dbtune

AI database tuning B2B SaaS

Reduce cloud spend & improve operational efficiency

Unveiling the power and value of automated database parameter tuning

Introduction

*DBtune is an **AI-powered** database parameter **tuning** service.*

*Spun out of research at Stanford University, DBtune autonomously optimizes the configuration of databases through **machine learning**.*

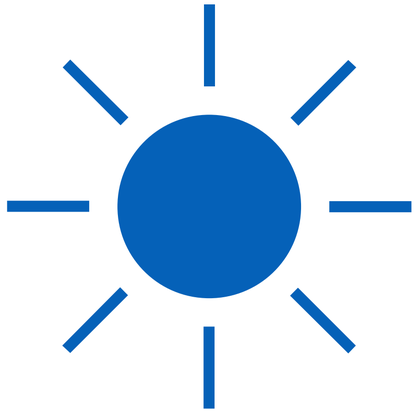
*It observes, iterates and adapts until converging and delivering the **optimal** settings for any individual workload, use case and machine.*

C-suite business priorities in 2024

Reduce cloud / infrastructure costs

Improve application / system performance

Enhance operational efficiency



Reduce carbon emissions

Business outcomes using DBtune

50%
Cost saving

>10x
Faster

25%
Increase in productivity

50%
Reduction in CO2

Source: DBtune benchmark testing. Details shared later in presentation.

What is database tuning?

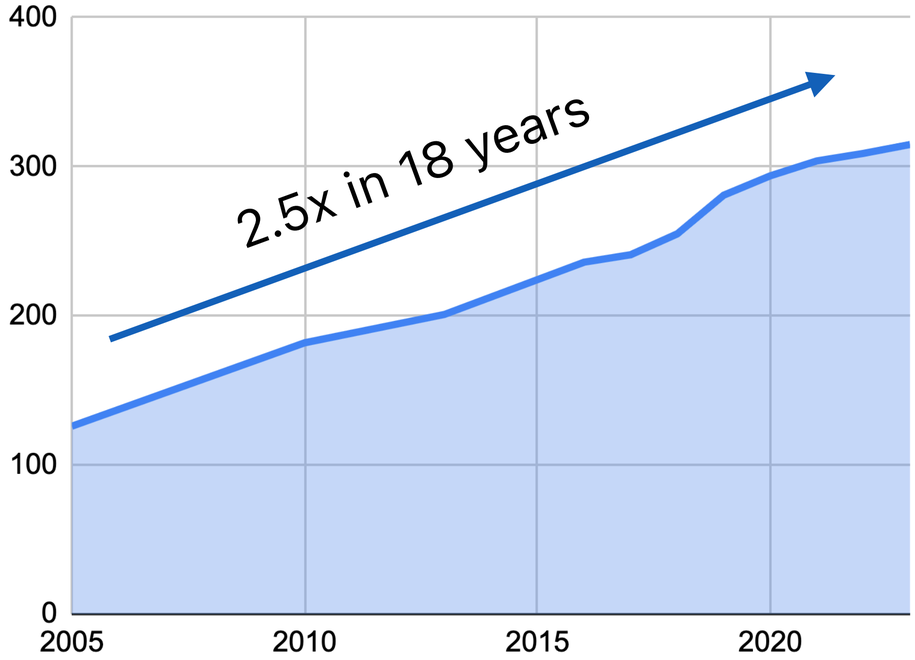
Keeping the database fit and responsive

- Databases change, grow and slow down
- Not all workloads and machines are the same
- **Tuning adapts a database to its current use-case, load and machine**
- It is a ‘dark-art’ yet an integral part of any DBA and developer’s job
- Tuning can include: query, **DBMS parameters***, indexes, OS parameters

