DIGITAL TRANSFORMATION AT THE EDGE

# Delivering Unsurpassed Retail Experiences

A technology guide from Zebra Technologies
and Aruba, a Hewlett Packard Enterprise company

## Technology is Shifting to the Edge

Technology is moving out of centralized data centers and closer to users on the frontlines — commonly referred to as "the edge." Devices at the edge, connected to the cloud or data center, are generating more data than ever before. This data is vital in improving operational workflows, making data-driven decisions and ultimately enriching the customer and associate experience.

# Adapting to a Changing World

The retail world is undergoing a profound shift. Today's ever-connected shoppers' expectations for 24/7 search and purchase as well as near instantaneous fulfillment have upended traditional business models. At the same time, the COVID-19 pandemic has wreaked havoc on global supply chains and intensified pressure on already stressed retailers striving to better serve rapidly changing shopping demands.

Ecommerce purchases began exploding in the first half of 2020, with consumers spending 30% more online than they did in the same period in 2019.[1] This trend shows no signs of abating. As consumers buy more online, they're also expecting faster delivery. In fact, one survey showed that a whopping 90% of consumers seek free one-day delivery.[2] Consumers are also increasingly taking full advantage of newer fulfillment choices such as buy online, pick up in store (BOPIS). In fact, U.S. click and collect sales are estimated to reach $58 billion in 2020, up 60% from 2019.[3]

But even as online sales explode, retailers cannot afford to abandon their brick-and-mortar operations — particularly given that ecommerce sales worldwide are still projected to represent a mere 22% of total retail sales in 2023.[4] Furthermore, 65% of consumers surveyed prefer to shop with online retailers that also have brick-and-mortar locations.[5]

Merchants are looking for help in adapting to the shifting retail environment — and are turning to technology to heighten personalization, enhance the online and in-store shopper experience, support better omnichannel fulfillment, reduce operational costs and increase sales.

## Choosing the Right Technology Solution

Unfortunately, the reality is that all technology solutions are not created equal. And choosing the right edge devices and technology infrastructure is essential. Because a technology solution that does not support the high quality of service, security and applications that retail operations need can negatively impact customer service and operations instead of improving them.

That's why Zebra Technologies and Aruba have worked together to build a better edge technology solution for retailers — one that delivers the accuracy, visibility, context, quality of service and operational insight required to succeed.

[1] Digital Ecommerce 360, "Charts: How the Coronavirus is Changing Ecommerce," 25 August 2020.

[2] Oracle, "Retailers and Customers Don't See Eye to Eye on Returns or In-Store Experiences," 15 October 2019.

[3] Statista, "Buy Online, Pick Up In-Store Sales Growth in the U.S. from 2018 to 2022," 8 July 2020.

[4] Statista, "Worldwide E-commerce Share of Retail Sales 2015-2023," 27 August 2020.

[5] Zebra, "The Essential Shopper Experience: Safety, Speed and Convenience," 2020.

# Building Better Retail Operations

Frontline workers are increasingly relying on mobile computers and high-speed wireless networks to improve productivity, optimize the shopper experience and increase satisfaction. These technologies are delivering unprecedented operational benefits and business intelligence across the retail ecosystem.

On the sales floor, mobile devices, sensors and network connectivity are helping associates perform real-time stock checks and answer product questions. In the back room, this technology is found again helping workers quickly restock inventory, process returns, and pick, pack and ship click and collect orders. Finally, the devices and networks are helping retailers better manage tasks, streamline workflows, enhance customer engagements, and enable seamless staff communications.

When it comes to fulfillment, technology can automate warehouse operations and improve efficiency in labor-intensive processes like picking, sorting and replenishing. And wireless-enabled inventory management solutions that deliver 93% or greater accuracy can give retailers, warehouses and fulfillment centers visibility into the exact location of each item they sell. This allows these organizations to support faster and more cost-effective fulfillment using new strategies such as fulfilling online orders using micro-fulfillment centers and or store inventories.

Autonomous mobile robots (AMRs) are found more and more in the retail ecosystem. They help ensure shelves are always stocked, goods are properly priced and store associates are better utilized. AMRs also work safely alongside warehouse workers, forklifts and other material handling equipment to transport materials from picking areas to loading zones eliminating travel time for human workers.

Companies throughout the retail ecosystem are also using prescriptive analytics to improve both operations and customer service. Prescriptive analytics gives organizations unprecedented visibility into their business processes by evaluating the operational data collected by edge devices and sensors at the network edge. The data is sent via the IT network to the cloud or data center, where prescriptive analytics are performed to help companies reduce shrink and improve key business processes ranging from inventory management and fulfillment to in-store customer service, sales and design.

