dbtune

Financial DevOps: Navigating the FinOps Landscape for Cloud Cost Optimization in PostgreSQL

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Global Director of Business Development

40% of all instances are over provisioned

35% of all cloud spend is wasted

Source: Flexera state of cloud 2023

Session agenda

- Introduction
- What is FinOps?
- Value of FinOps
- Why should I care?
- Themes, trends, strategies
- How to make friends with FinOps

About me

@tomhowcroft

- Professional
- 2 decades go-to-market experience
- Passionate about intersection of technology & business value

webtrends VOLT ACTIVE DATA validity

- Personal

- First trip to India!
- Love cricket (don’t mention the test series!)
- 10 wicket haul!

I’ve met God!

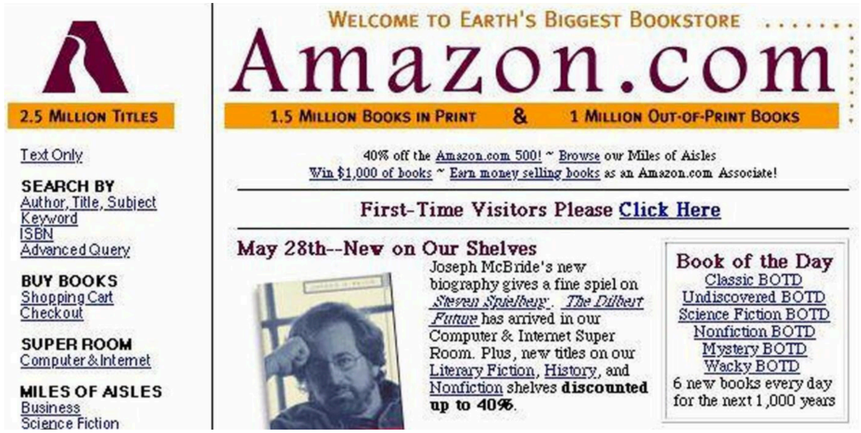
What is FinOps?

Finance + DevOps = FinOps

A brief history

Source: Flexera

Brief trip down memory lane



1995 — Once upon a time Amazon sold books online…

- On premise was the only choice
- 'Leaders' created their own private cloud
- 2006 - AWS launches EC2 and S3
- Explosion of technology companies
- Fixed cost is now variable

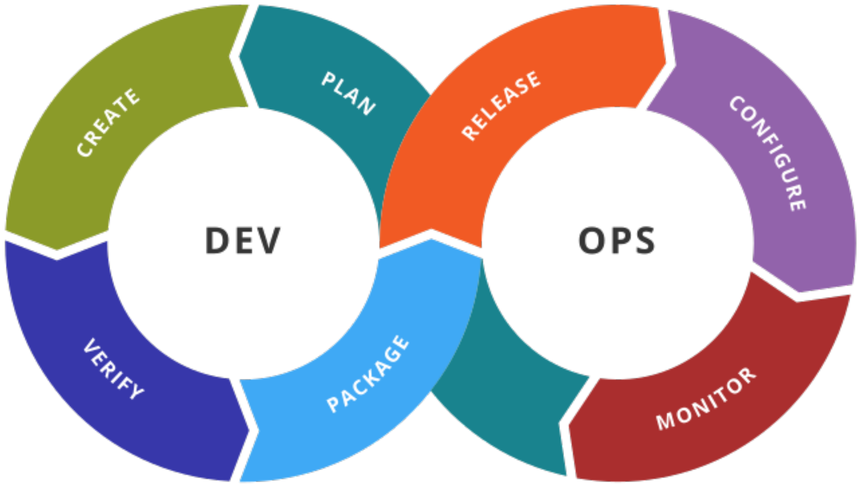
2024 — Biggest companies globally are cloud providers

Global cloud computing market valued at $626 billion

Projected to be $1,266 billion by 2028 with CAGR of 15%

Source: Marketsandmarkets.com

Emergence of FinOps



2006

- Cloud = disruption
- Value delivered with technology
- DevOps has allowed acceleration of tech delivery
- Shift has put purchasing power in hands of developers

- Broken traditional procurement processes
- Cloud spend monitoring / optimisation technologies
- FinOps Foundation formed (Cloudability's CAB)

2018

CLOUDABILITY

FinOps Foundation

What is FinOps?

