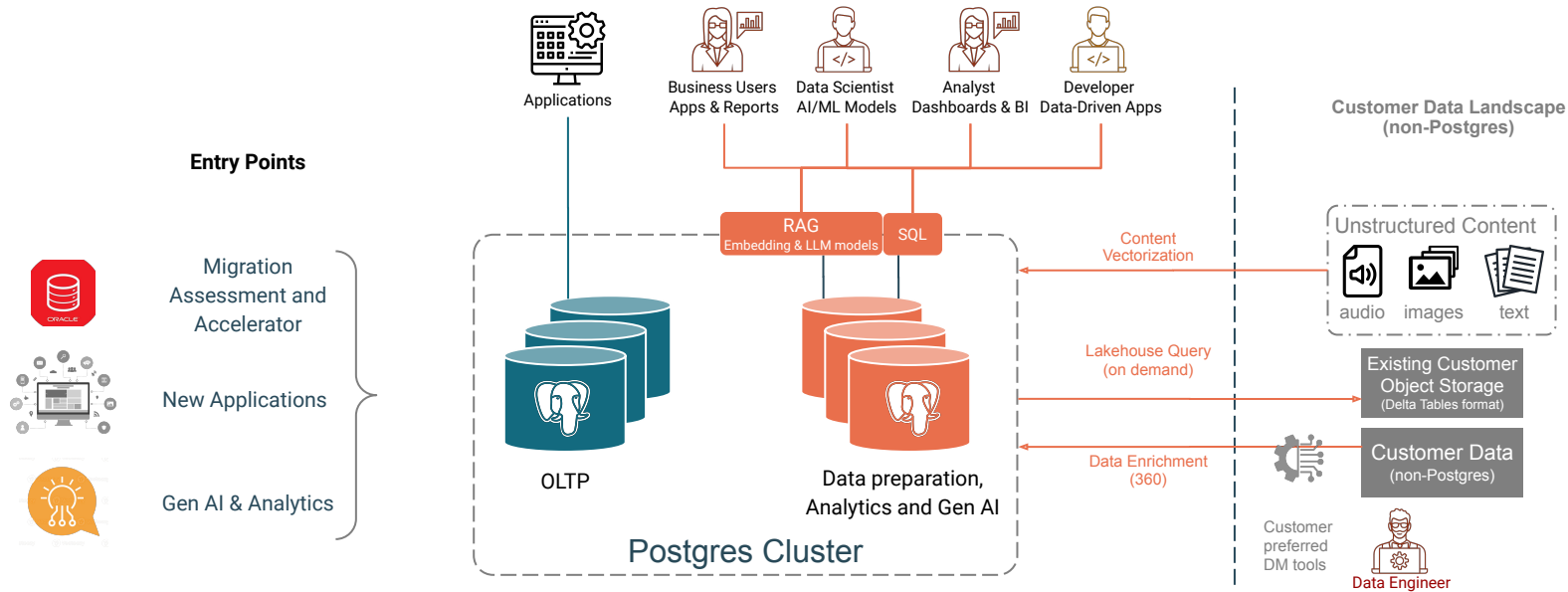
30% of Postgres Code Contributed in 2023



Our Architectures



Architecture Overview - The Big Picture



Enterprise Capabilities	Oracle Compatibility	Always-On	Performance & Security	Monitoring and Perf. Diagnostics	Backup and Restore	Cloud Native Adoption
Expertise & Hands holding	Legacy Migration	Architecture	Training	Jump Start	TAM & Remote DBA	Health Check

30X faster
18X cost-effective^{3 2}
 on average for analytical queries compared to Postgres
 Object storage vs. solid state drives (SSDs)



Customers want the same: service level & expertise everywhere

The same PostgreSQL - self-managed to fully-managed - on any cloud

- Same 24/7 expert PostgreSQL support
- Same break-fix, patching, maintenance
- Same HA and redundancy architectures
- Same security and upgrade policies
- Same backup and recovery
- Same to deployment mechanism & consistency to any Cloud/Hybrid and On-Premise



