

SELECTING THE RIGHT MOBILE DEVICE FOR YOUR HEALTHCARE ENVIRONMENT

An Analysis of Enterprise, Consumer and BYOD Mobile Devices

WHITE PAPER

THE SUCCESS OF YOUR HEALTHCARE MOBILITY SOLUTION IS TIGHTLY TIED TO THE MOBILE DEVICE YOU SELECT.

It's a fact that in hospitals and clinics, mobile computers help nurses and lab technicians improve the quality of patient care and save lives by providing instant access to a wealth of mission critical information — from real-time lab results to a change in a patient's condition or verification of the '5 rights' of medication administration at patient bedside. In addition, mobility also helps healthcare organizations comply with government and industry regulations, such as Stage 2 Meaningful Use and JCAHO, without tasking an already-overburdened nursing staff with additional paperwork — paperwork that would further reduce time spent caring for patients.

It is because of these strong proven benefits that mobile computing is the 2nd highest priority in today's healthcare organizations, second only to EHR adoption and Meaningful Use (Source: Healthcare Technology Online Jan/Feb 2013.) As healthcare organizations move forward with their mobility initiatives, one of the most important decisions is the selection of the mobile device, which will play a large part in the level of success your mobility solution can achieve. The wrong device can frustrate users, decrease productivity, increase costs and potentially introduce safety risks. The right device will help maximize the success of your healthcare mobility deployment by maximizing workforce productivity, task accuracy and return on investment (ROI).

3 DEVICE PATHS

When it comes to mobile device selection, there are three choices:

1 Enterprise devices:

- You can choose enterprise handheld mobile computers that are purpose built for healthcare environments.

2 Consumer devices:

- You can choose less expensive consumer devices, such as smartphones.

3 "Bring Your Own Device" (BYOD):

- You can allow your healthcare Workers to simply use their own consumer smartphones and other mobile devices.

The clear winner: enterprise devices. At first glance, choosing consumer devices appears to be a viable low-cost solution, with BYOD further reducing costs by eliminating the need to purchase and support devices altogether. The enterprise class device appears to be the most expensive solution. However, it is the enterprise class device that delivers the best value — it costs much less over the lifetime of the device, and is able to better meet healthcare requirements. This white paper will reveal why by examining all three device options, their differences and how those differences impact performance, productivity and cost.



SELECTING THE **RIGHT MOBILE DEVICE **CRITICAL** CRITERIA FOR HEALTHCARE ORGANIZATIONS**

In order to select the right device, you need to make sure you have the right criteria. You need to meet a wide variety of needs for different types of personnel and different departments — from healthcare workers and IT departments to infection and compliance control and finance. Following is a discussion of the criteria that can help you choose the right device, as well as an evaluation of how enterprise, consumer and “BYOD” devices meet each criteria.

The issue

Security is a top concern for healthcare organizations, which must comply with HIPAA and PCI regulations that protect sensitive patient health-related information and credit card data. Consumer-grade operating systems do not have the security features required to comply with these standards.

The solution:

Enterprise class devices are designed to provide the required levels of security, where the typical consumer class device falls short. In fact, more than half of the companies surveyed reported a security breach as a result of the use of a consumer device in the business¹. And in BYOD programs, the majority of companies report that responsibility for security falls to the end-user — not acceptable for organizations that must comply with government regulations or face stiff penalties.²

Zebra goes a step beyond the typical enterprise class device security to bring healthcare organizations unparalleled security in a portfolio that provides an industry first — enterprise class devices running Android as well as typical enterprise class operating systems. Android is being touted as the operating system (OS) that will reign in mobility solutions — and given that over 1.5 million Android phones are activated every day, it seems that the consumer grade operating system is well on its way to holding that position.³ However, while Android's open architecture is very desirable for its elegant applications that take intuitiveness and ease of use to a new level, it does not provide the security that healthcare IT requires.

But it is only the off-the-shelf standard Android operating system that falls short of delivering the security required in healthcare. To address this issue, Zebra has developed Zebra Extensions (Mx), which adds numerous security features to Android, allowing healthcare organizations to leverage the desirable Android platform and still meet healthcare security requirements.

