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Government's Guide to Operational Resiliency: 3-Part Plan to Strengthen Your Database

[Public Sector]

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The digital landscape is rapidly changing, and your organization needs to change with it. Not only are there new threats—such as bad actors and malware—evolving on a daily basis, but your users' expectations are constantly growing. With all of the transformative options at their disposal, they expect you to handle their data efficiently, store it securely and provide them with applications, solutions and services that effectively meet their needs.

That's why your organization needs to prioritize **operational resiliency** in every single one of your endeavors and initiatives; and the responsibility for this rests on the shoulders of your CIO.
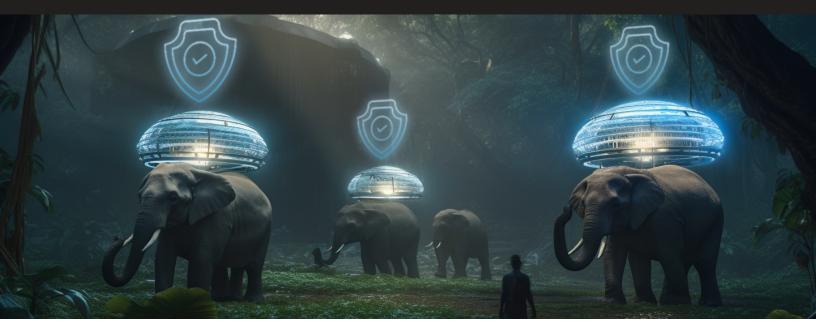
According to the 2023 State of the CIO Study, CIOs anticipate their involvement to increase in the following areas: Cybersecurity (70%), Data Analysis (55%), Data Privacy (55%), AI/Machine learning (55%), and Customer Experience (53%). Looking at Logicalis' Global CIO survey, 94% of CIOs acknowledge serious threats over the next 12 months, only 27% list business continuity and resilience as a top-three priority during the next 12 months.

Taken together, these responses suggest both a desire for resiliency and a gap in understanding where that resiliency comes from.

The answer: Your Database Infrastructure.

In the last few years, Postgres has established itself as the leading Database Management System (DBMS) for those looking to innovate with new technologies like Kubernetes, build-out their cybersecurity apparatus, adhere to diverse regulatory practices and leverage their applications and assets to the fullest degree.

In this eBook, we'll show you how to harness the total power of Postgres to ensure you achieve full operational resiliency in just **3 easy steps:**

1 Design a detailed plan to protect and scale data

2 Build out an open-source strategy focused on High Availability

3 Architect an augmented and optimized Postgres infrastructure

Enhance Data Security and Protection

In a world where bad actors are constantly finding new ways to infiltrate the databases of even the most secure organizations—whether they be banks or government agencies—security and data protection is the highest priority.

Not only does your ability to secure your data govern the efficacy of your applications, it also determines your reputation with your users. After all, in a world where you're nearly required to share everything about yourself just to download something from an App Store, no one will have any interest in your enterprise if they get even the slightest indication that their data is insecure.

This sense of insecurity has been the impetus for a range of new regulations, including the EU's **Digital Operational Resilience Act** (DORA), passed in 2022

DORA 101

That's why so many organizations choose Postgres, bolstered and supported by EDB. With EDB, businesses have a range of options to build-out their database security with break/fix support and Transparent Data Encryption (TDE).

TDE encrypts:
- Files underlying tables (data files)
- Write-ahead log (WAL files)
- Sequences and indexes (including TOAST tables and system catalogs)
- Temporary files for query processing and database system operation

With TDE you can prevent unauthorized viewing of data in operating system files on the database server and on backup storage. Data becomes unintelligible for unauthorized users if it's stolen or misplaced. Data encryption and decryption are managed by the database and do not require application changes or updated client drivers.

EDB Postgres Advanced Server and EDB Postgres Extended Server provide hooks to key management that's external to the database. These hooks allow for simple passphrase encrypt/decrypt or integration with enterprise key management solutions.

Ensure Postgres Reliability and Availability

Your users expect applications to be available 24/7—whenever they need them. That means if the database goes down, you'll lose not only user trust and confidence, but also cause critical systems and applications to be unavailable.

