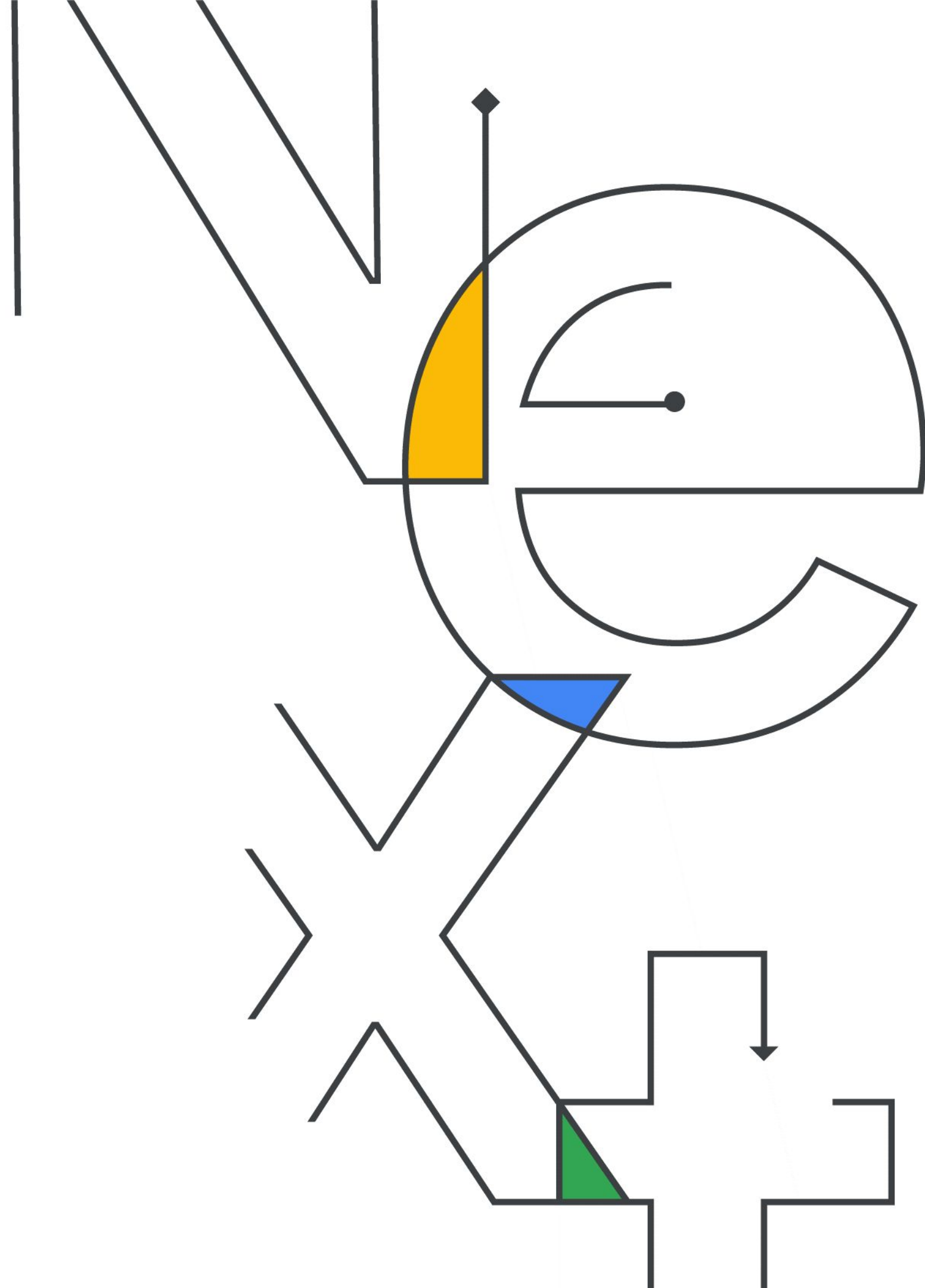


Google Cloud

# Next '22

## Why now is the time to migrate your apps to managed databases

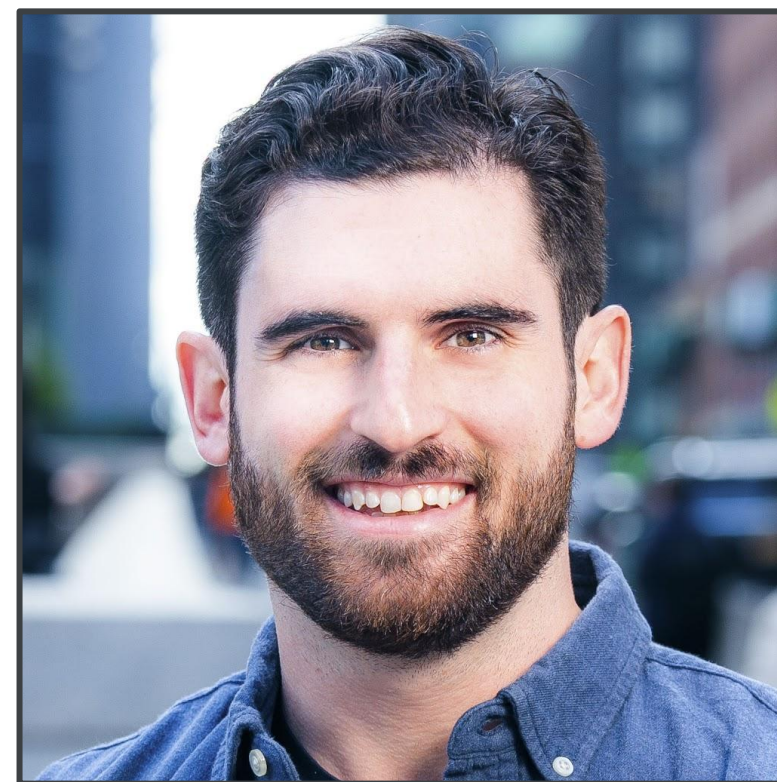
Oct/  
11–13





**Sujatha Mandava**

Director, Product Management,  
SQL Databases  
**Google Cloud**



**Joseph Zirilli**

Senior Software Engineer  