“More than half of the companies surveyed reported a security breach as a result of the use of a consumer device in the business.”

Source: Avanade survey of 600+ IT decision makers, 2011



1. Avanade survey of 600+ IT decision makers, 2011
2. Source: ITIC Survey 500 companies, July-Aug 2012; BYOD Support Points.pptx: Slide 12
3. Source: Google activating 1.5m Android devices per day, keeping steady growth in 2013; Jake Smith, April 17, 2013; <http://www.pocket-lint.com/news/120512-google-activating-1-5m-android-devices-per-day-keeping-steady-growth-in-2013>

With “Mx”, Zebra’s Android-based devices can offer the same level of security as our Windows Mobile/Windows CE devices, allowing you to confidently deploy Android in your environment.

Security features that our healthcare mobile device portfolio offers include:

- FIPS 140-2 government grade security rating to ensure HIPAA compliance.
- AES256 encryption for data in motion and data at rest — data is protected whether it is stored on the device, on a media card in the device or traveling over the wireless LAN.
- Remote lock and wipe for lost or stolen devices.
- Automatic locking of idle devices.
- Application permissions, which prevent users from downloading unauthorized applications that could present security weaknesses or enable uploading of sensitive data to unauthorized servers.
- Multi-user log-on, which enables a single pool of devices to serve multiple workers, yet fully control what each worker can access via log-on credentials.
- The ability to prevent automatic OS updates from the cloud, ensuring that IT has full control over determining whether an OS upgrade meets requirements for security and application compatibility — as well as if and when the upgrade should be executed.
- The ability to restrict user and application access to hardware (such as the integrated camera, GPS and Bluetooth) as well as the built-in web browser or an email client.
- The ability to remove OS features which access servers outside of the hospital network. For example, maps and email applications built into the consumer version of the Android communicate with the “cloud.” These connections pose a security breach risk, as personal health information (PHI) contained in healthcare applications is exposed outside of the hospital walls...and much more.

You can count on every mobile computer in Zebra healthcare portfolio to provide the security features you need to keep sensitive healthcare data secure.

Disinfectant-Ready

The issue

Since the mobile devices that are in the hands of your nurses and clinicians will be carried from room-to-room and patient-to-patient, you must be able to disinfect them to stop the spread of deadly infections. The risk is clear. The Centers for Disease Control and Prevention estimate that in the U.S. alone, roughly 1.7 million hospital-associated infections from all types of microorganisms, including bacteria, caused or contributed to 99,000 deaths each year.⁴



The solution

In order to tolerate constant disinfecting in accordance with your infection control policies, the mobile device you choose will need to have the proper IP (ingress protection) sealing in order to prevent chemical cleaners from entering the device and damaging sensitive electronics, resulting in device failure. In addition, the outer plastics must also be able to withstand constant exposure to these harsh chemicals. Zebra's entire healthcare portfolio is purpose-built with the specifications required to withstand the relentless disinfecting required to kill bacteria on contact. Alternatively, consumer grade mobile devices typically do not offer these specifications, instantly putting every patient and every healthcare worker in your facility at risk.

IN THE U.S. ALONE, 1.7 MILLION HOSPITAL ASSOCIATED INFECTIONS RESULT IN 99,000 DEATHS EACH YEAR.⁴ SINCE MOBILE DEVICES ARE CARRIED FROM ROOM-TO-ROOM AND PATIENT-TO-PATIENT, ANY MOBILE DEVICE THAT CANNOT WITHSTAND CONSTANT DISINFECTING PUTS EVERY PATIENT AND EVERY HEALTHCARE WORKER AT RISK.



4. Pollack, Andrew, "Rising Threat of Infections Unfazed by Antibiotics" New York Times, Feb 27 2010
http://www.nytimes.com/2010/02/27/business/27germ.html?_r=0

Full-Shift Battery Power

The issue

The mobile device you choose must offer ample battery power for your longest shift. You don't want the devices that are providing critical patient information to run out of power at an inopportune time, nor do you want to burden healthcare workers with managing power instead of focusing on patient care.