Postgres is renowned for its consistent high availability, however, over the last five years the definition of High Availability (HA) has changed. HA used to refer to technology protecting users from hardware failures, network partitions and software faults. Today, HA technology makes sure that software services are always on—365 days a year, 24 hours a day. HA products still protect users from failures, but as hardware, networks, power supplies, and storage devices have become much more mature and reliable, near-zero downtime maintenance and management have moved to the forefront of the HA debate. Near-zero downtime, or "Always On," has become a must-have for successful digital transformation in a global economy.

Seeing these sea of changes, EDB wanted to take HA to the next level, above and beyond. Why settle for high availability when you can have **Extreme High Availability**.

We define Extreme High Availability (EHA) as five 9s of uptime—i.e. your database is online and available 99.999% of the time. As we've discussed in previous blogs, this amounts to less than five and a half minutes of downtime per year. Put another way, that's less than a second a day.

That's the promise of **EDB Postgres Distributed** (PGD). With its "Always On" architecture, PGD is the industry leading solution for Postgres extreme high availability. EDB Postgres Distributed's "Always On" architecture enables customers for the first time to use Postgres for 99.999% EHA availability solutions—a domain that was traditionally reserved for a few select Commercial-Off-The-Shelf (COTS) database products.

Accelerate Speed and Efficiency

The final component of true operational resiliency is the agility of your database. Are your applications running smoothly? When a user accesses them does the application respond quickly or are there performance issues? User patience is at an all-time low and the expectation is for a high-performing system that can process transactions quickly.

If you currently don't have 24/7 support for your Postgres database, you are at risk and not leveraging all the years of expertise that EDB has to offer. You need round the clock experts available to assist in the event something goes wrong.

EDB is proud to provide independent technical support services and operational staff augmentation designed to help organizations of all sizes fill the gaps in their support infrastructure and embark on a new journey with reduced risk, lower costs and a focus on what matters most to their organization.

Offerings like EDB's **Remote DBA Service** (RDBA) helps businesses of all sizes complete or expand their support team when expert, certified Postgres DBAs can't be found or are too expensive to afford. Plus RDBA offers 24/7 monitoring of your systems so issues can be resolved before problems actually occur. **EDB's subscription plans** offer a 24/7 "follow-the-sun" model for Severity 1 and 2 issues, with response times as quick as 15 minutes for critical issues. Leveraging Postgres experts is a much more efficient and cost-effective approach than self-support to get the Postgres expertise and coverage you need while enabling the reallocation of current resources to more strategic projects.

In addition to these robust support options, EDB offers Postgres Enterprise Manager (PEM), a browser-based console that combines managing, monitoring, and tuning Postgres clusters. PEM provides you with all the tools you need to expand, scale and optimize your Postgres database, ensuring that–no matter your data volume or operational needs–the DBMS that both you and your users rely on is up, is fast, is working to your standards.
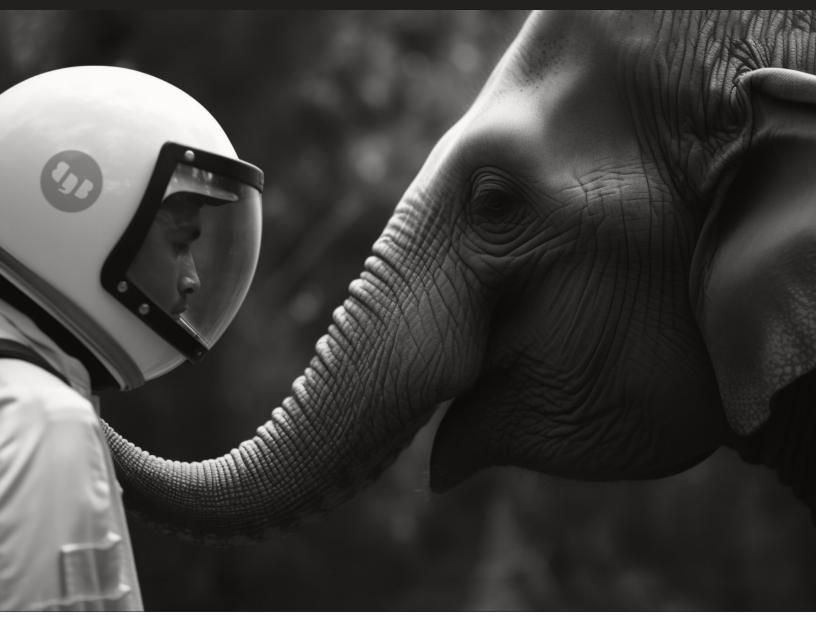
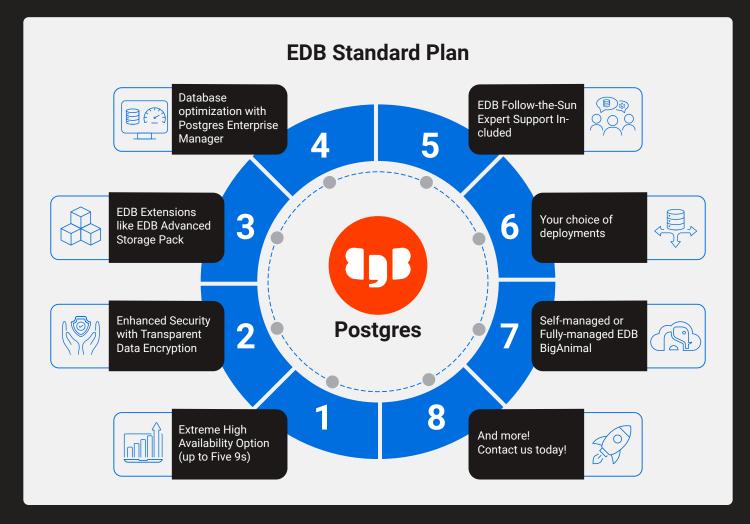## Operational resiliency is the key to business sustainability

