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MySQL HeatWave Overview

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What we've heard from customers

Expensive and slow to analyze growing data stored in files

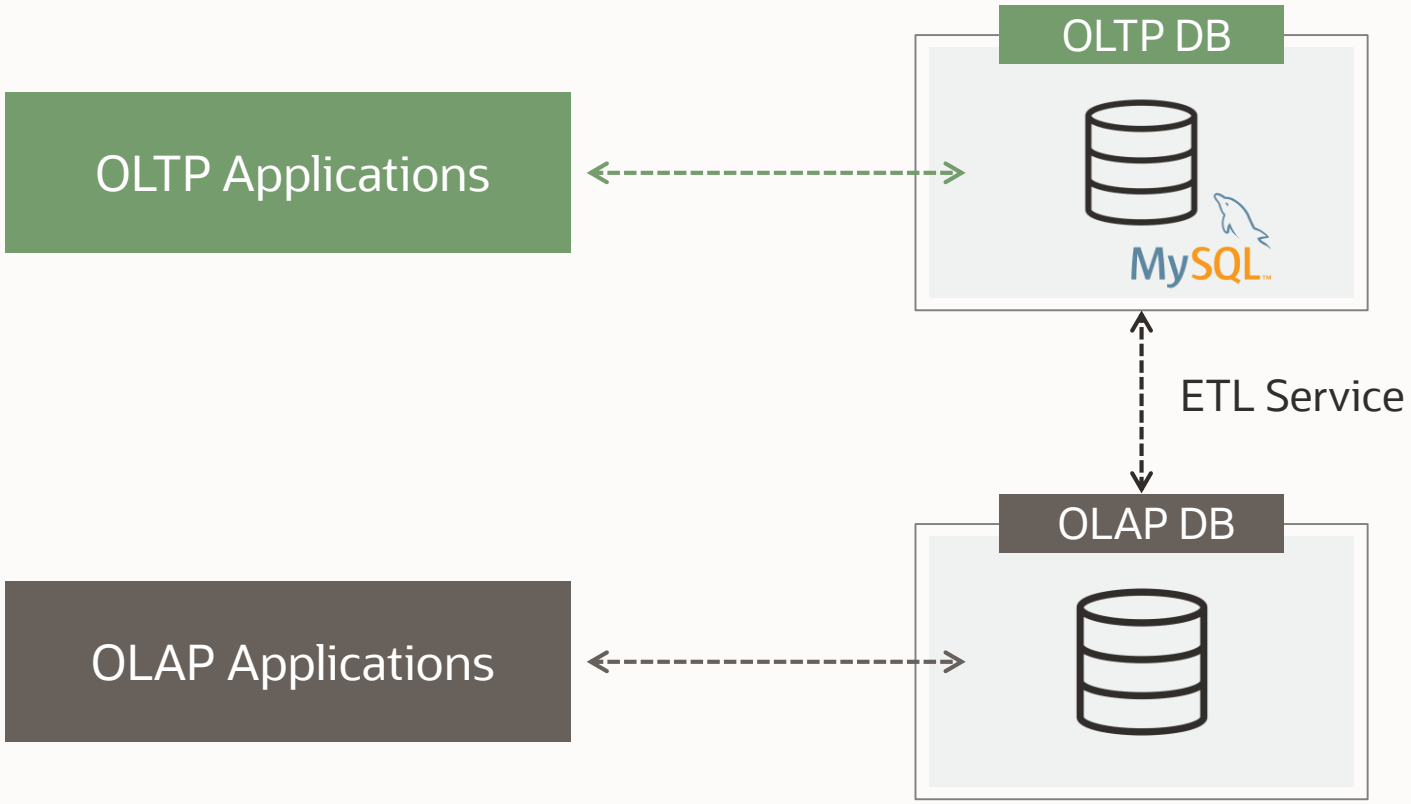
Want to leverage machine learning and AI on all their data

Complex and costly to use separate cloud services for OLTP, analytics, ML

Want flexibility to use multiple public clouds

Challenge #1: Organizations need to use separate systems for transactions and analytics

