



# SEVEN ISSUES YOU CAN'T IGNORE WHEN PLANNING FOR A VOICE DEPLOYMENT

As you enhance your store communications with the power of voice, there are a few critical areas to focus on for a painless, problem-free deployment: network, integration and devices. With a clear, careful assessment of these areas, you can optimize the most value from voice – and streamline response and empower workers and customers across your entire enterprise.

## NETWORK CONSIDERATIONS

### HOW WELL WILL YOUR WLAN WORK WITH VOICE?

You know how pivotal a wireless local area network (WLAN) is to powering business. No longer a mere convenience, it's a "must have" for your stores. That's because WLAN provides your customers with the abundant opportunities of Guest Wi-Fi while it frees your employees to communicate and collaborate without being tethered to a work station.

Your customers benefit from the easy availability of Guest Wi-Fi to view timely information and facilitate their purchase decisions. Your employees benefit from the flexibility to work anywhere on the move. WLAN makes information immediately accessible – for employees and customers alike.



THE ENTERPRISE WLAN MARKET IS GROWING EVEN FASTER THAN PROJECTED, WITH SPENDING PROJECTED AT **\$7.9 BILLION BY 2016<sup>1</sup>**

## EMPOWERING EMPLOYEES BY EXPANDING TO VOICE

There are thousands of companies using their WLANs to support mobile workers with telephony and push-to-talk voice services in a wide range of applications. What they've discovered is that they can leverage their existing WLAN and IP telephony infrastructure and add voice. When they do, they gain greater value by delivering increased efficiency and a higher level of customer service.

Once you give mobile workers access to wireless integrated voice and data communications, you free them to be more efficient and productive – regardless of where they are located. Whether they need to check prices, assist customers, or send text messages, data communications improve their collaboration and accountability.

VoWLAN is one of the major pillars of an effective retail mobile strategy. It can cut cellular expenses, boost productivity, improve accessibility, and ultimately help you deliver a higher level of customer service at a lower operating cost.

## WHAT TO DO AS YOU PREPARE YOUR NETWORK FOR VOICE

As you ready your WLAN infrastructure for voice, it is imperative to objectively evaluate your network to optimize your VoWLAN deployment. First, recognize the requirements of a WLAN voice network. Second, assess the capabilities of your existing infrastructure. Then, take the steps to bring the network capacity and coverage up to the necessary levels to support enterprise-quality voice services.

Better mobility won't lead to better productivity if your network is unreliable or unable to deliver good voice quality. Even if you don't have immediate plans for voice, assessing your network to assure it is ready will help protect your infrastructure investment in the future when you do deploy voice.

### DO A WLAN SITE SURVEY

- Define the quantity and location of access points for your desired WLAN coverage
- Collect data at current and projected access points
- Thoroughly evaluate your existing or new WLAN infrastructure
- Look at how to alter the design to improve performance

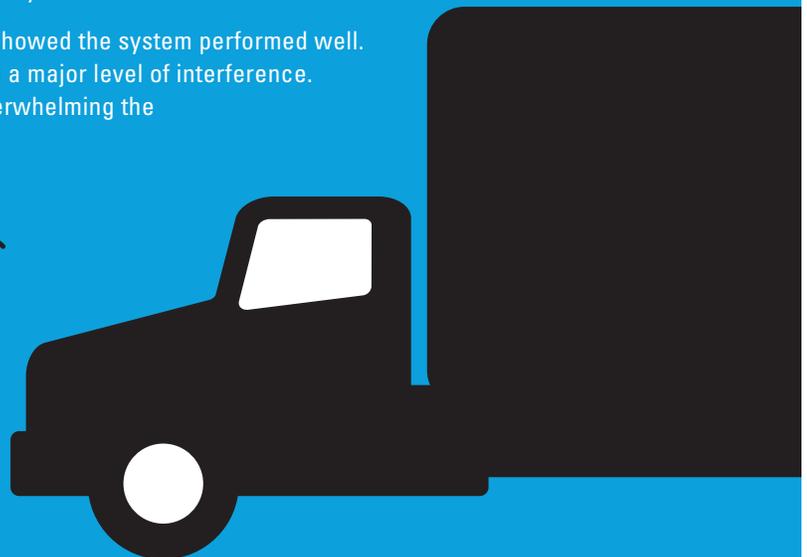


## REAL WORLD EXAMPLE: GLOBAL SHIPPING COMPANY

**PROBLEM** Experienced a variety of WLAN issues that prevented drivers from getting on the network and starting a tracking application on their mobile computers. This created a major process breakdown as customers could not access updated information on their shipments. Problems were occurring in the morning as drivers loaded trucks for their daily route and at the end of the day when they returned to the yard.

