aruba

a Hewlett Packard
Enterprise company

ARUBA FOR RETAIL

Create a Next Generation Digital Store Experience

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Challenges Confronting Retail Stores

Despite offering unique advantages, retailers with brick-and-mortar locations are under pressure to maintain and increase profitability while keeping payroll costs contained. While online competition steadily strengthens, retailers face a number of significant challenges to the revenue and cost expectations of investors or owners:

- **Secure payment solutions**—Ensuring the security of payment transactions is a must. Retailers who accept payment cards must comply with payment card industry (PCI) security standards. A proliferation in point-of-sale solutions and vendors complicates the need to protect customer payment information and thereby protect the retailer. According to the Ponemon Institute (2017 Cost of Data Breach Study), the average cost of a data breach is $3.62M. With this in mind, risk tolerance of a single breach should be very low. Retailers must be certain their network infrastructure is capable of securely supporting the payment solution they implement, ideally without adding costly in-store network hardware or complicating network management. Retailers must also be able to determine if PCI compliance is adversely affected by network changes or service interruptions.

- **Upgrade the shopping experience**—Online shopping brought an unparalleled experience to shoppers and made obsolete the traditional in-store shopping experience. According to Forrester, when the majority of online shoppers visit physical stores, they use smart phones while in-store in order to compare prices, look up product information and reviews, and find coupons. By failing to provide shoppers with a connected in-store experience, retailers miss sales opportunities and the chance to create and retain customer loyalty.

- **Grant appropriate access**—As reported by Small Business Trends in 2016 (Yes, There Are Benefits of Offering Free WiFi), retailers offering shoppers free Wi-Fi experience increases in foot traffic, visit length, and money spent. Meanwhile, many retailers are adopting mobile point of sale (POS) devices for sales associates, who also need online access to inventory, training materials, and company policies. Store managers require access to payroll and HR systems, in addition to inventory and other systems critical to store operations. Retailers simply must be certain that all devices and people accessing the in-store network are granted the access appropriate to their role.

  Additionally, different stores in a company may require different access policies. This challenge can extend to having a smaller store operating within the premises of a bigger store, such as a café inside a retail store. How does a retailer provide network services to the smaller store without adding more network gear and IT complexity, even as they stand fast on security, regulatory compliance, and quality of service?

- **Do more IT without adding IT staff**—Doing more with less has arguably had a greater impact on IT than other operational departments in many companies and industries. Retail IT departments, which rarely have full-time in-store technicians, are certainly no exception. Because IT operations have become more strictly centralized, retailers grow by adding more and more stores. IT staff need ways to speed up deployment of new stores while also incorporating more IT services, such as unified communications, into store operations.

On-site IT visits are costly and can be time-consuming. Even worse is the impact on store revenue due to lengthy outages of infrastructure.

While retailers scale IT capacity much faster than they scale IT staffing, they need more efficient IT operations to minimize the impact of outages.

- **Onboard new hires more efficiently**—Building and retaining a talent pool is an ongoing challenge. After retailers hire, onboarding new associates requires time and money. As reported by the Wall Street Journal (Retail's Other Problem: Too Few Clerks in the Store), across the retail industry companies employ fewer sales associates, placing greater pressure on store management to ensure the effectiveness of sales associates. Stores need solutions that help sales associates to be highly productive and self-reliant.

Aruba Retail Solution

Built with the architectural approach of Aruba's Software Defined Branch solution, the Aruba retail solution is tailored to the challenges confronting retail stores.

BUILD, MONITOR, AND AUDIT A SINGLE NETWORK

Using Aruba products and services, retailers can deploy a single network infrastructure that meets PCI requirements. In stores, one physical network of Wi-Fi access points, switches, and branch gateways can be efficiently deployed and effectively managed to fulfill PCI requirements. The same network provides the foundation for all of the answers delivered by the Aruba retail solution, elegantly avoiding additional hardware.

Aruba network management solutions provide ongoing monitoring with both scheduled and on-demand PCI audit reports. For regulatory purposes, Aruba ensures the retailer can always determine if their networks are in compliance. Retailers can also create the regular reports necessary to document that proper safeguards are consistently in place.

Aruba Central monitoring technology automatically detects a variety of network issues, such as rogue wired or wireless clients, and can notify IT staff proactively. This ensures that even when IT workers aren't actively watching the network, issues critical to securely operating payment systems come to the attention of the right people, right away.

PROVIDE A COMPELLING CUSTOMER NETWORK

Aruba helps retailers deliver an enhanced shopping experience to customers. Aruba wireless technology provides a *customer engagement network*, an infrastructure that helps customers, stores, and associates interact in order to gain and retain customers, improve the in-store experience, and drive sales.

Aruba wireless access points (APs) are the foundation for a strong customer engagement network. Ensuring secure Internet access via Wi-Fi enables customers to use smart devices in stores. Because many retailers significantly invest in mobile apps to bridge their brick and mortar and online properties, they can leverage high quality Wi-Fi connectivity to provide interactive shopping tools and dynamic product information that help customers shop more confidently and efficiently.

With the integration of Bluetooth Low Energy (BLE) technology in its APs, Aruba wireless networks further enhance the in-store experience. Through apps on customer's smartphones or on nearby digital signage, the network can deliver content relevant to each customer. From sales campaigns to turn-by-turn navigation assistance through a store, customers have an elevated in-store experience, which helps them quickly find what they want and keeps them coming back.

Store operations benefits from the additional insights drawn from customer devices within a store. Collected information helps with staffing decisions and enables management to measure the impact of merchandising changes.

PROVIDE THE RIGHT ACCESS

Aruba enables retailers to provide the correct access for users and devices. The network discerns the type of device requesting a connection and ensures that the correct access policy is applied to network sessions with the device. Whether the device is a customer's mobile device, a sales associate's mobile POS device, an on-site technician's laptop, or a desktop computer used by store management, Aruba technology ensures that proper access is granted.

Because the types of access permissible changes from store to store, Aruba makes it easy to ensure the right access policies are available and enforced for each store. Even better, Aruba provides centralized management of policies, making updates to policies easy to do and effortless to distribute to all stores.

If bigger stores include smaller stores run by other companies—a scenario often called *store in store*—the Aruba retail solution ensures appropriate network access for the store within the larger store is available and secure—never compromising security. A store within a store can have a logically separate wireless network with its own set of security policies that are appropriate to the operational requirements of the smaller store.