MySQL is optimized for OLTP, not designed for analytic processing



Separate analytics database

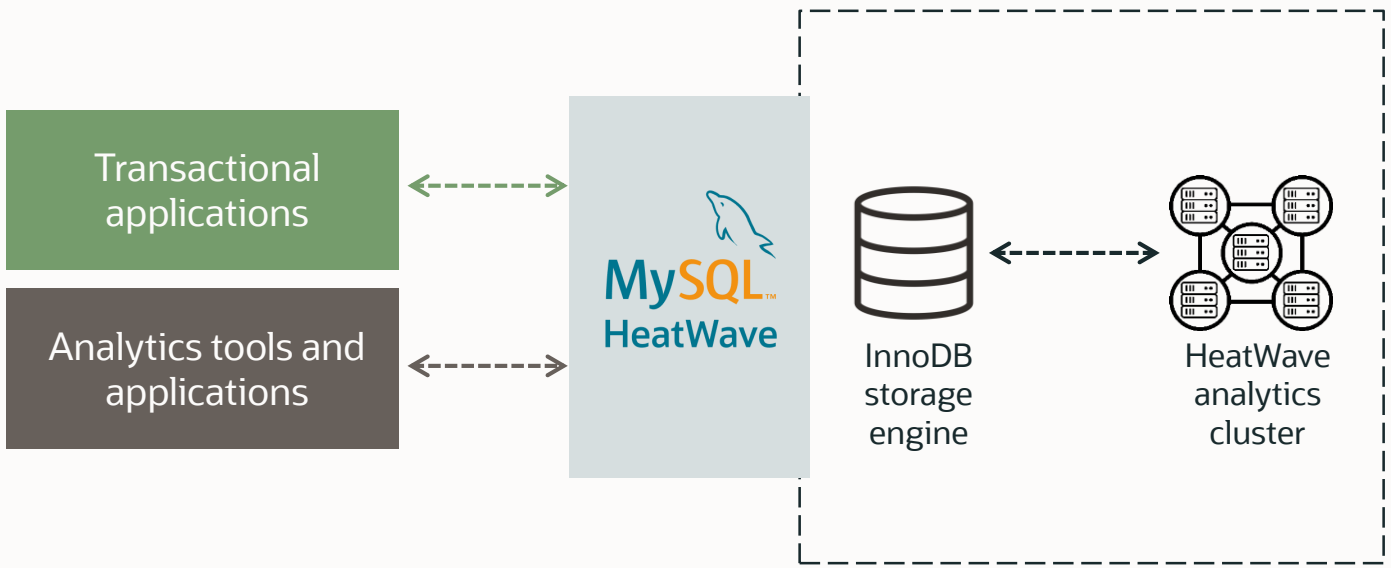
Complex ETL

No real-time analytics

Security & compliance risks

Increased costs

One database is better than two

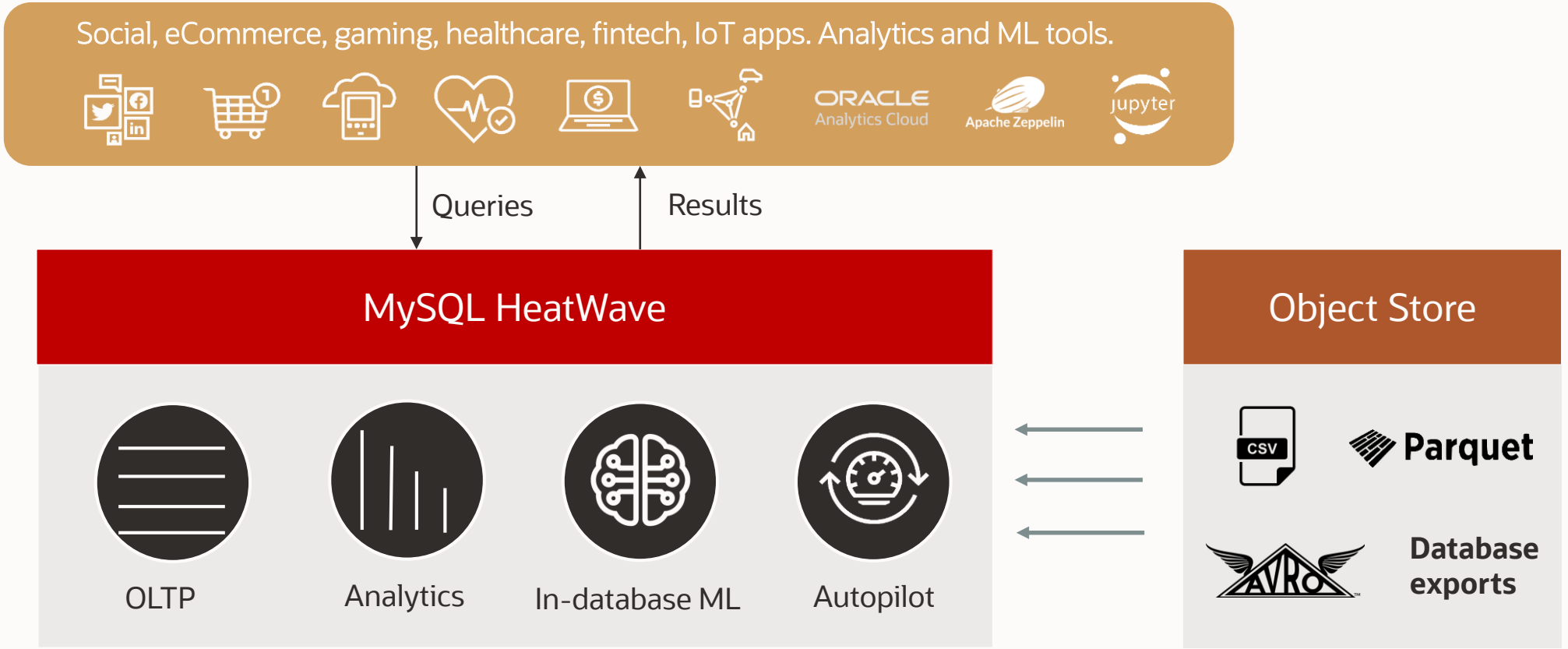


- One service for OTLP & OLAP
- No ETL duplication
- Unmatched performance, at a fraction of the cost
- Real-time analytics
- Improved security
- Applications work without changes

1>2 with MySQL HeatWave

MySQL HeatWave overview

Transactions, real-time analytics across data warehouse and data lake, and machine learning in one database service



Data remains in object store, processing is done in HeatWave

For both non-MySQL and MySQL workloads

MySQL HeatWave customer momentum

Common MySQL HeatWave use cases

Real-time analysis of more data significantly improves outcomes

Digital Marketing

- Real-time campaign monitoring
- ROI analysis
- Customer classification
- Funnel analysis
- Predictive segmentation

Gaming

- Player Profiling
- Player matching
- Personalized gaming experience
- Player churn prediction
- Identify game hackers

