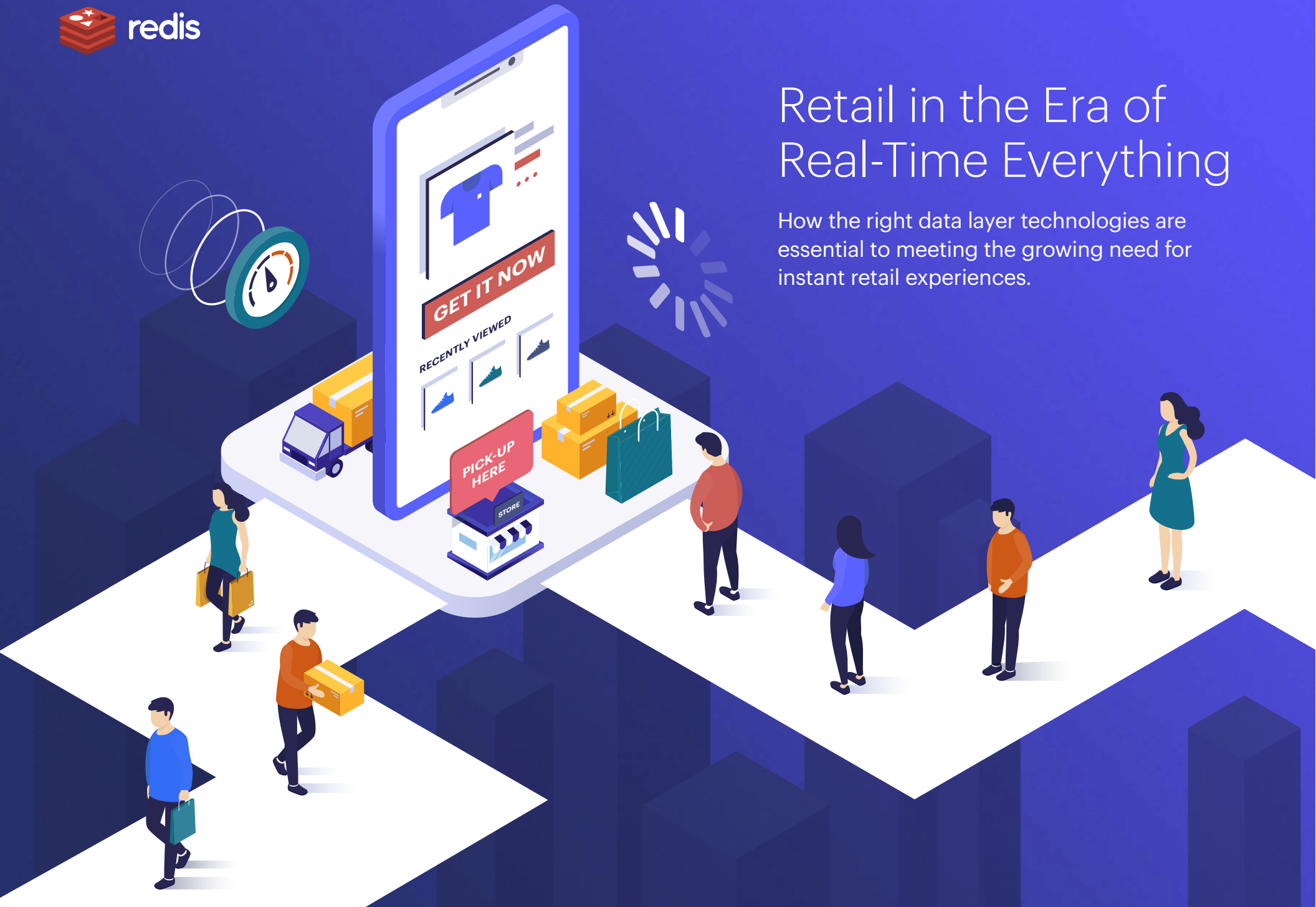




# Retail in the Era of Real-Time Everything

How the right data layer technologies are essential to meeting the growing need for instant retail experiences.



# Executive Summary

During the last decade, widespread access to fast, reliable broadband and the evolution of innovative online services have combined to create the era of real-time everything. Consumer expectations of retailers have been transformed by experience buying from Amazon and other innovative retailers able to provide fast, efficient omnichannel experiences.