LEVEL UP IT TOOLS

With Aruba, retailers can streamline the implementation of new wired and wireless networks, such as deploying them at new stores or replacing aging or inadequate networks. The on-site work can be as simple as the physical installation of network switches and wireless APs. With centralized network management, Aruba switches and wireless APs receive their configuration automatically, ensuring that from the start, all security and access policies are enforced.

If device maintenance leads to the replacement of a switch or AP, the only work required is swapping out the physical device. Because a store can rely on Zero Touch Provisioning to configure the replacement device, an associate or manager can accomplish the swap without scheduling an on-site technician.

Aruba branch gateways offers excellent wide-area network management and automatic response to changes in WAN link quality. In-store networks can have the resilience and reliability of hybrid WANs, where links between store and headquarters or store and cloud services are securely made over the Internet or LTE cellular data networks. If legacy MPLS links are available, branch gateways can manage them as part of the hybrid WAN.

SUPPORT SALES ASSOCIATES

The Aruba retail solution supports better tools for the job. Retailers can count on the wireless network to support many types of devices that aid the work of sales associates and store management. Wireless inventory scanners, voice-over-WLAN intra-store communicators, security cameras, footfall counters, electronic price tags, and emerging IoT solutions can all depend on the Aruba retail solution for reliable and secure connections.

Sales associates can rely on mobile devices to help with inventory-related queries and with finding a product quickly without interrupting other associates or wasting time physically searching the store. When queries find that items are out of stock, sales associates can place ship-to-home orders for customers.

Armed with mobile POS devices, sales associates can accept payment card transactions securely and in full compliance with regulations, from anywhere on the in-store wireless network. Customers no longer need to stand in line at cash registers.

With role-based access, sales associates are permitted access to specific store information, training, standard operating procedures, and other essential materials

Solution Components

The Aruba retail solution relies on several essential components that provide in-store networks with infrastructure, management, security, and analytics.

INFRASTRUCTURE

Switching

Aruba switches provide the performance and reliability required for an Aruba retail network solution. Common across the switch series are the following key features:

- **Flexible management options**—Aruba switches have multiple management options, via an on-premise appliance or virtual machine with Aruba AirWave or with Aruba Central, Aruba's cloud based management solution.

- **Power over Ethernet (PoE)**—The installation of APs requires only connecting the network cable because the AP draws power from the Aruba PoE switch, rather than a separate power supply.

- **Zero-touch provisioning (ZTP)**—Aruba switches support ZTP, which eliminates manual configuration when deploying or swapping a switch for maintenance. With ZTP, switches can use information provided via DHCP in order to contact a network or cloud-based service for its configuration—all without an on-site or remote technician.

- **Aruba ClearPass OnConnect**—Aruba switches use OnConnect in order to provide network-based admission control for wired ports via SNMP for new wired connections and to configure the port using centralized security policies.

Aruba offers several series of switches for the retail solution:

- **Aruba 3810 switch series**—This Layer 3 stackable series of switches provides high availability, non-stop switching and routing in order to ensure the stability of an in-store network. 10 GbE and 40 GbE ports support high-performance wireless aggregation. The series is optimized for OpenFlow, enabling software-defined networking (SDN) for improved network performance and management.

- **Aruba 2930F switch serie**s—This Layer 3 series of switches offers virtual switch stack capabilities and 1 GbE or 10 GbE uplinks. A variety of port options are available, with up to 48 ports in a single chassis. This series supports OpenFlow, enabling SDN for improved network performance and management.

- **Aruba 2930M switch series**—This Layer 3 series of switches provides the line speeds and reliability of a physical switch stack and supports 40 GbE uplinks and up to 48 ports. This series supports OpenFlow, en-abling SDN for improved network performance and management.

- **Aruba 2530 switch series**—This Layer 2 series of switches offers a choice of 8-, 24-, and 48-port models with Gigabit or Fast Ethernet ports, optional PoE+, and optional 10 GbE uplinks.

Wi-Fi

Aruba wireless APs are rich with features required for a forward-thinking, in-store network. The following technology is supported in all APs in the Aruba retail solution:

- **802.11ac Wave 2**—Wave 2 helps a network operate as fast as possible, benefiting associates and customers alike. Beginning with Wave 2, APs can to transmit to multiple clients at the same time, enabled by multi-user multiple-input and multiple-output (MU-MIMO). An additional spatial stream boosts performance up to 33% over 802.11ac Wave 1. Wave 2 APs are ready to make use of additional channels when the channels receive government approval.

- **Aruba Activate**—With this technology, on-site technicians installing APs need only to plug them in. Each AP establishes a secure connection to Aruba Active over the Internet and automatically retrieves its configuration. This simple workflow greatly accelerates the setup of a wireless LAN at stores, reducing on-site time for installers and eliminating manual configuration errors.

- **Aruba Instant**—Instant mode provides a single point of management for up to 128 APs in a LAN deployment. After you configure the first AP on the network, that AP then becomes the master and automatically distributes the network configuration to other APs in the store. If the master AP becomes unavailable, another AP in the LAN automatically assumes the role, preventing any network downtime.

- **Management**—Aruba APs are managed with on-premise and cloud-based management solutions. Aruba Central provides the ubiquity and low-maintenance benefits of cloud-based management. If an on-premise solution is preferred, Aruba AirWave supports the needs of the Aruba retail solution.

- **Bluetooth**—Aruba APs in the retail solution have a built-in BLE radio. This enables the AP to support advanced location services such as indoor way finding and proximity-based push notification capabilities, via Aruba Meridian. The built-in BLE radio also enables the AP to support the management of battery and USB-powered Bluetooth beacons.

- **Asset tags**—BLE radios in Aruba APs can detect the location of nearby Aruba Tags. This supports location services, enabling sales associates to find products for customers or to locate store-owned resources such as ladders or carts.

- **Presence Analytics and Analytics and Location Engine (ALE)**—Aruba APs support the on-premises and cloud-based Aruba technologies for analyzing the traffic patterns of customers passing by or entering a store. Presence analytics is provided with cloud-based Aruba Central. ALE is an on-premise solution.

The range of the Aruba 802.11ac Wave 2 AP series ensures a fit for the performance of an in-store network of any size, demand, and environment. All models support concurrent dual-band operation at 5 GHz and 2.4 GHz, with the 340 Series providing support for dual concurrent 5 GHz operation.