In order to provide full-shift battery power, two things are required that consumer devices typically do not offer: a battery with the capacity to last a full shift and the ability to replace the battery. The typical consumer device battery will not last a full shift, especially since the device will be in constant use during a shift. When the battery runs low, if the batteries are not removable, the entire device must be charged. As a result:

- Productivity is reduced since workers are forced to spend time swapping devices mid-shift.
- Costs increase as hospitals are forced to either:
 - a) purchase two devices per worker to ensure that a second charged device is always on hand if required or b) purchase sleds that contain batteries that can power the mobile device.
- Return on investment (ROI) is reduced, since devices must remain out of service for charging.

The solution

By contrast, enterprise mobile device manufacturers recognize that continual operation is crucial, especially in the critical environment of healthcare. That's why enterprise-class mobile devices not only have high-capacity batteries capable of powering all the device features for a full shift, but also removable batteries — a fresh fully-charged battery can be inserted into a device at the start of every shift. The result? The enterprise-class mobile device remains in service all shift, every shift, providing healthcare workers with dependable access to the information they need to make split second life-saving decisions, substantially reducing the cost of mobility and maximizing the value of your mobile device investment.



IN ORDER FOR MOBILE DEVICES TO REMAIN IN SERVICE FOR A FULL SHIFT, YOU NEED TWO THINGS: A BATTERY WITH THE CAPACITY TO LAST A FULL SHIFT AND A REMOVABLE BATTERY THAT CAN BE SWAPPED — INSTEAD OF TAKING THE DEVICE OUT OF SERVICE FOR CHARGING.

Business Class Power Management Accessories

The issue

Consumer grade mobile devices are created for the individual and are generally single-user oriented. As such, they typically do not offer the type of accessories that will be required in the enterprise, nor do the accessories offer enterprise-class durability.

The solution

Enterprise class devices offer purpose built accessories that simplify and reduce the cost of backroom management. For example, consumer class devices generally require one charger per device, and each charger requires its own outlet. By contrast, enterprise-class devices offer multi-slot chargers that allow you to use one outlet to typically charge at least four devices or four batteries simultaneously. As a result, the enterprise class device requires only a quarter of the outlets that consumer devices will require. And since a four slot multi-slot charger commonly takes up less space than four individual chargers, you'll need less space to support each shift.

In addition, unlike consumer accessories, enterprise accessories are built to business grade specifications, such as the number of insertions a cradle can handle before contacts wear out. By contrast, consumer charging accessories — including sleds — typically do not offer an insertion rating.

Without business-class accessories, if you choose company-owned consumer class mobile devices, backroom infrastructure costs can soar. Without industrial design, all day around-the-clock use may wear out the accessories before the device. In addition, you may need to purchase new cradles and chargers every year as consumer device models change, which may also trigger the need to modify the back room design.

Mobile device power management accessories should be built to business grade specifications, such as insertion ratings, as well as for space and cost efficiency in the back room.



Wireless Network Connectivity

The issue

The value of the device in the hands of your healthcare workers is heavily dependent upon the quality of the wireless connection — without a connection to your back end servers, nurses can't access patient information or medication orders, lab technicians can't access test orders and physicians can't access test results. The wireless device in the hands of your healthcare workers needs to offer rock solid wireless connectivity — period.

Consumer class Wi-Fi radios lack the power and the features required to maintain connectivity and application performance for healthcare workers on the go. As a result, nurses may need to stop what they are doing to re-connect to the network, and screens may refresh very slowly at times.

The solution

By contrast, enterprise-class Wi-Fi radios are purpose built to provide on-the-move workers with a constant high-quality connection. Typical features include:

- **Higher-powered radios**

Enterprise-class power levels translate into stronger, more robust connections.

- **Seamless roaming**

Enterprise-class radios can recognize the weaker connection that occurs when workers are moving beyond the range of an access point and roam to the next access point before the weaker connection results in either a dropped connection or sluggish application performance.

