

STORMATICS

The Stormatics Signature Methodology

Performance Optimization



Optimize Your Postgres Performance and Reduce Infrastructure Costs

As your tech stack grows, your Postgres database becomes the core of your operations. However, performance bottlenecks can degrade user experience and increase infrastructure costs. Our Performance Optimization Service is tailored to ensure your database delivers the speed and efficiency your growing system demands, all while keeping infrastructural expenses under control.

The Stormatics Signature Methodology for Performance Optimization

Our signature methodology, honed over years of hands-on experience with critical production databases, ensures lasting improvements by addressing performance challenges comprehensively. We address four broad areas for performance optimization, in order of effectiveness:

1. Query Optimization

Query optimization significantly enhances performance by reducing resource consumption and delivering faster response times. Our 4-step process for query optimization includes:

1. Identify the **top five most frequently executed queries** and the **top five with the longest execution times**. These queries have the greatest impact on your database's overall performance.
2. Analyze the execution plans for these queries using **EXPLAIN ANALYZE** to understand how the query planner executes them.
3. Focus on the most expensive nodes within the query plan, evaluating them based on **execution time, cost, and the volume of rows processed**.
4. Implement the most effective optimizations for the identified nodes. This typically involves using techniques like **restructuring queries**, leveraging **Common Table Expressions (CTEs)**, creating or refining **indexes**, and occasionally using **materialized views**.

2. Database Architecture Refinement

Architectural inefficiencies can lead to the sub-par performance of your Postgres database. We address these inefficiencies through:

- **Load Balancing:** Distributing workloads by dedicating separate nodes for read and write operations.
- **Table Partitioning:** Partition large tables to align with query patterns, improving speed and reducing bottlenecks.

3. Advanced Postgres Features

PostgreSQL offers numerous features designed for performance. We ensure you are leveraging these by:

- Implementing tailored **indexing strategies** for workload-specific needs.
- Leveraging Postgres features like **HOT updates**, **TOAST**, **aggregates**, and **incremental sorting** to enhance performance.
- Applying low-level optimizations such as **Huge Pages** and **NUMA policy** adjustments for added efficiency.

4. Configuration Parameter Tuning

Proper configuration aligns database performance with workload requirements. Our focus includes:

- Identify the available resources of the database i.e. **CPU cores**, **memory**, **disk**, **expected workload type**, and **expected number of connections**.
- Adjust parameters for your workload and traffic patterns.

Why Opt for Performance Optimization?

Every inefficiency in your database directly translates to higher infrastructure costs. By optimizing performance, we ensure:

- **Lower Resource Consumption:** Efficient queries and architecture use fewer computing and storage resources.
- **Reduced Infrastructure Costs:** Pay only for what you need while maintaining top-tier performance.
- **Improved ROI:** Maximize the value of your cloud investment by eliminating waste.



Why Choose Stormatics?

Stormatics is a consulting firm that specializes in helping businesses keep critical Postgres databases fast, reliable, and resilient.

With decades of hands-on experience managing production databases, we have developed signature methodologies to identify and resolve performance bottlenecks, ensure high availability, and build disaster recovery solutions. We partner with CTOs who demand robust, scalable, and cost-efficient database solutions to power their applications and fuel growth.

At Stormatics, we deliver cost savings, boost performance, and ensure operational continuity by leveraging reliable open-source tools and proprietary innovations in the Postgres ecosystem. Our precision-driven approach ensures your database infrastructure evolves seamlessly, empowering your business to thrive without disruption.

➔ Reliable Solutions

Your performance challenges are unique, and so are our solutions. We partner closely with your team to deliver tailored optimizations, ensuring your Postgres database performs at its peak.

➔ Customer Satisfaction

You need a database that performs consistently under pressure. With our expertise, we ensure your Postgres setup is optimized to handle growing workloads, delivering seamless performance at scale.

➔ Customized Services

Our customers are our greatest asset, and our commitment is to excellence in performance delivery. We do not stop until your database operates at its full potential, delivering speed and efficiency you can rely on.

Let's help your Postgres database perform at its best.

[Contact us today to get started!](#)