In 2020, COVID-19 lockdowns that restricted shopping at brick-and-mortar stores in many countries sent even more consumers online. For example, in the UK, online sales in September 2020 saw year-over-year growth of 53%, according to the Office for National Statistics (ONS). Under these conditions, retailers that fail to offer a great real-time online experience are bound to lose market share.

Many retailers are trying to develop or improve effective real-time retail capabilities—but too often still do not understand what real-time actually means in practical terms. Crucially, they can underestimate the importance of the role played by the data layer in supporting a real-time retail operation.

The data layer underpins key elements within a successful real-time retail proposition. It must provide a consistent real-time view of inventory, managing updates from stores and enterprise systems to give customers and staff a clear, accurate view of stock availability. It must support supply-chain optimization and enable more efficient fulfillment, cost management, and planning. It also needs to be resilient and scalable, to satisfy consumers' expectations, and to manage periods of increased demand. Only by using the right technology can a retailer ensure this is the case, giving it the best possible chance to remain profitable and relevant, continuing to evolve and innovate, in the era of real-time everything.

As an in-memory database delivering multiple data models with best-in-class performance, Redis Enterprise is perfectly suited to meet the demands of real-time retail. It provides the performance needed to deliver a great user experience, ensuring that retail applications and websites are always fast and responsive; and supports real-time inventory. It is resilient and scalable. It is also already used by retailers for this purpose.



# What is the era of real-time everything?

Human beings tend to be a little impatient. When we experience delays or problems while using digital technology, that impatience can become more intense, because we have come to expect technology to work quickly. Nine out of ten US consumers say they will abandon a retailer's website if it is too slow, according to [a 2020 study compiled by Retail Systems Research \(RSR\) for Yottaa](#). Worse, almost six out of ten (57%) will visit a competitor's site instead and one five (21%) would never return. If that's not bad enough, one in seven (14%) would vent their frustration on social media.

In this context, retailers cannot afford to offer mediocre experiences. Almost two-thirds of consumers (64%) say their standard for a good experience is higher than ever, according to [2018 Salesforce research](#). Almost eight out of ten (79%) say the experience a company provides is as important as the products and services it delivers. And more than six out of ten (61%) have stopped buying from a company to switch to a competitor that offered a better experience.

In addition, [PwC's 2018 Future of CX study](#) showed that almost one in three consumers (32%) in 12 major markets would stop buying from companies they "love shopping at or using" after one bad experience; and almost half, including 60% of US consumers, would do so after several bad experiences.

But even if a retailer can offer all of these desirable attributes, the RSR findings highlight the risks of failing to deliver excellent, personalized experiences in real-time. Retailers seeking to offer online or omnichannel services in a highly competitive sector, and during a period of economic turbulence, simply cannot afford to lose potential online customers and to sustain such damage to their brands. But to avoid these risks they must develop truly real-time capabilities.

“ Nine out of ten US consumers say they will abandon a retailer's website if it is too slow. ”



# What retailers need to be able to do to deliver real-time retail

Some retailers do provide real-time omnichannel services, or are attempting to develop them, but many still don't seem to understand what real-time actually means. Crucially, they often underestimate the importance of a data layer capable of supporting real-time operations. This requires not only fast database performance to keep retail applications responsive, but also capabilities that make data more accessible to customers. The data layer must also support the scalability needed to cope with periods of increased demand.



## Embrace the need for speed

Organizations should start by asking whether their data layer offers the low latency and high throughput that can deliver the instant gratification customers demand in the era of real-time everything. The solution might be as simple as adding a cache to speed up page load times, or supporting use cases like full-text search, graph processing, and recommendations with faster-performing databases. In some cases it may also be useful to explore paradigms such as event-driven architectures, where data processing is triggered in response to changes in software state.



## Do more for your customers with real-time data

But faster performance for mobile apps and websites is only the beginning. Retailers can make the user experience feel more responsive by ensuring that basic steps in the customer journey—showing products in stock, searching through previously bought items, reserving items for pickup—are convenient, user-friendly, and efficient.

For example, displaying whether an item is in stock across different physical stores requires a real-time view of inventory that can accurately resolve conflicting updates from multiple regions. Successfully optimizing the digital

supply chain can also result in more efficient order fulfillment, cost management, and forecasting across the business. Accurate data ensures that communications with customers related to order status or stock availability are not just timely, but also based in fact, and can provide useful insights to drive marketing and promotional activity.