- **802.11a**

Support for 802.11a, which supports 5 GHz devices, helps improve Wi-Fi network capacity, speed and quality of service by offering more channels, more bandwidth and less interference. Where 802.11b offers only three non-overlapping channels, 802.11a offers 23. In addition to more channels, 802.11a only supports 5 GHz devices, resulting in more robust connectivity since it is not affected by the many devices that operate in the 2.4 GHz spectrum, such as microwaves, desksets and medical equipment.

- **Enterprise-class 5 GHz Wi-Fi**

All 5 GHz technology is not created equally. A consumer-class smartphone may support 5 GHz, but in order to utilize those devices on your WLAN, you may need more access points. In fact, Gartner reports that 5 GHz tablets from one of today's leading manufacturers will require 300 percent more access points — adding cost, complexity and management time to your WLAN.

IN A HOSPITAL, HEALTHCARE WORKERS REQUIRE A CONSTANT, STRONG WI-FI CONNECTION TO MAINTAIN ACCESS TO CRITICAL DATA — EVERY DAY, LIVES DEPEND ON IT. BUT ALL WI-FI RADIOS ARE NOT CREATED EQUALLY. WI-FI RADIOS IN ENTERPRISE CLASS DEVICES ARE DESIGNED TO MAINTAIN CONNECTIVITY AND APPLICATION PERFORMANCE FOR WORKERS WHO ARE CONSTANTLY MOVING — SOMETHING THE TYPICAL CONSUMER CLASS RADIO DOESN'T OFFER.

Enterprise Scanning Performance

The issue

In your hospital or clinic, one of the most important features of any mobile device you put in the hands of your nurses and clinicians will be bar code scanning. It is bar code scanning that will positively identify patients, medication, specimens and more, preventing errors that can result in illness or death. And it is bar code scanning that will allow you to easily meet the many government regulations in healthcare, such as Stage 2 Meaningful Use.

The solution

Enterprise mobile devices offer integrated high performance bar code scanning that is in a completely separate class from the scanning capabilities of consumer class devices. For example, Zebra's healthcare mobile devices offer dedicated scan engines that can capture virtually any bar code in any condition — 1D or 2D, regardless of whether it is damaged, scratched, dirty or poorly printed. Tests performed

If the mobile device you choose lacks industrial class bar code scanning, the result can be a major impact on the productivity of your healthcare workforce — though this drain is often well-hidden and unaccounted for in TCO analyses.

by Scandit* reveal that Zebra's SE4500 scan engine captures bar codes 20 to 50 times faster than consumer mobile devices. And where consumer devices returned an erroneous bar code read as much as 10 percent of the time, the Zebra scan engine mis-decode rate was negligible, at just 0.005 percent.

A lack of industrial class bar code scanning can have a major impact on the productivity of your healthcare workforce — though this drain is often well-hidden and unaccounted for in TCO analyses. For example, slow read times can turn into hours of wasted time and frustrated workers. Let's take a look at the math.

The numbers

If a nurse scans just 20 bar codes per hour over an 8 hour shift, that translates into 160 bar codes/shift. At a conservative two seconds a scan, those 160 bar codes will take a total of 320 seconds/5.3 minutes per shift. While that seems like an inconsequential number, in a small hospital with 32 nurses on each shift, with 96 total shifts per day, nurses would spend a total of 508.8 minutes/8.48 hours per day, just scanning bar codes — the equivalent of one full shift per day. And that translates into 3,095.2 hours per year — the equivalent to nearly 1.5 additional nurses.

