

eBook

5 Ways to Get More From PostgreSQL:

Guide for IT Managers and DBAs



Contents

PostgreSQL is a top open source database management system (DBMS) choice for businesses today—the main reason being that its scalability, performance, and extensibility can handle most workloads, use cases, and architectures at enterprise scale.

This eBook explores five important tactics to help IT Managers and DBAs better manage PostgreSQL deployments and ultimately get the most out of Postgres. The following sections will help you chart your path to success.

1. Streamline Migration

Many enterprises are choosing PostgreSQL because it offers performance, scalability and reliability that is comparable to enterprise databases like Oracle.

03

2. Optimize PostgreSQL Cloud I/O

Transactions and Cloud Deployment

Here are some tips to make cloud deployment more cost-effective and optimized, so you can get more out of it.

05

3. Invest in PostgreSQL Enterprise Tools

Tools from EDB can automate patching, backups, provisioning, scaling, failover and upgrading, alongside many other important management tasks.

07

4. Leverage Containers

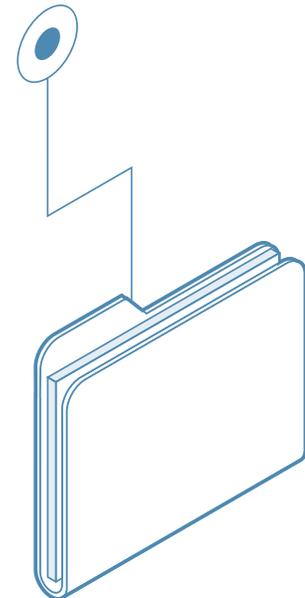
Today, more DevOps teams are leveraging the power of containerization and container orchestration technologies like Kubernetes to create and deploy cloud native applications.

08

5. Remote DBA Services

It can be difficult to let go of mission critical processes, but savvy companies in many industries are finding new leverage in the practice.

09



1

Streamline Migration

Many enterprises are choosing PostgreSQL because it offers performance, scalability and reliability that is comparable to enterprise databases like Oracle. A number of tools exist to streamline the process of migrating databases from Oracle to PostgreSQL. In this section, we take a closer look at the options.



Migrating data from Oracle to Postgres can be tricky. To learn more about different data migration strategies, read the blog post,

[How to Migrate from Oracle to PostgreSQL.](#)

Schema Migration Tools

Using a schema migration tool can save countless hours of manual mapping and converting procedures, data types, and tables. Below are some tools that help convert Oracle schema to PostgreSQL or EDB Postgres Advanced Server:

Ora2pg

While it converts Oracle schemas to PostgreSQL, you may still have to remediate any incompatibilities and rewrite application code. Ora2pg is not a plug and play solution, and if your migration project doesn't have a tight timeline, this approach might be the right choice.

EDB Migration Portal

If you need to migrate off of Oracle more urgently, check out [EDB Postgres Advanced Server](#). It is built upon PostgreSQL and adds features that make it compatible with Oracle database—resulting in faster migration and fewer code rewrites. The free EDB Migration portal helps you convert your Oracle schemas to EDB Postgres Advanced server.



2

Optimize PostgreSQL Cloud I/O Transactions and Cloud Deployment

While optimizing instance size and storage are less complicated and contribute less towards the overall cost, input/output operations per second (IOPS) can get expensive and is a little more complex to tune.

Here are some tips to make cloud deployment more cost-effective and optimized, so you can get more out of it.

The three primary cost drivers when running PostgreSQL in the cloud are:

- Database I/O
- Instance Size
- Storage

Optimizing I/O

Begin by checking your database IOPS consumption in your cloud console; look for unusual spikes and sequential scans. This is the starting point for optimizing IOPS.

Compare the billed IOPS with your expected workload

This requires an understanding of both the application and the database. For example, an anticipated workload can be approximately calculated by understanding data input/update and query workload. Then, comparing your estimate with the billed IOPS can give you a fair idea of any adversities.

Check your buffer cache hit ratio

A lower cache buffer leads to more I/O and, as a result, optimizing it is essential. Your cache buffer should be as close to 99% as possible.

Optimizing Cloud Instances

Buy Reserved Instances

Reserved instances offer substantial savings compared to running on demand, in exchange for making a long-term commitment (typically from 12 to 36 months). For example, Amazon EC2 reserved instances are marketed as providing a discount of up to 72% below on-demand pricing.

Reduce database configuration and availability

One way to easily cut costs is by lowering the number of instances in non-production accounts. Similarly, non-production accounts may not need to be enabled for multi-zone availability.

