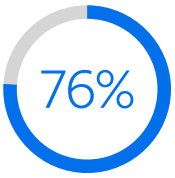
EXECUTIVE BRIEF

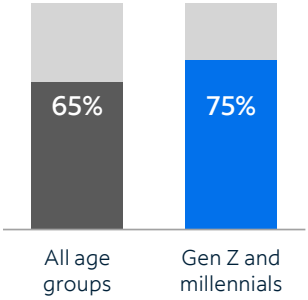
Spur digital growth with a connected retail ecosystem

Build a highly resilient networking architecture for the future



of retail executives said in spring 2024 that they planned to increase their company's technology budget over the next 12 months.[1]

Consumers who use mobile apps for in-store research[2]



133%

The amount by which business leaders expect to increase investment on digital customer engagement by 2027.[4]

Consumer expectations continue to grow, for both the online and the in-store experience. Any stoppage in service or availability can seriously impact the revenue and reputation of today's margin-sensitive retail businesses. Should a retailer experience an unanticipated setback or delay, they must be ready to respond quickly and decisively. Every website, every application and every brick-and-mortar store must be protected.

This unavoidable reality is placing considerable pressure on retailers to digitally transform their businesses. They must modernize and implement strategies and solutions that support and strengthen their resiliency and business continuity. Equipping the company to swiftly recover from disruptions is a vital feature of sustained growth and ongoing competitiveness.

The push for digital transformation

A retailer's competitive edge is centered on customer experience. Once a straightforward objective — offer superior service in the store — that goal now spans a range of locations, platforms and media, from the physical world to the digital one. Companies feel the urgency to find and implement new and better ways to enhance the retail customer experience. More than ever, this requires turning to innovative technology, including 5G, the Internet of Things (IoT), mobile edge computing, AI and machine learning (ML).

Consumers expect simplicity and convenience across their interactions with the brand. They increasingly look for cashless, frictionless transaction options such as buy online, pick up in-store (BOPIS); buy online, return in-store (BORIS) and buy online, pick up at curbside (BOPAC). Retailers feel the pressure. They understand they must deliver a seamless, secure experience tailored to the customer's preferences and buying history. Shoppers may also expect kiosks, tablets or touchscreens connected to inventory or point-of-sale (POS) systems that allow them to quickly find product pricing, location and availability details. Employees are likely to expect the same. Nearly 40% of top-performing retailers identify as a top-three challenge the fact that their existing technology is not up to the challenge of today's tech-savvy customers and employees.[3]

This push has helped grow investment in omnichannel capabilities, personalization and advanced analytics. As new technologies are integrated to address these needs, companies are also gathering ever-larger volumes of data. For example, the data moving through a POS system makes them a vital part of commerce and data management, underscoring the importance of high-performing networks. By unlocking the insights in this data, retailers can personalize customer interactions through targeted products, offers and touchpoints and post-sale support. Nearly half (48%) of consumers say they've made a repeat purchase from a company based on the level of personalization they received.[5]

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Increasing reliance on technology raises risk

Retail IoT, AI, e-commerce and connected supply chains are a few of the innovations that have helped usher in a new era of opportunity for retail. Greater efficiency and productivity, lower operational costs and enhanced visibility and intelligence account for just some of the benefits companies can achieve as they incorporate these solutions into their business. The technologies do not, however, come without compromises and challenges.

$3.48M

The average cost of a data breach for a retail organization as of 2024, an increase of 17% from the previous year.[6]

Growing cybersecurity vulnerability
The embrace of digital business and the migration to the cloud also increase brands' retail cybersecurity vulnerability. As companies transform and move beyond the safety of their private networks, they expand the available attack surface, affording cybercriminals more avenues to exploit. The results can be devastating: lost sales, imperiled data and damaged brand reputation. Research shows that protecting customer data is the top driver of brand trust across every generation.[7]

Distributed denial of service (DDoS) attacks
The retail industry also finds itself a common target of DDoS attacks, which can render applications as well as network and Web properties unavailable to employees and customers for hours, even weeks. This downtime can be costly to the brand's bottom line and reputation. Physical breaches at stores or warehouses can similarly halt business operations and do serious damage to the brand.

