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**.*
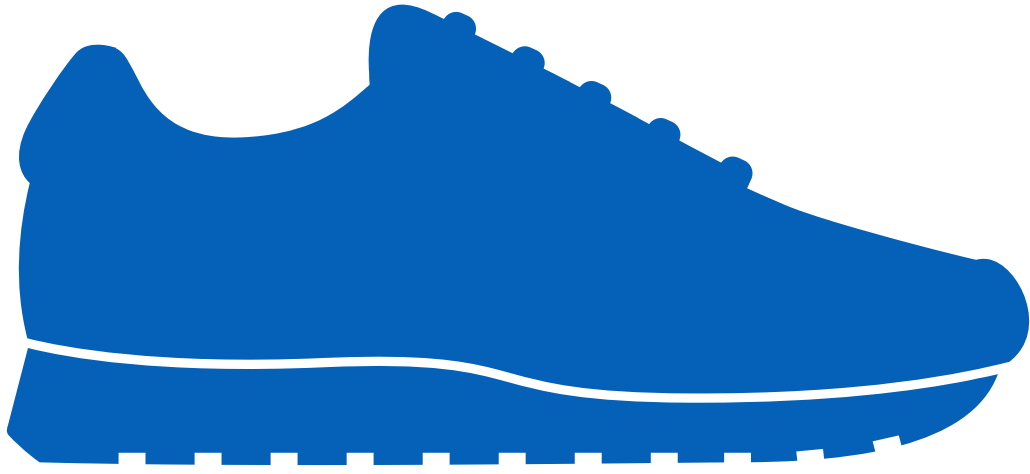
*It observes, iterates and adapts until converging and delivering the **optimal** settings for any individual workload, use case and machine.*
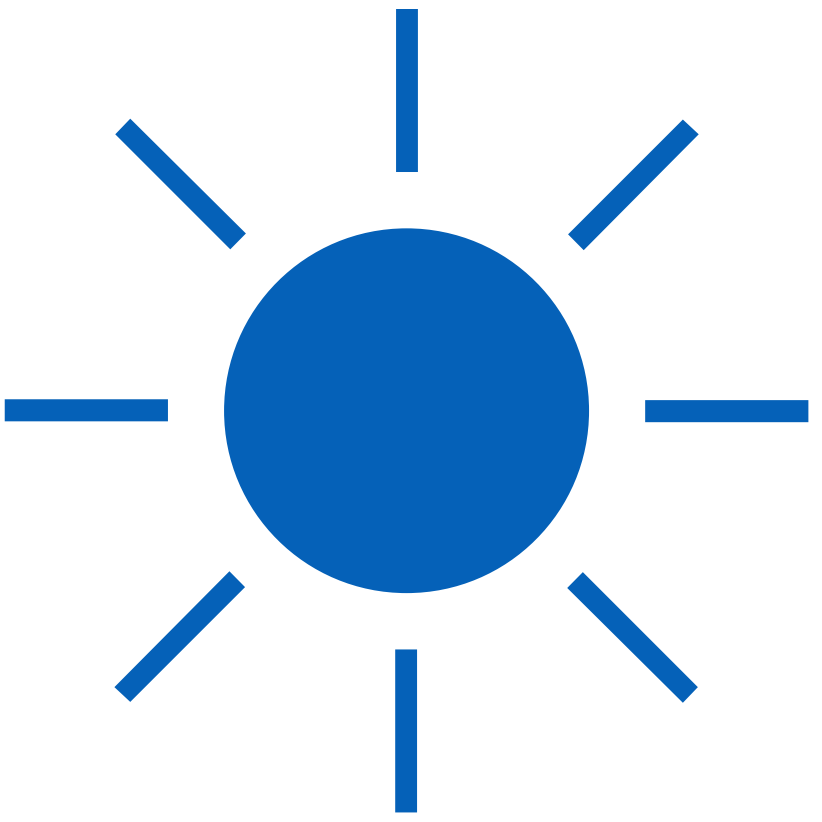
C-suite business priorities in 2024