## Expect the unexpected

A real-time retailer's omnichannel and supply chain systems must also be able to scale up when required to meet increased demand around predictable, major events of the retailer's year, such as Black Friday and Cyber Monday, as well as special events such as the release of limited-edition items. Findings in the RSR study showed that two-thirds (67%) of the US consumers surveyed experienced a slow or broken website during Black Friday 2019; and about half of this group (34% of all consumers surveyed) abandoned those websites to buy elsewhere.

But these systems must also be able to scale up to meet consumers' expectations during unpredictable surges in demand, such as those caused by surprise endorsements from online influencers, or by unexpected external events, as when demand for cycling and hardware products soared during COVID-19 lockdowns, or as a consequence of unexpected weather conditions.

If a retailer is to succeed in creating a genuinely real-time online or omnichannel retail experience, it must be able to meet the consumer expectations of the era of real-time everything. Success or failure of real-time retail operations depend on the retailer's ability to use customer and product data effectively and consistently across all service channels in real-time. A world-class data layer alone is not enough to ensure success, but without it a retailer will face a huge struggle to develop a genuinely effective and compelling real-time offer.



## 02.

The ability to make the user experience feel responsive by ensuring that basic steps in the customer journey—showing products in stock, searching through previous purchases, reserving items for pickup—are convenient, user-friendly, and efficient.



## 03.

Real-time inventory capabilities, enabling a consistent view of stock availability across channels.



## 04.

Optimized supply-chain management.



## 05.

A fast, flexible, and responsive fulfillment process.



## 01.

The ability to offer real-time, personalized service, based on consistent customer data across all points of contact.



# 6 Qualities of a Real-time Retailer

## 06.

Systems capable of scaling up or down in response to predictable and unpredictable fluctuations in demand.



// Real-time retail involves not only making applications and websites load instantly, but also helping customers more efficiently access data that is relevant to them. //

# How Redis enables real-time retail

As an in-memory database delivering multiple data models with best-in-class performance, Redis Enterprise is uniquely suited to meet the demands of real-time retail. It provides the low latency and high throughput needed to guarantee responsive applications and websites, while also enabling retailers to do more with their data by supporting use cases like real-time inventory fulfillment, efficient product searches, ephemeral document indexing, and more.

## Delivering instant gratification with sub-millisecond latency

Redis Enterprise provides performance that can protect the user experience and ensure retail applications and websites are always fast and responsive. It can be used as a highly scalable cache or a session store for user profiles, or as a fast primary database in situations where extremely high write throughput and low latency are required.

The Gap, Inc., for example, turned to Redis Enterprise in order to improve the performance of its ecommerce inventory management and order fulfillment systems. With global operations across thousands of retail locations and nine distribution centers, the company needed a way to provide its online customers with real-time shipping estimates for each item in their shopping carts. Using Redis Enterprise to power inventory searches yielded a 100x improvement in query response times for Gap's e-commerce platform.

## Making customer journeys more efficient with modern data models

Fulfilling the promise of real-time retail involves much more than just making sure that applications and websites load instantly. Retailers can also enhance the user experience with approaches that let customers more efficiently access data that is relevant to their shopping needs.