Private



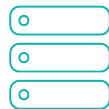
Hybrid



Multi-cloud



Public



Bare Metal



Virtual Machines



Containers

The same PostgreSQL - across every Postgres deployment in your entire estate



Deploy the Same PostgreSQL Everywhere



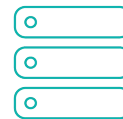
**Fully-managed service
(SaaS)**

AWS, Azure, GCP



**Self-managed service
(IaaS or on-premises)**

AWS, Azure, GCP
On-premises



**Kubernetes service
(cloud-native or public cloud)**

Self-managed k8s
Cloud vendor k8s

Multiple Platforms – One Postgres



Roadmap

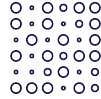


Capabilities and Tooling



Management/Monitoring

Postgres Enterprise
Manager pgAdmin



High Availability

EDB Postgres Distributed
Failover Manager
Repmgr
Patroni



Backup and Recovery

Barman
pgBackRest



Migration

Migration Portal
Migration Toolkit
Replication Server



Integration

Connectors
Foreign Data Wrappers
Connection Pools



Kubernetes

EDB Postgres for Kubernetes
CloudNativePG



Analytics

Data Lakehouse



EDB, Postgres & AI

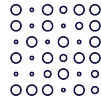


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AI

Extensions



Management/Monitoring

Single Pane of Glass

Estate

[View Estate](#)

EDB Postgres® AI Clusters

8



8 AWS (EDB Postgres AI)

Create New ▾

Self Managed Postgres

2



Configure Agent

Cloud Hosted Databases

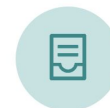
Launch your journey with Cloud-Hosted Databases for seamless scalability and performance.

Manage Access



Storage Locations

Manage Locations



Estate

Quick Actions

Postgres Migrations Lakehouse

Active Alerts

View All

High	Medium	Low	126	582	1,94k
------	--------	-----	-----	-----	-------

- cluster-nop CPU utilization has reached 100% 10h
- cluster-def disk usage has reached 80% 3d
- cluster-qr memory usage is at 75% capacity 5d
- cluster-klm disk usage is at 70% capacity 6d
- cluster-klm disk usage is at 70% capacity 6d
- cluster-nop CPU utilization has reached 100% 10h
- cluster-def disk usage has reached 80% 3d
- cluster-qr memory usage is at 75% capacity 5d
- cluster-klm disk usage is at 70% capacity 6d
- cluster-klm disk usage is at 70% capacity 6d

CPU Utilization

Cluster	CPU %
cluster-def in Proud Panda	40%
cluster-qr in Crabby Crocodile	35%
cluster-klm in Curious Cat	30%

Resource Usage

- 25% CPU
- 50% Memory
- 10% Storage

Search Filter Name (A-Z)

Name	Provisioning...	Engine	Version	Cluster Type	# of Connect...	Average Que...	Management	Provider	Region	Alerts	CPU	Memory	Disk	Tags
PGD Cluster <small>Bold Blixon</small>	Healthy	EPAS	16.2	PGD	2 / 4	15	EDB Postgres AI		US-East-1, US-West-1	72 150 1.8k	25%	25%	25%	Development
Node 1 <small>AWS US East 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	15	EDB Postgres AI		US-East-1	12 25 1.5k	25%	25%	25%	—
Node 2 <small>AWS US East 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	15	EDB Postgres AI		US-East-1	12 25 48	25%	25%	25%	—
Node 3 <small>AWS US East 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	16	EDB Postgres AI		US-East-1	12 25 48	25%	25%	25%	—
Node 1 <small>AWS US West 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	21	EDB Postgres AI		US-West-1	12 25 48	25%	25%	25%	—
Node 2 <small>AWS US West 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	8	EDB Postgres AI		US-West-1	12 25 48	25%	25%	25%	—
Node 3 <small>AWS US West 1</small>	Healthy	EPAS	16.2	PGD	2 / 4	10	EDB Postgres AI		US-West-1	12 25 48	25%	25%	25%	—
cluster-def <small>Proud Panda</small>	Retrieving Status	PostgreSQL	16.2	HA	2 / 4	20	EDB Postgres AI		US-East-1, US-West-1	12 25 48	25%	25%	25%	Staging v1.0
cluster-def <small>Proud Panda</small>	Retrieving Status	EPAS	15.2	HA	2 / 4	30	EDB Postgres AI		US-East-1, US-West-1	12 25 48	25%	25%	25%	Dev