*DBtune focuses solely on automating database parameter tuning

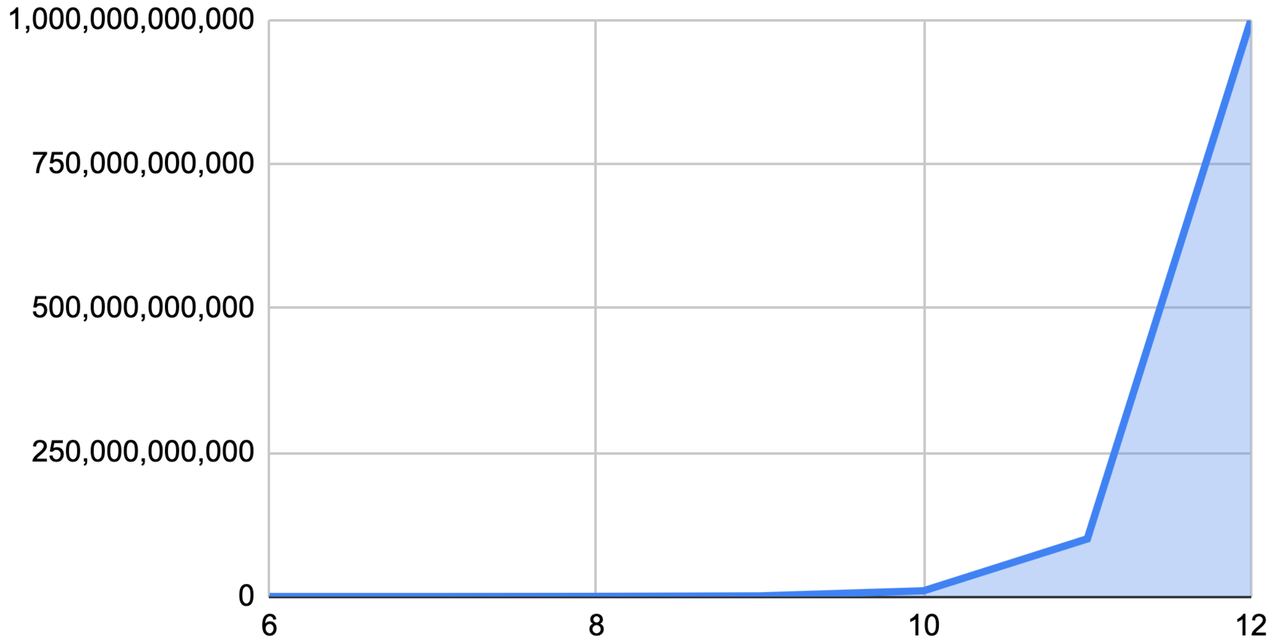
Database complexity is growing over time

The number of parameters is growing **linearly**



PostgreSQL number of parameters

The number of configurations is growing **exponentially**



Example of complexity with 12 parameters

With just 12 variable parameters, there are 1 trillion possible database configurations

How is parameter tuning tackled today by DBAs and developers?

Tuning guru

Manual

Slow
Takes days

Painstaking
Needs high expertise

Ineffective
Tune again in a week

Inadequate
Seasonal workload

Heuristics

PGTune

POSTGRESQL CONFIGURATOR

One-size-fits-all
Uses generic rules

Workload agnostic
Not bespoke

Ineffective
Tune again in a week

Inadequate
Seasonal workload

New approach

dbtune

Ideally a solution that learns by observation and autotunes

A solution that adapts to changing workloads

We introduce DBtune

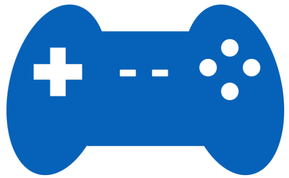
A unique AI-powered automated database parameter tuning service