**SITUATION** A previous assessment without trucks showed the system performed well. A second assessment with trucks in the yard revealed a major level of interference. The drivers' devices in each truck was completely overwhelming the 802.11b/g (2.4 GHz) WLAN network.

**SOLUTION** The devices were moved to 802.11a (5 GHz) which resolved the interference problem. This enabled drivers to access their tracking application, scan packages as they were loaded onto trucks and provide accurate, updated information to customers.



## SEVEN ISSUES YOU CAN'T IGNORE

1

**ADDRESS BOTH WIRED AND WIRELESS SERVICES.** No matter what the ratio of wireless to wired connections are in your operation, if you don't consider both, neither will work effectively. Even if you have a strong wireless network with well-defined access points, your wired services can falter or fail.

2

**ASSESS RF SIGNAL STRENGTH.** Planning, RF design, and site survey are critical to a successful VoWLAN deployment. Perform a site audit to evaluate where your access points are, what their signal strength is and where they are located. Is the performance and coverage delivered by your access points able to holistically deliver to your WLAN application needs – including voice, guest networks, inventory, Mobile Point of Sale (MPOS) and more?

3

**PRIORITIZE TRAFFIC AND AVOID BOTTLENECKS.** Make sure your switches have advanced quality of service (QoS) to prioritize traffic so that important communications go first. Just as every chain has a weak link, every network succumbs to bottlenecks. QoS handles the high volume of traffic coming through a router or switch and can prioritize time sensitive traffic to ensure timely delivery of critical communications.

4

**SECURE YOUR WIRELESS NETWORK FROM EXTERNAL INTRUSIONS.** Assess how you are protecting your network from external elements coming in on the voice side. Look at your environment, how you classify traffic, what type of boundaries have been set and how reliable they are. What type of sensors do you have in place to monitor for intrusions and spectrum abuse?

5

**CURTAIN EXCESSIVE DATA CONSUMPTION.** Evaluate how your employees are interacting with the network and how much data consumption is personal versus work-related. Many may be bringing their own devices to work and eating up bandwidth as they access and share data on their smartphones and tablets.

6

**ENSURE VOICE INTEGRITY.** Consider how you are designing your network to ensure voice integrity. Does your WLAN segregate voice from data, or are they shared? Do you have good echo suppression and negation of background noise when your employees use their devices? Audio transmissions should not break-up or drop out because of lost packets or because others in proximity are accessing their devices.

7

**ESTABLISH A POLICY STRUCTURE.** Determine how your voice services will be implemented and used. Specify how you will handle user authentication, registered hardware, user log-on, security, and what steps to take to prohibit abusive or illegal activity. Consider a mobile device management strategy to handle the proliferation of devices and address security, policy and compliance issues.

# INTEGRATION CONSIDERATIONS

## HOW DOES VOICE FIT INTO YOUR INFRASTRUCTURE?

According to Gartner, "Connectivity at the edge of an enterprise network is more than just a wired or wireless LAN infrastructure. Enterprises must choose infrastructure vendors that support network services, including security and management, and can integrate wired and wireless networking products."<sup>2</sup>

As you ready your wireless network for voice, remember integrations are key. What will integration with your PBX system look like? How are you using your PBX currently to route calls? How will it interface with your existing infrastructure to perform seamlessly and reliably?

### DO AN IP NETWORK ASSESSMENT

- Determine if your LANs or WANs can support new services, data and applications
- Evaluate the availability, performance, security, manageability, interoperability and capacity of your IP LAN and/or WAN
- Identify any gaps and decide how to close them



### CONNECTING ISLANDS OF COMMUNICATION WITHIN YOUR ENTERPRISE

The backbone for your WLAN voice service is your wired LAN. Whether your wired voice system is based on an IP PBX, a traditional TDM model or a hybrid configuration, you will have to interconnect calls between the wired and wireless systems. If you will use push-to-talk (PTT) devices, they should be able to interconnect to any other PTT systems or services you have in place.