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

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

Database complexity is growing over time

The number of parameters is growing **linearly**

2.5x in 18 years
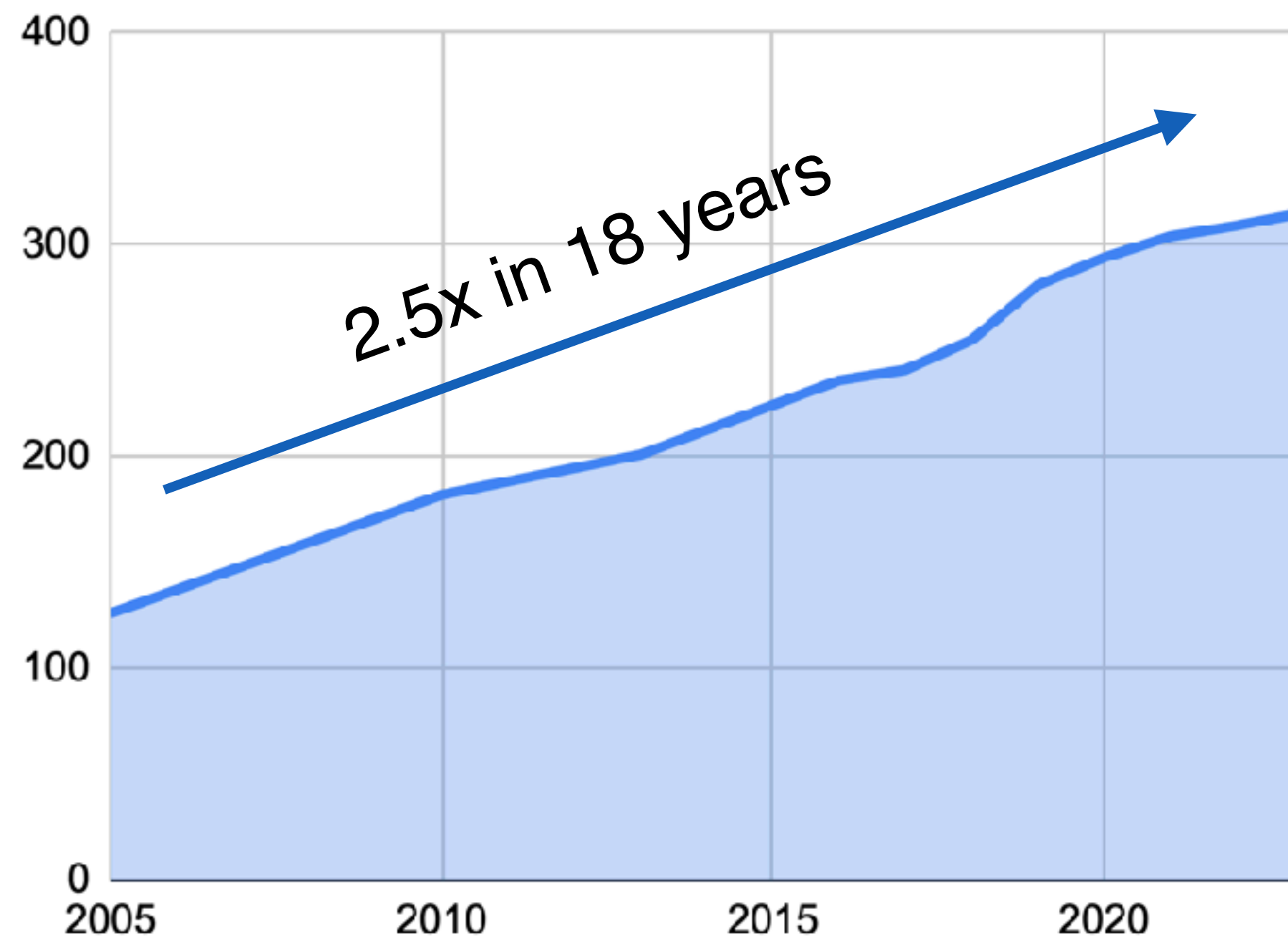
PostgreSQL number of parameters

