



Retail and Ecommerce

EBOOK

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Industry Overview

Ecommerce experienced an explosive year in 2020, growing a whopping 44 percent with [online spending making up 21.3 percent of total retail sales](#) for the year.

That translates into consumers spending \$861.12 billion online with U.S. merchants, the greatest jump in at least 20 years and nearly triple the spending in 2019.

Such unprecedented numbers, of course, are driven by the pandemic and the shift by consumers to shop more online.

But this ecommerce explosion also represents a permanent shift by many retailers to better attract and retain customers through ecommerce channels. This year, for example, the biggest online retailers are expected to be Amazon, Walmart, Apple, Dell and Best Buy.

As ecommerce grows, there are some [trends emerging](#). Among them: more retailers turning to artificial intelligence (AI) and machine learning (ML) to ensure a more customized experience for shoppers; ramping up mobile offerings to meet customer demands; and utilizing customer data to make wiser decisions about products and services.

Still, there are plenty of challenges for ecommerce, such as online fraud. LexisNexis reports that [for every \\$1 of fraud, it costs online merchants \\$3.73](#), up 7.3 percent in 2020 over the previous year. In addition, conventional underlying database architectures that are being used by some aren't designed for the demands of ecommerce. The result can be slow online response times, outdated information and little to no customer engagement.

Ecommerce Use Cases

Company executives report that 80 percent of their customer interactions are digital in nature. For ecommerce, each customer interaction provides opportunities – and challenges – that need to be met:



Recommendation Engine

Customers are looking for more customized experiences, and that means being able to collect purchasing data and then recommend, for example, the type of furniture they favor or the technology gadgets they may crave. Without a fast data layer to support multiple requests per recommendation, opportunities to engage customers are lost.



Fraud Prevention

One trend hitting ecommerce is that customers want more options on ways to pay, and that can be [critical to conversion rates](#). Ecommerce will need to vet inbound business transactions to provide real-time risk assessments and decisioning.



Messaging and Chat

Tribe reports that [73 percent of consumers abandon a purchase](#) if they can't quickly locate what they want, an issue that can be addressed with chats and message. Chatbots, for example, can interact with an online shopper much as a store clerk would in a brick-and-mortar setting. It's estimated that 85 percent of customer interactions can be handled without human agents, and [chatbots can reduce operation costs by up to 30 percent](#). In addition, ecommerce is better able to upsell and cross-sell to customers while maintaining user session data.



Dynamic Pricing

Ecommerce needs the ability to set flexible prices, and enable real-time pricing and promotions for products or services based on current market demands, user profiles or inventory levels.



Mobile Payments

During the third quarter of 2020, [smartphones made up 71 percent](#) of the retail site visits in the U.S. and generated 56 percent of online shopping orders. Retailers need to power payment solutions and enable digital wallets, which can boost customer loyalty while reducing payment friction.

Why Leading Ecommerce Retailers Use Aerospike

Wayfair, one of the world's leading home furnishing platforms, leverages Aerospike for customer scoring and segmentation, tracking events online, monitoring customer activity to make market decisions, onsite advertising and recommendation engines. Wayfair is just one example of how Aerospike can help ecommerce retailers meet surging online demands for customization, scalability and data collection. Aerospike can also give users:

Fast scalability.