[6, 11]  Zebra, "New Zebra Warehouse Solution Increases Worker Productivity up to 24 Percent," 3 December 2019.
[7, 8, 9, 10]  Zebra, "ZPA Overview," 2020.

## Tech Elevates the Shopper Experience

According to Zebra's 13th Annual Shopper Vision Study, more than 70% of retail associates reported that technology plays a vital role in helping them improve the shopper experience. Respondents rated the top shopper benefits realized in using mobile devices:

- **55%** helped find a correct price
- **53%** assisted in finding a product
- **49%** aided in answering a shopper question
- **42%** saved the customer time
- **42%** saved the customer money

## Tech Delivers Operational Benefits

Zebra technology also provides retail organizations with multiple benefits beyond customer service, including:

- Picking as many as **24%** more orders per day without hiring additional staff[6]
- Improving inventory accuracy up to **93%**[7]
- Boosting revenue by **16%** by increasing online basket size[8]
- Improving loss and damage margins by **3.7%** in just a year[9]
- Reducing grocery waste up to **19%**[10]
- Training new staff up to **90%** faster[11]
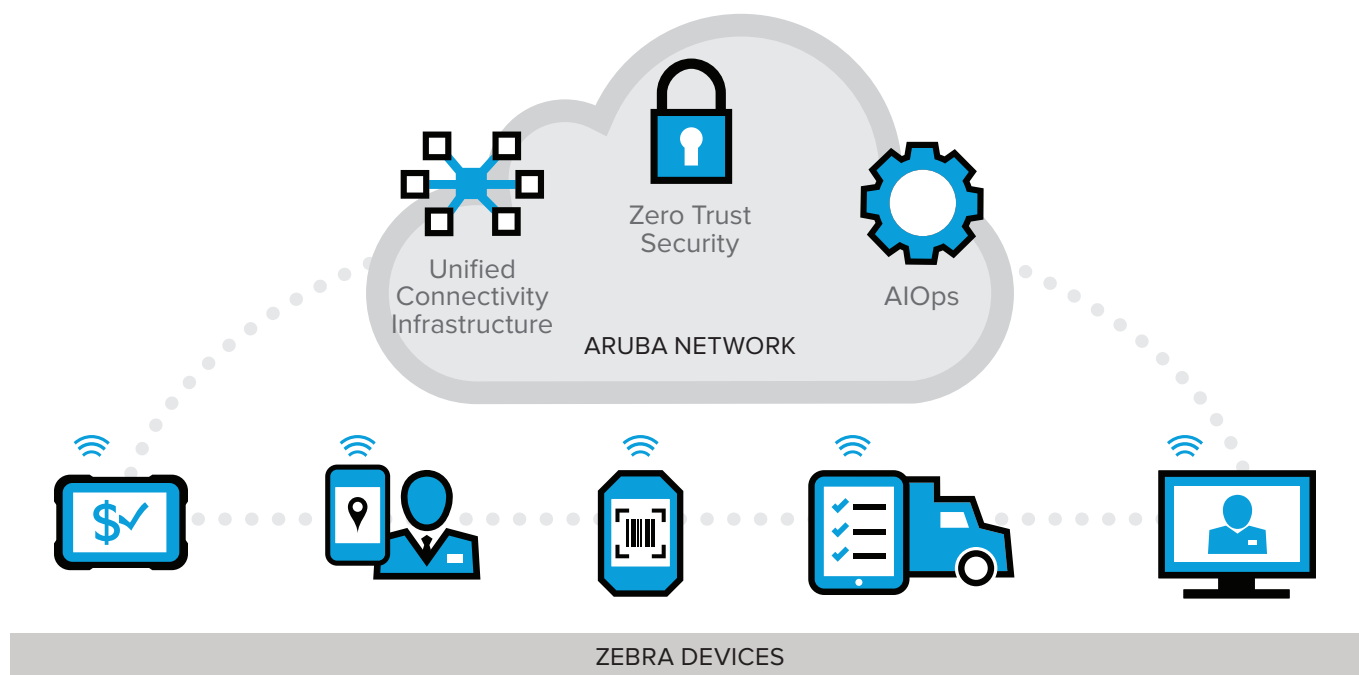
# The Power of Collaboration

Zebra and Aruba have teamed together to create a better edge network – a network that leverages both Zebra's frontline devices and Aruba's Edge Services Platform, a combination of unified connectivity infrastructure, zero trust security, and AIOps. Both are specifically designed to meet the evolving needs of retail organizations. The integrated Zebra and Aruba network makes it easy for retail stores, warehouses and fulfillment centers to cost-effectively deploy and manage a wide variety of applications that improve operational efficiencies and the shopper experience.

