

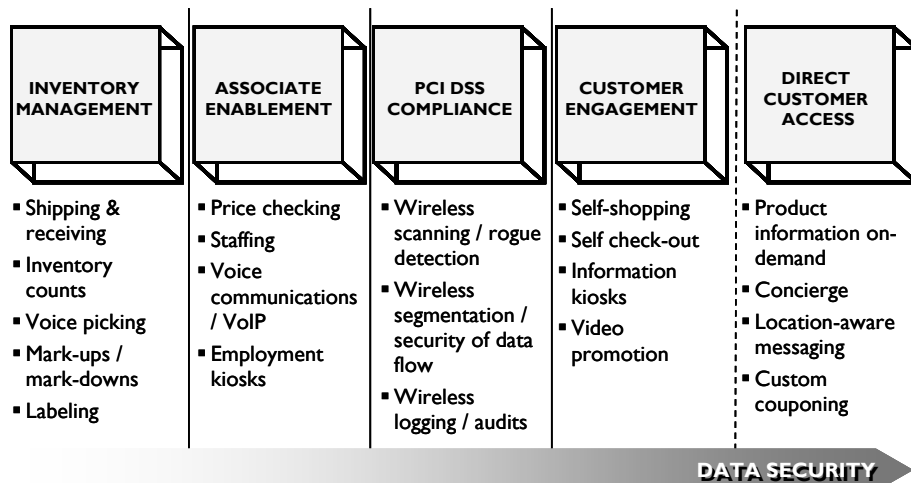
On-Premises Mobile Retail: Empowering Deeper Customer Engagement

A second wave of wireless and mobile technologies is set to impact the retail industry, challenging old norms and opening up new opportunities. The first wave was based on early Wi-Fi® Wireless Local Area Networking (WLAN) standards, enabling handheld barcode-enabled devices to check real-time inventory at the point-of-service. A flood of new Wi-Fi 802.11n-capable mobile devices such as smartphones and tablets can enable new levels of customer engagement and retention. A well-implemented wireless infrastructure can become a strategic on-premises retail asset, enabling new capabilities that improve the in-store experience, such as speeding up checkout, delivering real-time merchandising data, and enabling tighter integration between the web and brick-and-mortar storefronts.

Retail to Go

For the September 2010 report *Mobile Retail is a Reality: The Increasing Mobility of Consumers Has Retailers Engaged*, Aberdeen surveyed 129 retail organizations and discovered that 38% of respondents were currently at some stage of mobile retail technology or mobile channel adoption, more than double the percentage found at the end of 2008. An additional 50% of respondents were looking to adopt mobile retail in the future; 15% within the next 12 months and 35% planning adoption at some point in the future.

Figure 1: Wireless Retail Phases of Adoption



Source: Aberdeen Group, November 2010

Sector Insight

Aberdeen's Sector Insights provide strategic perspective and analysis of primary research results by industry, market segment, or geography

Sector Definition: Large Retail

Multi-site retailers over \$1B in revenue:

- ✓ "Big Box" retail
- ✓ Consumer banking and finance
- ✓ Restaurants/food service franchises
- ✓ Consumer energy (service stations & convenience stores)

The broad availability of high-speed wireless networks combined with powerful and low-cost advanced mobile devices such as smartphones and tablet computers is ready to transform the in-store retail experience once again. The fundamental phases of on-premises mobile retail adoption are described in Figure 1.

The demands on the wireless network increase in data complexity and data security requirements as we move from the relatively straightforward needs for data collection and synchronization in the inventory management phase, though the advanced data processing and customization required to build channels for increased customer intimacy in the direct customer access phase (Table 1).