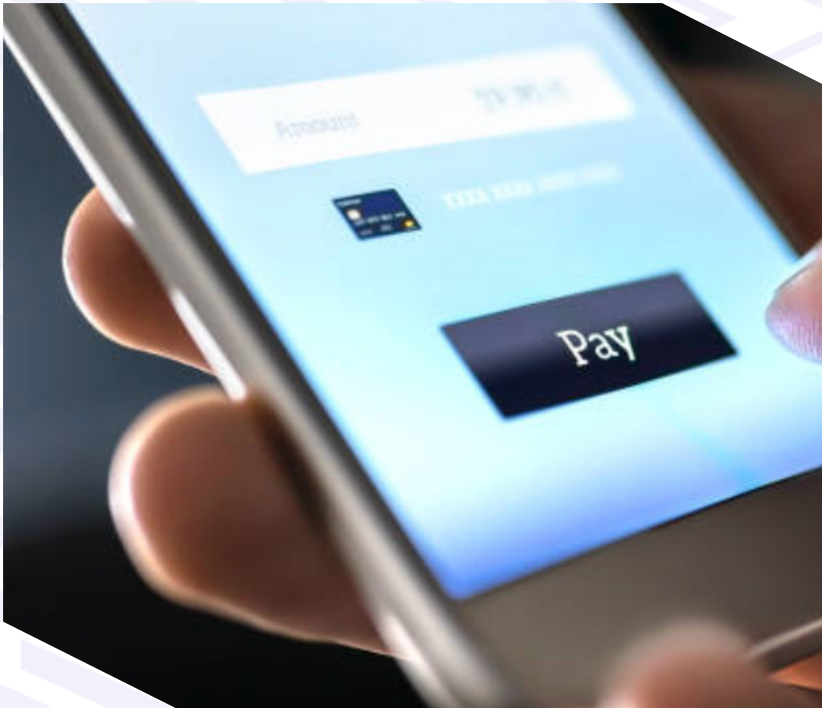
Online sales are exploding, and so is the volume of data, transactions and customers. Speed matters. (Most customers are only willing to wait **10 seconds** for a page to load before leaving.) Aerospike is designed from the ground up to achieve unrivaled speed at scale through a broad set of capabilities and unique innovations.

Automatic database sharding is a key capability in the Aerospike architecture that dramatically improves performance by distributing the database and the workload across multiple servers. Sharding occurs on the fly, in real time, with no manual intervention, and removes application-level sharding built into the code.

Better customer experiences.

Some 63% of consumers say they are **willing to pay up to 15% more** for the same product or service if they'll have a better experience. One of the ways to accomplish that online is to respond quickly to every customer, such as through messaging & chats and provide them useful information. Through sub-millisecond response times, retailers can ensure less discarded shopping baskets and better product selection.



**Recommendation engine.**

Research shows that a highly personalized shopping experience makes customers 110 percent more likely to add additional items to their baskets and 40 percent more likely to spend more than they planned. Aerospike offers the fast data layer necessary to support multiple requests per recommendation and the flexibility to add more throughput or more data as a system evolves. Key features include: large lists for efficiently recording behavior, optimized Flash support to handle datasets from terabytes to petabytes and queries and aggregations for real-time reporting.

Low TCO.

Aerospike has an industry-low total cost of ownership due in large part to its unique Hybrid Memory Architecture™ that optimizes off-the-shelf flash and the latest in persistent memory. In addition, Aerospike is fully interoperable with existing data infrastructure and able to run in any cloud. There are not only dramatic reductions in hardware expenses, but similar savings in staffing costs associated with Aerospike's simplified architecture and built-in automation. Automated database sharding and system self-management capabilities reduce the time and manual effort of daily system operations.

More efficient operations.

Aerospike combines performance with predictability, and strong consistency with the ability to readily scale up and out and work in multi-cloud deployments at internet scale. Aerospike's Hybrid Memory Architecture provides lower latency, simpler architecture and higher throughput than all other database architectures. Aerospike's industries lowest TCO benefits are even greater when considering the additional savings and business benefits that come from the ability to get more data faster and to enable better business outcomes sooner.



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Aerospike is known as the world's fastest and lowest latency database at terabyte and petabyte scale at one-third the cost of other database infrastructures. As ecommerce faces a future with more personalization, greater fraud concerns, increasing data collection and more reliance on and AI/ML, Aerospike can help companies stay agile, efficient, cost-effective and innovative – all while scaling quickly.

To learn more about how Aerospike can help your firm increase customer profitability while mitigating risk and optimizing returns, visit us at www.aerospike.com.