Customer personally identifiable information (PII) is the most common type of data stolen or compromised.[8]

The challenge of lean IT teams
Complicating matters further for retailers is the fact that their IT teams are increasingly overburdened and under-resourced. These same teams may also face an IT skills shortage that complicates efforts to integrate, manage and make the most of each new piece of technology. The solution or system becomes yet another line item in an already lengthy list of complex demands.

Three key steps to a resilient retail infrastructure

Given the challenges and risks that come with adopting new technology, retailers are making an investment in business resilience. To support the effort, many are turning to a managed network services provider for guidance and assistance. The right partner can help address three fundamental requirements to building a resilient retail infrastructure.

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More than half

of consumers say they would like to use virtual assistants, augmented or virtual reality, and AI applications as they shop.[9]

Step 1: Improve connectivity

Secure, reliable connectivity is crucial to realizing the many benefits offered by new retail technology. The right solutions make it easier to gather, manage, secure and analyze customer data, enabling companies to understand and respond to customer needs faster for a better experience. Improved connectivity also provides other benefits, from better inventory tracking to fewer billing problems and delays.

RETAIL CONNECTIVITY CONSIDERATIONS

High-speed internet	Availability is critical at all of a retailer's locations, and that connectivity must be backed by a network platform that ensures consistency and security at each location.
Scalability	Connectivity should be scalable to the retailer's growing needs and include the additional bandwidth support of a wireless internet solution for redundancy.
Secure private network	Installing a private network can ensure that all the brand's offices and locations are linked and communicating, an operational necessity in a fast-moving industry like retail.
Centralized control	Having a reliable network with a secure centralized platform can help retailers manage growth and lead to more effective use of cloud and AI services.
Security	Reliable protection is crucial to safeguarding sensitive information such as digital transaction and insurance processing data in the cloud and on private networks.
Single provider	Working with multiple providers and solutions can lead to confusion, high costs and interoperability issues. Opting for a single partner can deliver faster, more reliable connectivity and responsiveness.
Visibility	Full visibility into the network via a cloud-based portal that is easy to access from any mobile device permits brands to better track their data and its use, monitor traffic and strengthen security.
Software-defined wide area network (SD-WAN)	An SD-WAN can help accelerate connectivity by enabling a retailer's various locations to use the optimal network transport for specific types of traffic.
Fiber circuits	Fiber provides ready conduits for bandwidth expansion, helping companies more easily adapt as their business evolves and grows.
Ethernet circuits	On-site Ethernet can maximize coverage and create a better WiFi experience, minimizing the risk of downtime.
Smart cameras and environmental sensors	Track shipments, enhance on-site security and keep closer watch of inventory with cloud-based cameras and sensors.
Performance	WAN edge connectivity to public cloud platforms can provide secure, reliable performance over direct Ethernet connections.
Service-level agreements (SLAs)	Because reliability is critical, internet services should be backed by an SLA to protect against interruptions that can impact systems and processes and compromise the customer experience.

Step 2: Meet evolving IT demands

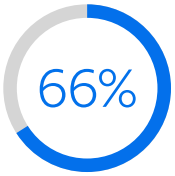
In an omnichannel world, retailers must manage a variety of pressures, some originating in their brick-and-mortar environments, others with their e-commerce customer experience. In 2024, e-commerce sales accounted for over 16% of total retail sales.[10] As the technologies and needs change, so too do the remedies and prioritization, requiring IT to be nimble and knowledgeable about the business and the solutions it relies on.

Less than 10%

of customers say they're satisfied with the current in-store shopping experience.[11]

IN-STORE RETAIL IT CONSIDERATIONS

Connectivity	Retailers require fast, reliable connectivity and bandwidth to deliver benefits including real-time analytics, improved application availability, and support for warehouses and distribution centers as well as any issues requiring 4G/5G and advanced WiFi.
Bandwidth	Support is necessary for in-store digital solutions and IoT devices, including alternative payment options. Sensors can automatically detect environmental events to minimize disruptions, reduce costs, maximize resources and meet sustainability goals, while smart cameras can help support loss prevention and track shopper behavior and store assets.
POS systems	Modern POS systems can boost operational intelligence by using real-time customer feedback mechanisms and predictive analytics to identify sales trends, understand customer behavior and gauge employee performance.
Security	Protecting the high volumes of customer data transmitted from in-store systems is central to maintaining trust. Brands must also ensure their compliance with the Payment Card Industry Data Security Standard (PCI DSS).
Scalability	Companies require the ability to scale their WAN to new branch locations in a matter of days versus the weeks it can take with legacy multiprotocol label switching (MPLS).