**Major League Baseball**

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01 The burden of self-managing databases

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02 How Cloud SQL can help

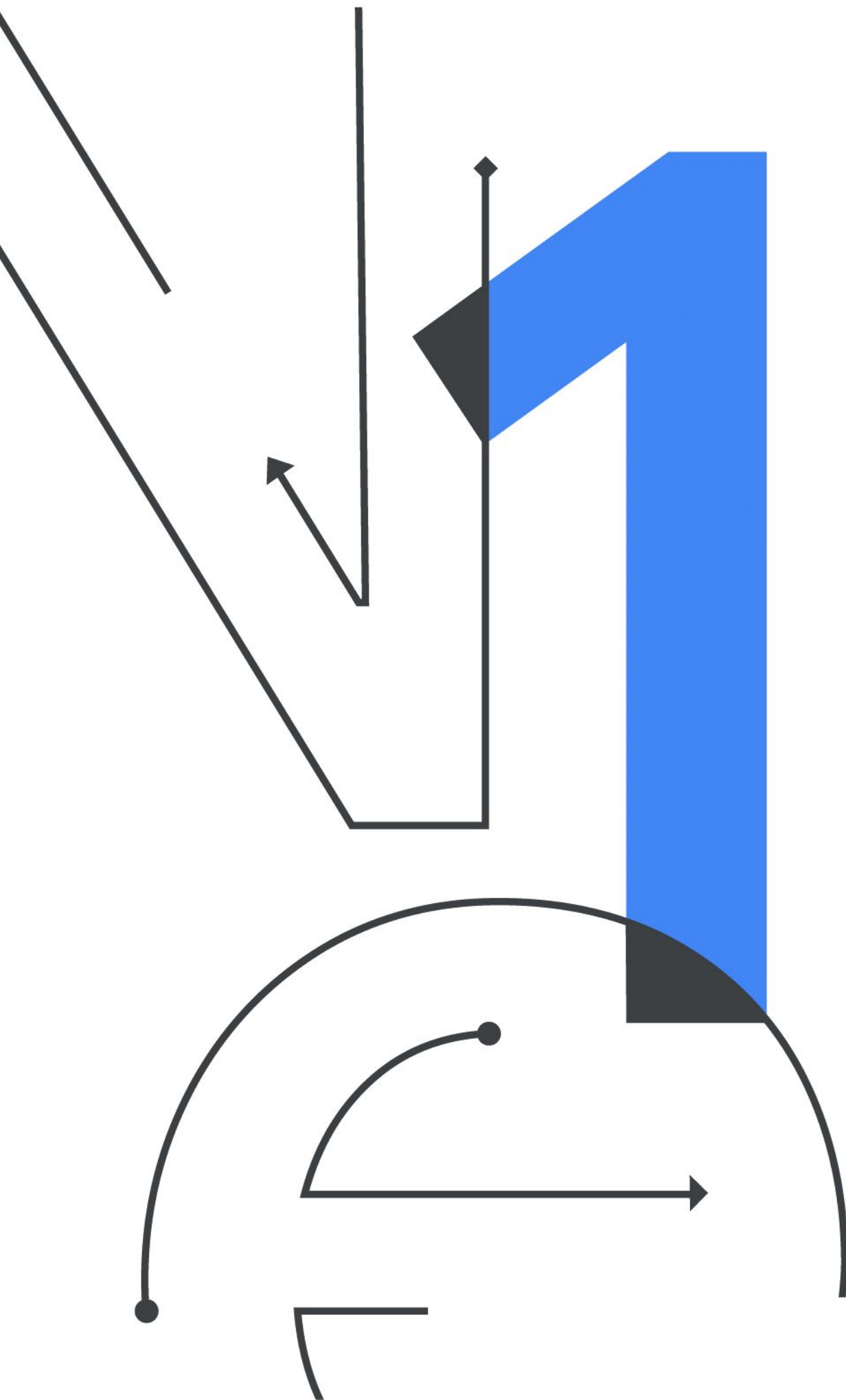
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03 Looking ahead