Terminate lightly used instances

If an instance is consistently utilizing less than 5% of resources, it is more than likely can be consolidated with others or dropped.

Optimizing Storage Spend

Perform regular maintenance

You can purge data from the database, but your storage cost will not go down unless you regularly archive older partitions, move data out to S3, and truncate partitions. This also helps further optimize I/O, because it reduces index size of the database.

Keep only what you need

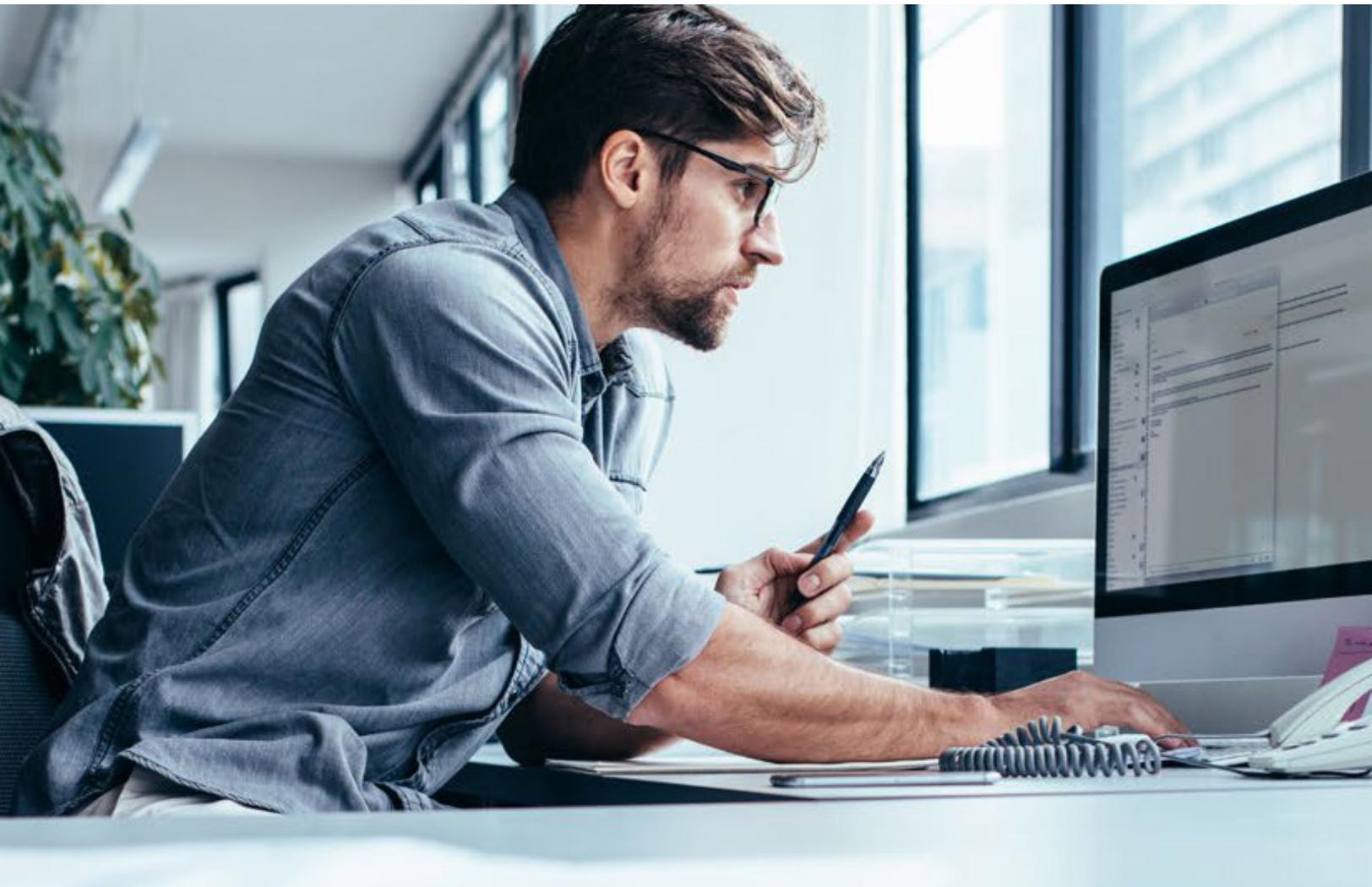
Drop all temporary/redundant objects and remove any unused EBS volumes. Consider establishing policies so data can more easily be purged or moved to lower-cost storage.