Table 1: Mobile Retail Wireless Network Demands

Retail Phase	Wireless Network Load
Inventory Management	Simple ASCII text and alphanumeric data, minimal security requirements
Associate Enablement	Voice communications requires low-latency network response; Customer Relationship Management (CRM) data access demands maximum uptime
PCI DSS Compliance	Stringent network security and audit requirements
Customer Engagement	Adds mobile self-shopping and check-out, along with video
Direct Customer Access	Opens network to public traffic and increases devices and data

Source: Aberdeen Group November 2010

Deeper Customer Engagement: Retail's Next Wave

The next phase of wireless on-premises retail, direct customer access, is the real game-changer. Along with the promise of increased customer loyalty and deeper customer engagement comes increased demands on the wireless infrastructure that makes it all possible.

The usage of the WLAN in the earlier phase, inventory management, is largely confined to small data packets such as barcode information, inventory data, and product labeling enabled by handheld mobile devices with barcode scanning capability (Figure 2). Most wireless retail networks already in place today were installed several years ago, and until recently have been up to the task of carrying this lightweight data load.

However, as the organization moves to the associate enablement phase, voice communications across the retail floor are added to the wireless network load, carrying larger data packets with the more stringent demands for low-latency, near-instantaneous data delivery required by wireless voice. Quality of Service (QoS) also begins to be important in this phase.

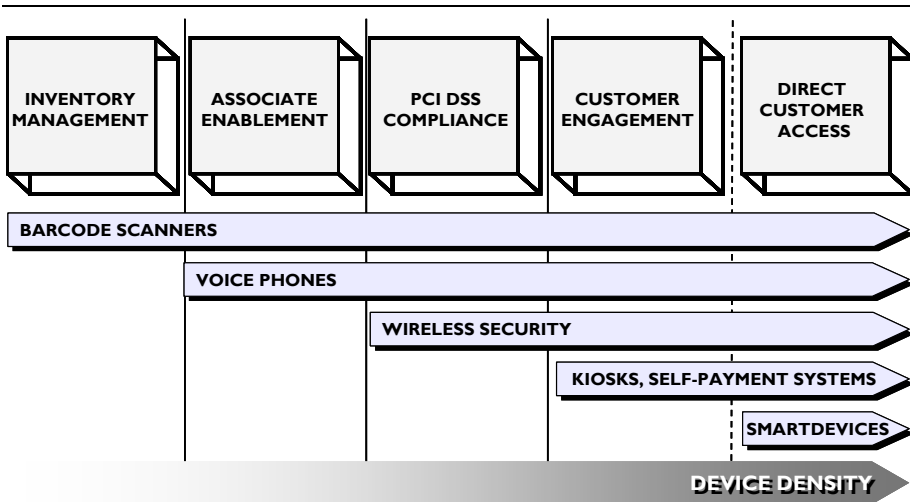
Definition of Terms

The 802.11 Wi-Fi Standards:

- ✓ **802.11b** is the first Wi-Fi standard; operates in the 2.4GHz radio spectrum and offers speeds of up to 11Mbps
- ✓ **802.11a** is a successor to 802.11b; operates in the 5GHz radio spectrum and offers speeds of up to 54Mbps, with a range of ~115ft
- ✓ **802.11g** uses the same 2.4GHz radio frequencies as the popular 802.11b, is backwards compatible with both 11a and 11b, and is almost 5-times faster at 54 Mbps, with a range of ~125ft
- ✓ **802.11n** is the most recent standard, and is able to operate at both 2.4GHz and 5GHz; due to improved antenna technology (MIMO - Multiple Input - Multiple Output) and many other advancements, theoretically capable of speeds up to 540Mbps and a range of 230ft.

As a consequence of data breaches that led to cardholder data theft, all retailers must now adhere to the Payment Card Industry (PCI) Digital Security Standard (DSS). PCI DSS compliance applies to all networks carrying credit card data, including wireless. This entails wireless network segmentation to separate commerce and general business transactions, logging of commerce transactions for future audit, and a Wireless Intrusion Prevention System (WIPS) to scan, detect, and prevent rogue wireless network access.