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04 MLB's home run with Cloud SQL

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# The burden of self-managing databases

# More responsibilities & less time for innovation

Provision, configure, scale, maintain & upgrade

Monitor performance and troubleshoot issues

Support application integrations

Optimize cost



 **Innovation**

Secure the data

Protect data integrity

Ensure data resiliency

Comply with regulations



 **Responsibility**



# What we are hearing from you



We need to get our service off the ground with a small DevOps staff



With increased scale of database instances and frequency of software releases DBA's are overwhelmed



Need a platform that can enable all our data driven activities, integration with BigQuery and Kubernetes



# How Cloud SQL can help

# Cloud SQL solves these challenges and helps you...



## Innovate Faster

Automated, streamlined and non-intrusive database management with greater observability, simpler integrations and optimized for cost



## Reduce Risk

Databases trusted with enterprise workloads for changing regulatory, security, governance needs along with enhanced data protection



# Cloud SQL : Trusted, integrated and intelligently managed



## **Supports PostgreSQL, MySQL and SQL Server**

Full compatibility with source database engines

## **Fully Managed & Enterprise Ready**

Easy to set up, operate, and scale

## **Trusted**

Enterprise-grade data protection, security and governance

## **Developer Friendly**

Application centric observability and API-first administration

More than

90%

of Google Cloud's top 100 customers use Cloud SQL

# Proven ROI vs self-managed databases



246%

**Three-year ROI**



96%

**Faster to create and deploy a  
new database**



11 months

**Payback period**



Now we're able to spend **more time working with users and less time on infrastructure management.**

**Phil Portnoy**  
Associate Director of  
Engineering  
Wayfair



Plus, migrating to Cloud SQL has made it much **easier for us to change our infrastructure** as needed, **add more power** when necessary or even **reduce our infrastructure size.**

**Cyril Picchiottino**  
Quality & Customer  
Satisfaction IS VP



Cloud SQL provides highly scalable, available, and reliable database capabilities within Manhattan Active Platform, which helps us provide **significantly better outcomes for our clients and better experiences for their customers.**

**Sanjeev Siotia**  
SVP and CTO,  
Manhattan Associates





# Looking ahead

**We continue to invest in the areas that matter  
the most to you - Enterprise Readiness &  
Innovation!**



# SQL Server

---

## Enterprise Readiness

- Read Replicas for high read workloads and DR
- Audit to monitor changes on the instance/database **New**

## Compatibility

- SQL Server as Publisher to set up replication to an external instance **New**
- In-place upgrades to maintain version currency **New**



# Availability

---

## Major version upgrade **New**

- Upgrade your database to the next major version in-place
- Maintain IP address, users, and settings on upgraded instance
- Industry-leading planned-downtime
- SQL Server, MySQL - General Availability
- PostgreSQL - Public Preview

## Cascading & HA read replicas **New**

- Configure read replicas with HA and other read replicas replicating from them
- Reduce RTO by promoting a pre-configured replica
- Reduce cost by optimizing cross region egress

# Data protection

---

## Password Policy **New**

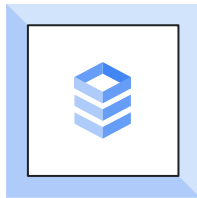
- Customizable password requirements for local database user accounts
- Better controls for security administrators
- Instance level for Cloud SQL for MySQL & PostgreSQL.
- User level for Cloud SQL for MySQL

## Instance Deletion Protection **New**

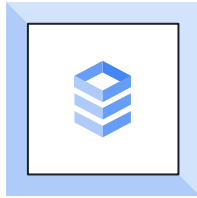
- Protect your instance from unintended deletions
- Enabled by default in the console
- Instance cannot be deleted without disabling the flag

# Query insights

- Developer friendly dashboards to troubleshoot query performance.
- Tag queries with business logic for application management.
- Follows the Open Telemetry standard for easy integration.