3

Invest in PostgreSQL Enterprise Tools

Maintenance is one of the highest costs associated with running databases. Whether you are running on bare metal, in the cloud or hybrid environments, you will still have to manage and tune PostgreSQL to create a highly available environment and ensure persistent connectivity.

In an enterprise environment, tools to monitor, manage and deploy highly available clusters can be an absolute necessity. Tools from EDB can automate patching, backups, provisioning, scaling, failover and upgrading, alongside many other important management tasks. This can save significant time for a DBA managing these activities.



4

Leverage Containers

Today, more DevOps teams are leveraging the power of containerization and container orchestration technologies like Kubernetes to create and deploy cloud native applications. As part of this effort, there is a growing trend to deploy the database used with these applications on container orchestration platforms.

What are the benefits of running PostgreSQL on a container orchestration platform?

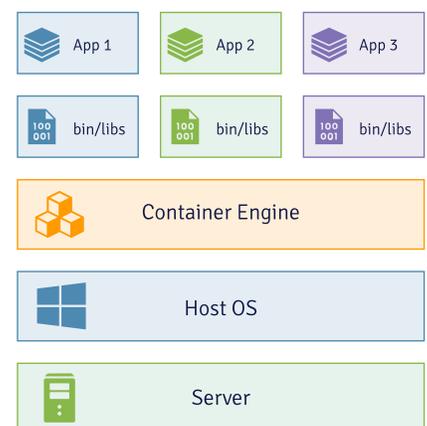
Every organization is trying to accelerate software development. When all the environments (test, stage and production) are identical, it makes it easy to promote database images and release new software or features quickly. Container orchestration adds to the portability of containers; PostgreSQL can now run anywhere whether on-premise or anywhere in between. Lastly, organizations can consolidate resources and runtimes. When the database is not in a container, it duplicates infrastructure, maintenance efforts, and networking complexity.

There are some inherent challenges with using databases on Kubernetes. While very resilient, Kubernetes doesn't include services that deliver a highly available PostgreSQL that top tier production applications require. When the PostgreSQL server in a container goes down, it may not come back up at all, or come up outside of the SLA needed for top tier production applications. This means application downtime—which can lead to unhappy customers or churn.

EDB helps solve this challenge by providing replicas of the PostgreSQL server and automatically failing over to the most current replica when the primary database is unavailable. EDB also facilitates scaling of replicas that can be used for read-only traffic, thereby increasing the responsiveness of writes directed at primary PostgreSQL server. Lastly, every development team can have their own PostgreSQL database by leveraging Postgres Enterprise Manager to manage multiple clusters. Now, customers can focus on their core business instead of building Kubernetes and PostgreSQL subject matter expertise.



VM Approach



Container Approach

5

Remote DBA Services

It can be difficult to let go of mission critical processes, but savvy companies in many industries are finding new leverage in the practice. Outsourcing can actually bring a company closer to an automated scheduling standard while freeing in-house staff for more creative or directly revenue generating pursuits. The advantages include:

Pay as you go

Unexpected emergencies do not happen on a schedule, and they require a fast response time to keep expenses down when problems arise. An outsourced DBA solution is available to cover your business 24x7, as opposed to a typical in-house DBA who works standard hours. In some cases, it can take multiple in-house generalists to accomplish the same efficiency of a single outsourced service, not to mention the costs saved in recruitment, training and other employment costs.

Continuity

Employee turnover can be a problem in the highly competitive world of DBAs. When outsourcing to a team of third party professionals, a company no longer has to worry about this continuity problem. The company also does not need to worry about any transfer of proprietary intellectual property when an individual leaves.

A great way to power your Postgres is through expert database management and 24x7 coverage to operate your on-premises deployments. Learn more about how [EDB's Remote DBA Service](#) can help you get started.

Cutting edge expertise for capacity planning and database growth

In-house IT departments cannot keep up with continuously changing requirements while maintaining its hold on day-to-day operations as easily as a specialized third party expert. Not only does an outsourced team have more access to resources, but it will also have more room to scale its continuation efforts in a timely fashion. With EDB, you get the advantage of engineers who have contributed directly to building PostgreSQL.

More from PostgreSQL

Maybe your development team has to prop up an internal application with little time and no budget, or maybe you're fearful of migrating complex applications from Oracle database to an open source solution. The answer is: the tools and outside support to scale out, optimize, and monitor their use of PostgreSQL on mission-critical applications.

EDB is here to help your team take the next step. We'll act as your partner with the energy, expertise, and education to help you deploy PostgreSQL as part of a complete, enterprise ready solution.

[Get started with EDB Postgres Advanced Server to learn more.](#)