"FinOps is an operational framework and cultural practice which maximizes the business value of cloud, enables timely data-driven decision making, and creates financial accountability through ***collaboration between engineering, finance, and business teams."***

Source: FinOps Foundation

Value of FinOps

- Accelerate business value realization and innovation
- Drive financial accountability and visibility
- Optimize cloud usage and cost efficiency
- Enable cross organizational trust and collaboration
- Prevent sprawl of cloud spend

Why should I care?

Why should I care?

- Increase in cross functional activity
- Increased accountability
- Your leadership care about it…

Why should I care?

Get Certified

Join the Community

About Community Certifications Framework Projects

Early Bird registration still available for FinOps X 2024 →

FinOps Insights

State of FinOps ’24: Top Priorities Shift to Reducing Waste and Managing Commitments

February 22, 2024

https://www.finops.org/insights/key-priorities-shift-in-2024/

What’s driving these priorities?

Source: Flexera

Macro factors

External themes & challenges facing ALL

- Inflation and economic downturn
- Increasing customer expectations
- Security breaches
- Explosion of automation
- Accelerated digital transformation
- Sustainability

Impact on the enterprise

How these challenges manifest in business priorities

- Operational efficiency / cost reduction
- Adoption of open source
- Employee productivity / satisfaction
- Embrace automation with AI / ML
- Focus on security
- Reduce carbon footprint

We live in a different world now


Top 102 Unicorn Startups
In India
INMOBI
DREAM11
PhonePe
BharatPe
OLA
OYO
freshworks
make my trip
zomato
upGrad
BYJU'S
The Learning App
SWIGGY
moglix
droom
ZETWERK
NYKAA
meesho
policybazaar
CoinDCX
ofbusiness
Urban Company
VERSE
ShareChat
slice
glance
CARS24
BLACKBUCK
highradius
CRED
gupshup
innovaccer
FIVE STAR
Business Finance Limited
digit
amagi
zeta
INFRA.MARKET
lenskart
OLA ELECTRIC
mamaearth
ElasticRun
uniphore
cure.fit
MENSA
GROFERS
paytm mall
firstcry.com
purplle
ZERODHA
COINSWITCH
KUBER
PHYSICS WALLAH
Oxyzo
LEAD
MPL
dailyhunt
apna
druva
BillDesk
CommerceIQ
MindTickle
Licious
BORN TO MEAT
DELHIVERY
acko
zenoti
open
Pristyn Care
CarDekho
REBEL FOODS
RIVIGO
CredAvenue
fractal
paytm
MYGLAMM
PharmEasy
CitiusTech

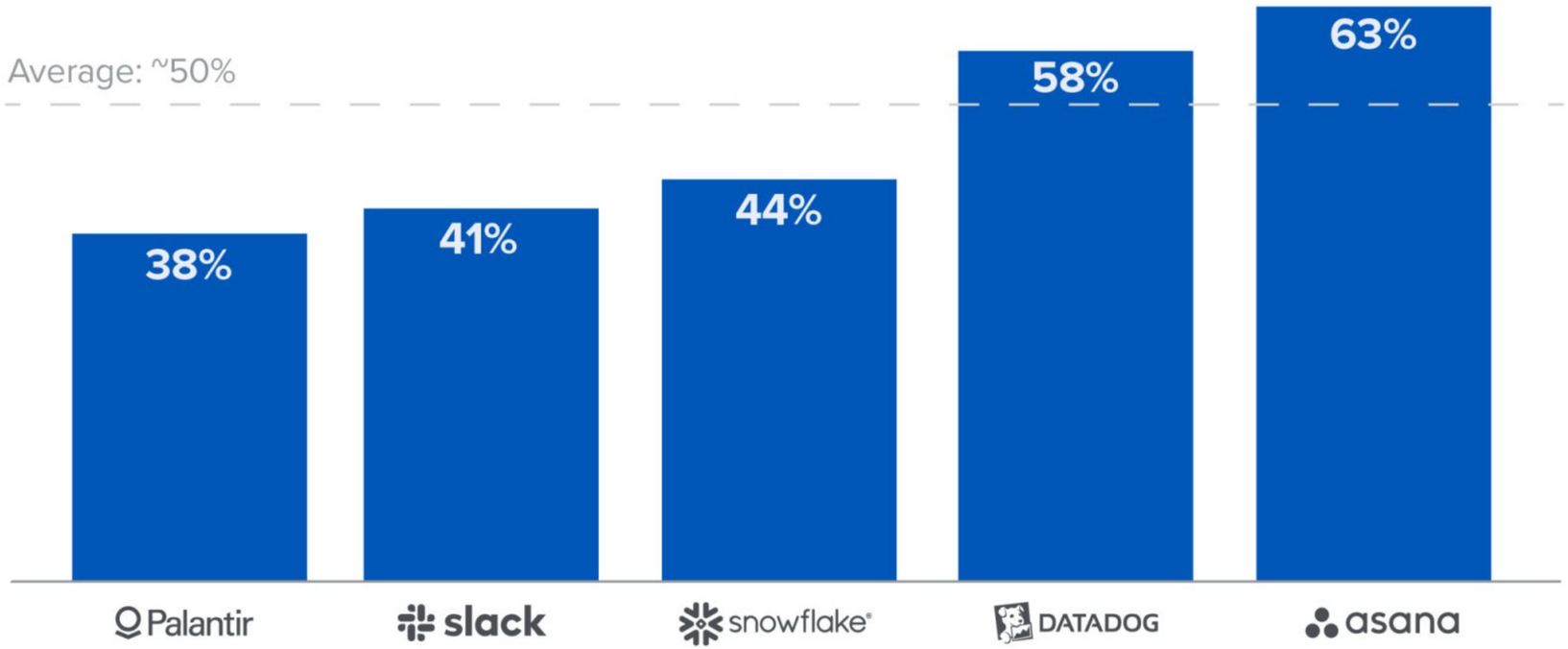
What do they all have in common?