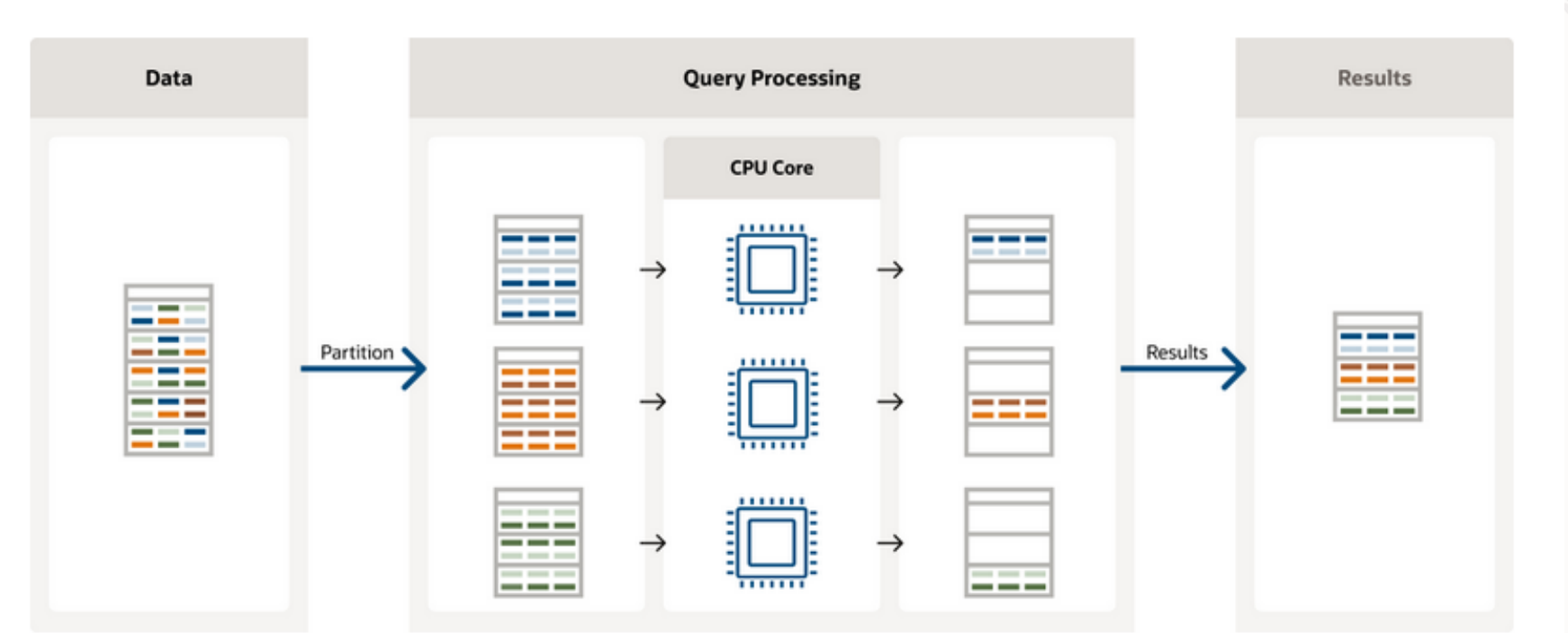
Healthcare

- Device lifespan analysis
- Identify health risk
- Streamline treatment course
- AI-powered virtual assistant
- Insurance claim

Fintech

- Portfolio analysis
- Real-time trading alerts
- Loan default prediction
- Personalized service recommendation
- Fraud detection

Massively parallel architecture



- High-fanout partitioning
- Machines & CPU cores can further process partitioned data in parallel
- Optimized for cache size and memory hierarchy of underlying hardware