Updated ~5 mins ago Total 50 items < 1 2 3 4 5 >



Query Diagnostics

- Detect bottleneck SQL queries
- Optimise with EDB Query Advisor

The screenshot displays the EDB Query Advisor interface for a cluster named 'happy cat'. The interface is organized into several sections:

- Navigation:** A sidebar on the left contains icons for home, search, and other navigation functions. A 'Support' button is located at the bottom of the sidebar.
- Header:** The top header shows 'Projects Estate' and the user 'owner@mycompany.com'.
- Cluster Information:** The main header identifies the cluster as 'Courteous Chameleon / Clusters happy cat' and includes a 'Quick Actions' dropdown.
- Navigation Tabs:** Below the header are tabs for 'Overview', 'Connect', 'Monitoring', 'Health Status', 'Query Diagnostics' (selected), 'Backups', and 'Logs'.
- Filters:** A filter bar at the top of the main content area includes a time range of '5 minutes', 'Start date', 'End date', 'node 1', and a 'Reset Filters' button.
- Session Activity Chart:** A line chart titled 'Number of active session' shows the number of active sessions over time, with a legend for CPU, Client, IO, LWLock, Lock, and Timeout.
- Query Table:** A table lists active queries with columns for Query ID, Query, Total AAS, CPU AAS, Wait AAS, CPU %, Wait %, and Count. The selected query is:


```
UPDATE pgbench_accounts SET abalance = abalance + $1 WHERE aid = $2
```
- Query Details:** A detailed view of the selected query shows its SQL text and a 'Query Waits States' chart. A 'Waits Distribution' pie chart shows the breakdown of wait states: LWLock (blue, 81%), CPU (red, 19%), and IO (green, 0%).
- Query List:** A table below the details lists other active queries with their respective metrics and wait state distributions.
- Footer:** The bottom of the interface shows a pagination control for the query list, indicating '1' of '10' pages.



Postgres Enterprise Manager

File ▾ Object ▾ Management ▾ Dashboards ▾ Tools ▾ Help ▾
enterprise ▾

Browser: Dashboard Properties SQL Statistics Dependencies Dependents Monitoring

- ▶ BART Servers
- ▶ Barman Servers
- ▶ PEM Agents
- ▶ PEM Server Directory (2)
- ▶ **Postgres Enterprise Manager Server**
 - ▶ **Databases (3)**
 - ▶ edb
 - ▶ pem
 - ▶ postgres
 - ▶ Login/Group Roles
 - ▶ Resource Groups
 - ▶ Tablespaces
 - ▶ sm-monitored-db
 - ▶ **Databases (1)**
 - ▶ **postgres**
 - ▶ Casts
 - ▶ Catalogs
 - ▶ Event Triggers
 - ▶ Extensions
 - ▶ Foreign Data Wrappers
 - ▶ Languages
 - ▶ Publications
 - ▶ Schemas
 - ▶ Subscriptions
 - ▶ Login/Group Roles
 - ▶ Tablespaces

Global Overview

Object Type: System

Status: N/A

Generated On: 20/09/2024, 17:32:58

No. of alerts: 9 (Acknowledged: 0)

Enterprise Dashboard

Status

Blackout	Status	Name	Alerts	Version	Processes	Threads	CPU Utilization (%)	Memory Utilization (%)	Swap Utilization (%)	Disk Utilization
<input type="checkbox"/>	Up	Postgres Enterprise Manager Host	2	9.7.0	126	243	88.67	12.56	0	17.91
<input type="checkbox"/>	Up	ip-172-31-72-141.ec2.internal	1	9.7.0	114	154	17.33	23.60	0	79.95