Infrastructure spend is a large % of cost of revenue (COGS)

Why this is so relevant for tech / software / digital companies

Infrastructure cost optimization is driving valuations and stock

Estimated annualized committed cloud spend as % of cost of revenue



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

What can I do about it?

- We all LOVE PostgreSQL
- Most admired DB by developers (Stackoverflow)
- Almost limitless versatility
- With great versatility comes great responsibility…

Simon Riggs: Major Postgres Developer & Committer

PGConf Europe, Prague 2023, Keynote:

*'PostgreSQL can be used for almost any and all data processing workloads and use cases (*as long as it's tuned correctly)'*

What is database tuning?

And how can it help us achieve business goals and objectives?

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 etc

Why does it matter?

Technical perspective

- Directly impacts system performance
  - Transactions per second — Throughput
  - Average query runtime — Latency
- Improves scalability
- Enhances stability / reliability
- SLA

Business perspective

- Decreases cloud / infrastructure spend
- Higher end-user satisfaction
- Reduces downtime
- Increases productivity
- Increases operational efficiency
- Saves energy (ESG)

How often do you tune?

Anytime that:

- Your workload changes
- Your database grows and changes
- You migrate from on-prem to the cloud — Or vice-versa
- You scale your cloud instance — Up or down
- You migrate DBMS — E.g., from Oracle to PostgreSQL
- You upgrade your PostgreSQL version

The reality of how most enterprises treat manual tuning today

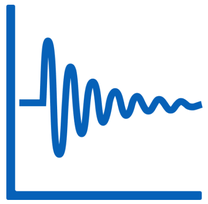
- Tuning is typically **reactive** to something going wrong — Not **proactive**
- Maybe looked at once or twice a year
- Neglected — Not a priority
- Often engage expensive external resources / experts
- Different workloads are not treated differently
- Modus operandi has become to throw more hardware at any issue ($$$)

How can you help me Tom?

We introduce DBtune
A unique AI-powered database parameter tuning cloud hosted service