Machine learning approach

DBtune learns how to solve optimization challenges

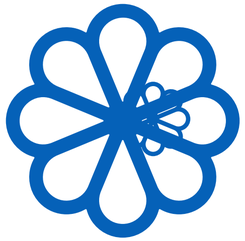
Dynamic adaptation

DBtune can tune a database irrespective of its size and complexity



Easy to use

No need for background in AI or database tuning

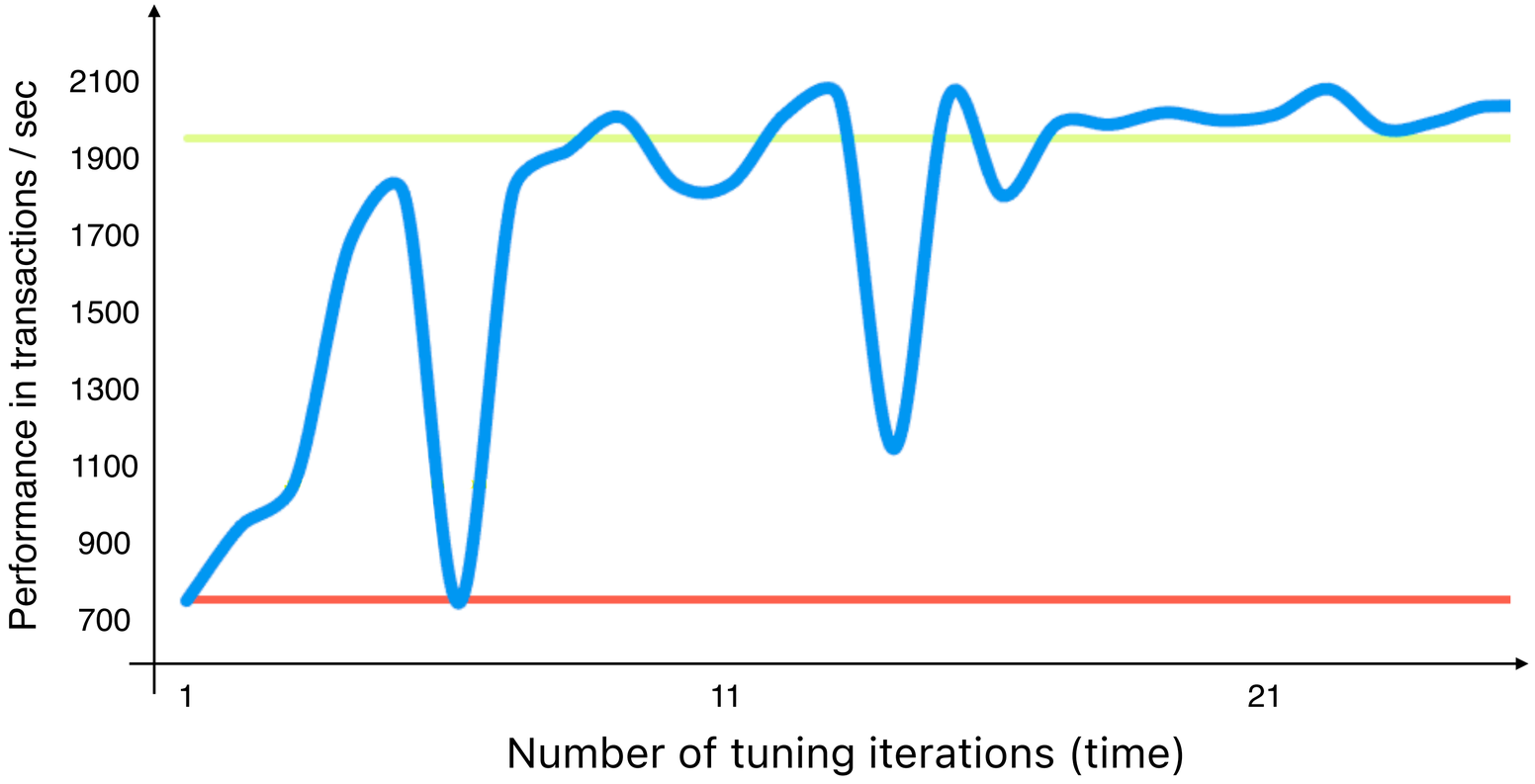


Highly scaleable

DBtune can tune multiple databases in heterogeneous environments

Proof of savings: Comprehensive test results

Performance impact of tuning AWS RDS PostgreSQL m5.2xLarge cloud instance on TPCC benchmark