Features	300 series	310 series	330 series	340 series	360 series
Maximum wireless data rate	1.3 Gbps	1.7 Gbps	1.7 Gbps	2.2 Gbps	1.3 Gbps
MU-MIMO support (5 GHz)	3x3:2	4x4:4	4x4:4	4x4:4	2x2:2
Wired network Interfaces	One 1 GbE	One 1 GbE	One 5 GbE, One 1 GbE	One 2.5 GbE, One 1 GbE	One 1 GbE
Environment	Indoor	Indoor	Indoor	Indoor	Outdoor

Branch Gateway

The branch gateway is the in-store appliance that connects to WAN uplinks. The gateway functions include stateful firewall, web content classification, hybrid WAN connectivity, IPsec VPN, QoS, and WAN path monitoring and selection. The branch gateway is a software function that runs on the Aruba 7000 series appliances.

Features	7005	7008	7010	7024	7030
Maximum AP licenses	16	16	32	32	64
Maximum concurrent users/devices	1,024	1,024	2,048	2,048	4,096
Maximum VLANs	4,094	4,094	4,094	4,094	4,094
Active firewall sessions	16,384	16,384	32,768	32,768	65,536
Concurrent GRE tunnels	256	256	512	512	1024
Concurrent IPsec sessions	512	512	1,024	1,024	2,048
Aruba Mobility Access Switch tunneled-node ports	512	512	1,024	1,024	2,048
Firewall throughput	2 Gbps	2 Gbps	4 Gbps	4 Gbps	8 Gbps
Encrypted throughput (3DES, AES-CBC)	1.2 Gbps	1.2 Gbps	2.4 Gbps	2.4 Gbps	2.4 Gbps
Encrypted throughput (AES-CCM)	1.6 Gbps	1.6 Gbps	3.6 Gbps	3.6 Gbps	4.4 Gbps
Form factor/footprint	Compact	Compact	1 rack unit	1 rack unit	1 rack unit

NETWORK MANAGEMENT WITH ARUBA CENTRAL

Strong network management solutions are a must for the IT group of any retailer. Aruba Central is a cloud-based network-management solution, available on a subscription basis with no capital expenditure required. Aruba Central can manage the Aruba branch gateway, Aruba Instant APs, and wired switches. This always-on, high-performance service provides essential features for retail network management:

- Extensive template use in order to allow simple store on-boarding

- Automatic WAN-overlay VPN configuration, using software-defined WAN technology in order to ensure secure HQ-to-store connectivity

- Network operations center dashboards for geographical, store, and logical topology views—supporting swift identification of network health issues

- Automatic identification of rogue APs or interfering APs, including policy-based remediation

- Application visibility and control, providing insight to help define and enforce access policies

- Mobile-friendly guest access portal, customizable with your logo, welcome message, and terms and conditions

- Zero-touch provisioning, simplifying the setup of Aruba APs and switches shipped directly to stores

- Reporting, both on-demand and scheduled, including PCI reports
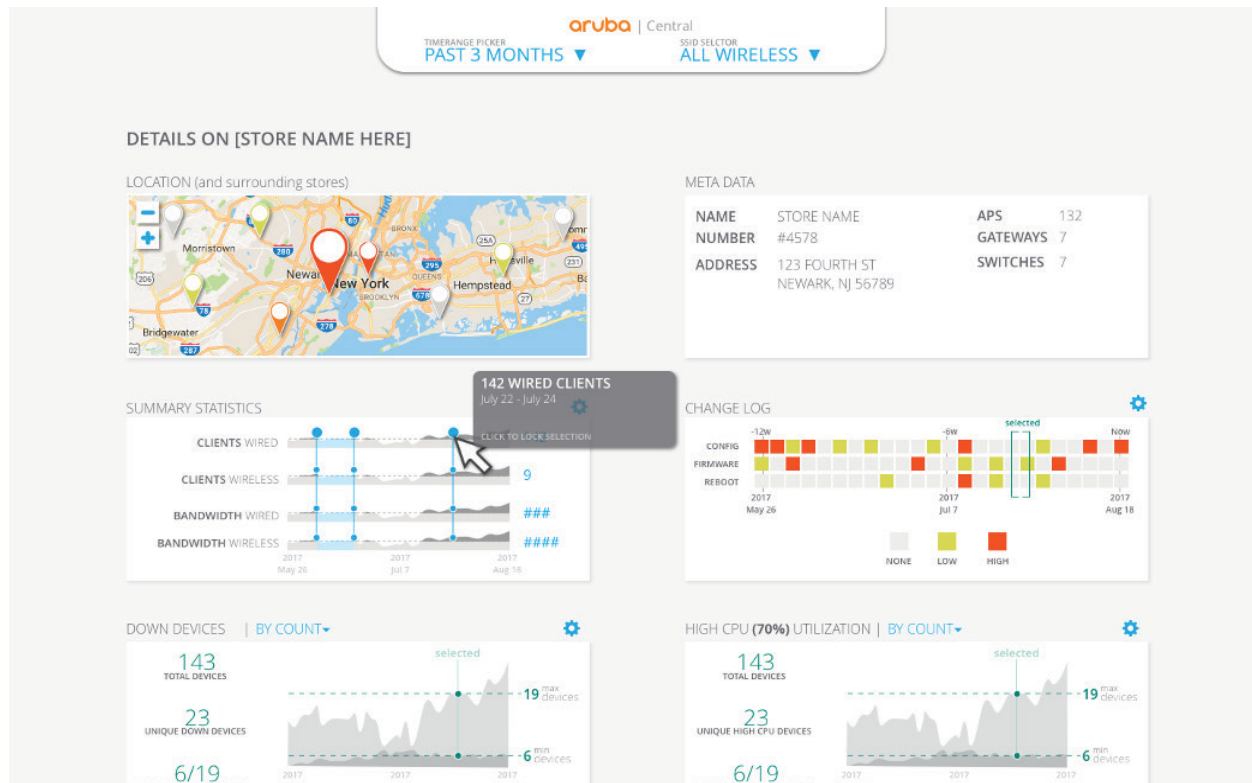
With cloud management, Aruba also provides Activate, a cloud-based means of provisioning Aruba Instant APs easily and swiftly. New APs connecting to an in-store network for the first time connect securely to Activate over the Internet and retrieve their configuration.