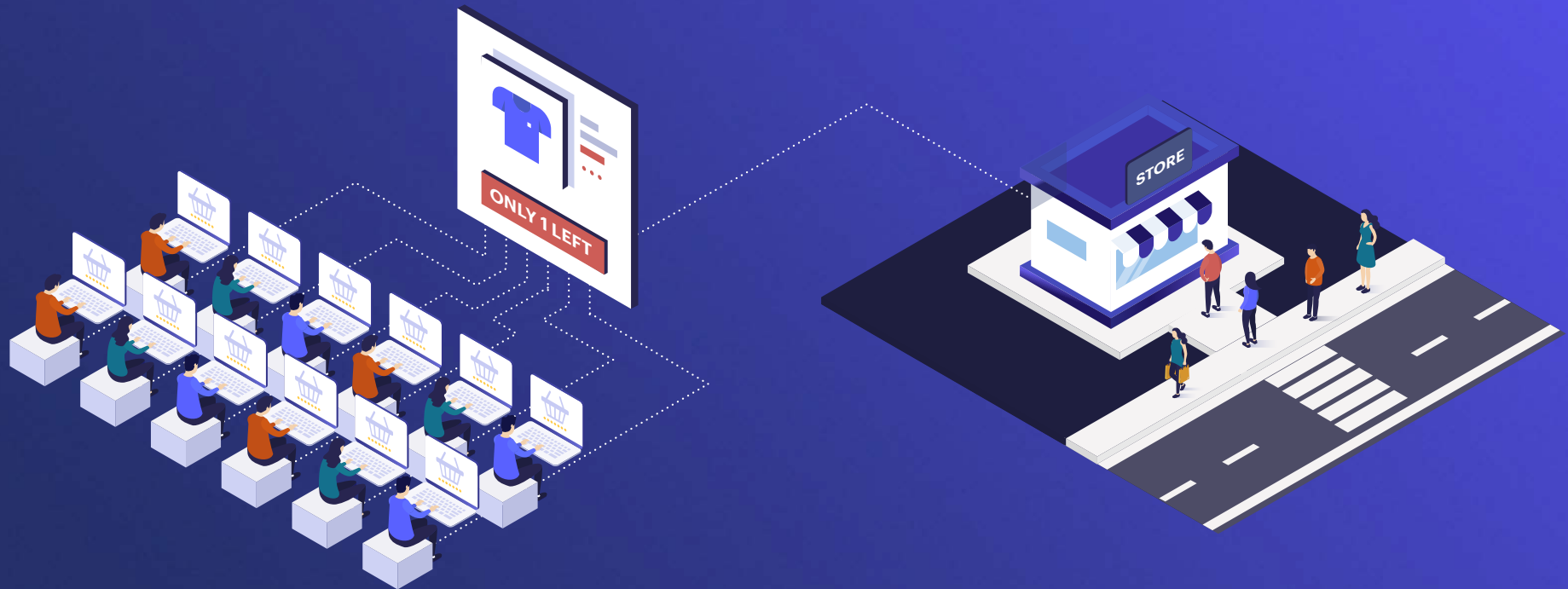
Providing a fast and easy-to-use purchase history might seem like a relatively straightforward task, but simply displaying entries in reverse chronological order is inefficient for customers with long lists of previously bought items. One retailer tackles this problem by using Redis to provide ephemeral search indexing—creating a dynamic search index for each user who logs onto an e-commerce website, which then expires after a specific time period. This lets users easily search for items they’ve previously bought, and saves the company the significant operational overhead involved in maintaining a single large search index for every user.

Retailers trying to create a real-time view of inventory across channels will also benefit from the ability to run Redis Enterprise as an Active-Active, Geo-Distributed database replicated across multiple regions. When used this way, Redis Enterprise

can seamlessly manage conflicting inventory updates from individual stores and enterprise systems, allowing customers to see what’s in stock without compromising availability or latency.

### Ensuring high availability in any scenario

Redis Enterprise can scale up capacity and performance in response to demand from real-time applications, with no need to change application code and without incurring additional costs, downtime, or disruption. By providing automated failure detection, failover, and cluster recovery, Redis Enterprise helps ensure that retailers can continue operating even after experiencing bursts of traffic during seasonal peaks or unexpected surges in demand.