## Zebra and Aruba: Working Together to Deliver State-of-the-Art Retail Technology

One of the newest developments in the integrated Zebra and Aruba solution is support for the new Wi-Fi location standard, 802.11mc. This new method of accurately locating Wi-Fi devices depends on participation and collaboration from both the infrastructure and mobile device providers. Zebra and Aruba have integrated the new standard into their respective products and worked together to validate interoperability.

The integrated Zebra and Aruba solution allows retailers to precisely pinpoint the location of a mobile device or wireless IoT sensor within one to two meters. With this increased accuracy, retailers can improve staff management and create more personalized shopper experiences for every customer on every visit. And on the fulfillment side, 802.11mc enables warehouse and fulfillment center managers to quickly and cost-effectively pinpoint the presence of workers and redeploy them based on real-time needs.

So, whether you are in a warehouse, a distribution center or a retail store, being well-connected with visibility into your assets, associates, and processes is crucial to having an integrated, productive, profitable, and reliable supply chain.



Unified Connectivity Infrastructure

Zero Trust Security

AIOps

ARUBA NETWORK

ZEBRA DEVICES

# The Top Seven Capabilities
# Every Retail Organization Needs

Supporting the latest Wi-Fi location standard is just one example of how Zebra and Aruba are working together to provide retailers, warehouses and fulfillment centers with state-of-the-art communications technology that best meets their specific needs. The integrated Zebra devices and Aruba network offers a secure, trusted IT edge solution with many benefits.

**1**    **Superior Network Performance Starting on Day One**

**2**    **Unbeatable Quality of Service – with Fewer Dropped Connections**

**3**    **More Efficient and Secure Data Transfer**

**4**    **Proactive Troubleshooting for Worry-Free Wi-Fi**

**5**    **Plug-and-Play Operations**

**6**    **Proven Interoperability**

**7**    **One-Stop Customer Support**

# 1

## Superior Network Performance Starting on Day One

One of the biggest challenges when deploying a communications IT network is ensuring the network and the devices are configured to provide optimal performance. Zebra and Aruba have created and validated detailed reference designs that enable IT organizations to quickly and easily configure the Aruba network and the Zebra devices to support specific applications. This means that users experience the best possible performance right at the start.

# 2

## Unbeatable Quality of Service – with Fewer Dropped Connections

Ensuring seamless, secure and high-quality voice communications for workers on the retail floor, in the back room or in the warehouse is a top priority. Zebra mobile devices and the Aruba network work together to provide high-quality voice service at all times. The Aruba network uses deep packet inspection to ensure that voice communications are flagged and given priority over other traffic, such as large file downloads, allowing the network to easily support hundreds of devices at the same time without impacting quality. In addition to voice, the Aruba network can be configured to prioritize other critical applications to ensure essential communications always get through without compromising performance.

Zebra devices and the Aruba network also support seamless roaming to minimize dropped connections. Aruba's ClientMatch technology ensures a Zebra device always connects to the closest or optimal Aruba access point. This is especially important in warehouse environments, where some inventory shipments – such as metal cans storing food or shipments of liquids like motor oil – can cause increased absorption or reflection of the wireless signal and thus affect its strength. In addition, employees in both retail and warehouse environments often have to enter log-in credentials to complete tasks such as accessing inventory data. When dropped connections require employees to reenter their log-in credentials, valuable productivity is lost.

Zebra and Aruba have also worked closely together to ensure the interoperability of Aruba's wireless network infrastructure and Zebra's WorkForce Connect (WFC) application. WFC is a push-to-talk, messaging and voice client solution that allows mobile computers to support secure voice and text communications for both private and group interactions as well as image transfer. The Aruba network prioritizes WFC traffic to ensure the user experience is optimized across many different applications. For example, sales associates can use WFC to quickly call a group of associates asking for extra support or send images to support applications such as returns processing.