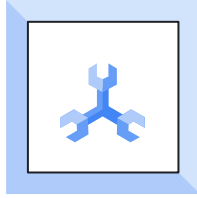
PostgreSQL (GA)



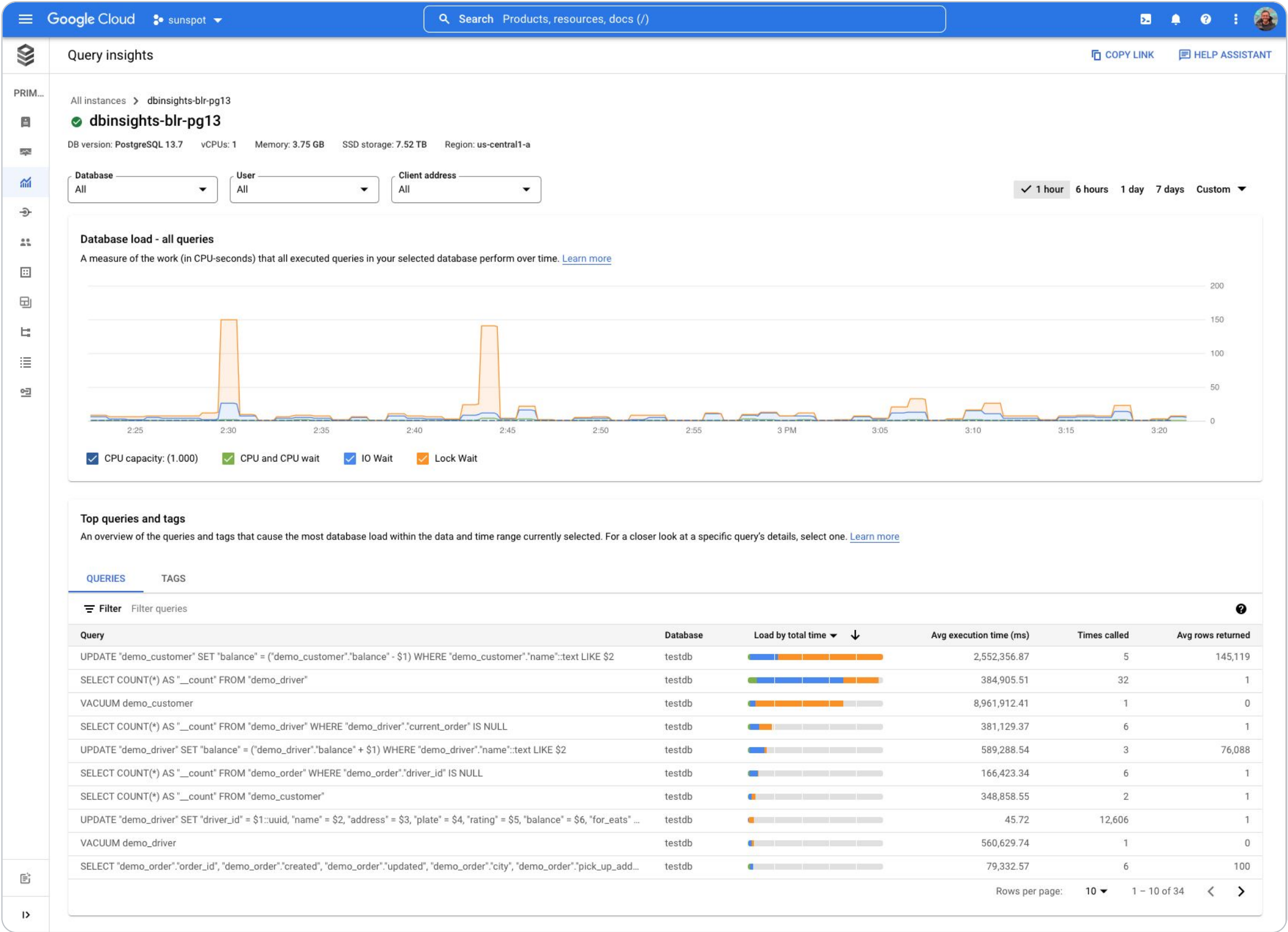
MySQL (GA)