Best performance in industry for data warehouse

TPC-H 10TB

Faster time to insights = faster business response to market trends

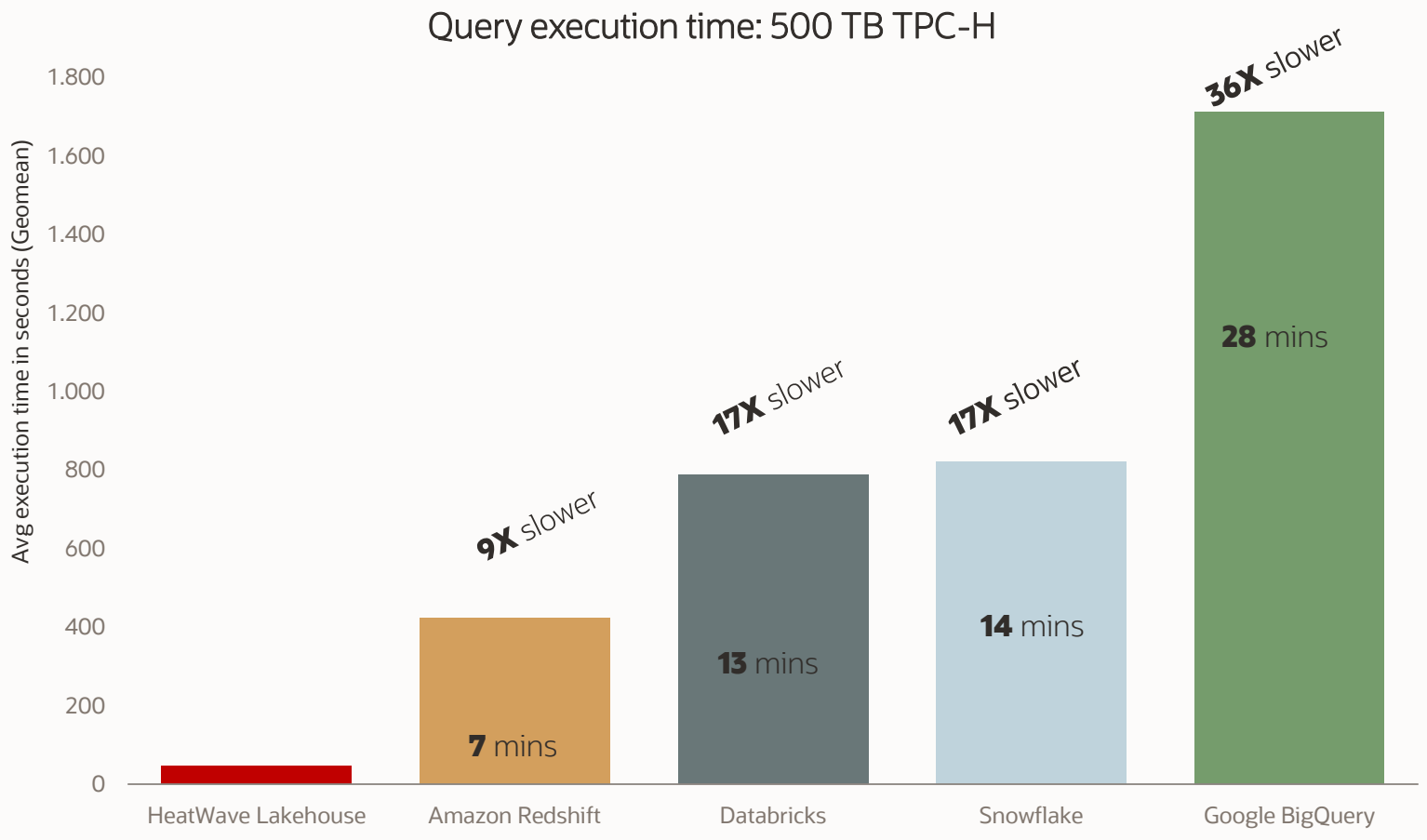
4.5X	3.5X	6X	8X
faster than Redshift	faster than Snowflake	faster than BigQuery	faster than Databricks
10X ra3.4xlarge	X-Large Cluster	800 slots	Large Cluster

Get answers in hours, not days

According to 10 TB TPC-H benchmarks as of May 23, 2023. Redshift, Snowflake, Databricks and BigQuery numbers for 10TB TPC-H numbers are provided by a third party.
Benchmark queries are derived from the TPC-H benchmarks, but results are not comparable to published TPC-H benchmark results since these do not comply with the TPC-H specifications.

Query performance of HeatWave Lakehouse

9X faster than Redshift, 17X faster than Snowflake, 17X faster than Databricks, 36X faster than BigQuery