# 3
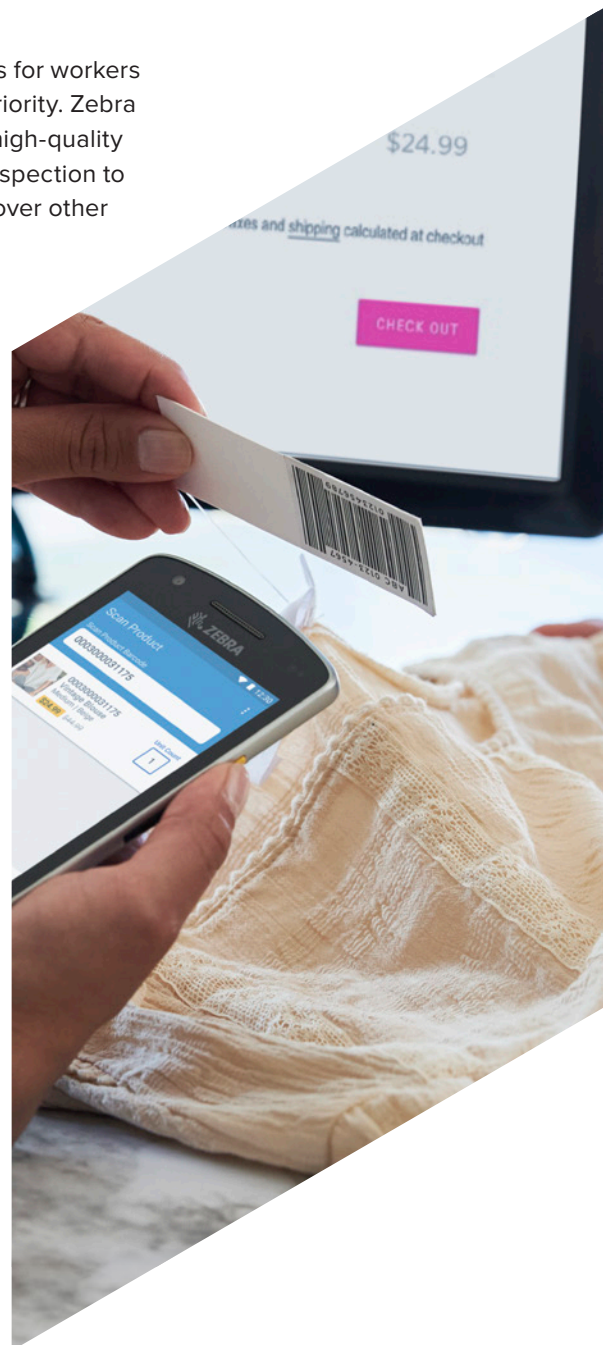
## More Efficient and Secure Data Transfer

For retailers, ensuring the security of payment transactions is a must. According to the Ponemon Institute, the cost of a data breach for retailers is $1.84 million. On average, it takes approximately 228 days to identify a breach and 83 days to contain the breach.[12] Not to mention the impact on your customers and brand.

When it comes to wireless IT communications networks, security must encompass three key areas: data on the device, data on the network and data that travels between the device and the network.

• On the device side, Zebra's Mobility Extensions allow retailers, warehouses and fulfillment centers to customize a device's security features to provide more robust data protection than standard Android devices.

• As data travels between the device and the network, Zebra and Aruba work together to protect data using the latest 802.11 security standard, WPA3.

• Once the data reaches the network, Aruba provides an additional level of security with its unique feature called Aruba Dynamic Segmentation.

Dynamic Segmentation isolates traffic received from both wired and wireless devices and sends it via specific "tunnels" to eliminate crosstalk and ensure more sensitive data traffic remains secure. For instance, traffic containing credit card data can easily be separated from more general traffic, such as associate communications, inventory checks or data feeds to digital displays. Retailers can ensure PCI compliance by segmenting traffic in their networks to protect cardholder data. In addition, access to data can be restricted to ensure that only authorized personnel can access cardholder data or other sensitive information. This approach keeps data more secure and enables easier traffic prioritization.

In addition to supporting WPA3, the combined Zebra and Aruba network also employs a Zero Trust approach to security. Zero Trust offers a more robust way to authorize and monitor devices both inside and outside the network perimeter. Using Zero Trust security, a device must always first obtain authorization before accessing the network. After authentication, that device is continually monitored to ensure it is "behaving" appropriately and only accessing authorized data.

[12] Digital Commerce, "Data Breach Costs Continue to Climb," 25 July 2019.

# 4

## Proactive Troubleshooting for Worry-Free Wi-Fi

The combined Zebra and Aruba network offers something that no other communications IT solution delivers: unparalleled insight into how the device, applications, and network are performing. For instance, say a warehouse associate is having trouble accessing data in the warehouse management system (WMS) or store associates are struggling to access the inventory management system. With most vendors, IT managers would have no way to tell if the issue was caused by the application, the network or the device.