Scanning Throughput: Consumer vs. Enterprise

FEATURE	SCANNING APPLICATION ON CONSUMER DEVICE	ZEBRA MOBILE COMPUTER WITH SE4500 SCANNER
Omni-directional	Often < 30 degrees ¹	360 degrees ²
Decode Time	2-5 seconds ³	Typical < 100ms ²
No Read	2%-30% ³	Typical < 1% ²
Mis-decode rate on UPC A	0.5%-10% ³	Typical < 0.005% ²

Source: Scandit Scanning Performance:
<http://www.scandit.com/barcode-scanner-sdk/features/performance/>

1 – Zebra test 2 – Zebra specification 3 – Scandit

Impact on Nurse Productivity

ENTERPRISE VS. CONSUMER GRADE SCANNING TECHNOLOGY		
Scan Time	100ms	2 seconds
Scans per 8 hour shift (20 scans per hour)	160	160
Total scan time per shift	16 seconds (0.26 minutes)	320 seconds (5.3 min)
Total scan time per nurse per year (scan time per shift x 365)	97.34 minutes (1.63 hours)	1946.67 minutes (32.45 hours)

In a small hospital with just 32 nurses on each shift, with 96 total shifts per day, enterprise scanning performance can recoup the equivalent of four 8-hour shifts.

Scanning Approach: Native Integrated vs. After Market “Sled” Attachments

The issue

Consumer-style mobile devices do not offer integrated industrial bar code scanning — the one feature that nurses, physicians, lab technicians and more will use constantly to identify patients, access patient information and protect against errors that can threaten patient health. In order to obtain this core feature, you would need to add a “sled” to the device — an accessory that typically encases the consumer device. You’ll need to make a decision on whether you want a device that offers native scanning (with a built-in scan engine) or if it is acceptable to add scanning via a sled attachment.

In order to make a decision, you’ll need to examine the numerous potential pitfalls related to sled attachments:

- The ergonomics of the mobile device are changed — size and balance are impacted, along with user comfort.
- Sleds can significantly increase your device acquisition costs because:
 - The sled typically costs two to three times the cost of the consumer mobile device, bringing the acquisition cost on par with that of an enterprise device.
 - When you need to purchase a replacement mobile device, you will most likely need to also purchase a new sled — sleds are typically designed for a specific model and are often not compatible with the next generation device.
- Our own internal testing on one of the most-used third party sleds revealed a lack of durability and sealing, which will increase the failure rate, likely translating into the purchase of multiple sleds over the course of the lifespan of a mobile device.

Our research found:

- Lack of sealing. The low sealing rating did not provide any protection against liquids entering the device. The sled housing was not designed to handle exposure to harsh chemicals to disinfect the sled. In addition, the lack of sealing allowed chemical cleaners to easily enter the device, providing the opportunity to damage the sensitive electronics. When the attached sled was disinfected, the chemical cleaners corroded the fasteners, USB connections and electrical contacts, adversely affecting device performance. And last, the same lack of sealing also means that bodily fluids can “pool” between the device and the sled and enter the device, providing a vehicle to spread germs.
- Lack of durability. While the sled did have a drop specification, the mobile device did not. We attempted to perform a minimal drop test by dropping the device with the sled attached six times on each of the six sides but were unable to complete the test due to catastrophic damage to the mobile device — on the third four-foot drop to concrete, the display on the mobile device shattered and the sled dislodged from the device.

Sleds can impact mobile device ergonomics and economics — sleds often cost two to three times that of the consumer mobile device, making total acquisition cost on par with the typical enterprise class device.

- Impaired Wi-Fi performance. Antennas in consumer devices are not designed to handle the interference created by the sled. The electronics in the sled can interfere with the antenna, and the sled itself might block the area where the antenna is located. As a result, the Wi-Fi antenna will likely be impaired, degrading wireless performance.

The solution

All the issues associated with adding a third party sled for scanning can be eliminated by choosing integrated scanning as a criteria — enterprise-class mobile devices designed for healthcare automatically offer integrated industrial bar code scanning as a base feature and are available in disinfectant-ready models in patient-friendly colors.

Durability

The issue

Inevitably, the mobile device your healthcare workers use will be subjected to drops and spills — the device you choose should continue to operate reliably despite those drops and spills. As a result, durability should be a key criteria — without it, devices will require frequent repair and replacement.