AlloyDB (Preview)

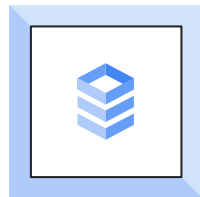


Spanner (GA)

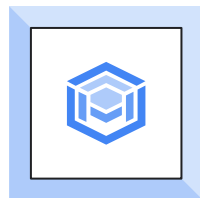


# System insights

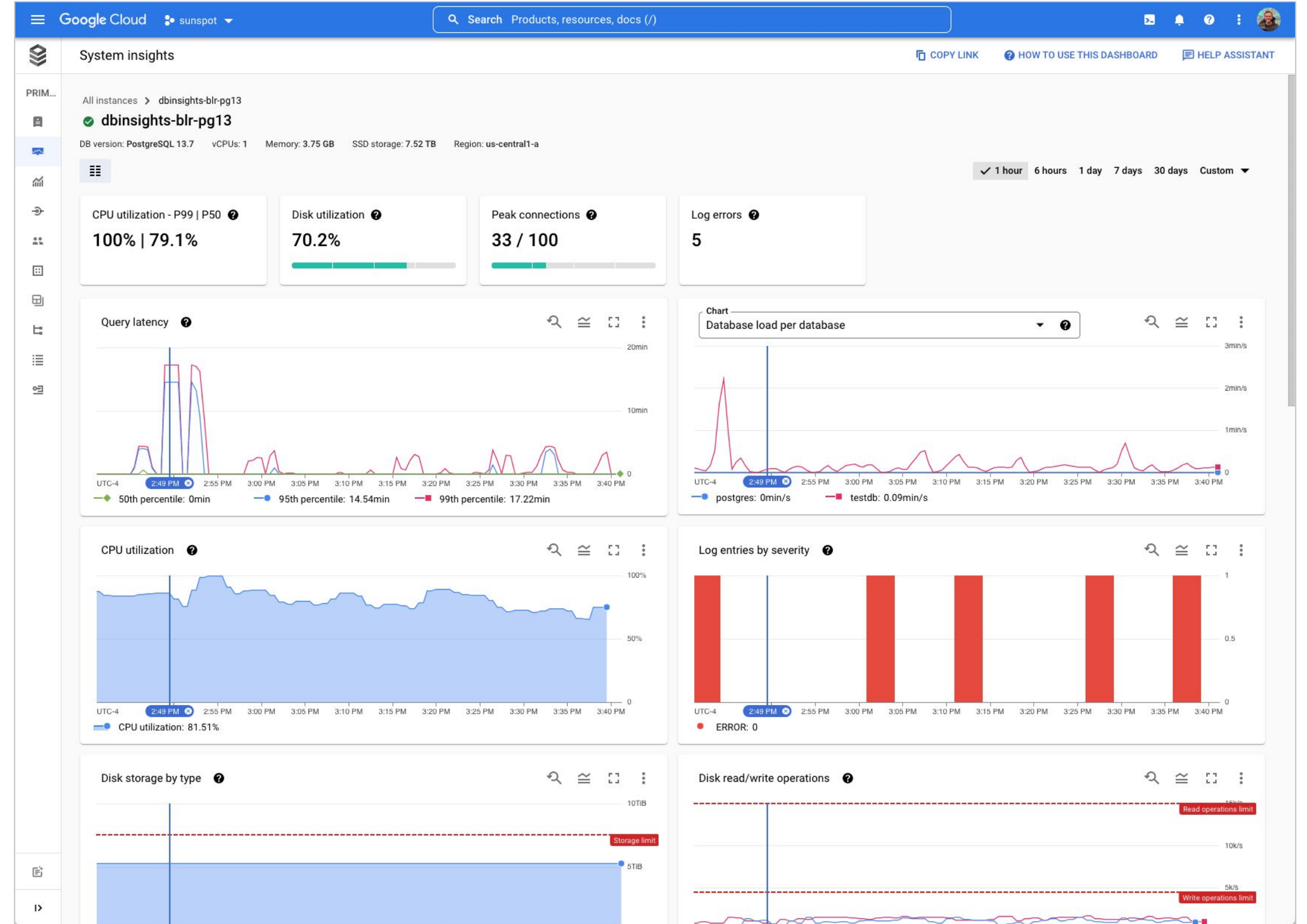
- Single dashboard for instance and database metrics & monitoring.
- Visual indicators to highlight health & performance issues.
- Detailed error logs and recommendations for triggered events.