Blackout	Status	Name	Connections	Alerts	Version	Remotely Monitored?
<input type="checkbox"/>	Up	Postgres Enterprise Manager Server	11	4	PostgreSQL 16.4 (EnterpriseDB Advanced Server 16.4.0 (Ubuntu 16.4.0-1 jammy)) on x86_64-pc-linux-gnu, compiled by gcc (Ubuntu 11.4.0-1ubuntu1~22.04) 11.4.0, 64-bit	No
<input type="checkbox"/>	Up	sm_monitored_db	4	2	PostgreSQL 15.8 (Ubuntu 15.8.1.pgdg22.04+1) on x86_64-pc-linux-gnu, compiled by gcc (Ubuntu 11.4.0-1ubuntu1~22.04) 11.4.0, 64-bit	No

Alarm Type	Object Description	Alert Name	Value	Database	Schema	Package	Object	Alerting Since
▶ High	Postgres Enterprise Manager Host	Most used disk percentage	100%					2024-06-06 15:53:43
▶ High	Postgres Enterprise Manager Host	CPU utilization	88.67%					2024-09-20 16:31:32
▶ High	Postgres Enterprise Manager Server	Last AutoVacuum	25.118 hrs					2024-09-20 16:31:32
▶ High	Postgres Enterprise Manager Server	Largest index by table size percentage	100%					2024-06-06 16:02:45
▶ High	Postgres Enterprise Manager Server	Last Vacuum	Never ran					2024-06-06 15:53:43
▶ Low	Postgres Enterprise Manager Server	Connections in idle state	9					2024-09-20 16:31:32



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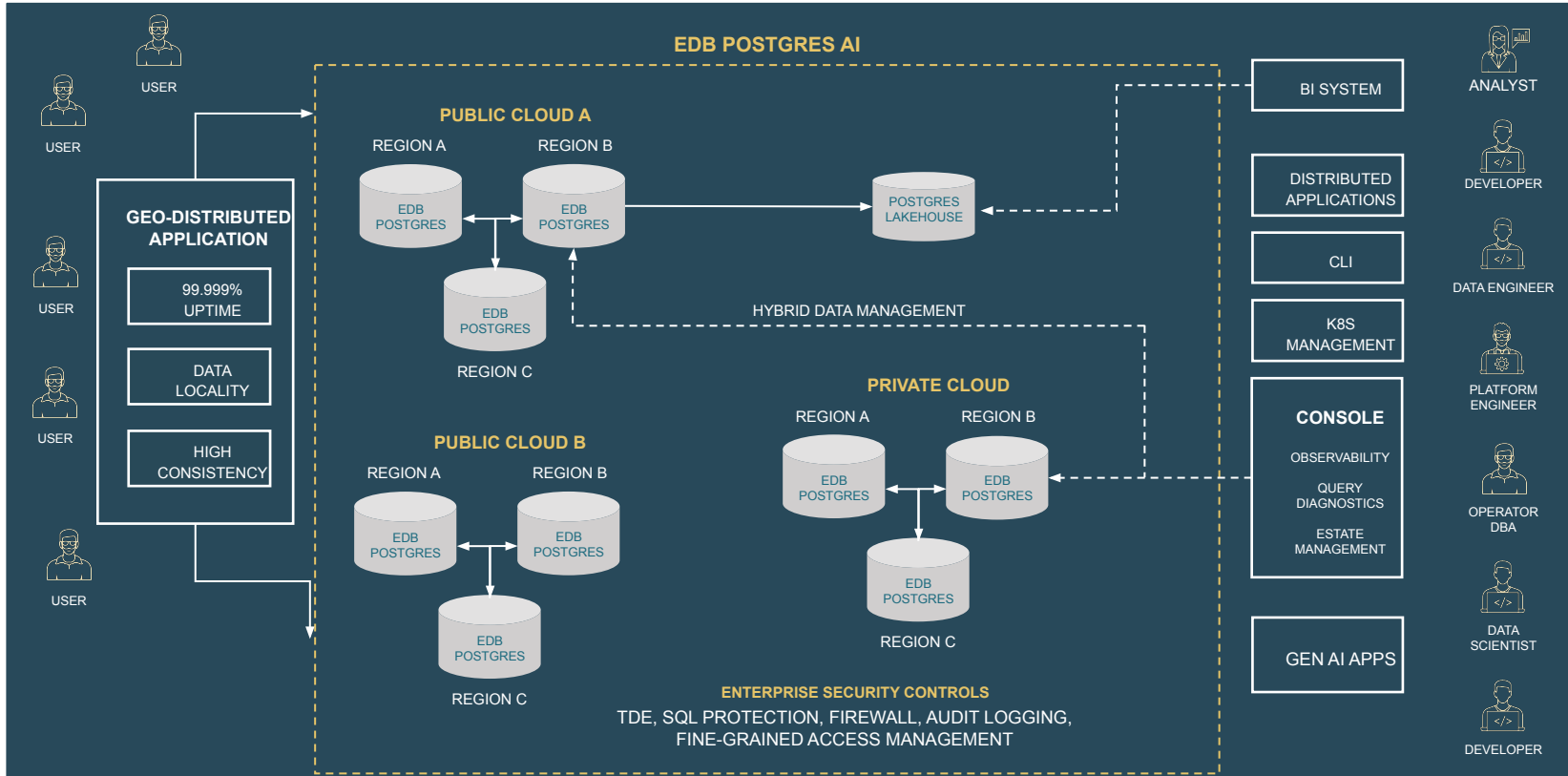


