DISTRIBUTED
SQL DATABASE
FOR RETAIL

yugabyte**DB**

Over the past decade, retailers have seen dramatic shifts in consumer buying behavior as shoppers move online to research products, read consumer reviews, compare prices, and purchase. Faced with competition from digital-native companies and e-commerce startups, incumbent businesses are building competencies in areas such as just-in-time inventory, warehouse automation, omnichannel shopping, and personalized customer experience. Technology innovation in retail is driven by the need to create a competitive advantage by delivering always available, differentiated services more quickly while reducing costs and business risks.

Microservices and application modernization initiatives promise to deliver agility, scalability, and resilience. Modern applications need systems of record that deliver resilience and scale without compromising performance. YugabyteDB is an open source, cloud native, distributed database that uniquely combines enterprise-grade relational database capabilities with the horizontal scalability and resilience of cloud native architectures. Retail organizations are building business-critical microservices such as shopping carts, shopping lists, product catalogs, pricing, promotions, and payment systems using YugabyteDB as the system of record.

Accelerate Time to Market
Deliver high-value applications more quickly.

Reduce Cost
Spend up to 80% less on technology while achieving operational efficiencies with no lock-in.

Achieve Compliance
Comply with privacy regulations, sovereignty laws, and industry standards while mitigating risk.

Cloud Native Database for Demanding Applications

YugabyteDB is a perfect fit for transactional applications that demand resilience, scalability, and consistently high performance. Deploy YugabyteDB across any hybrid or public cloud, VMs, or containers with no lock-in for all mission-critical applications.

PostgreSQL Compatibility

> YugabyteDB is wire-compatible with PostgreSQL, offering the most complete set of PostgreSQL compatible features available in a distributed SQL DB. This allows developers to be immediately productive using familiar features, applications, drivers, and tools. They can also easily migrate commercial relational databases to YugabyteDB cost-effectively and with low risk.

Resilience and High Availability

Unplanned and planned downtime can cost retail organizations millions of dollars in lost revenue. With YugabyteDB, data remains available during node, zone, region, and data center failures and maintenance tasks. The database heals itself by re-replicating data automatically, delivering zero downtime. An Azure zone outage does not have to result in downtime for business-critical microservices such as order processing.

Horizontal Scalability to Meet Business Demand

Retailers and e-commerce businesses can reliably handle spikes in traffic during events like Black Friday and Cyber Monday by scaling their most demanding services without disruption or performance degradation. The YugabyteDB database is proven to handle hundreds of thousands of transactions per second with hundreds of terabytes of data in production.

Geo-Distribution

YugabyteDB offers the most flexible deployment options in geo-distributed environments - synchronous and asynchronous data replication as well as geo-partitioning to achieve desired resilience, performance, and compliance objectives. In retail and e-commerce, geo-distributed applications and data enable organizations to deliver faster response times for real time interactions from locations nearest to customers.

Transactional Consistency

Distributed multi-row ACID transactions are a critical requirement for many retail and e-commerce applications. Having transactional consistency in the data layer eliminates the burden of managing consistency in applications.

Operational Efficiency

Yugabyte Platform enables enterprises to deploy YugabyteDB across any cloud anywhere in the world effortlessly, and streamline day 2 operations with automated management and monitoring. Operations teams get the support and services they need to successfully deliver a private database-as-a-service cost-effectively.

Security

YugabyteDB is built from the ground up with data security in mind. The database enables organizations to maintain a robust security posture with built-in controls such as LDAP authentication, role-based access control (RBAC), data encryption at rest and in transit (TLS), audit logging, and column-level permissions. Yugabyte Platform simplifies security operations with automatic security key rotation, rolling software updates, and other capabilities.

Case Studies in Retail

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Kroger

Kroger is the largest supermarket by revenue in the United States. Kroger operates over 2,750 supermarkets and multi-department stores. The digital channel has been the largest growing part of Kroger's business, especially during the COVID-19 crisis. This is driving new modalities, for example where customers order online and pick up from a store.

As part of its digital transformation initiative, Kroger looked to modernize its aging technology while addressing scalability, reliability, observability, and monitoring. The company shifted to a microservices based architecture running in a hybrid cloud environment. With hundreds of microservices and service backed experiences, scalability and availability were key factors. Kroger also has a strong preference to use commercial open source software that offers freedom of choice in cloud environments.

Kroger chose YugabyteDB for several reasons, including distributed ACID transactions, scalability, multi-region active-active deployments for resilience, multi-API support, and automatic data sharding. YugabyteDB clusters were deployed in a multi-region configuration with synchronous replication, achieving single digit millisecond latency. Kroger also deployed two clusters in different regions with bi-directional asynchronous replication for its shopping list application. These clusters were close to users to deliver low latencies.

"We have been leveraging YugabyteDB as the distributed SQL database running natively inside Kubernetes to power the business-critical apps that require scale and high availability."
— **Mahesh Thyagarajan,** VP Engineering

Top 5 Global Retailer

An American multinational retail corporation that operates a chain of hypermarkets, department stores, and grocery stores in countries around the world sought a new database for its product identification microservice. This service uniquely identifies each product in the catalog offered by several sellers on its website.

Key selection criteria included resilience, high availability, and performance that scales with growth cost-effectively. The ability to deploy the database in any cloud in a geo-distributed topology across regions and countries was also important. Other considerations included support for multi-key ACID transactions and alternate key lookups.

The retail corporation had migrated from Oracle to Cassandra to handle exponential data growth and performance needs. But the lack of distributed transactions and RDBMS capabilities in Cassandra forced the team to implement one-to-one and many-to-one bidirectional indexes in the application layer, which increased time to market for new services and introduced fragility into the applications. They evaluated Azure CosmosDB, Azure Cloud SQL, and other databases but were not satisfied with the performance and resiliency characteristics of any candidates.

With YugabyteDB, the customer got everything they were looking for – linear scale with product growth, open source licensing, cloud-agnostic geo-distributed deployment, resilience, and RDBMS capabilities such as multi-row ACID transactions and alternate key lookups. YugabyteDB enabled the retailer to support a product catalog of more than 100 million items with billions of mappings, serving over 100,000 queries per second.

Narvar

Narvar provides a customer experience SaaS platform trusted by over 800 retailers including Sephora, Patagonia, Levi's, Bose, Warby Parker, Home Depot, LVMH, and L'Oréal to deliver personalized experiences from pre-purchase to in-store touchpoints and beyond.

Narvar was challenged with AWS databases becoming expensive at scale, while customers and data privacy regulations demanded a multi-cloud solution. Narvar looked for an open source and cloud native database with support for multi-cloud and multi-AZ deployments and available as a managed service. Key criteria included high performance, ease of scaling, and low variance in cost per query.

Narvar switched to YugabyteDB and achieved 4x lower TCO while gaining scale, performance, and zero downtime in the process. There were no service disruptions during spikes in traffic, and Narvar was able to support multiple clouds based on customer requests.

"Yugabyte helped Narvar avoid cloud lock-in, stay GDPR compliant and save money in the process. Partnering with Yugabyte helps us focus on our customers instead of worrying if our systems can keep pace with our rapidly growing business."
— **Ram Ravichandran,** CTO, Narvar

Want to learn even more about YugabyteDB's extremely low latency, massive scale, and comprehensive set of multi-region deployment options?

Visit **yugabyte.com** *today to:*

(**Get Started**) (**Contact Us**) (**Schedule A Demo**)