PostgreSQL (Preview)



AlloyDB (Preview)

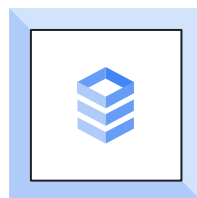


# Cost optimization recommenders

- Detects idle instances
- Recommends right-sizing for over-provisioned instances
- Leverage committed use discounts



PostgreSQL (GA)



MySQL (GA)



SQL Server (GA)

Google Cloud Platform					
stofe-storage		Search Products, resources, docs (/)			
SQL	Instances	+ CREATE INSTANCE	MIGRATE DATA	DELETE SELECTED INSTANCES (INTERNAL)	SHOW INFO PANEL
<div>You have 5 instances scheduled to undergo routine maintenance. You can <a href="#">filter your instance list</a> to see the details and reschedule, if needed. <a href="#">Learn more</a></div> <div>1 instance at or nearing capacity. Prevent SQL instance from running out of disk space and going offline by manually or automatically creating storage space. <a href="#">VIEW ALL</a></div> <div>2 instances could be resized to save you up to an estimated \$956.00/month. <a href="#">VIEW ALL</a></div>					
Filter Enter property name or value					
Instance ID	Recommendations	Maintenance	Type	Public IP	Actions
<input type="checkbox"/> a-cascading-primary		—	MySQL 5.7	35.184.4	⋮
<input type="checkbox"/> a-cascading-primary-clone		—	MySQL 5.7	34.71.27	⋮
<input type="checkbox"/> a-cascading-primary-clone-2		—	MySQL 5.7	104.197	⋮
<input type="checkbox"/> a-cascading-primary-clone-3		—	MySQL 5.7	34.72.16	⋮
<input type="checkbox"/> a-cascading-primary-clone-3-clone		—	MySQL 5.7	35.222.2	⋮
<input type="checkbox"/> a-garden-prod-replica		—	MySQL 5.7	104.154	⋮
<input type="checkbox"/> a11y-test		—	MySQL 5.7	104.197	⋮
<input type="checkbox"/> aaa-ukrukar	⚠ Nearing storage capacity	—	MySQL 5.7	35.232.2	⋮
Rows per page: 100 1 – 100 of 159					



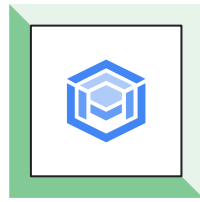
# Security recommenders

- Detects vulnerabilities
- Checks for risky security configurations

Gated public preview:



PostgreSQL



MySQL



SQL Server

Google Cloud

sunspot

Search Products, resources, docs (/)

HELP ASSISTANT

SHOW INFO PANEL

SQL

Instances

+ CREATE INSTANCE

MIGRATE DATA

DELETE SELECTED INSTANCES (INTERNAL)

21 instances haven't installed the latest critical security patches that contain fixes to critical CVEs (Common Vulnerabilities and Exposures).

VIEW ALL

54 instances don't enforce SSL/TLS for all connections. Connections without SSL leave traffic unencrypted.

VIEW ALL

3 instances have automated backups disabled. Data may be unrecoverable if they're accidentally or maliciously deleted.