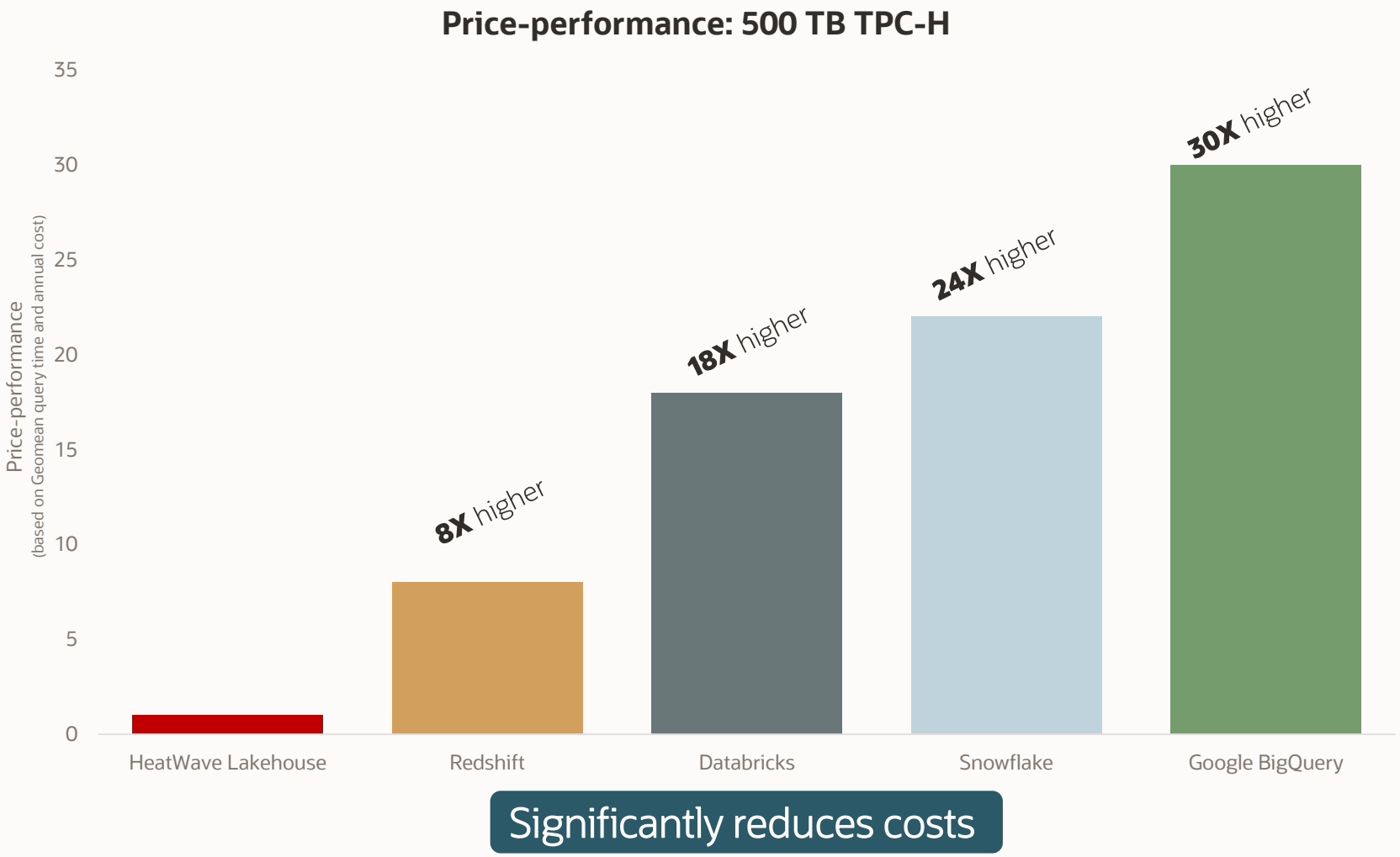


Significantly reduces time-to-insights

Configuration: MySQL HeatWave Lakehouse: 512 nodes; Snowflake: 4X-Large Cluster; Databricks: 3X-Large Cluster; Amazon Redshift: 20-ra3.16xlarge; Google BigQuery: 6400 slots
Benchmark queries are derived from the TPC-H benchmarks, but results are not comparable to published TPC-H benchmark results since these do not comply with the TPC-H specifications.

Query price-performance of HeatWave Lakehouse

8X better than Redshift, 18X better than Databricks, 24X better than Snowflake, 30X faster than BigQuery



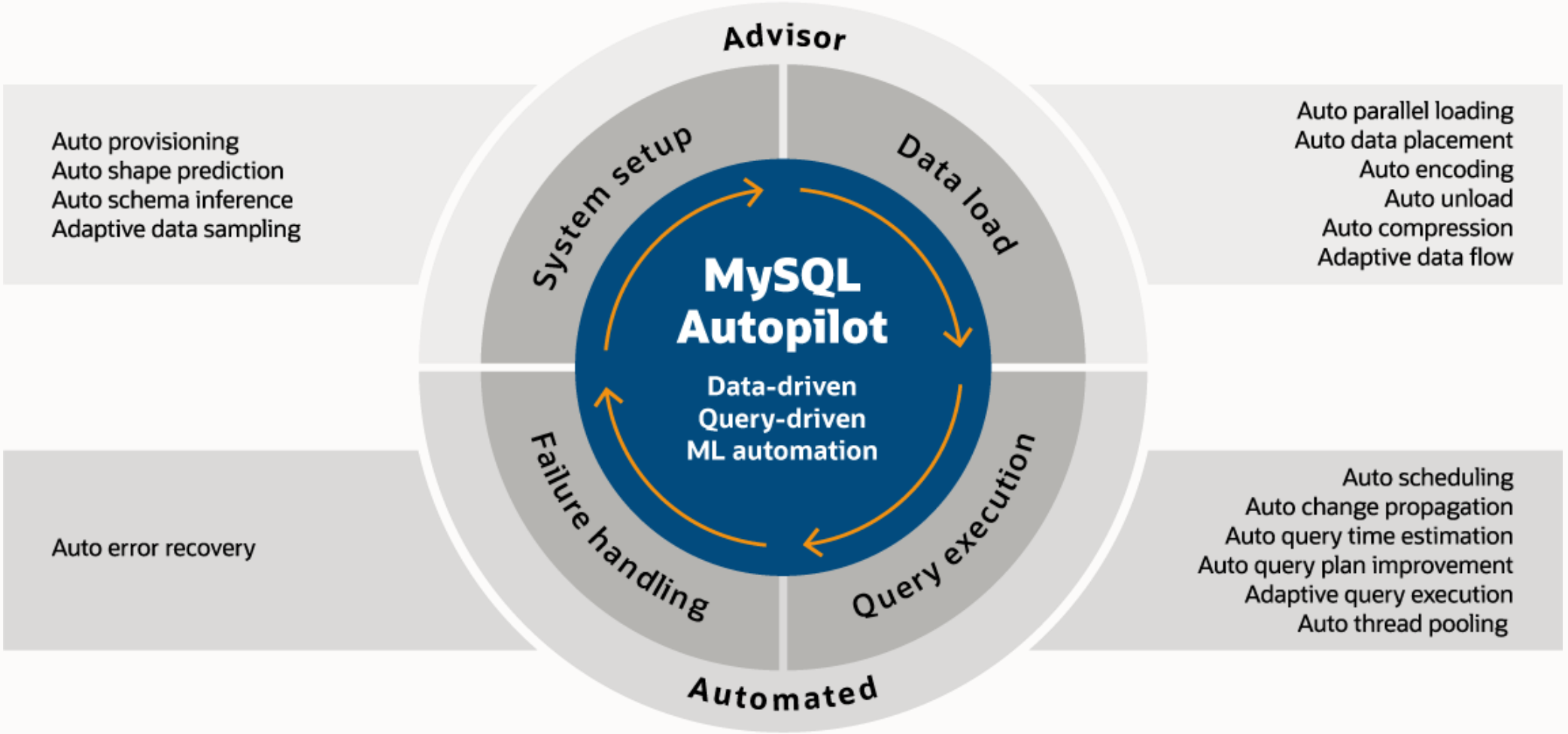
Significantly reduces costs

Configuration: MySQL HeatWave Lakehouse: 512 nodes; Snowflake: 4X-Large Cluster; Databricks: 3X-Large Cluster; Amazon Redshift: 20-ra3.16xlarge; Google BigQuery: 6400 slots

Benchmark queries are derived from the TPC-H benchmarks, but results are not comparable to published TPC-H benchmark results since these do not comply with the TPC-H specifications.