The number of configurations is growing **exponentially**
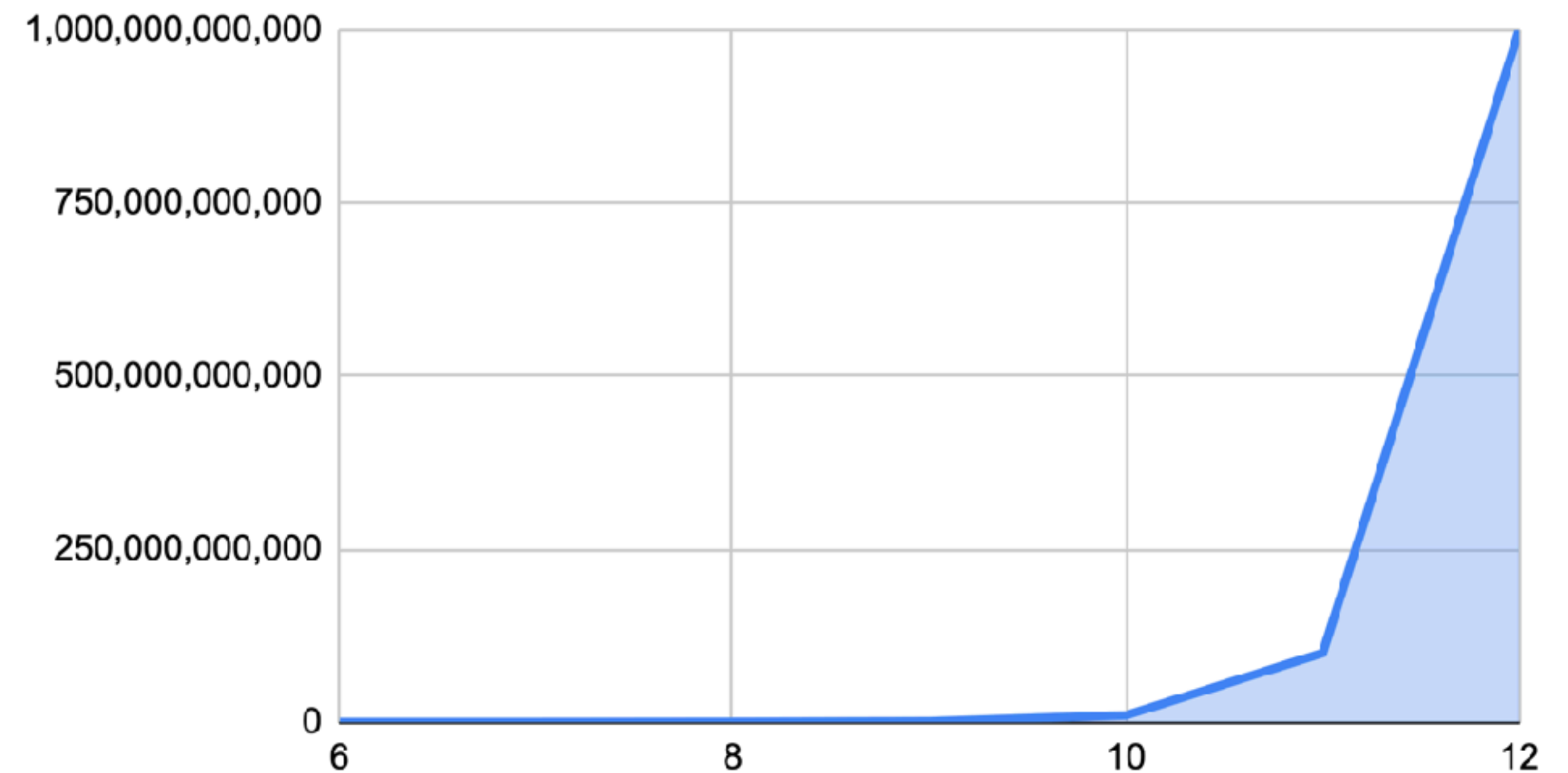
Example of complexity with 12 parameters

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

How is parameter tuning tackled today by DBAs and developers?

