



The Ongoing Disruption of Retail

A Shift to Real-Time Data Streaming



"To win in the digitally revolutionized retail marketplace, retailers must refine merchandising processes for customer centricity. Gartner anticipates that innovative use of information and automation through advanced analytics and AI will transform the industry." – Gartner

The classic department store of yesteryear was designed with customer delight and comfort in mind: lounges with sumptuous sofas, boutique cafes, and, of course, gracious clerks to personally conduct you through your shopping session. Even as big box stores began to take over the retail market, the in-store experience catered to consumer desire. Marketing and promotional efforts were designed to bring customers through the door and offer them a horizon of material abundance.

That culture of abundance big stores promised meant keeping track of a lot of inventory at all times. There was a limited ability to react to demand changes in real time, which frequently led to inventory liability or lack of product when it was needed. The closest thing customers and employees had to a digital experience was the point-of-sale system at the door, which produced tons of (largely unusable) data that sat idle and isolated in proprietary back-office systems.

Personalized targeting, too, was a pipe dream for a long time. Campaigns were broad and mainly geographic. For brands, being relevant in a competitive industry mostly meant expanding the number of locations or achieving the coveted spot on a store shelf. Physicality was everything.

Today, that model has obviously shifted. Digital commerce is now the norm for both big brands and startups. Customers are used to a journey that involves multiple touch points on various channels before they commit to buy. They're constantly connected to their favorite brands via devices, social networks, same-day delivery apps, and even video game platforms.

To grab their attention in a highly competitive landscape, retail brands seek to offer extreme sub-segmentation and personalization meant to appeal to customers who see themselves as individuals, not demographic groups, and who express themselves precisely through the products they buy. With real estate and shelf space no longer critical factors in brand success, digital capability is paramount, and both existing brands and insurgents have an equal ability to build and scale online presence. The playing field has been leveled, and the competition runs amok in a dizzying online arena.

How to compete?



In a word, data.

The future of retail hinges on the ability for brands to harness data. Data from numerous social media platforms, applications, customer interactions, and external sources is the key to running a more efficient operation and providing more engaging and personalized marketing.

But using that data is the hurdle most retail companies face. Technology is constantly evolving, and data is always moving. To derive value from customer actions and transactions, brands must be able to capture events in real time and wield that information for specific actions.

Every customer interaction, from an actual purchase to a marketing engagement, is a data event. All of those data events create opportunities to trigger automations. For instance, there's a rich opportunity to move customers forward in their current and future purchasing decisions by offering personalized recommendations in the moment along with a consistent omnichannel experience throughout their journey. Retailers can also use automation to optimize supply chain operations, and thus reduce costs.

The future of retail is data, and that future requires the ability to process and use data events in real time. The essence of this effort is event streaming, the continuous, centralized processing of data so it can be used to trigger all kinds of events in real time.

Just as the high street rose to join the early modern market faire, the internet has established itself as a new global marketplace and the requirement for customer experience synchronicity is vital to success.

— JP Morgan



Events

Every customer transaction creates data. Developers call it an **event**. This includes digital product views, online or in-store purchases, and data produced by connected smart devices.



Event streaming

Also known as event stream processing (ESP), real-time data streaming, and complex event processing (CEP), event streaming is the continuous processing of real-time data directly as it is produced or received—as opposed to the old paradigm of batch processing.



Event-driven architecture

When an event streaming platform is at the core of an organization's architecture, it becomes possible to centralize all data and distribute it to every application or system within the organization.

1

Boost sales with real-time personalization

Personalization, once limited mainly to targeted offers, now extends to the entire customer experience... customers want personalization throughout their interactions with a retailer—with multiple, personalized touchpoints that enable them to allocate their time and money according to their preferences.

— McKinsey

The personal attention lavished on shoppers in that old department store model has a new iteration in the digital age. Thanks to pioneers in targeting like Amazon, today's consumer expects to be hand-fed precise recommendations on every platform. Personalization is key to highlighting the right product or promotions to customers in order to stand out among the competition. It's a tricky business, though. If personalization doesn't hit the mark, consumers feel stalked by brands who don't get them. Yet when it works, it really works.

How it was then

Personalization requires data, but sources of data used to be limited, so there were few opportunities to promote new products in a highly targeted way. Offers and promotions were aligned to major shopping holidays, for the most part, and a lot of marketing revolved around in-store presence and predictable events like "weekly specials."

How it is now

Retailers have increasing access to data from their own and external sources. With the rise of e-commerce and particularly mobile technology and culture, retail brands are focused on providing customers with ease of purchase from anywhere, along with opportunities to engage. Offering customers the right offer at the right time in the right place can make the difference between increasing a customer's lifetime value (LTV) or losing the customer's loyalty to another brand that has a stronger handle on personalization. It's a cutthroat environment for retailers, with a constant influx of upstarts built on ever-better technology.

The future, with event streaming

The technological opportunity is rich for retailers to tap into data and hyper-personalize engagement with customers. But without a centralized view of the customer that can unify first- and third-party data, it's hard to embed real-time personalization into every customer experience. The first thing retailers will need to evolve into the future: event streaming.

Confluent's modern data platform helps retailers unify new sources of real-time data such as location or online activity with historical customer data to personalize the customer experience in real time, highlighting the most relevant products and promotions at the most valuable times.

Confluent customer spotlight

AO, a European retailer that specializes in household and electrical appliances, uses Confluent to combine historical customer data with real-time digital signals from customers, generating hyper-personalized content—for example, targeted special offers, which are inserted in real time back into the customer's session to continuously personalize each subsequent offer.