Machine learning-powered automation for MySQL HeatWave

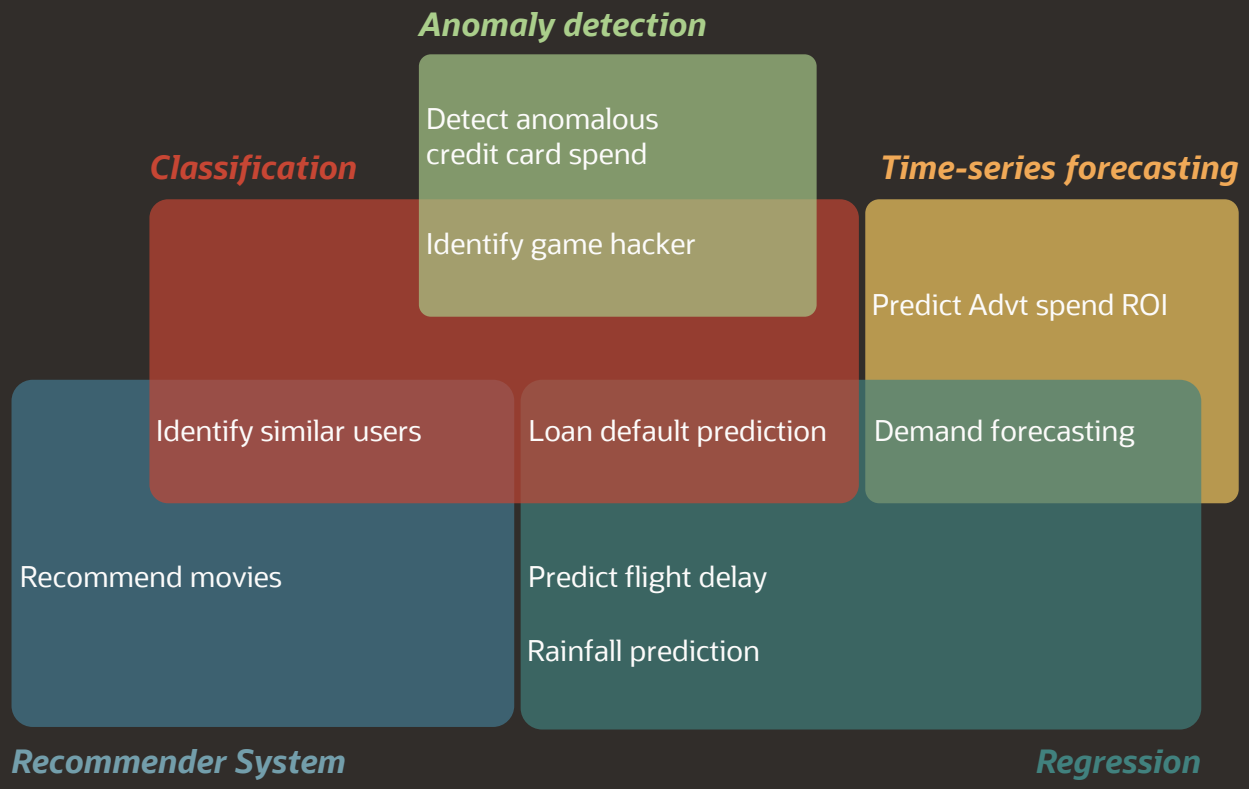
High query performance at scale, higher OLTP throughput, and the best price performance



Built-in machine learning using all your data

Training, inference and explanations on data in object store and database

- Fully automated ML pipeline
- Explainable results
- 25X faster training than Redshift
- Enables models to be kept up to date often
- No additional cost



Database Data → MySQL HeatWave AutoML ← Object Store Data

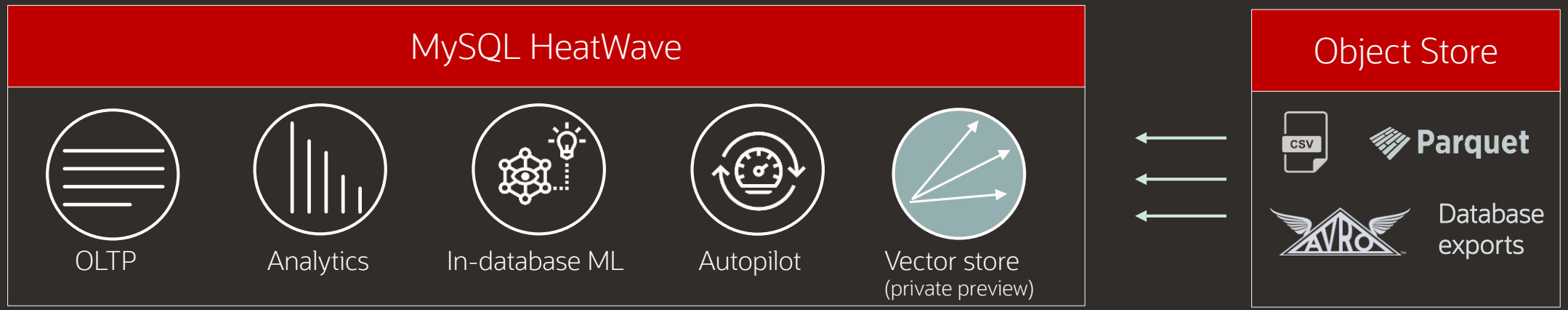
Comparison with other cloud database ML solutions