The solution

The device you choose should offer specifications that ensure the level of durability you require, such as:

- A drop specification: The drop test ensures that the device can handle a free-fall from a specific height to a specific type of floor (such as tile or concrete).
- A tumble specification: Where the drop test ensures that a device can handle the impact of a single hit, the tumble specification ensures that the device can endure the multiple hits that occur when a dropped device tumbles before coming to a rest.
- Ingress Protection (IP) sealing: A worldwide standard, IP sealing ratings ensure reliable operation, even when exposed to a liquid spill and dust. Ratings vary from the ability to handle water drops, splashing and even complete immersion in water, as well as dust-resistant to completely dust-proof.

Consumer devices rarely offer these specifications — as a result, they are much more fragile than their enterprise counterparts, which typically offer these specifications to ensure that the device can provide the lifecycle and the enterprise TCO your organization requires.

The numbers are in — the cost of the high failure rate of consumer class devices easily justifies the cost of a rugged device.

The Proof

A recent study by VDC Research Group⁵ validates the value of choosing an enterprise-class device over a consumer device. Consumer devices are three times more likely to fail in the first year. The average first year failure rate for rugged devices is 7 percent, compared with the 23 percent for consumer devices — and consumer device failure rates in excess of 50 percent are not uncommon. The cause of 77 percent of those failures is a dropped device, which resulted most commonly in a cracked display. The cost of all those failures is high — not only does the device require repair or replacement, but every failure can result in 180 to 260 minutes in lost mobile worker productivity and additional internal support. The cost of just one or two instances of device failure can easily justify the additional cost of a rugged device.

5. Mobile Device TCO Models for Line of Business Solutions; Volume 1/Track 7: Enterprise Mobility Mobile Device TCO; David Krebs; VDC Research Group, Inc.; 2012 (Slides 4, 18, 28 and 29)

Manageability

The issue

Centralized management is a must-have for mobile devices. Without it, IT must physically touch a device for everything from preparation for use to troubleshooting and resolving device issues.

Consumer grade devices generally do not support industry-standard enterprise-class mobile device management (MDM) solutions, translating into phenomenal support costs. And those costs can rise substantially with BYOD initiatives. Since your IT department is unable to monitor and troubleshoot BYODs from an MDM application, you have two choices.

1. Your employees can bring devices to your IT help desk, which means help desk personnel will be responsible for learning about potentially hundreds of models — models that change with regularity.
2. More likely is the alternative scenario — your employees become responsible for figuring out where to get support, resulting in the loss in productivity, as well as the fact that you have lost control of the support process.

The solution

Alternatively, today's enterprise class mobile devices do support centralized Mobile Device Management (MDM) solutions, which can enable IT to remotely stage, update, monitor, troubleshoot and lock and wipe devices, no matter where they may be. In addition, IT can receive alerts and alarms that signal the start of a device issue before the user is impacted, enabling the proactive response that can eliminate device downtime and the resulting hit on user productivity. IT can better manage your mobile devices, with very little dedicated time required.

Zebra takes mobile device management a step further to include our enterprise class Mx Android-based devices. While the standard version of Android does not support MDM, our Mx Android supports enterprise-class management. As a result, your IT department can manage all Zebra healthcare mobile devices from a single pane of glass, bringing enterprise-class management to a consumer grade operating system.

According to VDC Research, the result can be a staggering reduction in support costs:

“Effective use of device management solutions — for remote diagnostics, software upgrades, etc. — can reduce the average annual support costs per mobile worker by as much as 85%.”⁶



If the mobile device you choose can't support your mobile device remote management solution, support costs per mobile worker can increase by as much as 85 percent.⁶

6. VDC Research, White Paper — Enterprise Digital Assistant Leverage in the Emerging Mobile Enterprise; David Krebs/Chris Rezendes; Jan 2010

Voice Communications Flexibility

The issue

When it comes to enabling your workers, mobile voice is just as important as data. Without it, you may need to provide workers with more than one device to enable different types of voice capabilities. For example, nurses may need to make an instant push-to-talk call in an emergency to other co-workers in the building or take a call coming through the PBX from a patient's family member.