AI

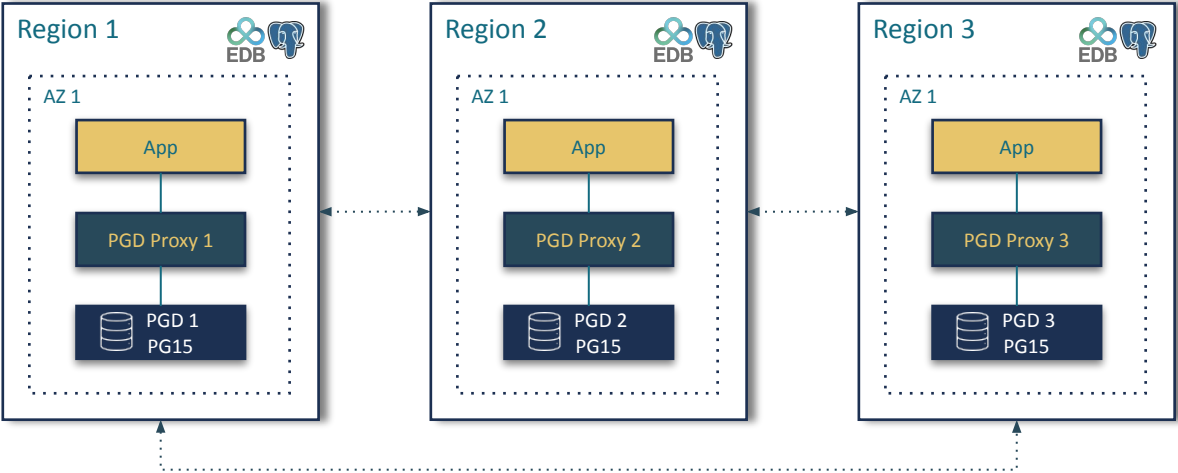
Extensions



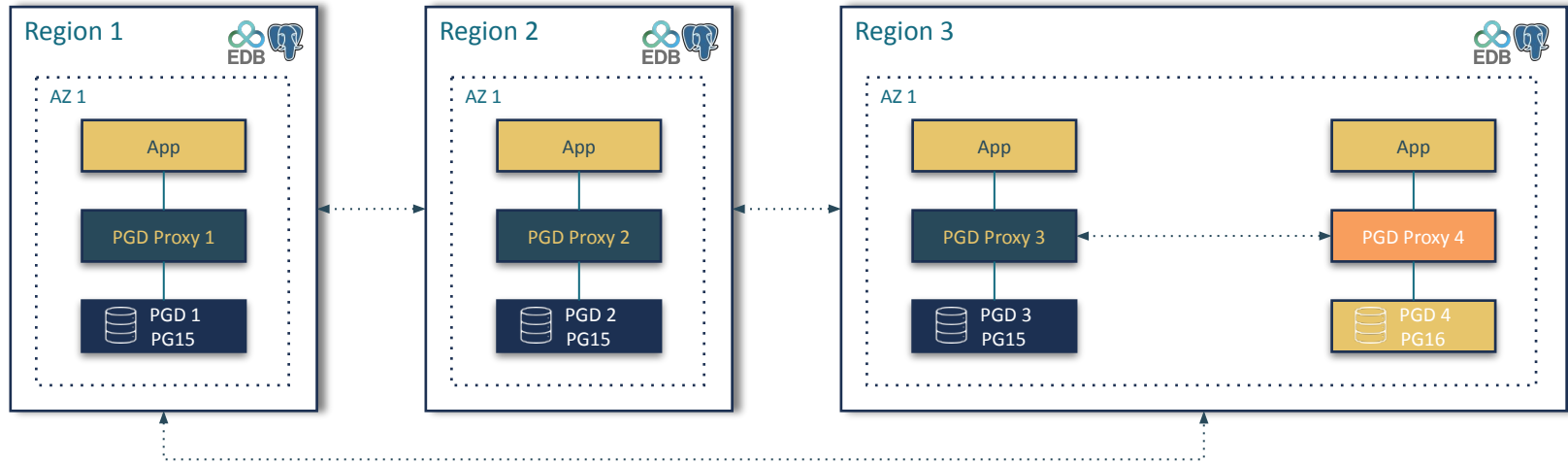
High Availability



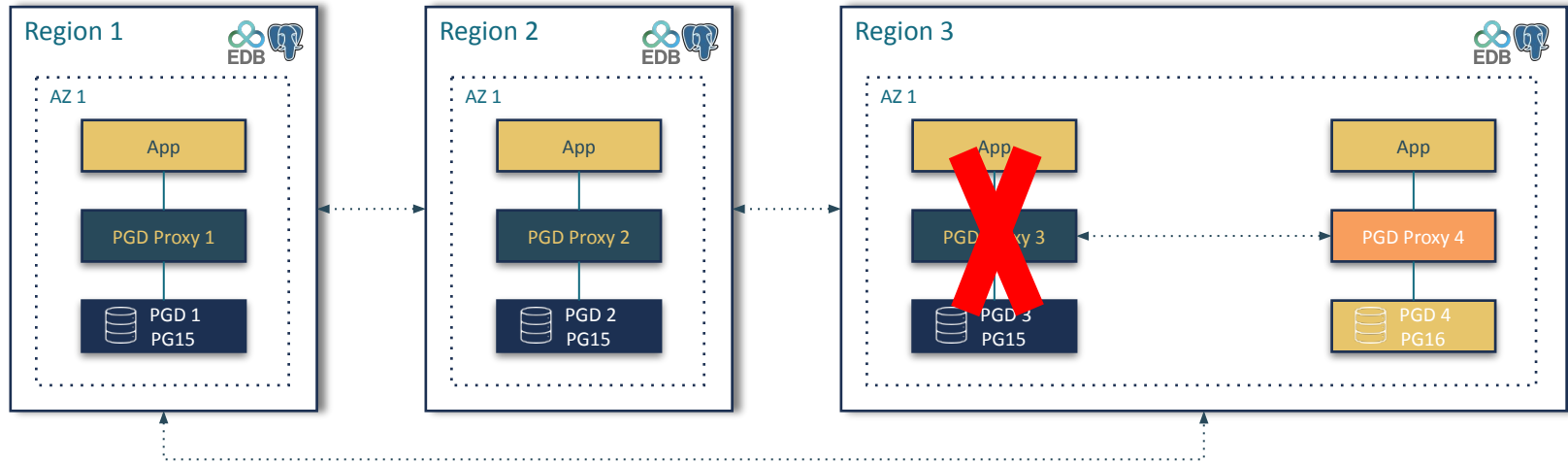
High Availability



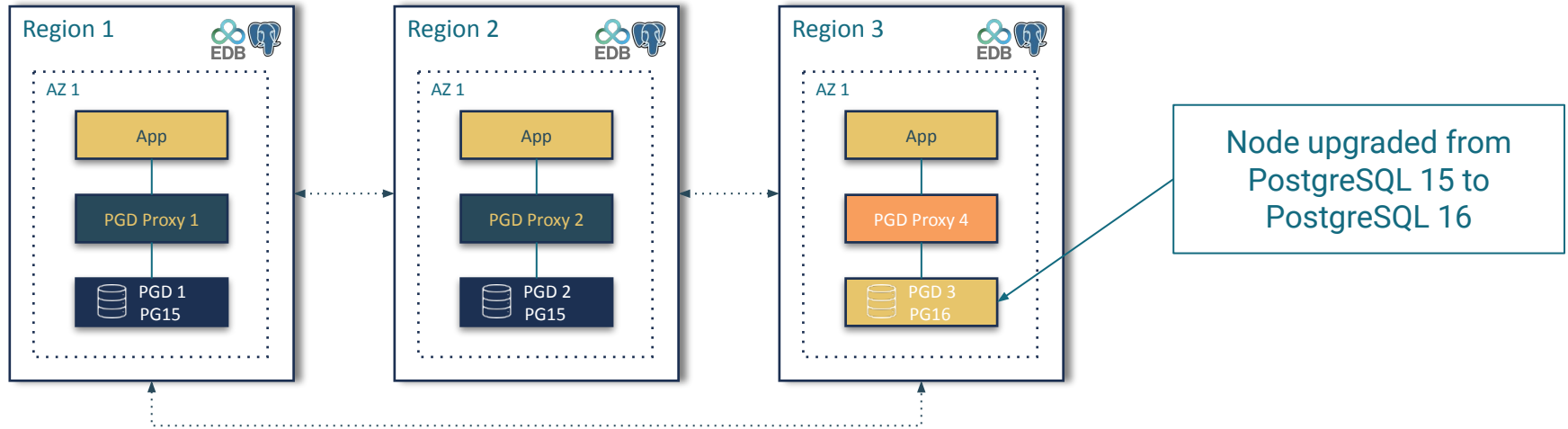
Use case: Rolling updates



Use case: Rolling updates



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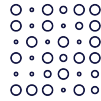


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Migrations: Migration Portal + AI Co-pilot

Chat with an LLM to get help with assessing your schema migration and resolving compatibility issues