FEATURES	HEATWAVE AUTOML	REDSHIFT ML	SNOWPARK ML
Execute within Database	✓	✗	✓
Integrated Local & Global Explanations	✓	✗	✗
Automatic Training	✓	✗	✗
Classification & Regression	✓	✓	✗
Forecasting	✓	✗	✓
Anomaly Detection	✓	✗	✓
Recommender System	✓	✗	✗
Text Support	✓	✗	✓
Model development in 5 min (avg)	✓	✗	✗

Generative AI and MySQL HeatWave vector store

- Applications can today use large language models to interact with HeatWave Lakehouse in natural language
- Users can query and retrieve information in natural language

The vector store (private preview) will enable you to leverage LLMs in combination with your proprietary data to get more relevant and accurate answers



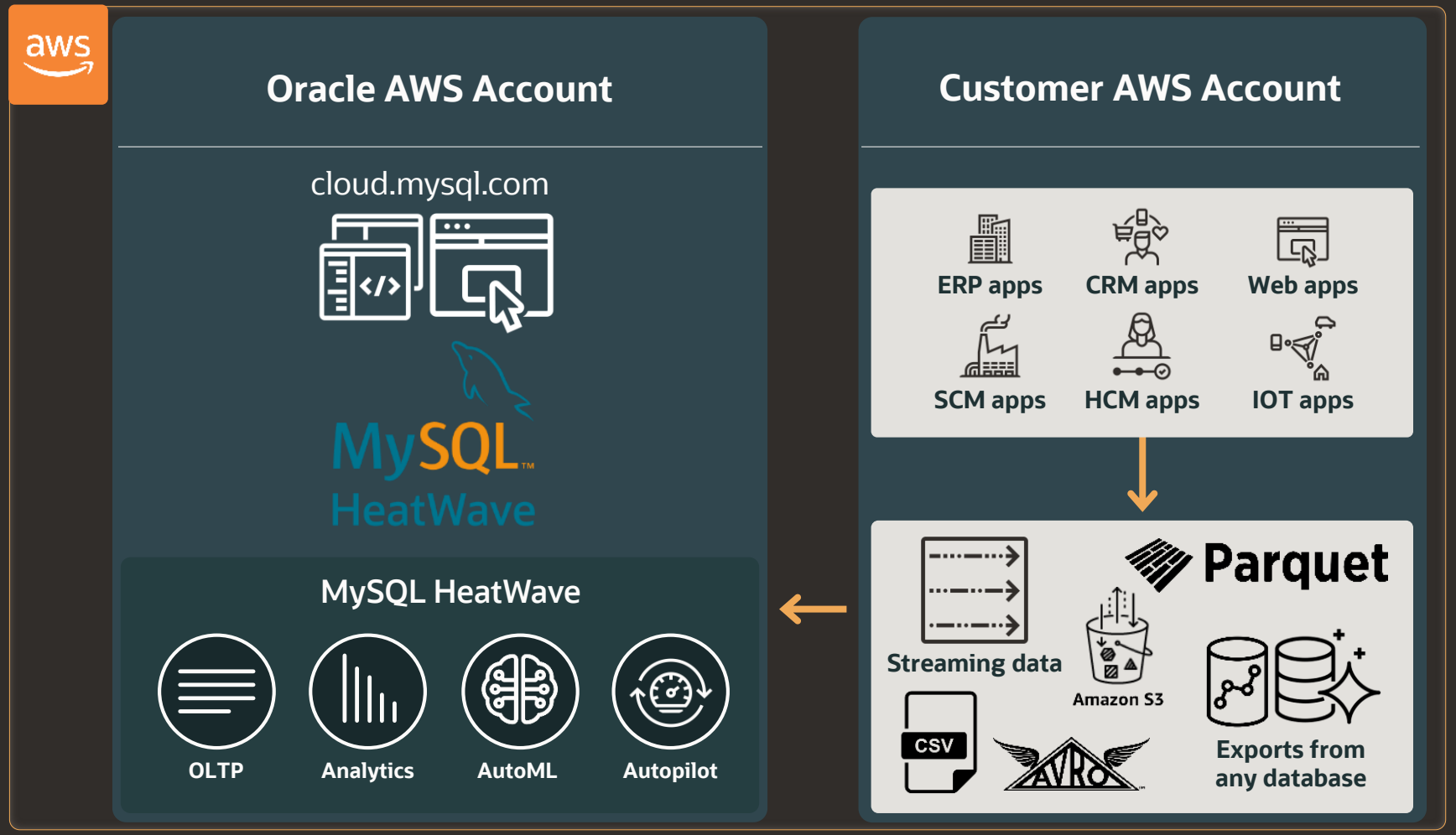
MySQL HeatWave is optimized for multiple clouds

Maximum flexibility and choice

Optimized for best price performance in each cloud

HeatWave Lakehouse is available on AWS (LA)

No internet egress for data in AWS



- Replaces Aurora, Redshift, SageMaker, Glue, Athena
- Directly load from S3
- MySQL replication from Aurora
- AWS PrivateLink support