VIEW ALL

Filter Enter property name or value

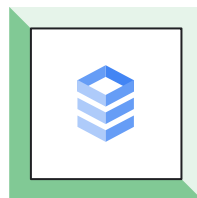
Instance ID	Recommendations	Status	Maintenance	Type	Public IP address	Private IP address	Instance connection name	High availability	Actions
<input type="checkbox"/> bughunt-samplingrate	<div>Upgrade for security patches</div> <div>Configure SSL</div>		—	PostgreSQL 13	35.223.68.115		cloud-debugging:us-...	ENABLED	⋮
<input type="checkbox"/> bulktest1	<div>Configure SSL</div>		—	PostgreSQL 14	35.193.166.10		cloud-debugging:us-...	ENABLED	⋮
<input type="checkbox"/> conn-load-dev	<div>Upgrade for security patches</div> <div>Configure SSL</div>		—	PostgreSQL 14	34.172.240.67	10.96.240.241	cloud-debugging:us-...	ADD	⋮
<input type="checkbox"/> creation-message	<div>Configure SSL</div>		—	PostgreSQL 13	35.232.5.43		cloud-debugging:us-...	ADD	⋮
<input type="checkbox"/> csr	<div>Upgrade for security patches</div> <div>Configure SSL</div>		—	PostgreSQL 13	34.135.177.187		cloud-debugging:us-...	ENABLED	⋮
<input type="checkbox"/> dbinsights-blr-pg13	<div>Configure SSL</div> <div>Upgrade for security patches</div>		—	PostgreSQL 13	35.184.8.135	10.96.240.234	cloud-debugging:us-...	ADD	⋮
<input type="checkbox"/> dbinsights-blr-pg13-replica	<div>Configure SSL</div>		—	PostgreSQL read replica	35.222.103.50	10.96.240.4	cloud-debugging:us-...	ADD	⋮
<input type="checkbox"/> e2emonitoring-test-postgres	<div>Configure SSL</div> <div>Upgrade for security patches</div>		—	PostgreSQL 13	35.202.205.9		cloud-debugging:us-...	ENABLED	⋮
<input type="checkbox"/> event-timeline-test	<div>Configure SSL</div>		—	PostgreSQL 14	34.143.149.89		cloud-debugging:asi...	ENABLED	⋮
<input type="checkbox"/> insights-replica-test	<div>Configure SSL</div> <div>Upgrade for security patches</div>		—	PostgreSQL 13	35.194.31.199		cloud-debugging:us-...	ADD	⋮



# Performance recommenders

- Predict service limits
- Detects misconfigurations
- Recommends right database flags

## Public preview



PostgreSQL



MySQL

Google Cloud sunspot							
Search Products, resources, docs (/)							
SQL Instances + CREATE INSTANCE MIGRATE DATA DELETE SELECTED INSTANCES (INTERNAL) HELP ASSISTANT SHOW INFO PANEL							
2 instances have exceeded 80% of the SLA limit on the number of tables. Too many tables can adversely impact the performance. VIEW ALL							
2 instances have their number of open tables equal to the table_open_cache flag value, and new tables are being added to cache continuously. Instance performance can be adversely affected. VIEW ALL							
2 instances have their transaction ID utilization percentage close to 100%, after which PostgreSQL will stop accepting write queries. VIEW ALL							
Filter Enter property name or value							
Instance ID	Recommendations	Maintenance	Type	Public IP address	Private IP address	Instance connec	Actions
migration-test-master		—	PostgreSQL external primary	35.184.3.251:5432			
migration-test		—	PostgreSQL read replica	34.123.33.37		cloud-debuggin	
recommender-postgres-1		—	PostgreSQL 9.6	35.239.120.105		cloud-debuggin	
Prevent transaction ID wraparound							
test-lro		—	PostgreSQL 14	34.136.252.95		cloud-debuggin	
testbulk2		—	PostgreSQL 14	35.222.21.181		cloud-debuggin	
test102		—	PostgreSQL 14	35.224.185.30		cloud-debuggin	
test-02		—	PostgreSQL 14	34.133.111.42		cloud-debuggin	
event-timeline-test		—	PostgreSQL 14	34.143.149.89		cloud-debuggin	
bulktest1		—	PostgreSQL 14	35.193.166.10		cloud-debuggin	
recommender-postgres-2		—	PostgreSQL 14	35.193.30.172		cloud-debuggin	
Prevent transaction ID wraparound							
upeat-qs		—	PostgreSQL 14	34.66.224.136		cloud-debuggin	
kas-test		—	PostgreSQL 14	34.68.209.243		cloud-debuggin	
quickstart-cloud-run-postgres-instance		—	PostgreSQL 14	35.192.48.178		cloud-debuggin	
prabhu-test		—	PostgreSQL 14	35.223.132.141		cloud-debuggin	
prabhu-pg-test		—	PostgreSQL 14	35.238.87.123		cloud-debuggin	
conn-load-dev		—	PostgreSQL 14	34.172.240.67	10.96.240.241	cloud-debuggin	
test-pg-instance		—	PostgreSQL 13	34.132.150.25		cloud-debuggin	

# Ecosystem integration

- Integrate your favorite APM tool via Sqlcommenter
- Sqlcommenter now is Open Telemetry standard and library
- Integrate your favorite monitoring and alerting tools with Cloud Ops



Python, ruby, node.js,  
Java (GA)



GO (coming soon)



In-context  
recommended alerts

sql/\*/\*/ sqlcommenter

Specification

> Python

> Ruby

> Node.js

> Java

> Databases

FAQ

django



SQLAlchemy



HIBERNATE





# MLB's home run with Cloud SQL





Major League Baseball

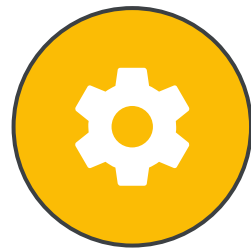
**Oldest  
professional  
sports league in  
the world**

**800+** Tables

**170M+** Fans

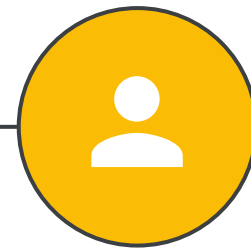
“Our challenge was to scale league operations backed by a legacy database running on-premises with a limited database team that struggled to meet the growing demands.”