The solution

To create the true all-in-one voice and data mobile device, we developed Zebra's Enterprise Voice Solution. Unique in the industry, this solution allows you to easily add the voice features different workgroups need on our mobile devices. And since all services are delivered over the Wi-Fi network, there are never any monthly fees. In addition, with our Validated Voice Solution, you can be assured that the voice services you deploy will work on the technologies you have — including mobile devices, wireless LAN infrastructure and PBXs.

Key voice features. With our complimentary Push-to-Talk Express client software (pre-installed on most Zebra devices), you can enable push-to-talk (PTT) between Zebra devices, right out of the box. In addition, you can turn our mobile computers into deskphones, complete with an extension number and PBX time-saving features such as call forwarding and 3-way calling. The result? You can eliminate the cost of separate desk phones and simplify life for your workers, who no longer need two separate devices for voice and data. And you can get more value out of your existing PBX.

In healthcare, mobile voice is just as crucial as mobile data — your staff needs to be reachable in an instant. Enterprise mobile devices can support everything from instant push-to-talk to the ability to double as a mobile deskphone — features that not only maximize the value of your mobile device investments, but also eliminate the need for staff to carry multiple devices.

Lifecycle management

The issue

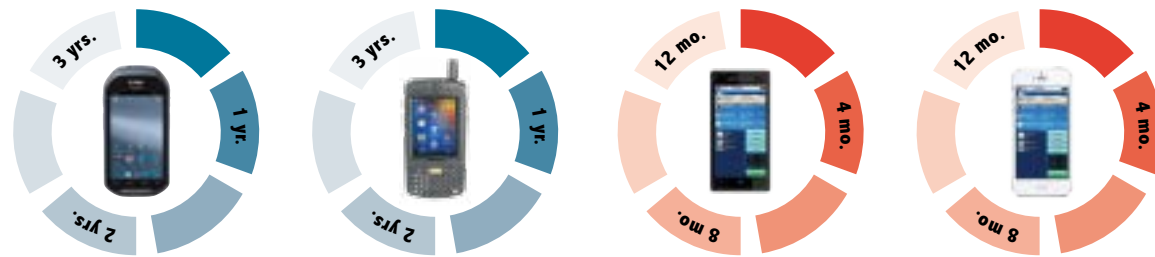
The rate of device churn — when new devices are released and their older versions are retired — is another item that should be high on the criteria list, yet is often overlooked. The reason this criteria is crucial is the hidden costs of fast churn.

In the world of consumer mobile devices, one year is typically the maximum time a specific model is available, with no guarantees that the next model provides backwards compatibility for accessories and applications.

The solution

In contrast, for enterprise mobile device manufacturers, device churn is measured in years instead of months. For example, Zebra's healthcare mobile devices are not only built to last for a minimum of three years, they are also guaranteed to be available for purchase for a minimum of three years, with an additional three years of support once the device has been discontinued. Since enterprise mobile device manufacturers are

Enterprise class device lifecycle is measured in years...
and consumer class device lifecycle is measured in months.



focused on business instead of consumer needs, when a next generation device is released, you can typically count on backward compatibility with everything from applications to accessories — such as charging cradles, batteries and cables. This strategy allows you to upgrade to next generation mobile computing technology, while preserving as many of your existing investments as possible.

When you choose an enterprise class mobile device, unlike consumer grade mobile devices, there is typically no need to purchase new accessories, further reducing capital costs and TCO. And if the device you choose has a platform strategy, like Zebra entire portfolio of healthcare mobile computers, applications can typically be ported to the new devices with little or no development effort, reducing operational costs.

CONSUMER MOBILE DEVICES ARE TYPICALLY AVAILABLE FOR PURCHASE FOR ONLY ONE YEAR. AS A RESULT, WHEN YOU ADD NEW WORKERS OR NEED TO REPLACE BROKEN DEVICES, YOU CAN END UP WITH MANY DIFFERENT MODELS TO SUPPORT, EACH WITH THEIR OWN UNIQUE ACCESSORIES — DRIVING UP CAPITAL AND OPERATIONAL COSTS.

