

Soar Higher with MariaDB SkySQL

The Ultimate MariaDB Cloud

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AGENDA

1. What is SkySQL?
2. Basics and Features
3. Architecture
4. Kubernetes Implementation

WHAT IS SKYSQL?

LIMITATIONS OF OTHER DBAAS

Watered down

- Unsupported/removed features
 - Multi-master clustering
 - Columnar format (analytics)
 - Transparent sharding
 - Delayed replication
 - SSD-optimized storage
 - GSSAPI auth (Active Directory)
- Missing features
 - Instant alter table (drop/reorder columns)
 - Optimizer trace
 - Application-time period tables

Antiquated

- MariaDB Community Server
 - MariaDB Enterprise Server
 - MariaDB MaxScale
 - MariaDB ColumnStore
- Transactions only
 - No columnar, no object storage
 - No real-time analytics
 - No replication (row to columnar)
 - Requires separate services (e.g., Amazon RDS + Redshift)



Google Cloud



VISION

- Path to multi, inter and hybrid cloud
 - Reduce risk, deploy to the same region of multiple clouds (e.g., US West – AWS, Azure and GCP)
 - Reduce cost, use a mix of clouds based on workload/price, adjust as needed (e.g., prices rise)
 - Improve productivity, let different departments use different clouds based staff expertise
- Databases for transactions, analytics and both (transactions + analytics)
 - Reduce costs and improve efficiency, no need for separate services (e.g., Amazon RDS + Redshift)
 - Innovate, add real-time analytics to transactional, customer-facing databases
- Access to the safest, most reliable and most current version of MariaDB
 - Reduce risk, deploy databases with the latest bug fixes and security patches
 - Innovate, take advantage of the latest and greatest features (e.g., application-time period tables)
- Deep-learning based workflow analysis and visualization
 - Reduce risk, prevent issues by detecting anomalies or changes in database usage

BASICS AND FEATURES

WHAT'S NEW IN MARIADB 3.0



ENTERPRISE DBAAS

3rd party, first-generation DBaaS

- Cloud ease of use
- MariaDB Community
- Development/testing
- Developer adoption
- Out of the box
- Self service
- Automation



Native, second-generation DBaaS



- + On-premises reliability
- + MariaDB Enterprise
- + Staging and production
- + Enterprise governance
- + Customizable
- + Full service
- + Expertise and experience

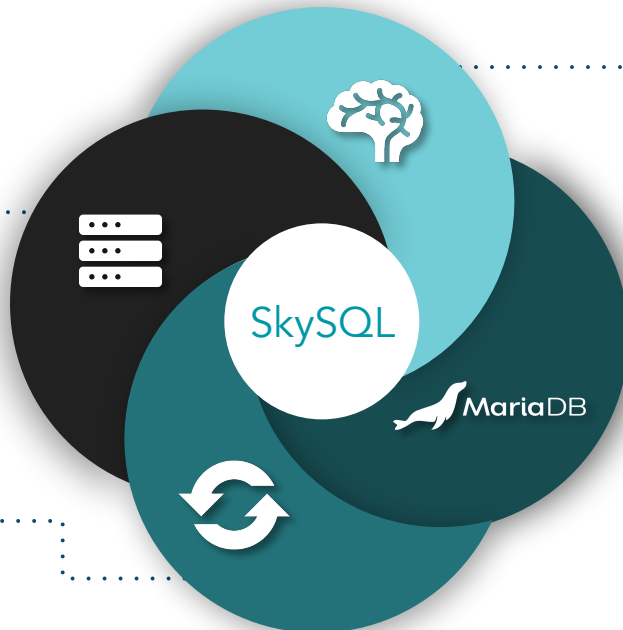
SkySQL FIRSTS

Mission-critical for all

Expansive Topologies for all Applications Tiers.

Always current

The cloud offering the latest bug fixes and security updates, always.



Smart Transactions

The first DBaaS to support transactional (OLTP), analytical (OLAP) and hybrid (HTAP) workloads for Smart Transactions.