# Why Cloud SQL?



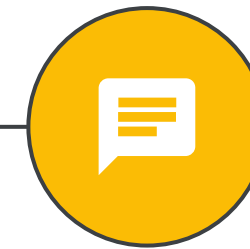
## Openness

A fully compatible managed database service for PostgreSQL, one of the most popular open source databases in the world.



## Availability

High availability with 99.95% uptime SLA without lengthy and complex setup, enabling higher service uptime.



## Automation

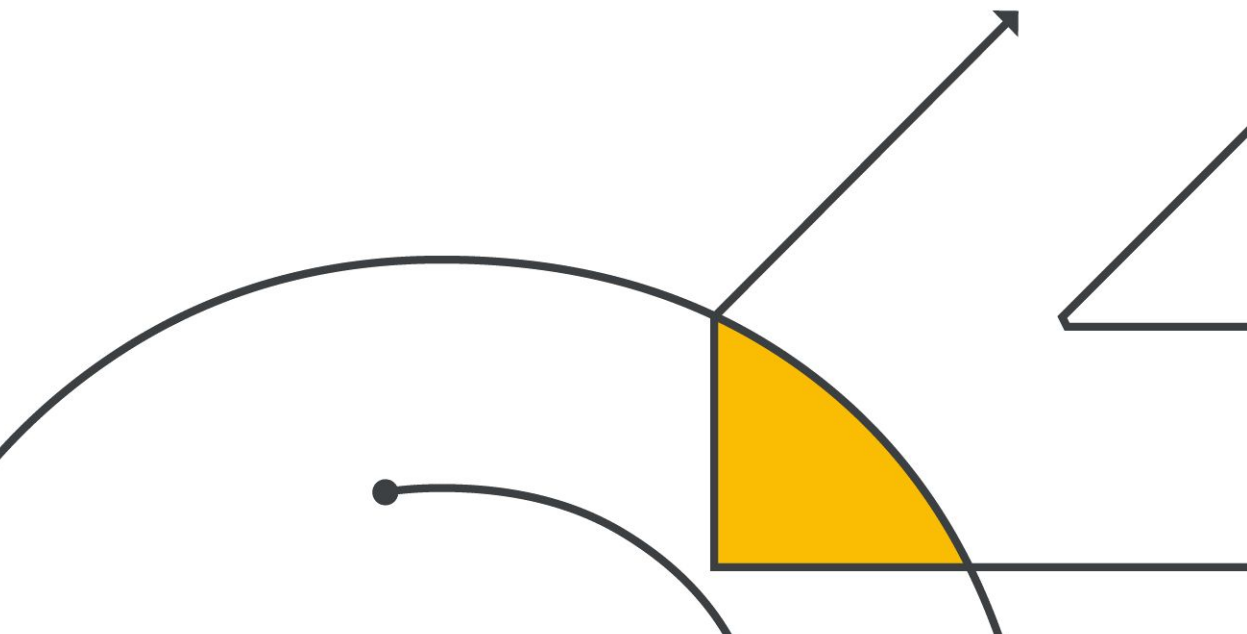
Quick and easy to create read replicas for analytical workloads.

Operational agility with the Cloud SQL API; enabling backup, replica and dev/test environment creation simple and automated.

# New possibilities

---

- Query insights: First stop to diagnosing and troubleshooting query slowness
- System Insights: Monitor system performance and get alerted on resource bottlenecks
- Cost Recommender: Recommendations already resulted in right-sizing exercises that saved on the costs





# Start your Cloud SQL journey today!

[cloud.google.com/sql](https://cloud.google.com/sql)

## Get started with Cloud SQL

Google Cloud console under “Databases”



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[cloud.google.com/sql](https://cloud.google.com/sql)

## Learn more about Cloud SQL

Documentation



---

[cloud.google.com/sql/docs](https://cloud.google.com/sql/docs)

# Thank you

Google Cloud

## Next '22