SECURITY

Aruba ClearPass is the key security component in the Aruba retail network solution. ClearPass is a policy-based security service that enables retailers to understand what is on their wired and wireless networks and to automatically enforce policies. The capabilities of ClearPass allow a single in-store network to support mobile POS devices in order to securely process payment card transactions, sales associate access to essential resources, store management access to corporate systems, and customer access to the Internet.

Access Control

ClearPass provides device and user discovery, role-based access control, attack detection, and adaptive response.

Using 802.1X technology, ClearPass can identify and profile all devices at the point of connection and then assign role-based policies, such as what applications the device can connect to and when it should be allowed to connect. ClearPass makes use of an endpoint repository for profiling and fingerprinting, in order to identify devices and thus enable enforcement of the applicable policy.

When a user accessing the network is identified as a customer, sales associate, store management, business partner, or other role, ClearPass applies an access policy that ensures the user is permitted access only to the network resources allowed for the user's role.

For wired port security, Aruba OnConnect provides network access control. OnConnect relies on SNMP to pass MAC address notifications to ClearPass and to enable ClearPass to block access on a switch port, if needed.

For known, trusted devices, such as mobile POS devices, Aruba OnGuard ensures the security posture of each device is in compliance with security policy. When a device is out of compliance, OnGuard provides access from the device only to remediation resources, such as a malware signature update service.

Guest Access Portal

ClearPass supports a guest access portal, allowing customers to register and to use social logins, such as Facebook or Twitter. The portal can be customized in order to support the retailer's own branding. The steps that customers must take in order to receive wireless access are also customizable, giving retailers control of what information, if any, a customer must provide. For example, a customer may be required to provide an email address and to accept terms and conditions of use.

Because the access portal is designed to respond to the screen size of the device, customers will find it easy to use on a small mobile screen.

Aruba offers alternatives to the ClearPass guest access portal:

- Aruba Central, a cloud-based network management service, provides Central Cloud Guest, which delivers the scalability of cloud computing.

- Third-party guest portals, from telecommunication companies or ISPs, can be integrated with the Aruba retail solution.

- Aruba branch controllers support Captive Portal, a feature of ArubaOS that may be preferred by retailers who expect a very high volume of customer self-registration for Wi-Fi access.
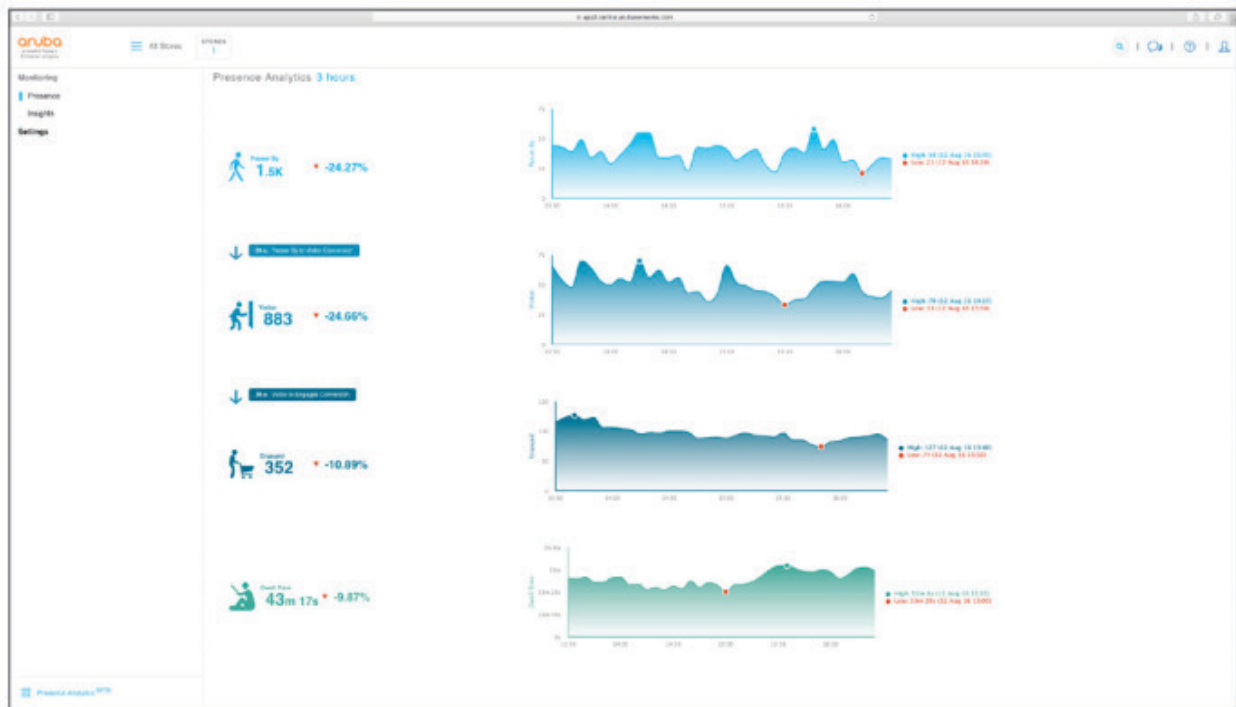
ANALYTICS

Aruba's analytics help you make smarter operational decisions and can enable a leap forward for the in-store experience of customers.

Presence Analytics

Aruba Presence Analytics, available as an additional subscription with cloud-based Aruba Central, enables retailers to tap into information that Aruba can discern from a wireless network. From data derived from in-store access points, Presence Analytics can identify and remember nearby Wi-Fi-enabled devices, such as smartphones and tablets. Because these devices correlate to people, the information derived can help retailers answer the following questions for each store in the company:

- How many people pass by the store?

- How many people enter the store and become customers?

- How often do customers return to the store?

Retailers can use this data to understand the impact of changes to merchandising and store layout. Store-to-store comparison of customer presence statistics can help retailers identify performance issues with specific stores.

Analytics and Location Engine

For retailers who want to discern more about customer presence, Aruba ALE can collect high-fidelity presence data about Wi-Fi-enabled mobile devices while protecting personal privacy. This data is then integrated with third-party analytics solutions, such as SkyFii, that translate it into actionable business intelligence. Retailers can also develop custom analytics solutions that pull data from the APIs available with ALE.