From the source

A DBaaS architected, engineered, and supported by database architects, engineers, and extraordinary support.

WHAT'S DIFFERENT

Platform

- Kubernetes for databases
- ServiceNow for the portal
- Prometheus and Grafana for the monitoring dashboard
- Deep learning for the workload analysis

Database

- MariaDB Platform
- MariaDB Enterprise Server
- MariaDB MaxScale
- MariaDB ColumnStore

Support

- Database bug fixes and security patches (code)
- Database administration with SkyDBA

Features

- Databases for transactions
- Data warehouses for analytics (columnar)
- Databases for smart transactions (row + columnar)
- Transparent query routing

SERVICES

SkySQL

Standalone

- Transactions, analytics or both
 - Real-time monitoring dashboard
 - Custom database configuration
 - Override defaults
 - Name and reuse
 - Versioned
 - Disaster recovery
 - Automatic backups (nightly)
 - On-demand point-in-time restore
 - High availability
 - Self healing (K8s)
-

Multi-node

- High availability
 - + Multi-zone deployments
 - + Replication
 - + Automatic failover (MaxScale)
- Scalability and performance
 - + Transparent query routing (MaxScale)
 - + Read load balancing (MaxScale)
 - + Read/write splitting (MaxScale)

SkyDBA

- Certified cloud architects
- Expertise and best practices
- Consultative support
- Automation with oversight and intervention
- Database management and monitoring
- Proactive care
 - Health checks
 - Performance analysis
 - Security audits

ARCHITECTURE

ARCHITECTURE

- State of the art
 - Kubernetes for container orchestration and high availability
 - ServiceNow for configuration and workflow management
 - Prometheus and Grafana for real-time monitoring and visualization
- Modular
 - SkySQL portal in ServiceNow (six 9s high availability)
 - SkySQL databases in CSP (single tenant K8s clusters)
 - SkySQL control plane in CSP (sits between the portal and the databases)
- Secure
 - Compartmentalization, isolation and indirect access
 - Log all access and commands performed by MariaDB employees

servicenow

SkySQL portal

Organization
management

Inventory
management

Configuration
management


Workflow
management

 Google Cloud

SkySQL control plane

 *Coming soon*

SkySQL control plane

 Azure *Coming soon*

SkySQL control plane

Kubernetes API

Google Kubernetes Engine
Cluster

Database

Elastic Kubernetes Service
Cluster

Database

Azure Kubernetes Service
Cluster

Database

servicenow.