of consumers check product availability before going to a physical store.[12]

ONLINE RETAIL IT CONSIDERATIONS

Optimization	Retailers must optimize their IT and network planning to support the shift to cloud use cases and online retail.
Shopping experience	Deeper or faster interactions with customers and greater flexibility are necessary to enable the experiences customers demand.
Cybersecurity	Preventing theft of sensitive customer data and disruptions to websites and applications is vital for e-commerce cybersecurity. Compliance with PCI DSS guidelines is necessary for card and mobile app payment.
Adaptability	Brands need to adapt to the rise of virtual buying environments, direct-to-consumer online retailing and warehouse automation and fulfillment operations that require high network uptime and reliability.
Bandwidth	In today's increasingly multichannel environment, companies must size their bandwidth to meet seasonal and other predictable spikes in demand.

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Step 3: Reduce latency

Retail relies heavily on low-latency connectivity to support a host of operational and brand goals. Companies benefit from access to real-time customer trends revealed by IoT devices, including everything from foot traffic to buying trends and purchase patterns. A low-latency network is essential to maintaining real-time data analytics with AI and successfully implementing retail automation to streamline inventory tracking, reorder processes and demand forecasting.

RETAIL LATENCY CONSIDERATIONS

Connections	When stores can connect directly to the cloud or data center, data transit time is shorter and latency decreases, reducing overhead, eliminating bottlenecks and enhancing application performance.
Throughput	By enabling low latency and high throughput, retailers can integrate distributed workers or multiple clouds.
Security	Reduced latency supports real-time data analysis, which can help brands more quickly identify fraudulent transactions and avoid costly losses.
Speed and access	Minimizing delays in transactions and access to product information contributes to an improved customer experience, enhanced brand reputation and increased sales.
Data collection	Low latency helps retailers achieve real-time inventory management by enabling the collection of accurate, up-to-date product data for a more accurate picture of stock levels and more informed decision-making.
Customer engagement	With low latency, companies can draw on real-time data about customer behavior and utilize that information to create and deliver targeted campaigns, promotions and product recommendations based on demonstrated preferences.
Dynamic pricing	Managing latency can enable dynamic pricing that adjusts prices in real time based on changes in demand, growing revenue potential by better meeting the needs of customers.
Communications	Keeping latency low supports faster communication between retailers and their locations and suppliers, enhancing logistics and speeding response time.

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Spectrum Business® is your retail resiliency partner

Working with one trusted partner, retailers can build a highly resilient networking architecture for the future. Spectrum Business can help retailers move faster, reduce total cost of ownership, strengthen security and enhance the experience of employees and customers. Our reliable, secure and enterprise-grade services can be fully or co-managed to meet business requirements. The Spectrum Business portfolio combines managed services, enterprise cloud services, security services and connectivity services with the technologies retail organizations need to thrive, all backed by 100% U.S.-based support, available 24/7/365.

Learn more

1. "2024 Retail Technology Report: An Analysis of Market Trends, Buying Behaviors, and Future Opportunities," Total Retail and NAPCO Research, September 2024.
2. "2024 Consumer Study: Revolutionize Retail With AI Everywhere," IBM Institute for Business Value, January 2024.
3. Brian Kilcourse and Steve Rowen, "Why the Retail Store Won't Survive as a 'Tech-Free Zone,'" Retail Systems Research and Jumpmind, April 2024.
4. "The State of Customer Engagement Report," Twilio, 2024.
5. Ibid.
6. "Cost of a Data Breach Report 2024," Ponemon Institute and IBM Security, July 2024.
7. "The State of Customer Engagement Report."
8. "Cost of a Data Breach Report 2024."
9. "2024 Consumer Study."
10. "United States eCommerce Sales Growth (2018 to 2024)," SellersCommerce, March 3, 2025.
11. "2024 Consumer Study."
12. Ibid.

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