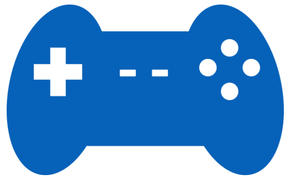
Machine learning approach

DBtune learns how to solve optimization challenges



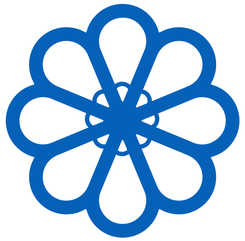
Dynamic adaptation

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

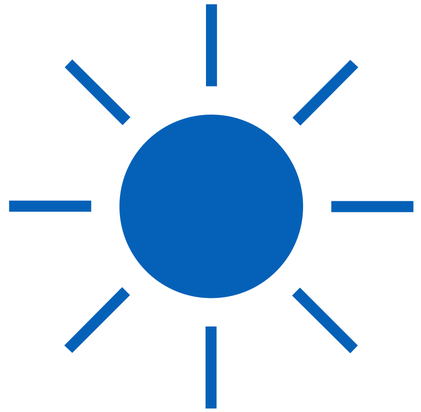
Customer value proposition

DBtune boosts service performance / improves business margins

Reduce cloud / infrastructure costs

Make your service radically faster

Free up your DBAs

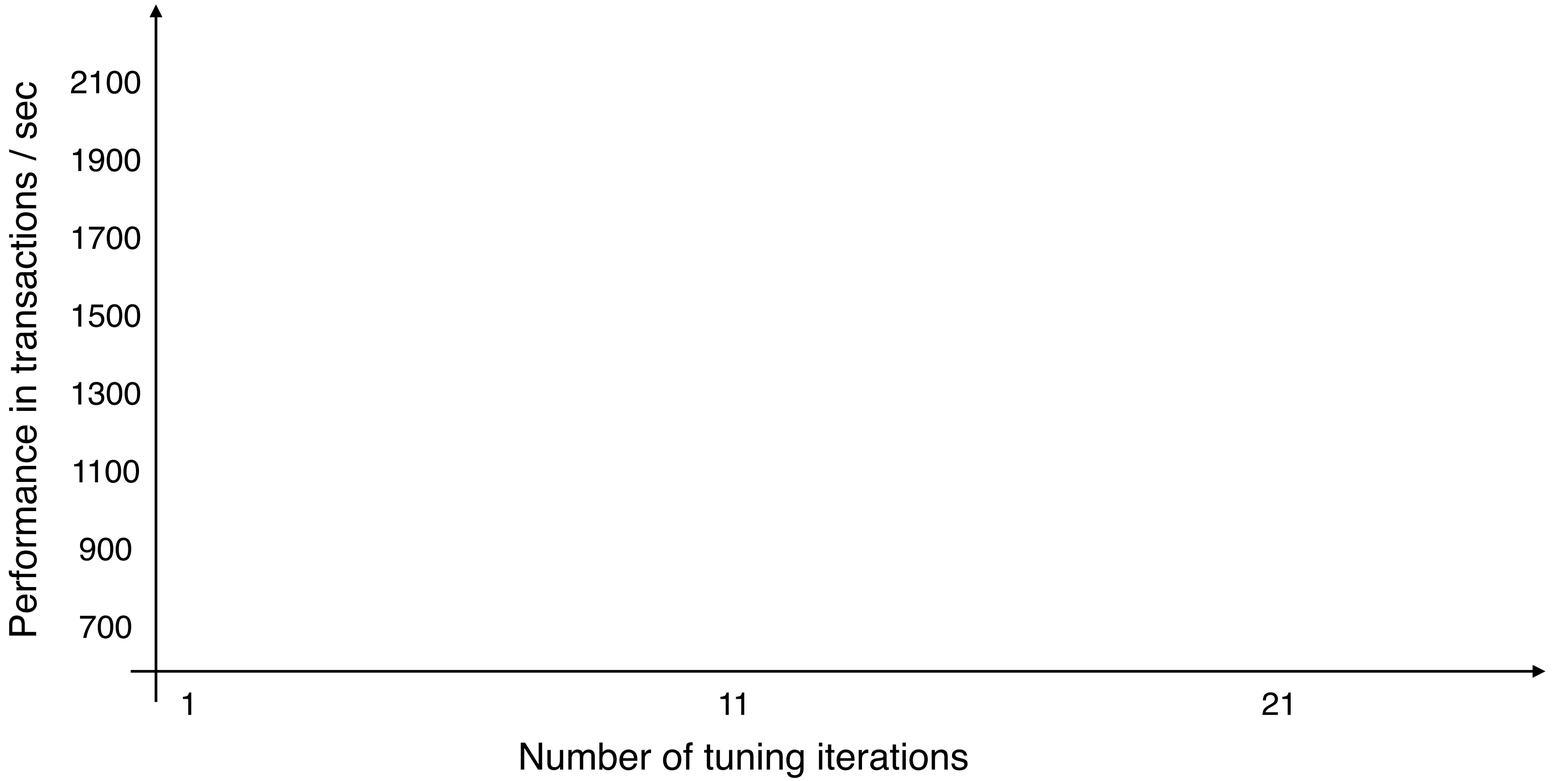


Reduce energy consumption

Performance results and cost analysis

DBtune doubles the performance of PostgreSQL Amazon RDS

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



Key takeaway:

DBtune achieves a level of performance on the small instance in excess of an instance twice the

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	**$17,275**
db.m5.2xlarge	4	32 GBs	2000	$6,237	$2,400	**$8,637**

- DBtune halves RDS costs **(50% saving)**
- Matches 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"

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.