Because ALE can detect the location of Wi-Fi mobile devices within a store, retailers can use the data collected to answer questions such as how long are the lines at cash registers or which aisles receive the least foot traffic. Information derived from ALE can be used to inform store layout decisions.

ALE is an on-premise solution, deployed in the retail HQ or data center. It receives detailed presence data from in-store Aruba 7000-series appliances.

Aruba Location Services

To deliver a customer engagement network that goes well beyond merely providing complimentary wireless Inter-net access, retailers must make use of additional technology in the network itself and in the hands of shoppers.

Aruba's location services portfolio includes the Aruba Meridian cloud-based, software-as-a-service solution that provides both mobile-engagement and asset-tracking capabilities. Retailers can start with wayfinding, proximity-based notifications or digital asset tracking and add functionality as needed via simple subscription-based licens-ing and Aruba APs, which feature integrated Bluetooth beacons. For higher fidelity location services, retailers can deploy additional Aruba BLE beacons, which feature a four-year battery life.

- **Mapping and routing**—Based on actual store floorplans, retailers can easily define interesting points within a store, all exits and paths that shoppers should take while browsing or in an emergency.

- **Blue dot wayfinding**—iOS and Android mobile apps can show shoppers their location in the store and provide turn-by-turn instructions to a destination, based on product or assistance need.

- **Location sharing**—Using a mobile app, shoppers can choose to share their location with store associates if they are requesting assistance. Store associates could also choose to make their location available to shop-pers via a mobile app.

- **Asset tracking**—Aruba Tags offer a low-cost BLE means of deploying in-store tracking of physically tagged assets, such as carts and ladders. Asset tracking can save the company time and pallets of product. This helps associates by providing time savings and can ensure customers have a better shopper experience.

- **Campaigns**—With Meridian technology deployed in store and an app in the hands of shoppers, stores can amplify promotions or general news by making use of proximity-based notifications. A retailer can design a campaign based on zones, timeframes, or other contexts and use built-in analytics to determine the ef-fectiveness of campaigns.

- **AppMaker**—Retailers can quickly create a custom-branded mobile app using a cloud-based solution called Meridian AppMaker. AppMaker can deliver apps that deliver mobile engagement and asset-tracking functionality.

  For retailers who want to enhance existing mobile apps with Aruba location services or build a fully customized mobile app, an SDK and APIs are also available to app developers.

Solution Design

A single in-store network enables all services provided by the Aruba retail solution. Connected reliably with Software Defined WAN technology to centralized on-premise services and cloud services, the in-store network provides the security required without introducing complexity. Customer Wi-Fi as well as Wi-Fi analytics and Bluetooth-enhanced location services are supported by Aruba APs.

Figure 1   Aruba retail solution infrastructure
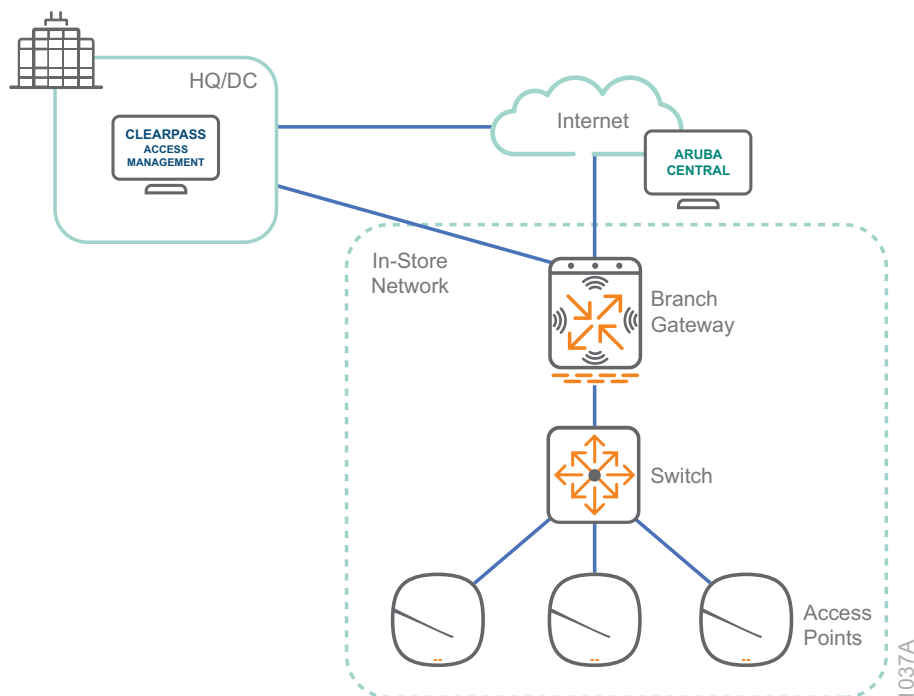
Aruba Central, Aruba's cloud management service, offers a central point of management and control for all Aruba APs, switches, and branch gateways, in addition to headend gateways at HQ and cloud gateways.

Deployed on-premise, Aruba ClearPass provides centralized device and user authentication and authorization services for all stores.

The branch gateway connects the in-store network to the WAN and participates as an end-point in the VPN overlay fabric that helps secure communications between headquarters and stores. The branch gateway is a policy enforcement point for wired, wireless, security, and WAN policies including routing.

Within the store, Aruba switches and APs provide wired and wireless networking for users. Access to the store network is controlled by the Aruba network infrastructure, providing a zero-trust model that allows any device to connect via wired or wireless, to be authenticated, and to connect to the network by using appropriate permissions.

SECURITY

To provide centralized access control, Aruba ClearPass is deployed centrally and on premise. ClearPass delivers policy-based control for all devices accessing store networks, wired and wireless. Network administrators configure the rules by which ClearPass recognizes different classes of devices and associates the correct access policies with each device class. After it identifies the user or device, ClearPass sends a role-based user policy or a device policy to the access point or switch that enforces the policy.

As shown in Figure 2, this policy-based approach enables the segmentation required by combining payment card processing, store administration, and customer Internet access on a single physical network. By providing dependable logical separation, ClearPass enables retailers to avoid costly duplication of physical infrastructure.