The screenshot displays the Migration Portal interface. At the top, it shows 'MIGRATION PORTAL' with navigation links for 'Projects', 'Portal Wiki', and 'AI Copilot'. The user 'Kyle Snaveley' is logged in. The main area is divided into three sections:

- Left Panel (OBJECTS):** Shows a tree view of objects under 'My_Migrat...'. The 'Indexes' folder is expanded, and 'Idx_emp_biography' is selected. A 'COMMON FAILURES' section shows counts for various object types.
- Center Panel:** Displays the migration details for 'Idx_emp_biography'. It shows the 'Source' SQL statement: `CREATE INDEX "DEBEZIUM".Idx_emp_biography ON "DEBEZIUM"."EMPLOYEES"(BIOGRAPHY) INDEXTYPE IS CTXSYS.CONTEXT PARAMETERS ('LEXER foobar_lexer');` and the 'Target' SQL statement: `CREATE INDEX Idx_emp_biography ON DEBEZIUM.EMPLOYEES(BIOGRAPHY) INDEXTYPE IS CTXSYS.CONTEXT PARAMETERS ('LEXER foobar_lexer');`. A 'Reassess' button is visible at the bottom right of this section.
- Right Panel (AI Copilot):** A chat window titled 'AI Copilot' with a 'QuickHelp' button. It contains a text input field with the placeholder 'Ask a question...' and a 'Send' button.