Manual

Tuning guru

Slow
Takes days

Painstaking
Needs high expertise

Ineffective
Tune again in a week

Inadequate
Seasonal workload

Heuristics

One-size-fits-all
Uses generic rules

Workload agnostic
Not bespoke

Ineffective
Tune again in a week

Inadequate
Seasonal workload

New approach

Ideally a solution that learns by observation and autotunes

A solution that adapts to changing workloads
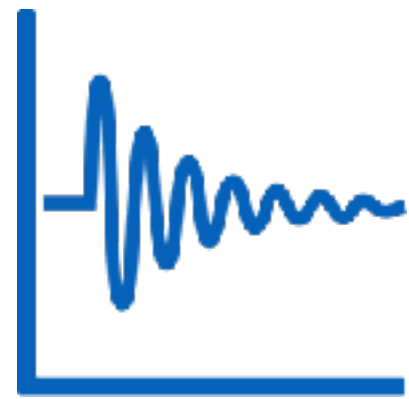
We introduce DBtune
A unique AI-powered automated database parameter tuning service
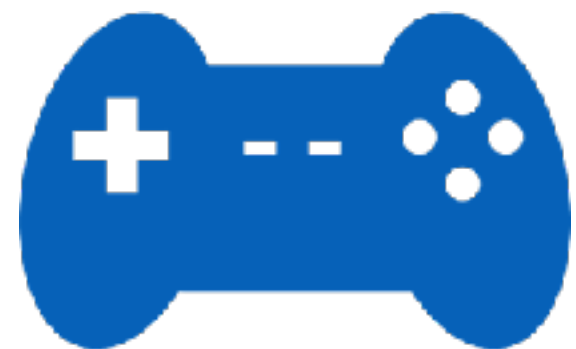
Machine learning approach 〉 DBtune learns how to solve optimization challenges
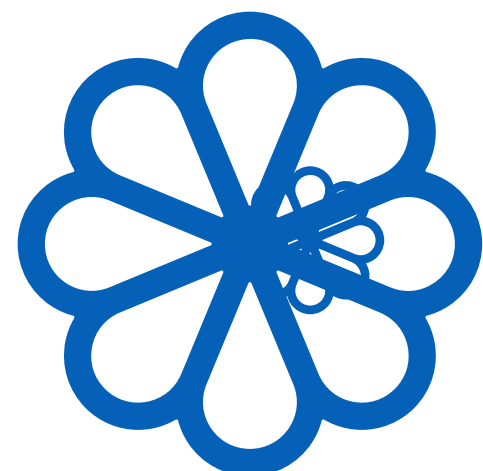
Dynamic adaptation 〉 DBtune can tune a database irrespective of its size and complexity