Key

m5.2xLarge

m5.4xLarge

m5.2xLarge with **DBtune**

Key takeaway

*DBtune **doubles** the performance of the smaller RDS instance*

DBtune reduces costs by 50%

< 3 hours

Proof of savings: Detailed economic analysis

DBtune achieves better performance on a m5.2xlarge than running an m5.4xlarge

Hardware				Cost / Year		
AWS RDS Instance Type	**Cores**	**RAM**	**IOPS**	**Instance**	**EBS**	**Total**
db.m5.4xlarge	8	64 GBs	4000	$12,475	$4,800	**US $17,275**
db.m5.2xlarge	4	32 GBs	2000	$6,237	$2,400	**US $8,637**

- DBtune halves Amazon RDS costs (**50% saving**)
- Exceeds 4xLarge performance on a 2xLarge instance
- Medium and large companies use hundreds* of RDS instances

Per instance saving
$8,638

*A16z article: "The Cost of Cloud, a Trillion Dollar Paradox"

How is DBtune different?

- DBtune doesn't measure cloud infrastructure spend — It ***reduces*** it
- Low risk, low effort and minimal resources required to prove the concept
- Yet the potential business benefit is significant (PoC takes 1 day)
- You haven't tried anything like this yet — Guaranteed results
- Start small and scale your savings / value on demand — Simple licensing
- Flexible deployments means there's always a way to realize business value

Customer story: Airtel production system optimization

Airtel partnered with DBtune to optimize their infrastructure spend

Airtel is one of the largest communication service providers, globally. Headquartered in India, they serve in excess of half a billion subscribers. Airtel sought a new technology to improve their PostgreSQL database performance.

“DBtune seamlessly integrated into a production system of a mission critical Airtel application. We’ve been impressed by the reliability and robustness of the DBtune product, and the team has enjoyed evaluating the platform.”

Anant Kumar
Airtel CIO digital

Customer story: Helping Anteo to speed up their data operations

Norway-based company, Anteo, offer decision support for sustainable development in the aquaculture industry, as well as real-time monitoring and warning biosafety solutions.

Anteo's infrastructure is data intensive. Anteo partnered with DBtune to speed up their PostgreSQL data platform.

"It only took 10 minutes to set up DBtune on our Google Cloud PostgreSQL data platform...The process was easy and pleasant."

Peder Refsnes
Anteo CTO

Customer story: Integration study with the DbVisualizer platform

DbVisualizer is a leading universal database tool for universal database management systems. The company offers a database Integrated Development Environment (IDE) for developers, analysts, and DBAs.

DbVisualizer partnered with DBtune to explore the technical integration with their development platform. The initial pilot validated the technical strength of the DBtune platform.

DbVisualizer

“We see a lot of potential in DBtune’s ability to optimize our customers’ workloads. This is a state-of-the-art optimizing service that is robust and flexible enough to integrate tightly with our platform. DbVisualizer, enhanced with DBtune’s capabilities, would make for a more complete offering for our customers."

Martin Engdahl
DbVisualizer CEO

DBtune technology endorsed by VMware

vRealize Network Insight (vRNI) is a network monitoring tool by VMware that helps build an optimized, highly available and secure network infrastructure across cloud environments. The key-value store FoundationDB database system is at the core of vRNI and its performance.

vRNI's infrastructure is data intensive. VMware partnered with DBtune to speed up their FoundationDB data platform.