Support Services

The issue

What happens when a device needs repair? Can you get the same level of service for enterprise and consumer mobile devices?

With consumer grade mobile device support services, workers may be without a device for days. And when the device is returned, the worker will need to restore all the data. The result is a level of device downtime that degrades TCO and worker productivity. Yet there is no real alternative: since there are so many different types of consumer models and they change regularly, keeping a spares pool on hand isn't feasible.

The solution

On the other hand, enterprise mobile device manufacturers understand that device downtime is not an option — and that fact is reflected in their support programs. For example, Zebra offers cost-effective business-grade support programs that include everything from normal wear and tear to accidental breakage — including a broken screen on a device that was dropped. No matter what the problem is or what caused it, it's covered — no questions asked. Additional options include overnight replacement with a mobile device that has already been provisioned with your software applications and device settings, so workers are back up and running the moment the device is removed from the box.



DEVICE DOWNTIME IS NOT ACCEPTABLE IN THE MISSION-CRITICAL ENVIRONMENT OF HEALTHCARE. YOU NEED TO KEEP YOUR DEVICES UP, RUNNING AND IN THE HANDS OF YOUR HEALTHCARE WORKERS. THAT REQUIRES A SUPPORT PLAN THAT WILL COVER EVERYTHING AND OFFER OVERNIGHT REPLACEMENT OF BROKEN DEVICES — A LEVEL OF SERVICE YOU WON'T FIND FOR THE TYPICAL CONSUMER SMARTPHONE.

THE MATH

THE TRUTH IS IN THE NUMBERS — CONSUMER CLASS DEVICES COME AT A PREMIUM

The numbers are in. They reveal that while, at first glance, it may appear that lower cost consumer grade mobile devices and BYOD programs that allow workers to use their own consumer grade mobile devices are the way to the most cost effective and most successful healthcare mobility solution, the numbers show otherwise — and numbers never lie. Consider the following facts:

Consumer class device TCO is substantially higher.

Consumer grade devices cost an average of 50% more over a 5-year period: The annual five-year TCO for a small consumer grade device is more than 50% higher than its enterprise grade counterparts. The annual five-year TCO of an enterprise grade device is \$2,140, while the consumer grade device costs \$3,236 over the same time period.*

Consumer class device acquisition costs are the same — or higher.

In order to develop an “apples-to-apples” comparison of consumer vs. enterprise class hardware costs, you’ll need to factor in lifecycles: enterprise class devices are built to last three to five years, while consumer device

life expectancy is just one to two years. So while that consumer grade mobile device appears to be less expensive, be sure to factor in that over the course of the lifecycle of one enterprise class mobile computer, you’ll likely need to purchase two to three consumer mobile devices and two to three sleds. The result? Hardware acquisition costs over a three to five year period for enterprise class are ultimately less than consumer grade mobile devices.

Based on list pricing of some of today’s most popular products, a sled is approximately \$600 and a consumer-style data mobile device roughly \$250. The cost for one enterprise class device is approximately \$1,500, which can serve your hospital for an average of three years+. You would need to purchase a minimum of two sleds and two consumer-style mobile devices over that same time period, for a total hardware cost of \$1,900 — over 25 percent more.

33% The amount that consumer class BYOD can increase your support costs

Aberdeen Group reported that a company with 1,000 mobile devices can expect to spend an average of an extra \$170,000 per year to support BYOD. The following five well-hidden costs can result in a 33% increase in operational costs for BYOD initiatives:

1. Carrier billing is no longer aggregated, which can result in missed discount opportunities and larger monthly fees
2. Increase in IT time to manage and secure corporate data on employee devices
3. Increase in support costs due to the increase in types of mobile devices and their durability levels
4. Increase in the workload for other operational groups that are not normally impacted by mobility support
5. Increase in the number of expense reports filed by employees for reimbursement of device-related expenses

Source: Mobile Device TCO Models for Line of Business Solutions; Volume 1/Track 7: Enterprise Mobile Device TCO; VDC Research Group, Inc.; Mobile and Wireless Practice; February 2013



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