Consider solutions that easily and unobtrusively integrate as an overlay to your existing PBX and WLAN infrastructure. They provide a unified platform with enterprise-class performance, unmatched scalability, and common management and security for both voice and data services.

With the right PBX integration, you can extend the features and functions of a desk phone to mobile workers throughout your enterprise; provide rich mobile voice quality that matches traditional wireline; and support PTT communications on two-way radios so you can reach an individual, work group or department with a push of a button.

## REAL WORLD EXAMPLE: INTERNATIONAL CONSUMER GOODS COMPANY

**PROBLEM** Plant personnel felt a wireless assessment of their existing WLAN was necessary to determine if wireless devices were performing as expected.

**SITUATION** They experience dropped calls on their enterprise wireless phones – in the manufacturing plant, in the trucking yard, on HazMat drills, and on the rooftop to service equipment.

**SOLUTION** Once the company understood their use case and how much they depended on the system, they asked for a wireless assessment and remediation plan. After these were completed, the experience with the system vastly improved. Another access point was added, proper antennas were implemented and the existing WLAN infrastructure was re-engineered for optimal performance.



# DEVICE CONSIDERATIONS ENTERPRISE-GRADE OR CONSUMER, WHICH IS RIGHT?

You understand the transformative role that mobile devices play in an enterprise – from accelerating access to information to fostering meaningful engagements with customers. Many retailers have learned by costly trial and error, however, that not all devices are created equal. In fact, the surge in consumerization of devices simply doesn't fit their enterprise environment.

Retail leaders expect the devices their employees use to have clear, intelligible voice without interference, echoes or dropped calls. When cell phones are used on a wireless LAN, they simply are not designed to switch access points or roam quickly. It is one of the main reasons why VoWLAN calls on consumer devices get dropped.

Another big challenge when using voice on non-enterprise devices is the frequency of changes to the operating system. Updates and patches are pushed through without any controls – and this compromises voice quality.

Finally, Session Internet Protocol (SIP) client is another important consideration for choosing a voice-capable enterprise device over a consumer one. SIP is essential for enterprises who want to leverage their network to share voice and data by funneling data over a SIP connection point. Those who do are able to streamline the operation and reduce the costs of managing their enterprise-wide communications.

## WHAT TO ASK BEFORE DECIDING ON A MOBILE DEVICE

- Will the device run on a common platform and have a common feature set?
- Will it roam effectively and deliver consistently good voice quality?
- What levels of security do we need and how do we manage them?
- Are we able to control software patches and updates?



# THE HIDDEN COSTS OF OFF-THE-SHELF DEVICES

A RECENT GARTNER REPORT ON MOBILE TRENDS POINTS OUT THAT RETAIL CIOs ARE STRUGGLING TO CLEAR THREE HURDLES

1	The infiltration of hundreds of new smartphones and tablets.
2	The demand for more sophisticated business applications.
3	The fight to secure corporate data on employee-owned devices. <sup>3</sup> In addition to the proliferation of BYOD devices, companies who have purchased off-the-shelf smartphones and tablets are facing challenges regarding:
<b>DEVICE MANAGEMENT</b>	Many retailers lack the expertise, resources and infrastructure to manage and monitor their mobile devices, particularly if they're consumer-grade. Establishing predictability and operational readiness for hundreds, even thousands, of different mobile devices often requires a significant investment – and significant diversion from a company's core focus.
<b>SECURITY AND CONTROL</b>	One of the other underlying concerns is lack of oversight and control. There isn't a common platform or common feature set on consumer-grade devices. Nor is there the ability to control or curtail automatic software updates which are continually pushed out to tablets and smartphones.
<b>VOICE QUALITY AND ROAMING</b>	According to a J.D. Powers and Associates study, as the number of smartphone users grew, call quality worsened and dropped calls increased during the same period. <sup>4</sup> Consumer devices are often plagued by poor or choppy voice quality. Calls get dropped and roaming is blocked as mobile workers move from one area to another.
<b>DURABILITY AND LONGEVITY</b>	Consumer devices are not made for the rigors of everyday business use. Their battery life is short and smartphones and tablets don't hold up if they're dropped, knocked or splashed.
<b>LACK OF FUNCTIONALITY</b>	Unlike purpose-built devices, consumer devices require attachments such as a magnetic-stripe reader or a bar code scanner to deliver retail functionality. For example, scanning a product's barcode with an enterprise-grade device is far more efficient than using the camera and software on an off-the-shelf smartphone.



