2ndQuadrant is now part of EDB
Bringing together some of the world's top PostgreSQL experts.

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Mission Critical Databases

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PostgreSQL Performance Tuning

Boost the Performance of your Database.

You have made significant investments in your hardware, so be sure your database fully utilizes it for your workloads. To maximize your ROI, it is crucial for your business to tune your PostgreSQL Database to its top performance.

Although PostgreSQL performs well out-of-the-box, there are several parameters that require further tuning to achieve peak performance for your specific workloads. 2ndQuadrant provides a personalized service for tuning your database, customized to your organizational needs. Our PostgreSQL consultants will help you deliver

BenchPrep

Scaling Infrastructure through
Performance Tuning and Highly Available Postgres Clusters

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outstanding performance to your customers while ensuring data integrity.

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What Our Clients Say

○○

"During our daily load test, we observed an immediate 2-4x improvement in peak

7 Good Reasons to get Performance Tuning

Increasing the performance of your Postgres database is of critical importance, whether it is to improve your current architecture or as a preparation to start a new project. Every database is different, but these are some of

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the top indications you can tune the
performance of your PostgreSQL database:

1. **Scalability Analysis.** Before investing in
   vertical or horizontal scaling, analyze
   available headroom in your existing
   hardware by tuning it for performance.

2. **Capacity Planning.** It is important to
   benchmark the maximum throughput
   your database can achieve in order to
   plan the workloads it can handle. Tune
   your database before you benchmark.

3. **Performance Degradation.** You are
   routinely encountering problems in
   database performance, slowing your
   applications down. Optimize your
   database performance and give your
   applications a boost.

4. **Under-Utilized Hardware.** Your
   database server does not fully utilize
   available hardware resources, resulting
   in slower performance than what is
   achievable. Tune your database to
   ensure full utilization of your hardware's
   potential.

5. **Sub-Optimal Configuration.** Your
   database is delivering throughput that is
   lower than what's achievable because it
   isn't customized for your organizational
   workload. Optimize your database
   configuration based on your
   organizational workloads.

6. **Underperforming Queries.** Some
   frequently executed queries are taking
   too long to return. Let our experts guide
   you on how to optimize these queries.

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7. **Changing Workloads.** As businesses grow, workloads can change and/or increase. Tune your database for performance so it can keep up.

PostgreSQL Performance Tuning Service

Performance Tuning from 2ndQuadrant includes an **in-depth analysis** of the following aspects, after which, we provide you with a detailed report of our findings. The report includes our recommendations to **optimize your database** for your specific use case and overall **business goals.**

- **Database Configuration Tuning.** We analyze the configuration parameters of your PostgreSQL database and recommend the optimum configuration for your organizational workload. Among other things, we examine the block size of different file systems like ZFS, and recommend optimum configuration.

- **Index Analysis.** Indexes can be tricky to handle, especially as your data grows. We analyze your existing indexes and suggest any optimizations. In addition to that, we recommend the addition/removal of indexes according to your organizational needs.

- **Table Partition Analysis.** Table partitions are essential to data management and

maximizing efficiency when accessing that data. We analyze and recommend the addition/removal of partitions based on your workloads.

- **Hardware Usage Analysis.** In order to fully utilize the hardware your database is hosted on, we study the configuration and recommend changes which will ensure full utilization of the power your hardware provides.

- **Connection Pooling Review.** Many users and applications will connect to the database to perform functions they are responsible for; we review your connection pooling strategy to ensure that it's optimized for your specific use case.

- **Analysis of Slow Running Queries.** If there are specific queries that you feel are running slower than expected, we perform a detailed analysis to identify potential optimizations accordingly.

- **Operating System Configuration Tuning.** The OS forms the underlying layer of your database, so configuration parameters for the OS and the hardware it's hosted on should also be customized for your organizational workload. Among other things, we can use pg_buffercache as our guide and make recommendations about shared_buffer parameter setting to optimize for your workload.

- **Storage Partition Analysis.** Building on the OS configuration, storage disk partitions also tend to play a significant role in the performance of any software

the OS hosts. We examine existing partitions and provide recommendations on their configuration and structure that will enhance processing efficiency.

Our Customers' Experiences

BenchPrep is a Chicago-based learning success platform which allows organizations to offer test preparation and continued learning programs to users across the globe.

Due to an exponential increase in the demand for online training, the number of organizations using BenchPrep for their learning needs grew significantly. The platform, which was originally based on a single Postgres database, started to have performance

tastyworks is a retail brokerage firm based in Chicago, IL that is leading a financial revolution for the do-it-yourself investor, and

uses PostgreSQL as its backend database for its cutting edge technology applications. Shortly after launching, the rapid success of the *tastyworks* platform created a larger than expected production volume, leading to **unforeseen performance issues**.
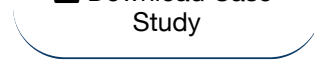
Find out how 2ndQuadrant helped

issues due to the unexpected load.

Find out how 2ndQuadrant recommended solutions to help BenchPrep scale their infrastructure and provide an unmatched learning experience to its customers.

optimize their database with a 4x performance boost and achieve: High Availability, updated PostgreSQL configuration to meet best practices, seamless migration to new servers, and much more!

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Performance Tuning Knowledge Base

Videos

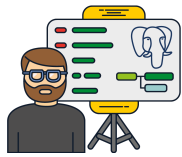**Postgres Vacuuming Through Pictures Webinar Video**

This webinar was held on

Power of Indexing in PostgreSQL Webinar Video

The webinar was held

24 July 2019 and covered key concepts of Postgres Vacuum and Autovacuum. It included use of diagrams, illustrations, and animations to present Postgres Vacuum, tuning Postgres Vacuum concepts and how tuning Vacuum properly makes a difference in

on April 4, 2018 and covered the following topics: various ways to access data in PostgreSQL, different types of indexes supported by PostgreSQL, internals of BTree and BRIN indexes, overview of GIN and GiST indexes, how to

database performance. Watch the complete webinar video here.

find missing and unused indexes. Watch the complete webinar video here.

Training

Advanced Development & Performance

This class covers important Intermediate and Advanced level details for developers interacting with PostgreSQL.

Blogs

TPC-H performance since PostgreSQL 8.3

October 22, 2020 / in 2ndQuadrant, PostgreSQL, Tomas' PlanetPostgreSQL / by Tomas Vondra

In the first part of this blog series, I've presented a couple of benchmark results

showing how PostgreSQL OLTP performance changed since 8.3, released in 2008. In this part I plan to do the same thing but for analytical / BI queries, processing large amounts of data. There's a number of industry benchmarks for testing […]

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OLTP performance since PostgreSQL 8.3

October 8, 2020 / in PostgreSQL, Tomas' PlanetPostgreSQL / by Tomas Vondra

A couple years ago (at the pgconf.eu 2014 in Madrid) I presented a talk called "Performance Archaeology" which showed how performance changed in recent PostgreSQL releases. I did that talk as I think the long-term view is interesting and may give us insights that may be very valuable. For people who actually work on PostgreSQL […]

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Webinar: KNN Indexing in PostgreSQL [Follow Up]

May 4, 2020 / in Webinars / by Bilal Ibrar

K-nearest neighbor is a proximity algorithm to find data in order of distance. Typically,

this data cannot be indexed in advance, as both the centroid and the data can be in constant motion. PostgreSQL provides efficient searching algorithms for finding proximity data on the fly, including unique, high-performance indexing options. For a deeper understanding of […]

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