The branch gateway includes stateful network firewalls with integrated content filtering. The branch gateway also supports high-performance IPsec VPN for secure overlay networking across the Internet.
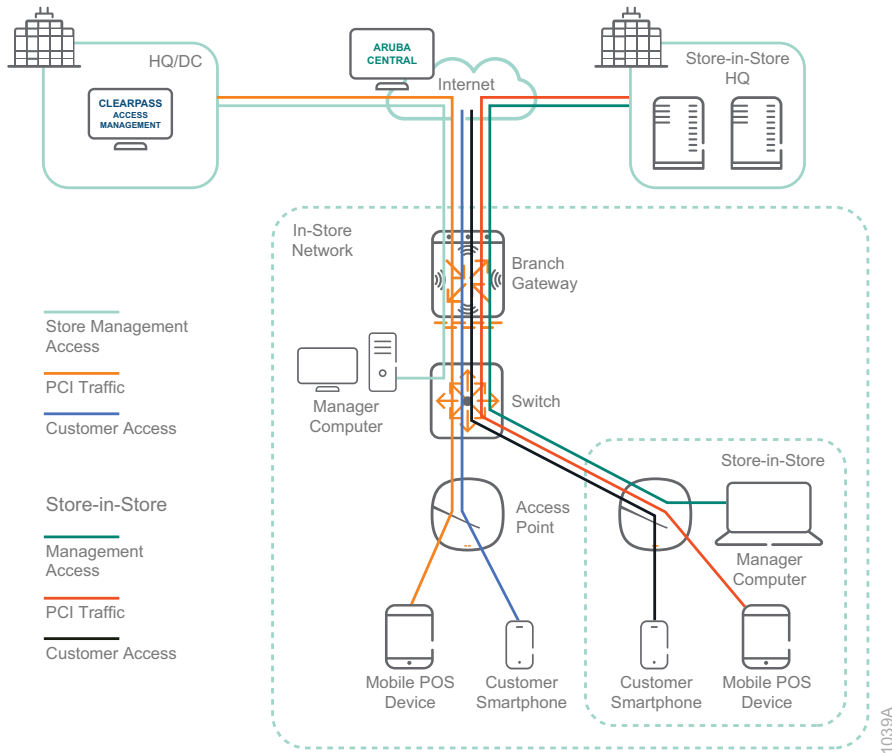
Aruba Central provides monitoring and reporting features, such as rogue AP detection, to help ensure that the network continues to operate securely. On-demand and scheduled reports document current and historical network status, including PCI compliance.

Figure 2 *Access control with ClearPass*
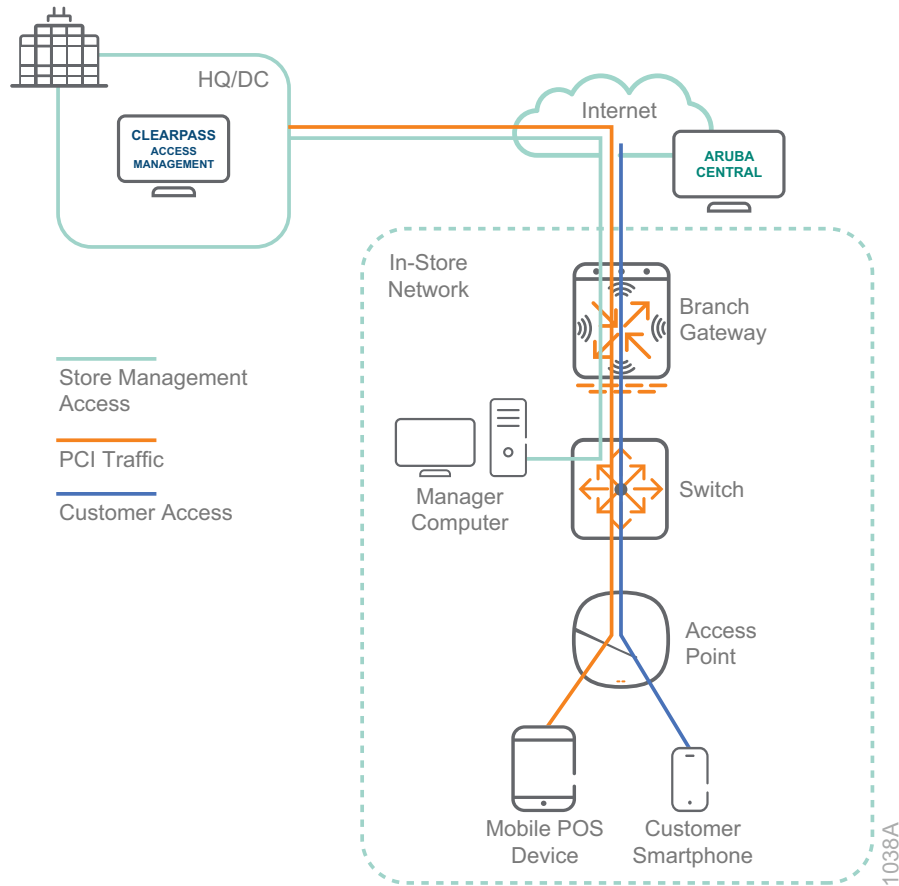
For retailers whose stores include other stores, such as a hosted sales kiosk or a cafe inside a larger retailer, Clear-Pass enables the retailer to allow the smaller store secure the use of the in-store network infrastructure. In Figure 3, devices belonging to the smaller store or to the customers of the smaller store can be identified and granted access that is logically separated from the devices and other resources of the larger retailer. Even PCI-compliant payment processing traffic from the smaller store is securely routed to the correct headquarters.

Figure 3 *Store in-store access control*

HQ/DC

ARUBA
CENTRAL

Internet

Store-in-Store
HQ

CLEARPASS
ACCESS
MANAGEMENT

Store Management
Access

PCI Traffic

Customer Access

Store-in-Store

Management
Access

PCI Traffic

Customer Access

In-Store
Network

Branch
Gateway

Manager
Computer

Switch

Store-in-Store

Access
Point

Manager
Computer

Mobile POS
Device

Customer
Smartphone

Customer
Smartphone

Mobile POS
Device

1039A

CUSTOMER WI-FI ACCESS

Granting customer Wi-Fi access depends first upon identifying customer devices, a function performed by Aruba ClearPass. ClearPass instructs APs to enforce the access policy for customers. Initially, customer access is limited to the customer Wi-Fi portal implemented. Customers self-register with the portal and then can access the Internet.