With Aruba's cloud-based User Experience Insight (UXI), IT managers can quickly diagnose the problem by remotely viewing data captured by the network. The UXI solution also allows IT managers to proactively identify trends that may indicate a performance problem. For example, the software might show that accessing WMS or inventory management data is now taking 20% longer than yesterday. Using the software, the IT manager can quickly see that a problem exists and work to resolve the issue before a service ticket is opened, thereby ensuring end users have more uptime.

In addition, the latest Zebra mobile devices come preloaded with the Worry-Free Wi-Fi application that ensures every associate has the best possible Wi-Fi connection, every minute of every shift. This application enables IT staff to monitor how data and voice packets roam and transmit across the wireless network. Optimal response times, unmatched roaming performance, plus exceptional voice quality and diagnostics, are the key ingredients for increased workforce productivity.

Finally, Aruba's SD-WAN solution allows retail organizations to easily manage a high-performance network across hundreds of locations, including stores, warehouses, corporate headquarters and home offices.

## 5   Plug-and-Play Operations

The combined Zebra and Aruba communications infrastructure is also designed to allow retailers to move wired devices such as scanners, printers and point-of-sale equipment from one location to another without any rewiring. Users can easily relocate a checkout station, for example, from the front of the store to the back without any manual modifications to the network. The concept of "colorless ports" – where it doesn't matter which physical network port the device is connected – dramatically reduces the cost and complexity of network adds, moves and changes.

## 6   Proven Interoperability

Zebra and Aruba customers can also rest assured knowing that the integrated network is designed and tested to deliver superior performance starting on day one. Before introducing any new retail solution, Zebra and Aruba test and validate the interoperability of each new product in the lab before it is released. This knowledge sharing also allows the partners to quickly replicate a customer issue in the lab for faster troubleshooting.

## 7   One-Stop Customer Support

The relationship between Zebra and Aruba extends into customer service as well. Many times, when a user reports a service issue, the network provider will blame it on the devices and the device manufacturer will blame it on the network infrastructure. But Zebra and Aruba give a whole new meaning to the phrase "one throat to choke." When an unexpected network issue occurs, IT managers can contact either company and feel confident that Zebra and Aruba will work together to resolve the problem. The insights and lessons learned gained from these experiences are integrated into best-practice guides and reference architectures.

### Solving an Age-Old Problem

All too often, infrastructure and device manufacturer roadmaps conflict, causing delays in end-user availability. Features are sometimes available on the device or infrastructure, but not on both, eliminating the possibility of implementing new features quickly. That simply isn't the case with Zebra and Aruba, where product roadmaps are carefully aligned to create a superior return on investment.

**BETTER TOGETHER**

# Building Next-Generation Retail Technology Solutions

The retail world is rapidly evolving, and savvy retailers, warehouse operators and fulfillment companies are arming themselves with the right tools to adapt in today's changing retail landscape – made even more difficult by the impact of COVID-19 and its long-term implications. A high-quality communications IT network – one that is reliable, intuitive, easy-to-manage and secure – can help companies not only survive but thrive in the fast-changing retail world.

The Zebra and Aruba alliance eases the burden on companies operating throughout the entire retail ecosystem. Collectively, the alliance takes the guesswork out of technology decisions and gives retail organizations the ability to deploy best-in-class devices and network equipment while still gaining all the benefits of a single-vendor solution, including high-quality service, superior roaming, better security, easier setup and troubleshooting, guaranteed equipment compatibility and better customer care.

## ABOUT ZEBRA

Zebra builds enterprise-level data capture and automatic identification solutions that provide organizations with enhanced operational visibility, empowering frontline workers to achieve a performance edge.

## ABOUT ARUBA

Aruba delivers innovative solutions that harness data at the Edge to drive powerful business outcomes. In retail, this means providing a network that supports next-generation fulfillment operations and superior customer experiences.

For more information on how Zebra and Aruba can help your retail organization digitally transform and leverage the edge to deliver operational efficiencies and improve the shopper experience, visit **www.zebra.com** or **www.arubanetworks.com**.

aruba

a Hewlett Packard Enterprise company

3333 Scott Blvd
Santa Clara, CA 95054
www.arubanetworks.com
Phone: 1 408 227 4500

**ZEBRA**

NA and Corporate Headquarters  |  +1 800 423 0442  |  inquiry4@zebra.com