Industry analysts about MySQL HeatWave Lakehouse

“Organizations looking for the best value in the cloud data lakehouse landscape must seriously consider MySQL HeatWave Lakehouse.”
—Carl Olofson, Research Vice President, Data Management Software

“MySQL HeatWave demonstrates **that Lakehouse performance can be identical to transaction query performance—unheard of and even unthinkable.”**
—Holger Mueller, VP and Principal Analyst

“The ability of HeatWave to **load and query data on such a massive number of nodes in parallel is the first in the industry.”**
—Marc Staimer, Senior Analyst

“MySQL HeatWave Lakehouse can **simplify the life of data management professionals** and should **improve the customer experience**.”
—Matt Kimball, Vice President and Principal Analyst

“Simply put: MySQL HeatWave Lakehouse **enables you to stay ahead of the competition by taking swift action on meaningful business insights.”**
—Steve McDowell, Principal Analyst & Founding Partner

Addressing customer challenges with MySQL HeatWave

Expensive and slow to analyze growing data stored in files

Simple to query data across object storage and database. Best performance and price-performance

Want to leverage machine learning and AI on all their data

Built-in, fully automated ML for data in database and in object storage. Generative AI with vector store

Complex and costly to use separate cloud services for OLTP, analytics, ML

One cloud service for OLTP, real-time analytics, and ML

Want flexibility to use multiple public clouds

Available in OCI, AWS, and Azure

Get started with MySQL HeatWave

Get $300 in credits and try free for 30 days

» **oracle.com/mysql/free**

Migrate to MySQL HeatWave with free expert guidance

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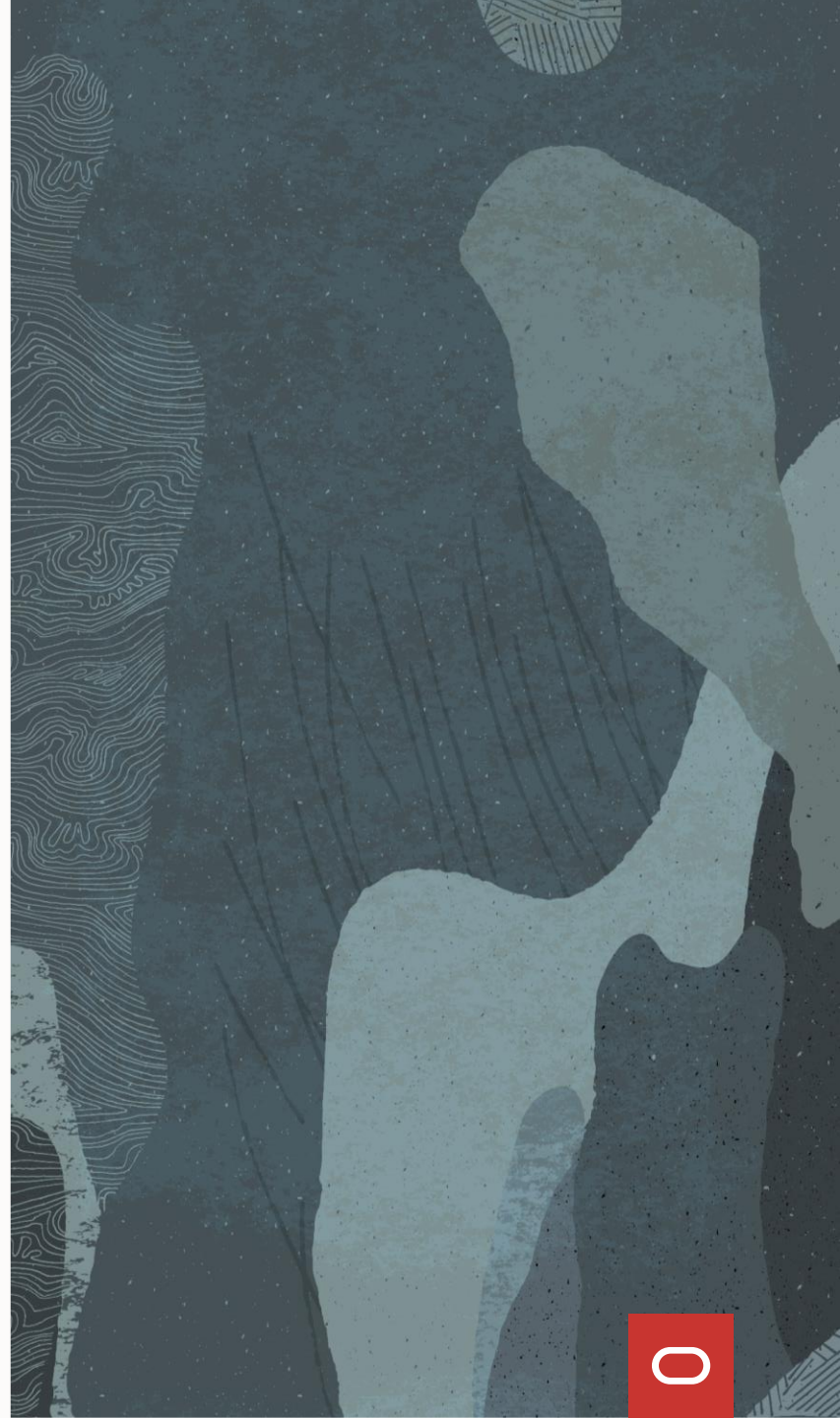

Thank you

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