ClearPass supports a highly customizable Wi-Fi portal. As shown in Figure 4, there are several alternatives, depending upon the requirements of the retailer. Aruba Cloud Guest is a Wi-Fi portal that can integrate with third-party providers or with Aruba Central. Retailers expecting a very high volume of customer self-registration can deploy captive portal on the in-store network.

Figure 4   *Customer Wi-Fi access*

Figure 4   Customer Wi-Fi access
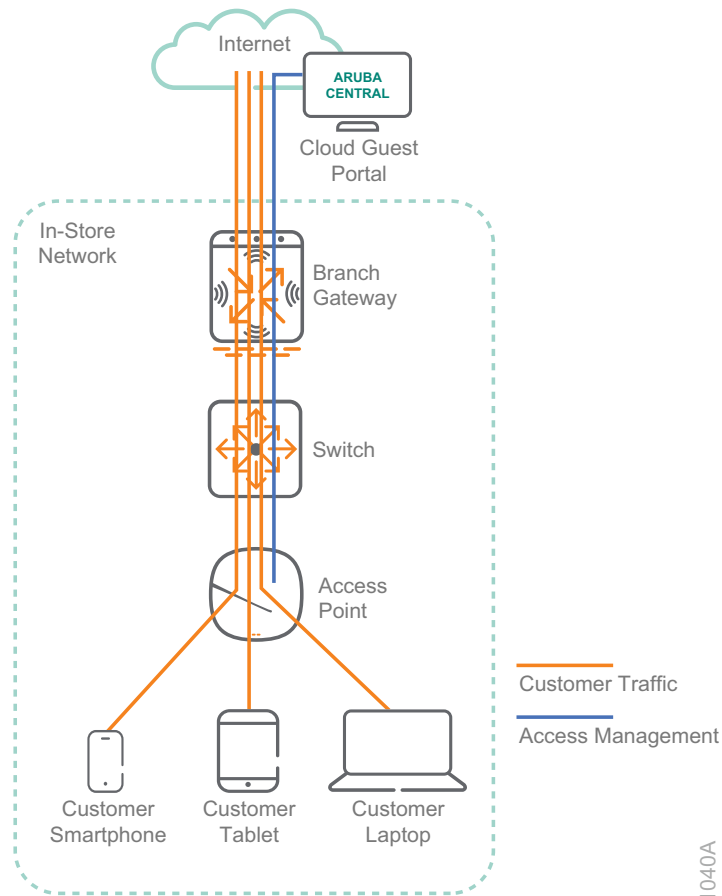
CUSTOMER ENGAGEMENT NETWORK

Beyond providing customers with secure and separate access to the Internet, a customer engagement network powered by Aruba provides Wi-Fi analytics.

The Presence Analytics feature in Aruba Central enables retailers to monitor conversion rates of passersby to customers, customer visit lengths, and loyalty as shown by return trips to stores. Aruba APs, aware of the Wi-Fi devices within the store or just passing by, deliver data to Presence Analytics, which provides retailers an easy means to visualize store performance and to compare performance among stores.

Alternatively, for an on-premise solution that delivers data with higher location fidelity, Aruba ALE can be centrally deployed, where it collects Wi-Fi data from stores. For reporting and data visualization, ALE integration with third-party services, such as SkyFii, is supported. Retailers may also develop in-house solutions that use ALE APIs in order to access and analyze data.

Figure 5 *Customer engagement network*
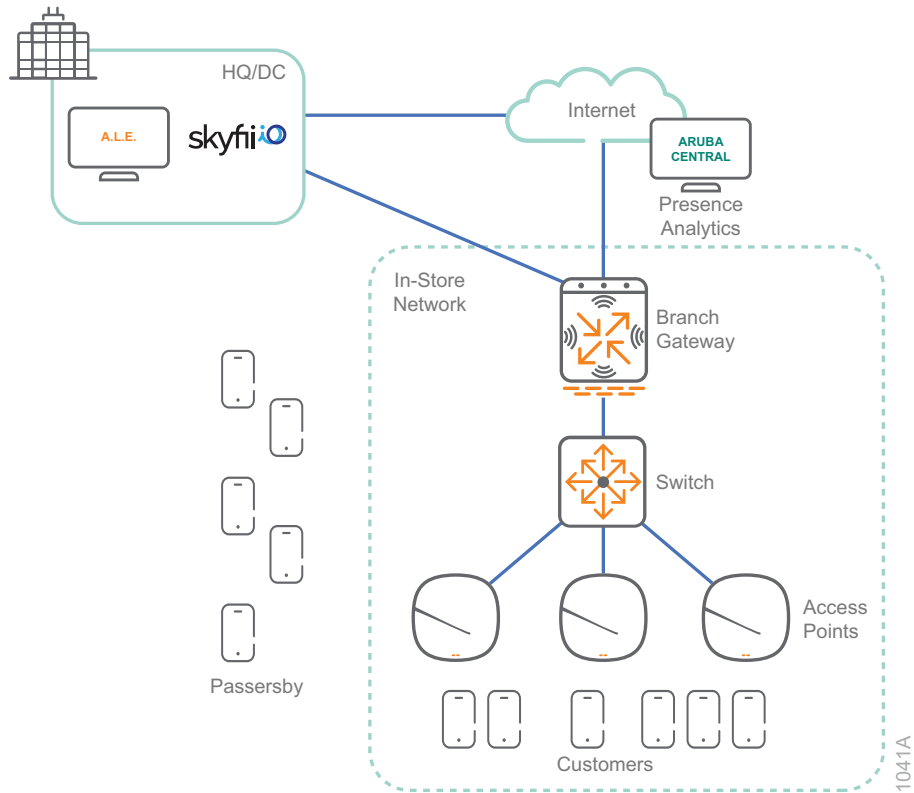
In Figure 6, Aruba location services rely on a Wi-Fi and Bluetooth infrastructure that can be leveraged by both customers and associates. Because Aruba APs include BLE radios, the need for need for standalone beacons is greatly reduced; however, for retailers who deploy Aruba Bluetooth beacons, APs support remote management of beacons. Combined with four-year battery life in new beacon models, adding beacons to deliver higher fidelity location services is simple and extremely low maintenance.

Customers who use a Meridian-powered mobile app rely on the Bluetooth infrastructure as they navigate the store and find inventory. Based on customer proximity, digital signage can dynamically update to show campaign information to nearby customers.

Sales associates can rely on an app when they need to find items equipped with an Aruba asset tag. The Bluetooth signal from a tag is received by APs, enabling the system to determine the tag location and help the associate.