At the bottom of the interface, there is a footer with the text: '© 2024 Copyright EnterpriseDB Corporation - All Rights Reserved Privacy Policy Terms of Use'.

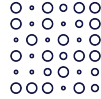


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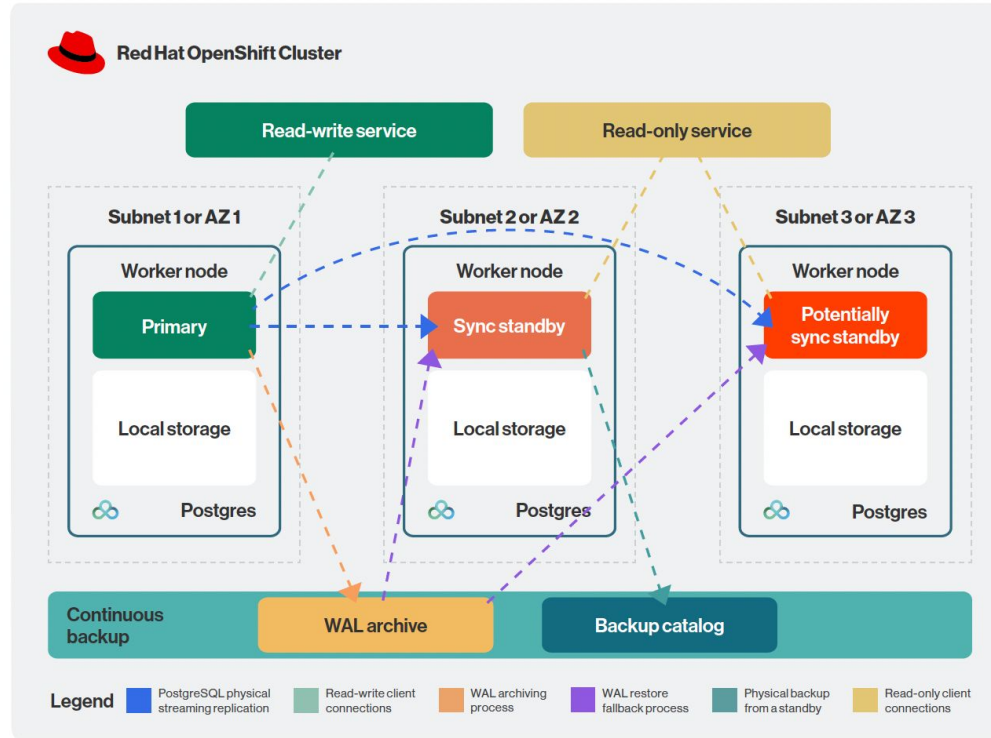


AI

Extensions



Kubernetes/Red Hat OpenShift





EDB
Postgres® for the AI Generation

Thank you



What we will deliver in Q4 - Database Server

EDB Postgres v17

Community Innovation and Leadership:

EDB Postgres Extended (PGE) Server and EDB Postgres Advanced Server (EPAS) version 17 incorporates all changes and enhancements from the PostgreSQL 17 release, including major capabilities from EDB staff.

Support customers with large tables:

Performance improvements compared to PostgreSQL for large partition counts in PGE and EPAS

Business Continuity (HA)

EDB Postgres Distributed (PGD) Lightweight Architecture:

Deploy PGD with architectures that are similar to those you may already be familiar with such as Postgres Physical Streaming Replication or Oracle Data Guard Far Sync.

Enhanced Read Only Group Performance:

Deploy larger read-only groups for servicing application queries while reducing the replication traffic through the PGD mesh

Secure Postgres

EDB as a Trusted Supply Chain for Postgres:

Software Bill of Materials (SBOM) reports for EDB Postgres Advanced Server and EDB Postgres Distributed (PGD).

Compliance Ready Postgres:

Deploy STIG and CIS compliant clusters with TPA, designed for adoption of Postgres in regulated industries

Enterprise Security Tech Partnerships:

Update Partners page and EDB Docs for new supported keystores: Fortanix DSM and Entrust KeyControl