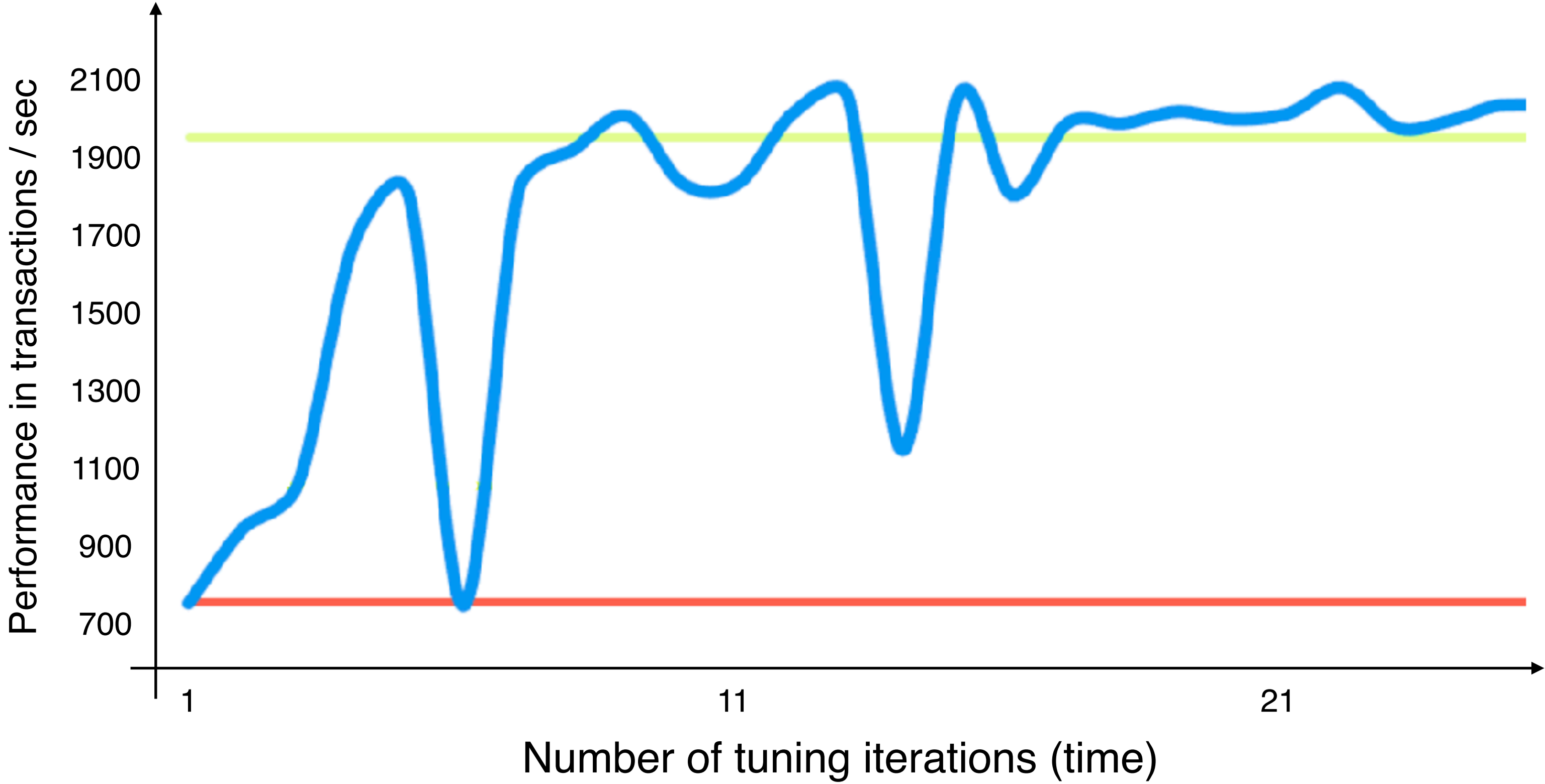**Easy to use** 〉 No need for background in AI or database tuning

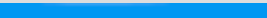**Highly scaleable** 〉 DBtune can tune multiple databases in heterogeneous environments

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	US$12,475	US$4,800	**US$17,275**
db.m5.2xlarge	4	32 GBs	2000	US$6,237	US$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

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

The DBtune team

Leadership

Founder & CEO
Dr. Luigi Nardi
Stanford & Lund

Advisor
Dr. Kunle Olukotun
Stanford & Co-founder
SambaNova

Senior ML Engineer
Dr. Erik Hellsten
Chalmers, DTU, LTH, Volvo

Frontend Engineer
Aiman Mohsin
Diya, Sia Smtech

Dev

Senior Software Engineer
Muhammad Umair
Freie, Heidelberg, SAP

Backend Engineer
Tahir Masood
FAST, Ibex Global
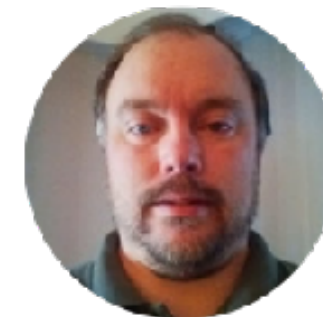
Strategy Advisor
Kingston Duffie
Serial Entrepreneur

Technology Advisor
Peter Zaitsev
Co-founder & CTO Percona

Tech Lead
Costa Alexoglou
Co-founder VisualEyes, Neo4j

Senior DevOps
Mohsin Ejaz
EDB

Special Consultant
Magnus Hagander
Redpill, PG Core Team

Technology Advisor
Johan Svensson
Co-founder & CTO Neo4j

M & S

Marketing Coordinator
Ellyne Phneah
LTH, ZDNet, Symantec

Director of Sales
Tom Howcroft
VoltDB

Marketing Advisor
Mark Jennings
Techstars, Notch

Sales Advisor
Alan Facey
B2B Sales Leader

Start your free trial!
app.dbtune.com

Questions?
info@dbtune.com

dbtune

Perform better. Spend less.