Figure 6 *Location services with Aruba Meridian*
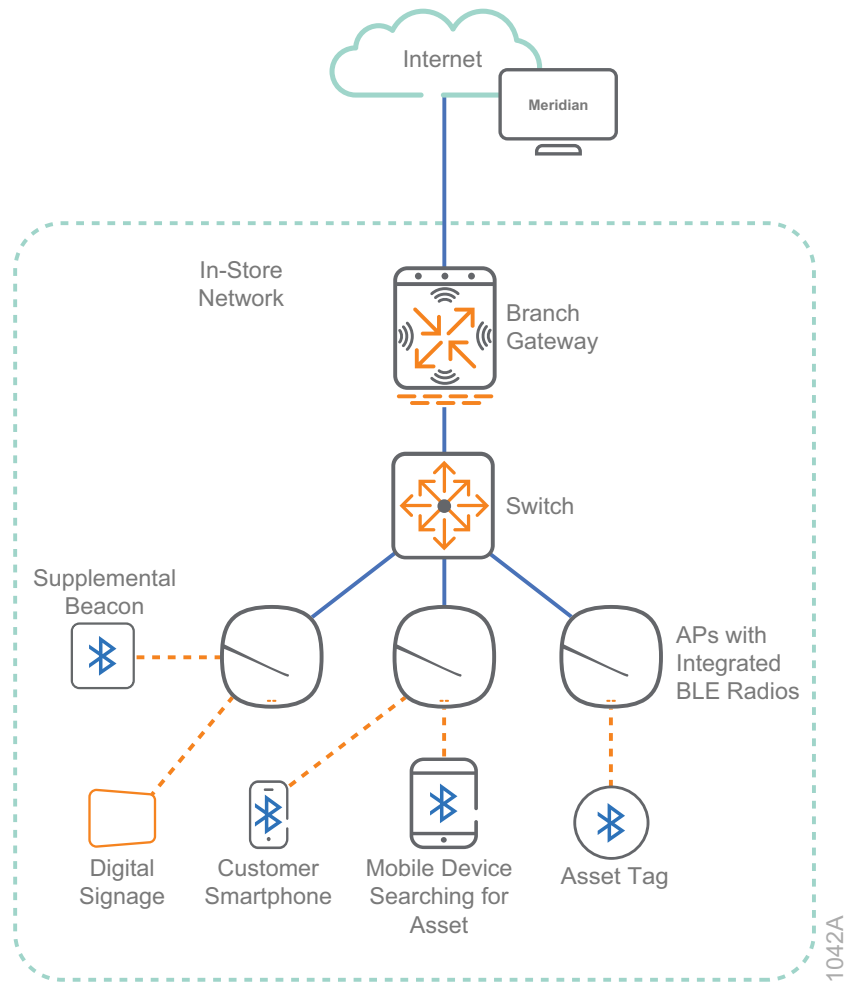

SOFTWARE DEFINED BRANCH

Aruba Software Defined Branch technology ensures operational simplicity while delivering the IT features and services demanded by retail IT groups.

In the heart of the in-store network shown in Figure 7, the Aruba branch gateway manages multi-link WAN configurations. Branch gateways provide path quality monitoring to detect issues with WAN links, adaptive QoS to adjust to link bandwidth changes, and dynamic path selection to ensure that traffic is routed over the best available path.

In the cloud, Aruba Central can manage the Aruba branch gateway, APs, and switches. Aruba Central automatically configures overlay VPN connections between stores and HQ and provides topology views of the network. Extensive use of templates allows for simple branch on-boarding. Aruba Central also aggregates and correlates diverse sets of information in order to provide insights into network operations.

All Aruba branch devices support ZTP. Aruba devices use DHCP or DNS to connect with Aruba Activate in order to self-provision without operator intervention. The devices have TPM crypto-processors embedded in hardware in order to allow secure, mutual authentication.

Figure 7   Software defined branch
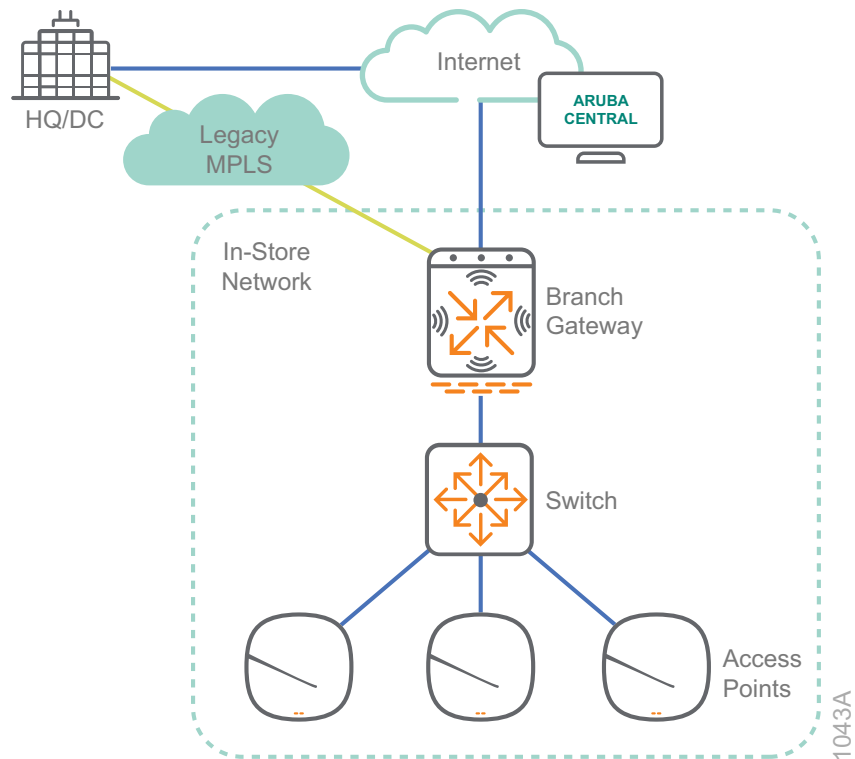
Next Steps

To find out more about how the Aruba retail solution can help your business, please contact an HPE salesperson or authorized reseller near you.

If you would like to contact Aruba directly, you can find our contact information at this location:

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You can use the feedback form to send suggestions and comments about this white paper.

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