Operational resiliency and extreme high availability are business-critical to highly transactional databases. It ensures that your users can access what they need when they need it, and that you can leverage your data as efficiently as possible. Operational resiliency is the single most important priority for any organization looking to the future and remain relevant in the current efforts of digital modernization and transformation.

Over the course of this eBook, we've highlighted the many ways in which Postgres facilitates the fundamentals of operational resiliency, as well as the ways in which EDB builds upon Postgres' remarkable capabilities to create an even more flexible, agile and secure DBMS experience.

This is why we created the **EDB Enterprise Plan**. The Enterprise plan comes with **Transparent Data Encryption (TDE)** and includes EDB's enterprise-grade tools to strengthen and extend PostgreSQL security, resilience, and reliability. EDB Postgres Advanced Server includes built-in Oracle-compatibility and also comes with additional advanced security features. EDB Postgres Extended Server has additional advanced features for EDB Postgres Distributed. With either option, IT leaders can feel confident that their database is optimized for growth and minimizing disruption.

EDB Standard Plan

Database optimization with Postgres Enterprise Manager

EDB Follow-the-Sun Expert Support Included

4 **5**

EDB Extensions like EDB Advanced Storage Pack

3 **6** **Your choice of deployments**

Postgres

Enhanced Security with Transparent Data Encryption

2 **7** **Self-managed or Fully-managed EDB BigAnimal**

1 **8**

Extreme High Availability Option (up to Five 9s)

And more! Contact us today!

Finally, we have the EDB Standard Plan. The Standard plan offers open-source Postgres with enterprise-grade tools to strengthen and extend PostgreSQL security, resilience, and reliability.

With the EDB Standard Plan, you get the best of the open-source community PostgreSQL and the best of EDB innovation. You can leverage the power of open-source Postgres, open-source tools and the community knowledge base while getting EDB-enhanced enterprise tools, extensions, and expert support.

For organizations looking to ensure the longevity of their business and user-base, operational resiliency must be at the forefront of the decision-making process. As such, the best way to facilitate that effort is with a database and a database partner that understands the value of innovation, security, high availability and ongoing growth.

That's why market leaders choose Postgres and EDB.

Learn more about how the EDB Standard Plan can help organizations like yours achieve operational resiliency.

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About EDB

EDB provides enterprise-class software and services that enable businesses and governments to harness the full power of Postgres, the world's leading open source database. With offices worldwide, EDB serves more than 1,500 customers, including leading financial services, government, media and communications and information technology organizations. As one of the leading contributors to the vibrant and fast-growing Postgres community, EDB is committed to driving technology innovation. With deep database expertise, EDB ensures extreme high availability, reliability, security, 24x7 global support and advanced professional services, both on premises and in the cloud. This empowers enterprises to control risk, manage costs and scale efficiently. For more information, visit **www.enterprisedb.com.**

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