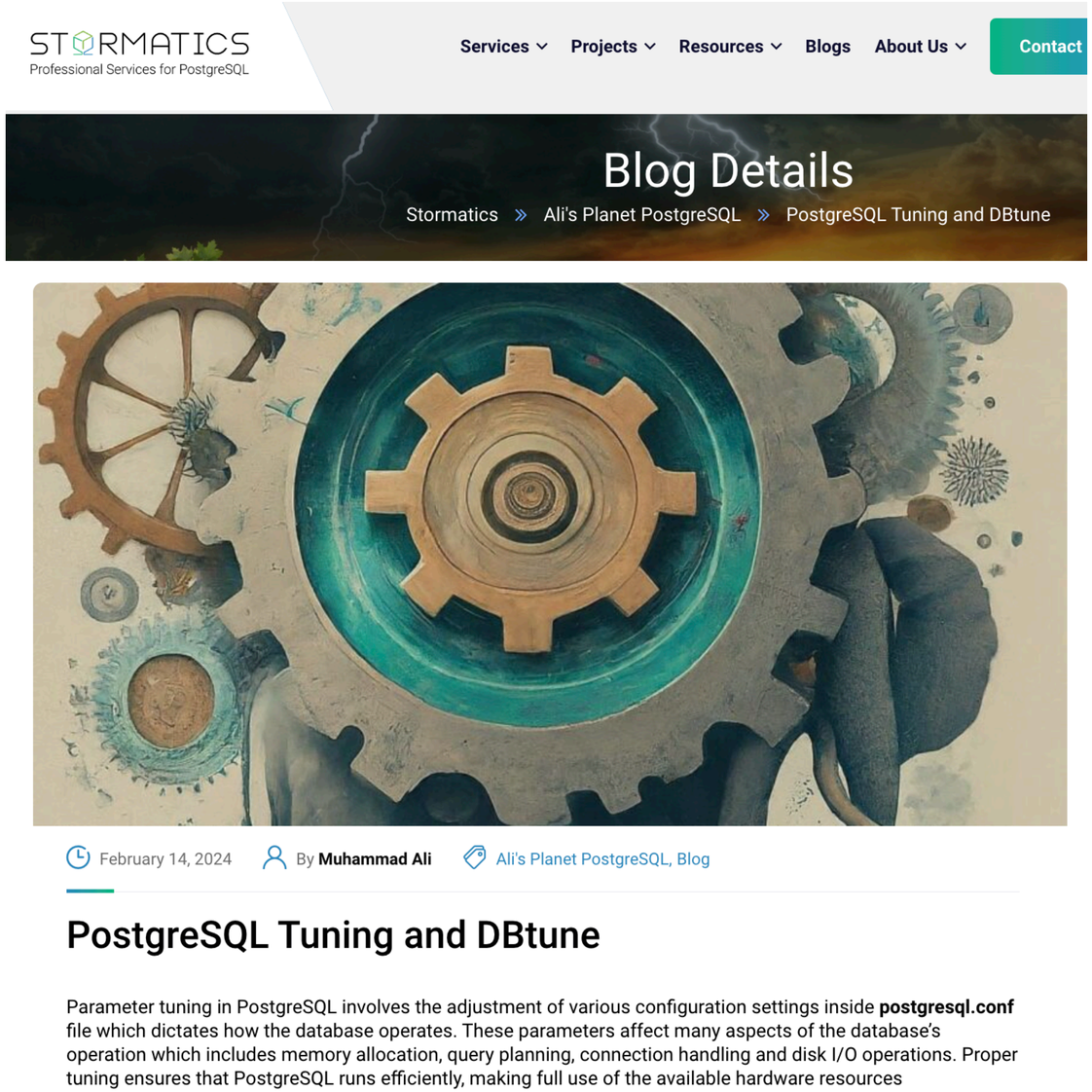
"We saw a 34% improvement in our FoundationDB testbed, while we were hoping for a 10% improvement...DBtune exceeded our team's expectations."

Clement Pang, Co-founder & Chief Architect at Wavefront by VMware

"For us, performance is essential, DBtune has overcome the optimization complexity with an innovative solution; they made it simple."

Uday Kurkure
Staff Engineer at VMware

Independent evaluation by Stormatics



- Across all tests cases DBtune delivered improvement in performance up to 13.6x
- Compared to manual tuning DBtune achieved 2.2x speedup

Blog: https://stormatics.tech/alis-planet-postgresql/postgresql-tuning-and-dbtune

Get started
app.dbtune.com

Questions?
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dbtune

Perform better. Spend less.