SkySQL PORTAL

Workflows

Inventory

Web UI

CUSTOMER ADMINS



SkySQL OPERATIONS

Task Server

Monitoring Server

Jump Server

Ident Proxy

SkyDBAs



Commands



Metrics



SkySQL DATABASE

Kubernetes Cluster

DATABASE

Firewall

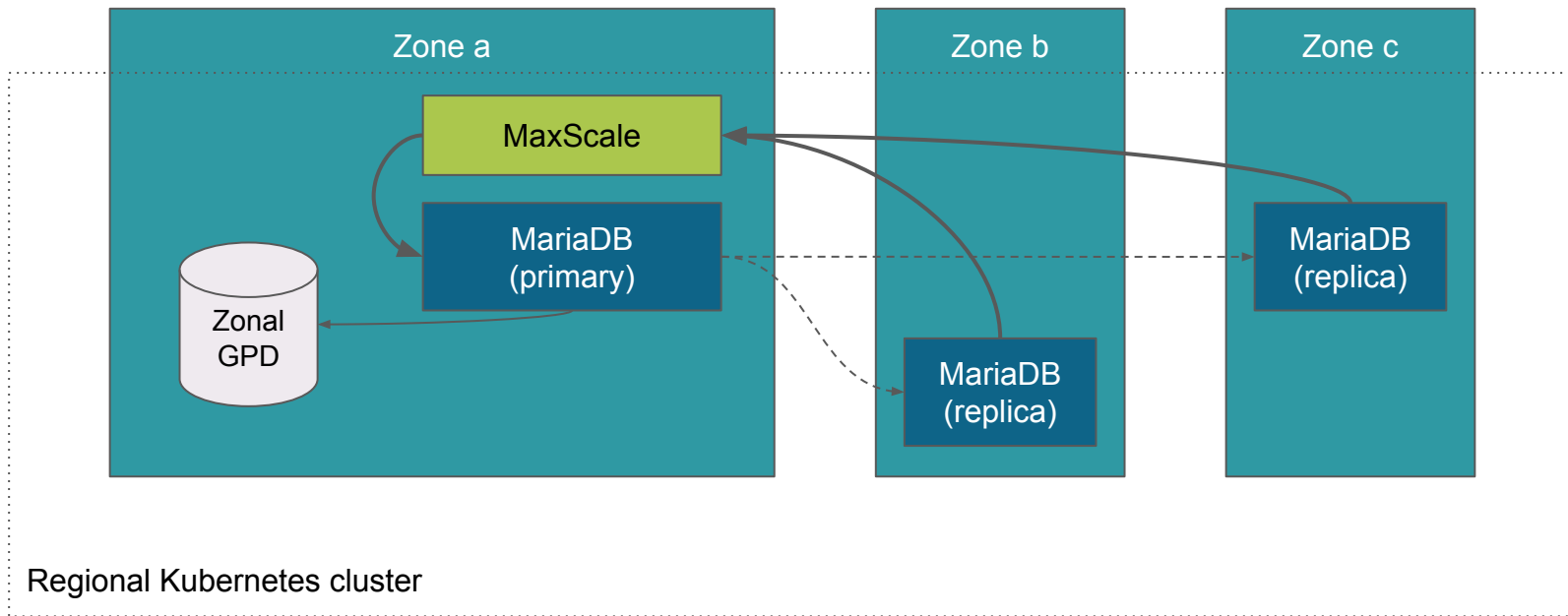
CUSTOMER APPLICATIONS

HIGH AVAILABILITY

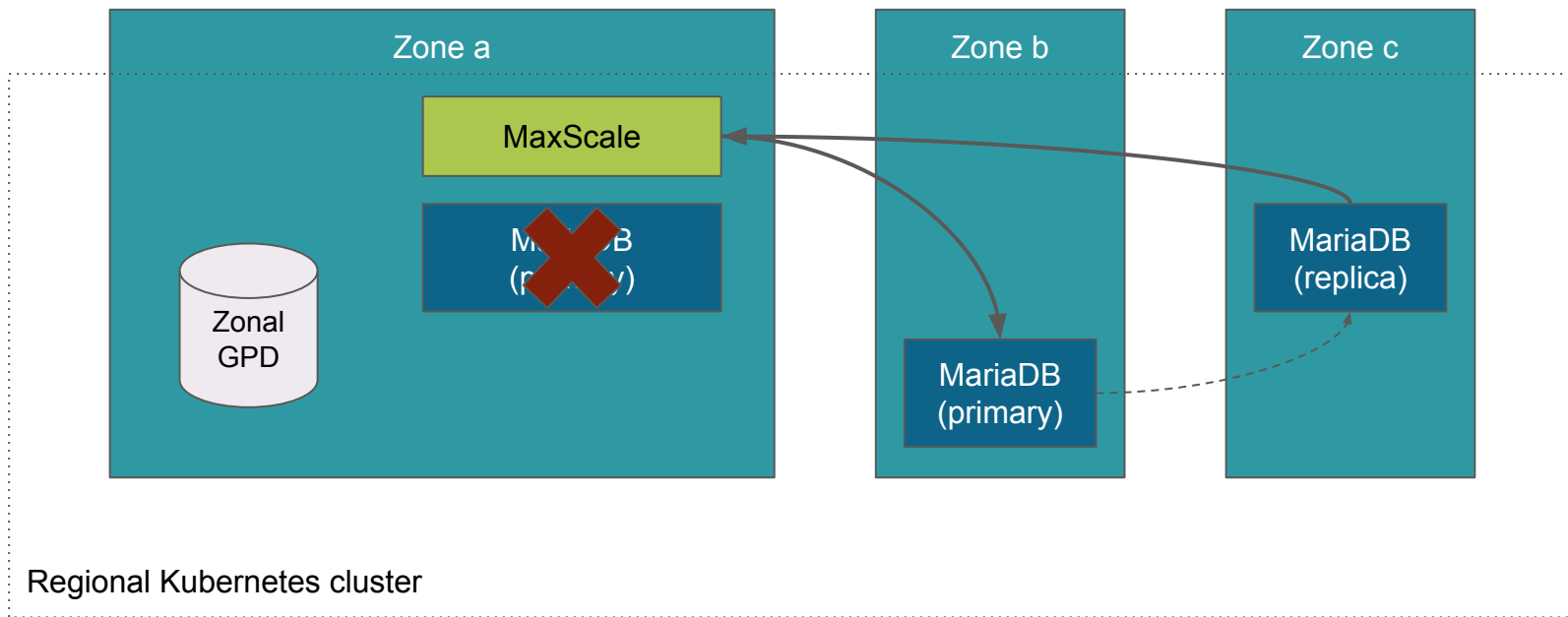
- Kubernetes with MariaDB MaxScale
 - Best of both worlds: cloud native + MariaDB native
- Kubernetes provides self healing
 - Data stored on persistent disks (e.g., EBS/GPD)
 - Regional Kubernetes clusters span multiple zones
 - Failed instances automatically recovered
- MariaDB provides automatic failover
 - If the primary fails, the most up-to-date replica is automatically promoted
 - The failed primary is automatically recovered (by K8s), and becomes a replica