# Conclusion

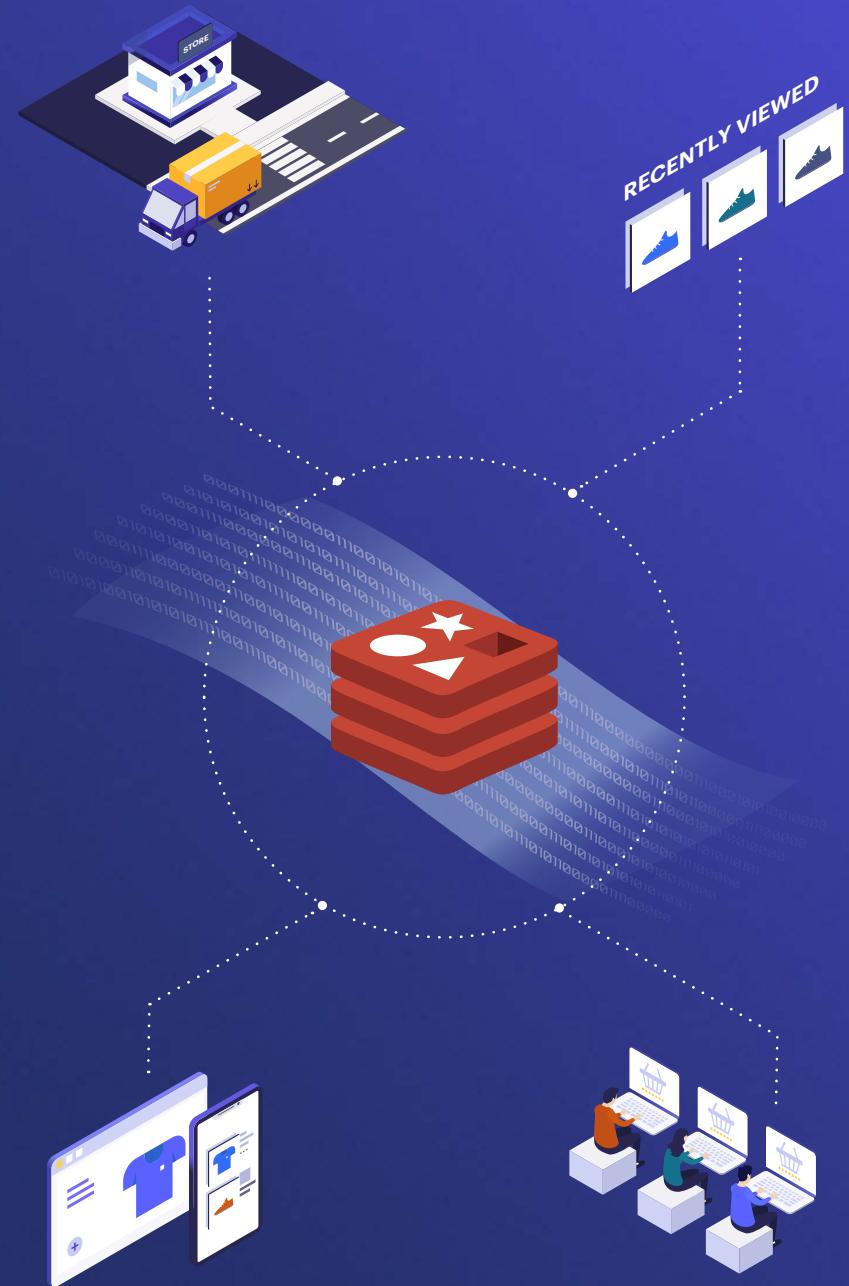
In recent years, use of e-commerce and consumers' expectations of instant gratification and personalization when shopping online have both increased significantly. Retailers have responded by developing more robust online shopping platforms and uniting them with existing brick-and-mortar stores to create omnichannel experiences.

The COVID-19 pandemic has further accelerated these trends, boosting online shopping and driving increased competition. It is clear that retailers unable to meet consumer expectations in the era of real-time everything will lose market share.

Delivering genuinely real-time retail requires responsive, personalized, and convenient customer-facing processes, real-time inventory that enables optimized stock management and enhances customer service, and scalability and resilience to continue operating in any situation.

But too many retailers still fail to appreciate the importance of developing a data layer capable of supporting all these systems and processes in real-time. Genuine real-time retail cannot be delivered without a robust yet flexible data layer that can guarantee speed and data availability, and can scale in response to both predictable and unpredictable surges in demand.

Redis Enterprise is an in-memory database with the capabilities retailers need to build a data layer for the era of real-time retail. It is already used by a wide variety of retailers for exactly this purpose. It provides a solid yet adaptable foundation upon which retailers can deliver real-time shopping experiences, build customer loyalty, and promote a successful, profitable future.





To learn more about how Redis Enterprise enables retailers to thrive in the era of real-time everything, visit:

[redis.com/solutions/industries/retail/](https://redis.com/solutions/industries/retail/)

**To get started**, try Redis Enterprise in the cloud, or download Redis Enterprise Software for a free trial now.

[redis.com/try-free](https://redis.com/try-free)

## About Redis

Modern businesses depend on the power of real-time data. With Redis, organizations deliver instant experiences in a highly reliable and scalable manner.

Redis is the world's most popular in-memory database, and commercial provider of Redis Enterprise, which delivers superior performance, matchless reliability, and unparalleled flexibility for personalization, machine learning, IoT, search, e-commerce, social, and metering solutions worldwide.

Redis, consistently ranked as a leader in top analyst reports on NoSQL, in-memory databases, operational databases, and database-as-a-service (DBaaS), is trusted by more than 7,400 enterprise customers, including five Fortune 10 companies, three of the four credit card issuers, three of the top five communication companies, three of the top five healthcare companies, six of the top eight technology companies, and four of the top seven retailers.

Redis Enterprise, available as a service in public and private clouds, as downloadable software, in containers, and for hybrid cloud/on-premises deployments, powers popular Redis use cases such as high-speed transactions, job and queue management, user session stores, real time data ingest, notifications, content caching, and time-series data.

[\*\*redis.com\*\*](https://redis.com)