

# Quasar Technical Overview

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## Architecture

Quasar is a purpose-built operational database for sustained numerical workloads.

It combines tiered columnar storage, patented compression, native clustering, and deterministic execution to support continuous ingestion, multi-year retention, and immediate queryability.



## Core Capabilities

### STORAGE & RETENTION

- ◆ Distributed, tiered columnar storage optimized for numerical data.
- ◆ Patented compression that outperforms standards.
- ◆ Native support for object storage.
- ◆ Unified real-time and historical data.
- ◆ Multi-year retention without tiering splits.

### INGESTION

- ◆ Append, upsert, deduplication, idempotent writes.
- ◆ Concurrent read/write support.
- ◆ Immediate data visibility.
- ◆ Full mutability support.
- ◆ Built-in connectivity with industry standards (MQTT, Kafka, Kinesis ...) and a comprehensive, high-performance API for custom integration.

### QUERY & COMPUTE

- ◆ High performance, multi-threaded, vectorized, aggregation engine running directly on the data.
- ◆ Standards-based SQL.
- ◆ Native APIs (C++, Python, .NET, REST...)
- ◆ Deterministic performance under sustained load.

### SCALABILITY

- ◆ Native horizontally scalable architecture.
- ◆ Elastic scaling across nodes.

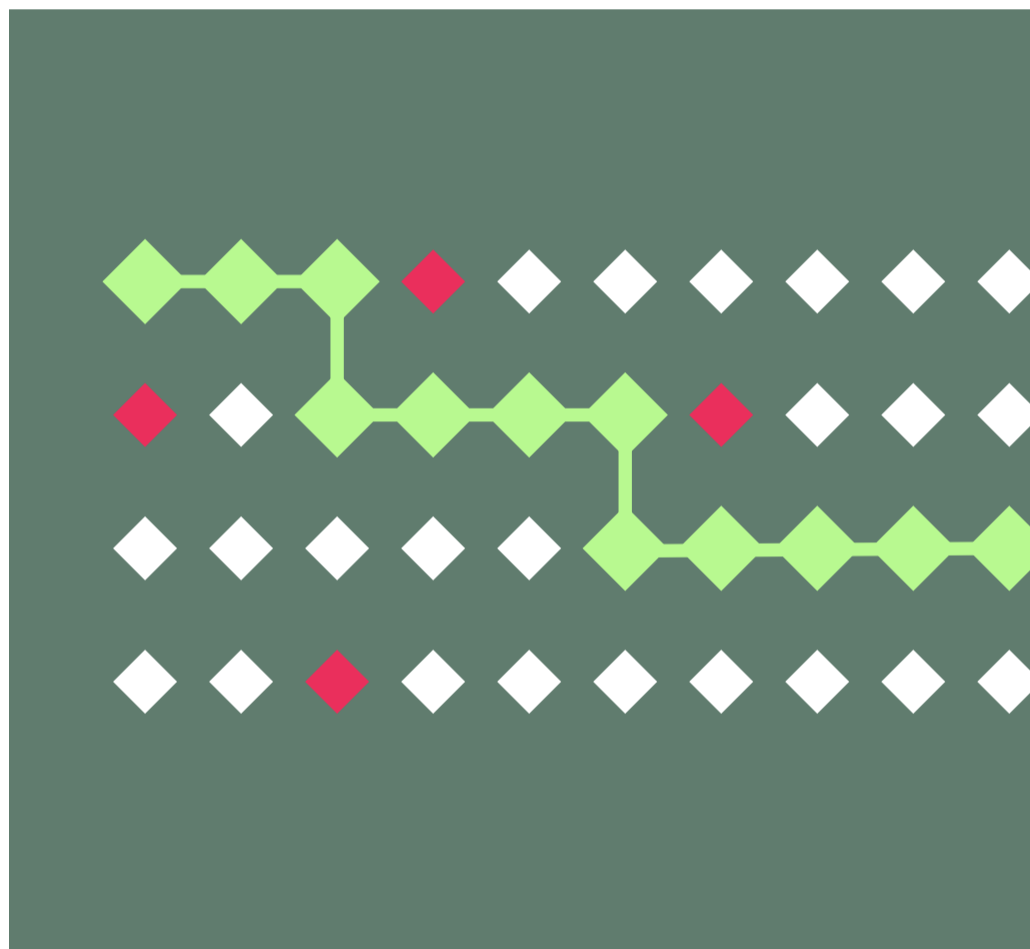
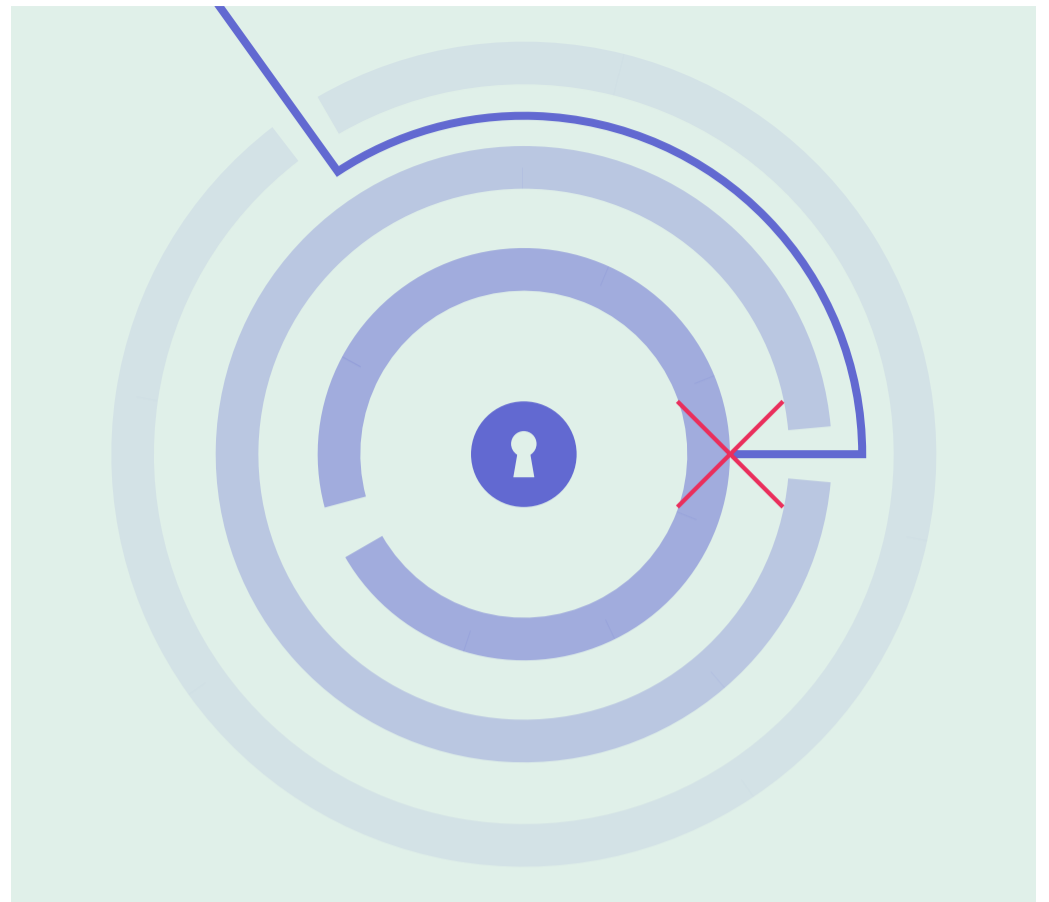


## SECURITY & COMPLIANCE

- ◆ Cryptographically strong authentication and communication.
- ◆ Fine-grained access control.
- ◆ Cloud deployment SOC 2 Type II certified.

## DURABILITY AND CONSISTENCY

- ◆ Write-ahead logging (WAL)
- ◆ Read-committed transaction isolation.
- ◆ Durable storage model proven in production.



## FAULT TOLERANCE

- ◆ Resilient to hardware and cloud failures.
- ◆ Built-in repair and recovery mechanisms.
- ◆ Online and offline backup support.

## DEPLOYMENT

- ◆ Supported CPU: ARM32, ARM64, Intel 64.
- ◆ Supported OS: FreeBSD, Linux, MacOS, Windows.
- ◆ Cloud (SaaS and PaaS).
- ◆ On premises.
- ◆ Embedded.

## Operational Characteristics



Operating in multi-year, large-scale production environments.



Flat, transparent pricing model.

## Request an Operational Numerical Architecture Review

Assess whether your current stack can sustain AI-era numerical workloads without cost volatility or performance degradation.

Contact our sales team: [contact@quasar.ai](mailto:contact@quasar.ai)