**WHITE PAPER**

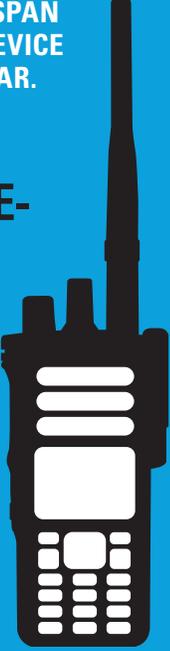
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**CONTROL YOUR ECOSYSTEM MORE EFFECTIVELY**

CIOs and CEOs are discovering that enterprise-grade devices have a very controlled ecosystem. They offer higher levels of security, excellent audio, better user profiles, superior roaming on Wi-Fi networks, are PTT-ready to connect to other devices, are significantly more durable and have up to 12 hours of battery life. Enterprise-grade devices also offer the best of Android with focus on capabilities that transform it into a true enterprise class operating system – such as security, support for remote device management and support for enterprise-class peripherals.

**THE AVERAGE LIFESPAN OF A CONSUMER DEVICE IS LESS THAN A YEAR.**

**RUGGED ENTERPRISE-GRADE DEVICES USUALLY LAST MORE THAN FOUR YEARS**



**CONSUMER-GRADE SMARTPHONES DEMAND A LOT OF UPGRADES, BOTH IN HARDWARE AND SOFTWARE**



**MOBILE WORKERS LOSE AN AVERAGE OF 75 MINUTES EACH TIME THEIR MOBILE DEVICES FAIL<sup>5</sup>**



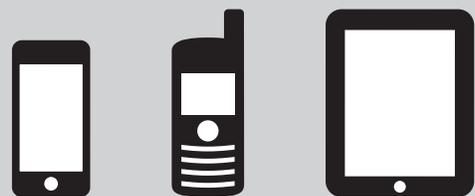
**FREE EMPLOYEES TO WORK MOST PRODUCTIVELY**

Retail leaders are looking at enterprise voice solutions which replace the “islands of communication throughout the store” with a single, cohesive voice and data network that operates over the WLAN. They are using their WLAN as the backbone and putting virtually any device in the hands of employees – from the sales floor to the warehouse, the production line to the loading dock.

Whether they have mobile computers, Wi-Fi smartphones and tablets, two-way radios, wireless badges or another device, by choosing a solution that delivers a single voice and data communications backbone, they connect all their workers together. Now they can communicate seamlessly and collaborate effortlessly to improve task accuracy and task speed. In so doing, they enable their store operation to achieve greater efficiency and productivity.

**DO A VOICE READINESS ASSESSMENT**

- Test devices in the most common store environments
- Certify all capabilities work and identify any gaps
- Evaluate the network from end to end: WLAN, LAN, WAN and PBX
- Include RF design, WLAN and IP network design parameters for VoIP, end to end bandwidth and QoS





## MAKE THE RIGHT CHOICE WHEN YOU DEPLOY VOICE

Voice over wireless LAN is one of the proven ways to affordably mobilize your enterprise. Your employees gain better communication services. Your business dramatically reduces monthly mobile phone fees. Your store boosts productivity which can have a positive impact on your ROI. And ultimately, because your people are far more reachable, collaborative and responsive, they are able to deliver the level of service that outdoes competitors and delights customers.

Look to Motorola Solutions to bring the expertise, tools, specialized resources, performance-based processes and depth of support you need – including network management, integration services, enterprise-class devices and mobility device management. Together we can help you plan, implement and run an integrated voice and data communications backbone and enjoy seamless, reliable and cost-efficient connectivity in all your stores.

### SOURCES

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2. "Magic Quadrant for the Wired and Wireless LAN Access Infrastructure", Gartner, June 13, 2012
3. Key Mobile and Wireless Trends From 2013 to 2016, Gartner
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5. "5 Reasons to Choose Rugged over Consumer", Mobile Enterprise, August 27, 2012

For more information on how effective planning can help you optimize voice across your enterprise visit [motorolasolutions.com/plan](http://motorolasolutions.com/plan).

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