[Read the customer story](#)

2

Strengthen customer loyalty with consistent omnichannel experiences

Companies that are able to personalize the customer experience across physical and digital channels—omnichannel personalization—can achieve a 5 to 15 percent revenue increase across the full customer base.

— McKinsey

The growth of e-commerce and the rise of a multichannel approach to customer engagement have changed the relationship between retail brands and consumers. Today, consumers expect access to up-to-date inventory and pricing information as well as an ease of engagement with brands across multiple touch points as they move toward a purchasing decision. They value consistent experience across channels even beyond their purchase. Social media engagement, marketing, customer service—all are factors in securing customer loyalty.

How it was then

Interaction with customers traditionally took two forms: large-scale marketing campaigns, which of course were one-way communication, and hard to measure, and brick-and-mortar retail interactions. Customers had only so many touch points they could possibly encounter before entering a store. Brands poured money into the ad industry because glossy magazine ads and highway billboards were two of the only ways of reaching prospective customers. They didn't have to worry about syncing inventory and pricing data, because there was essentially only one place to buy.

How it is now

The growth of digital and e-commerce changed all that. A myriad of touch points began to crop up, and many of them were interactive: email newsletters, social media activity, e-commerce sites, shopping apps. But many brands built their digital capabilities siloed away from their brick-and-mortar stores. Data is hard to share, and it's difficult to measure the impact of one channel on the other. Opportunity is lost because of disconnected data sequestered in legacy systems and custom-built but siloed apps.

The future, with event streaming

To confidently provide a consistent omnichannel experience, you need a scalable data platform that can update all your digital activities in real time. Confluent is a scalable, event-based data platform that provides a real-time view of everything from inventory to order status. By connecting every application that touches the customer buying journey, Confluent ensures that customers always have the most up-to-date information, regardless of the channel they choose to use to engage on.

Confluent customer spotlight

With Confluent as the backbone of its event streaming architecture, Walmart's website and inventory systems can provide customers with a brilliant omnichannel experience. The world's biggest retailer engages customers fluidly across both physical and digital experiences, connecting grocery orders from online order to curbside pickup, and that's just a start.

[Read the customer story](#)



3

Increase operational agility with real-time inventory

Streaming data can provide the glue that brings together information from disparate legacy systems such as supply chain, order entry and billing without requiring any modification of the existing systems.

— Ventana Research

Inventory management is the backbone of retail, driving the overall efficiency of the complete supply chain. Supply chain management has always been an inherently data-driven process, but the complexity has amplified as the volume and sources of data have rapidly increased. As retailers open more locations, adopt more suppliers, and turn around e-commerce orders faster, analytics become essential across a broad spectrum of retail business activities.

How it was then

Before Amazon retrained the public to expect near-instant gratification on their every desire, shopping meant going to a store with an idea of what one hoped to obtain and choosing from a few select options. If one Target was out of bathroom trash cans, there was no easy way to know that the Target a half hour away just put overstocked trash cans on sale. Siloed inventory and lack of real-time signals of purchasing behavior made it nearly impossible for chains to optimize inventory across locations. Consumers who couldn't find what they needed easily in the store were ripe for conversion to the digital competition.

How it is now

Now, retailers have to work much harder to satisfy customers, but they also have tremendous potential at their technological fingertips. Customers generate real-time digital signals about their intent to purchase, and with those signals at scale, and integrated inventory systems between retail locations and warehouses, retailers can make in-the-moment decisions about the optimal quantities to move. While driving cost optimizations in the supply chain, retailers can also provide customers with inventory visibility to give them assurance they need to make a purchase, and can even motivate purchase when inventory is running low. Consumers covet a sense of control. The last thing they ever want to get is an email telling them that something they ordered is, *whoops*, actually out of stock.

The future, with event streaming

Retailers are getting better and better at aligning their inventory data to customer interfaces and connecting all their data to make the overall customer experience more fluid, but there's a ways to go. The vision for the future is one of seamless real-time inventory data enabling retailers to increase the velocity in meeting demand and also help make better supply chain decisions.

Confluent's real-time data processing platform integrates and processes events throughout the supply chain to enable real-time inventory management that can scale to the demands of modern e-commerce.

Confluent customer spotlight

Nuuly, the new Urban Outfitters clothing rental subscription service, uses Confluent as the backbone of its customer-facing applications and warehouse operations. The Nuuly mission is to empower customers to express themselves through their wardrobes, and event streaming enables the ability to browse and order with the confidence that their items will be delivered.

[Read the customer story](#)



Confluent simplifies the omnichannel experience and connects retail data

Confluent delivers an event streaming platform that helps retailers connect all their data in real time as centralized streams. This core functionality then enables retail organizations to embark upon bold digital journeys: real-time personalization and notifications, consistent omnichannel experiences, and a transparent view into inventory and the supply chain. These are just a few of the arenas in which retailers can compete into the future with a foundation of event streaming.

For more on why leading retailers and startups trust Confluent as an event streaming platform,

[download an overview.](#)



ABOUT CONFLUENT

Confluent, founded by the original creators of Apache Kafka®, pioneered the enterprise-ready event streaming platform. With Confluent, organizations benefit from the first event streaming platform built for the enterprise with the ease of use, scalability, security, and flexibility required by the most discerning global companies to run their business in real time. Companies leading their respective industries have realized success with this new platform paradigm to transform their architectures to streaming from batch processing, spanning on-premises and multi-cloud environments. Confluent is headquartered in Mountain View and London, with offices globally.

To learn more, please visit www.confluent.io

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