AUTOMATIC FAILOVER AND SELF REPAIR

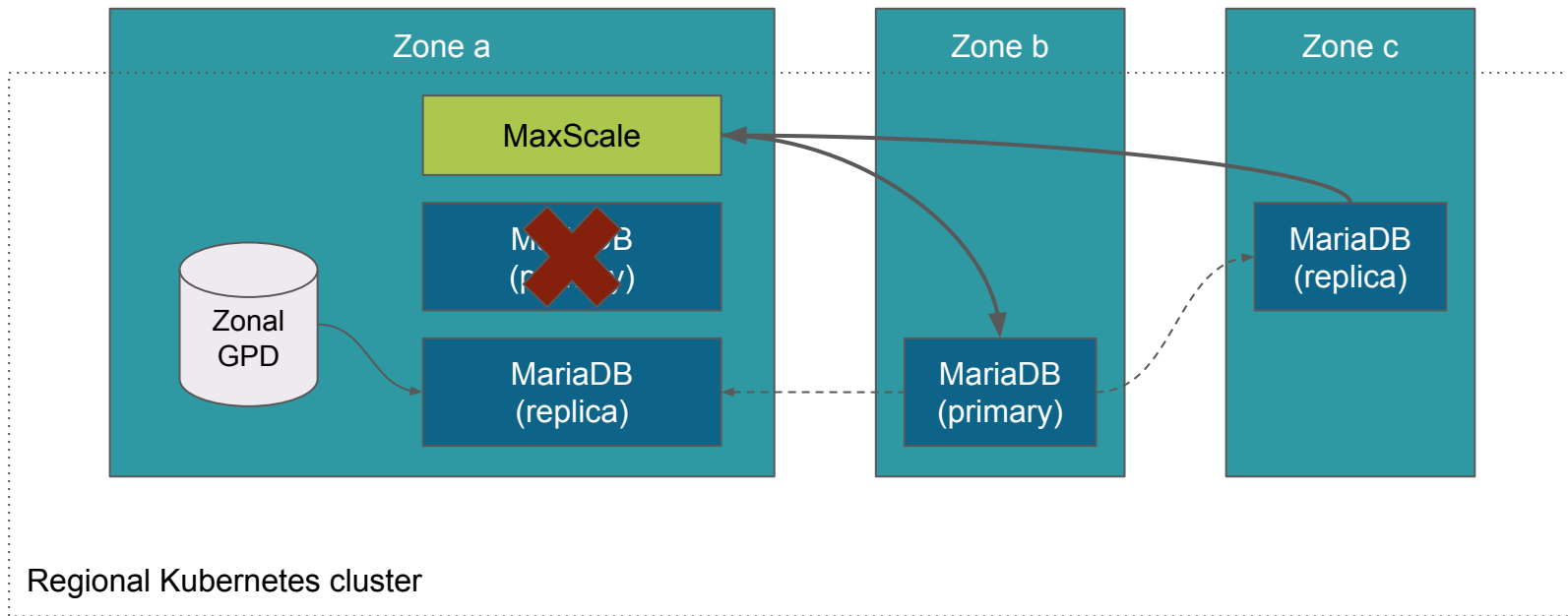
HA: ZONAL GPDS



HA: MAXSCALE AUTOMATIC FAILOVER



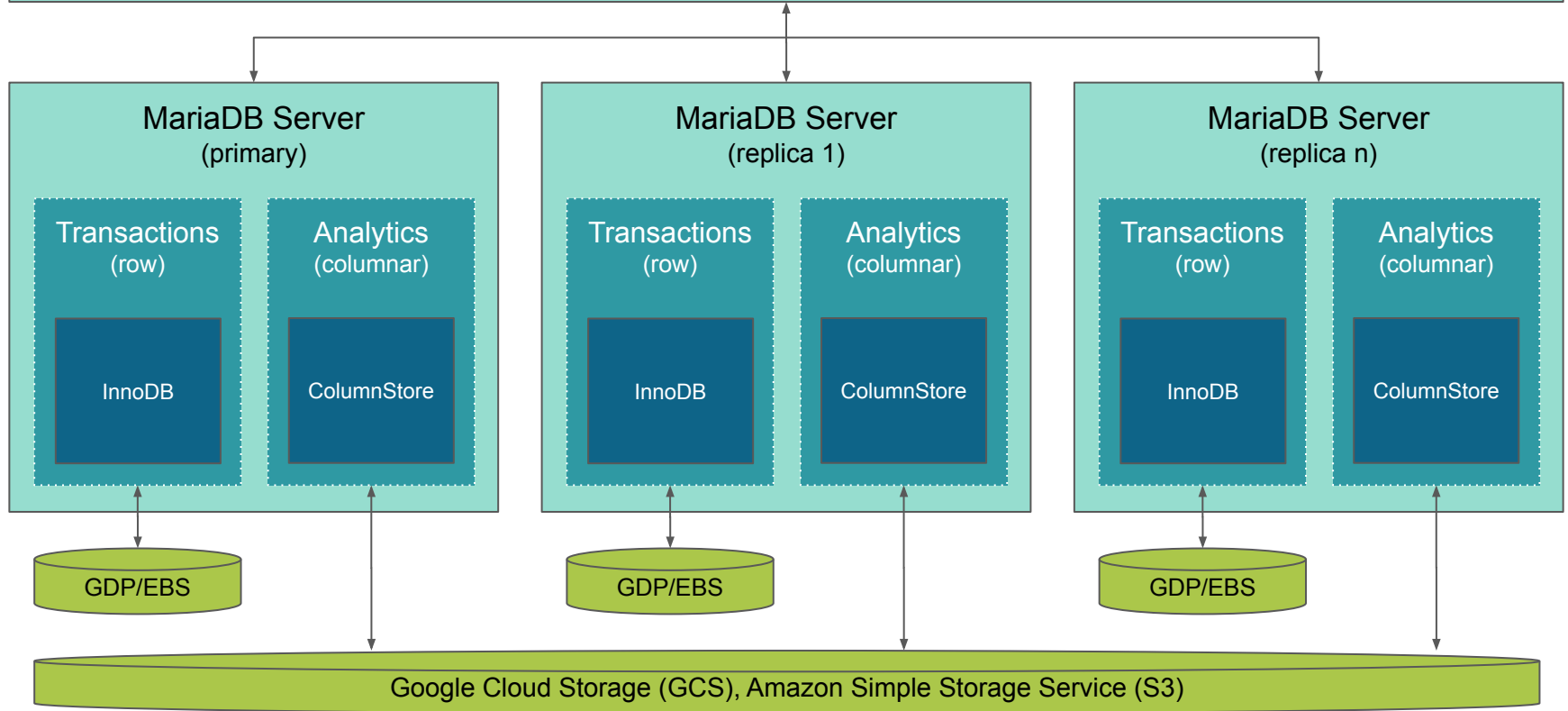
HA: K8S SELF REPAIR



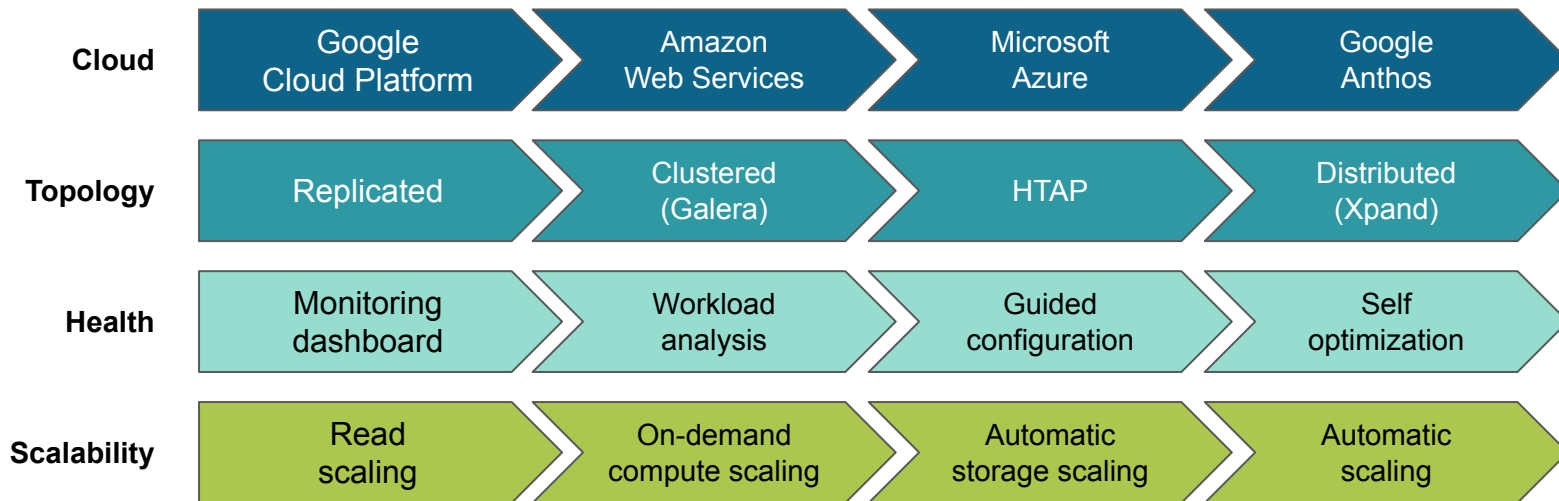
SMART TRANSACTIONS

- SkySQL is the reference cloud architecture for smart OLTP
 - OLTP – Data stored as rows on block storage (e.g., EBS/GPD)
 - Fast and persistent, same as others (e.g., RDS)
 - OLAP – Data stored as columns on object storage (e.g., S3/GCS)
 - Low-cost and unlimited capacity, same innovators like Snowflake
 - Smart OLTP – Data replicated from row/block storage to columnar/object storage
 - Transaction queries against row/block storage
 - Analytical queries against columnar/object storage
 - Any database instance can handle transactional queries, analytical queries or both
 - It's all transparent to the application

MariaDB MaxScale



ROADMAP





The Sky Is Truly the Limit

Get started with SkySQL today

\$500 credit to get started credit, and the first 10 webinar attendees to sign up get an extra \$500 credit from Google

<https://mariadb.com/products/skysql/get-started/>





DEMO

<https://cloud.mariadb.com/skysql>