Figure 2: Retail Mobile Device Evolution



Source: Aberdeen Group, November 2010

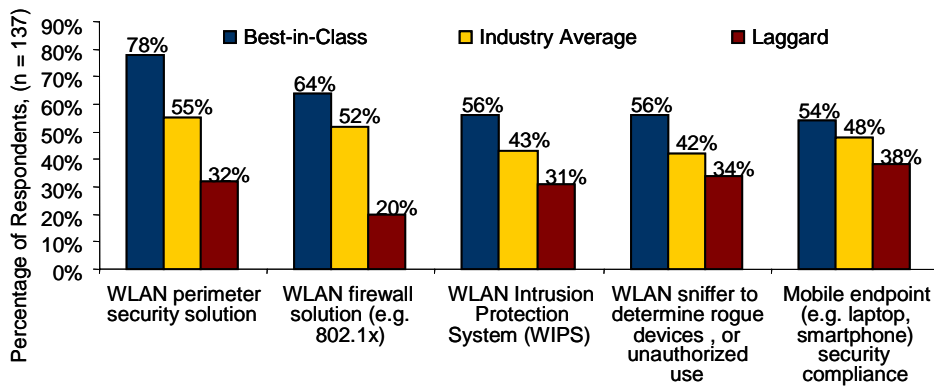
In the direct customer access phase, the wireless network must not only meet the stringent PCI DSS security requirements, but it must also accommodate the customer smartphones and tablets which provide the essential platform for the deeper level of customer engagement. As a consequence, the formerly private wireless network must now also provide 'public' access on the same protected network as the PCI data, requiring even stricter segmentation of the public and private data streams.

In the October 2010 Aberdeen report [Unchained: The Wireless Imperative in Network Integration](#), the top performers across multiple metrics (the Best-in-Class) clearly led all other respondents in their careful attention paid to the core elements of securing their wireless network (Figure 3).

"More than a third (36%) of our customers use smart phones. Eleven percent (11%) of our customers own iPhones. In-store shopping enhancements, real-time cross-channel offers, and social/viral marketing integration (peer recommendations on clothes) are the three main pillars of our mobile retail strategy."

~ Jon Kubo, CIO, Wet Seal

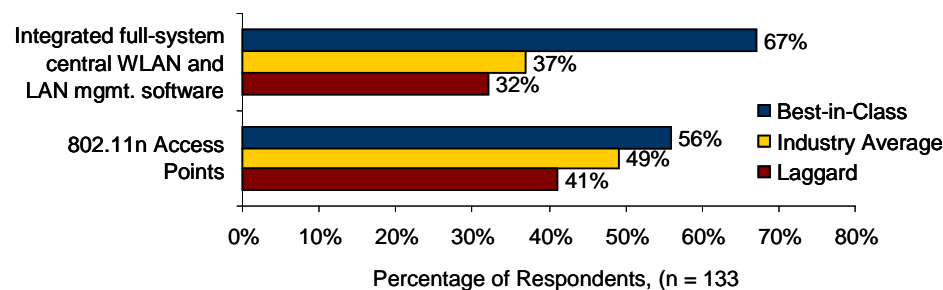
Figure 3: Best-in-Class Approaches to Wireless Network Security



Source: Aberdeen Group, October 2010

In addition, during the customer engagement phase, the network must support many more devices than in previous phases, since it must support the devices used in all prior phases, plus the myriad customer mobile devices with wireless capabilities now being added. These devices will use the establishment's wireless network not only to directly access the retail experience, but also to check their email, watch videos, engage in video chat, etc. This means that the network must not only be secured, but also robust enough to handle the peak loads of crushing data and device density that this phase can entail.

Figure 4: Best-in-Class Technology Solutions Dealing with Density



Source: Aberdeen Group, September 2010

In the September 2010 report [The Rational Network: WLAN and LAN Integration for Broadband Ubiquity](#), the Best-in-Class prepared for the challenges of data and device density by ensuring that their network core had adequate capacity to handle the increased network traffic. They also gained efficiency and control by centrally managing their distributed network, and added bandwidth and capacity at the network edge by integrating Wi-Fi 802.11n wireless Access Points (APs).