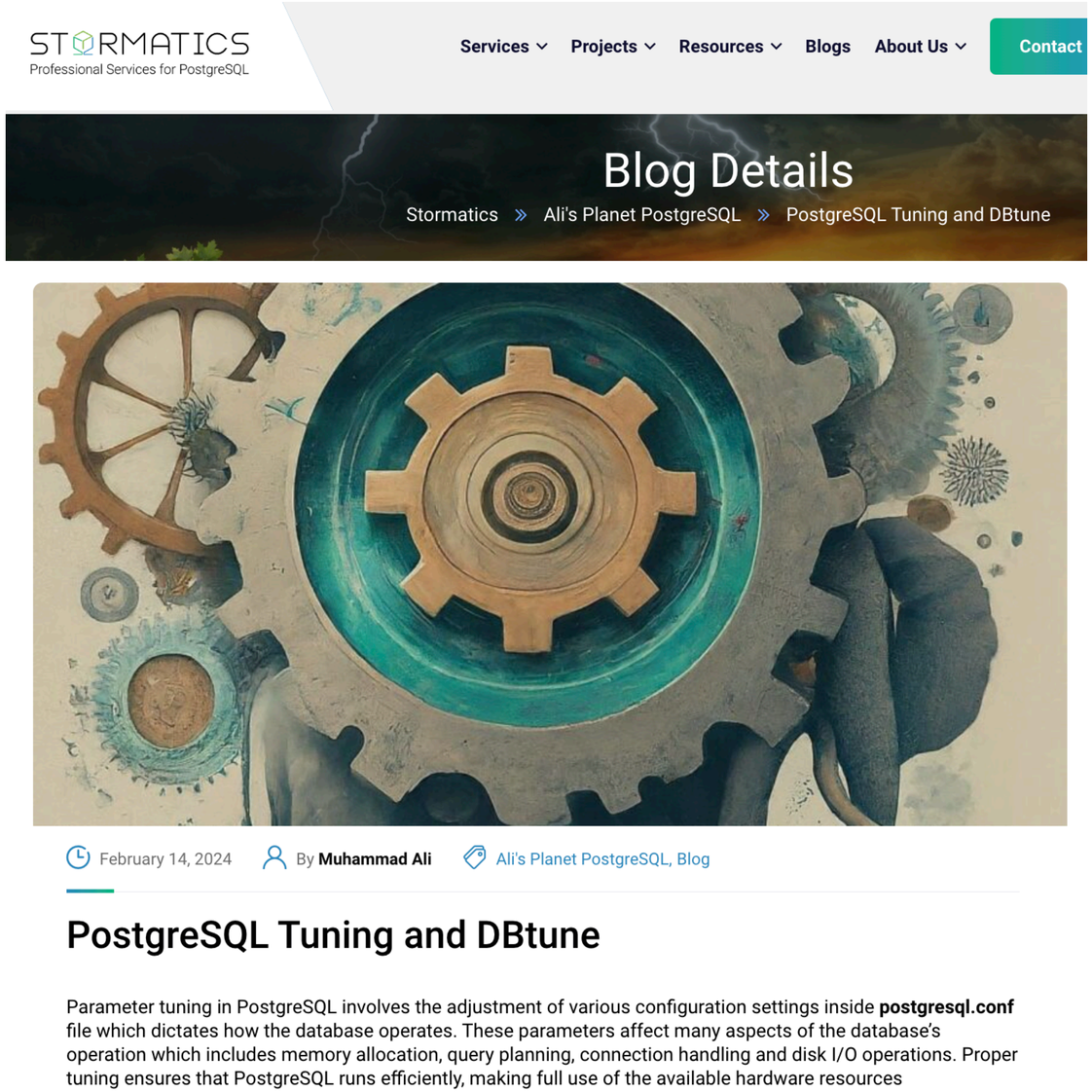
“We saw a 34% improvement in our FoundationDB testbed, while we were hoping for a 10% improvement…DBtune exceeded our team's expectations.”

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

God wanted me to pass on a message…

He wants you all to know that he thinks DBtune is great!

Sign up today!

app.dbtune.com

Or request a demo

info@dbtune.com

dbtune