For retailers, a robust, well-managed, and PCI-compliant wireless infrastructure can serve as a launch pad for new mobile services and deeper levels of customer engagement. With a stable and secure WLAN as a

Definition of Terms

- ✓ **Best-in-Class:** as measured across a variety of business performance metrics, the top 20% of survey respondents
- ✓ **Industry Average:** middle 50% of survey respondents
- ✓ **Laggard:** bottom 30% of survey respondents

Best-in-Class Performance Criteria

In [The Rational Network: WLAN and LAN Integration for Broadband Ubiquity](#) report, Aberdeen used three performance criteria to distinguish Best-in-Class companies:

- ✓ **85% 1-year improvement** in WLAN throughput (vs. 19% for Industry Average and 12% for Laggards)
- ✓ **55% 1-year decrease** in WLAN unplanned downtime (vs. 2% decrease for Industry Average and 1% decrease for Laggards)
- ✓ **\$116 total annual** network support costs per connected user (vs. \$206 for Industry Average and \$324 for Laggards)

foundation, expanded mobile retail programs can include customer identification, offer customization, site-based call-to-action and opt-in rewards, couponing, location-based messaging, dynamic visual merchandising, social community interaction, comparison shopping, personalized web presentation, and mobile point-of-sale. These customer-centric programs can lead to organic sales growth, increased customer loyalty, and even deeper engagement by presenting consumers with dynamic offers before, during, and after their visit to the store.

Key Take-Away

When combined with the smartphone revolution, an advanced wireless retail infrastructure opens up the possibility of personalized in-store customer communications, micro-targeted marketing, and social media engagement. Along with the business opportunity comes responsibility for providing adequate WLAN capacity, securing the wireless network and preparing for full PCI DSS compliance.

A well-designed and configured WLAN provides the foundation for expanded retail service that more directly engages the customer. This incorporates a thorough security infrastructure to safely manage direct shopper wireless access; as well as the necessary network capacity to handle the potential onslaught of customer devices. As visibility into foot traffic and customer loyalty increase, the financial Return on Investment (ROI) and other benefits of mobile retail will become measurable on a more granular and tangible level.

It is highly recommended that the retailer prepare for the next wave in retail by upgrading their wireless network to the 802.11n Wi-Fi standard. It is suggested that they follow the best practices of centrally managing their wireless LAN, and securing their network edge with a Wireless Intrusion Protection System (WIPS). Keep costs down by seeking a WLAN solution that integrates both the security and the performance requirements, rather than requiring additional equipment and software. These network investments made now will provide a solid platform to expand the mobile retail offering for years to come.

For more information on this or other research topics, please visit www.aberdeen.com.

Related Research

[Unchained: The Wireless Imperative in Network Integration](#); October 2010
[Mobile Retail is a Reality: The Increasing Mobility of Consumers Has Retailers Engaged](#), September 2010
[The Rational Network: WLAN and LAN Integration for Broadband Ubiquity](#); September 2010
[Re-Stocking The Marketer's Digital Toolbox](#), June 2010
[Multi-Site and Campus-Area Wireless LANs: Advantages of the Centralized Approach](#); March, 2010

[Cross-Channel Customer Loyalty: Rewards, Promotions, and the Battle for ROI](#); March 2010
[Fast-Track Cross-Channel Gains: The Final Frontier for Customer Share of Wallet](#); January 2010
[Online Customer Loyalty: Converting Occasional Shoppers into a Loyal Consumer Base](#); October 2009
[Wireless LAN 2009: From Network of Convenience to Business-Critical Infrastructure](#); May 2009
[Mobile Payments in Retail: Next Wave in Customer-Centricity](#); October 2008

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