

Motion Computing Tablets Based on Intel® Processors Greatly Simplify Deployment in Retail

The retail industry is taking a close look at mobile computing with the aim of improving the shopping experience, increasing sales assistant productivity, and simplifying inventory and back office functions, among other objectives. In fact, “tablet shipments have increased by 38 percent in 2013,” according to an IHL Group* study of North American retailers, titled: “Mobile POS: Hype To Reality.” Yet the study also indicates retailers are slowing down deployments in order to figure out how to better integrate the devices into their operation plans, explains Greg Buzek, founder and president of IHL Group, in an interview with Retail TouchPoints*.¹

A major reason some retailers are struggling with deploying tablets is their decision to use popular consumer devices in the retail environment. What they are finding is that an intuitive consumer device does not translate into an easy-to-deploy device in a retail setting, where it is used for mobile point of sale (POS), price and inventory lookup, consultative selling, line busting, etc.

The reality is that before a consumer device can be used in a retail environment, a number of things need to be done to condition it for the task. Many of these steps try to move the consumer device closer to the features available on Intel® processor-based systems running a Windows* operating system (OS): compatibility with most POS software and peripherals, world-class remote management, enterprise-grade wireless capabilities, PCI application support, and a computer capable enough to run a full retail suite.

Motion Computing* has developed mobile (and only mobile) devices and full deployment solutions for a dozen years and has seen retailers implement mobility in many different ways. Their insights led to this solution brief on how retailers can avoid major challenges when deploying tablets.



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Solution Brief

Intel® Architecture Processors
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Little or Big Integration Effort?

Retailers have made sizeable investments in physical terminals and peripherals, software, networking, enterprise information systems, IT expertise, training, and support. Since pulling all these pieces together is a big job, it should be no surprise that integrating a new central element, like mobile POS, takes considerable effort.

The amount of work involved often depends on how compatible the mobile POS device is with the current infrastructure. The greater the departure from well-established infrastructure and business processes, the larger the integration task. In general, deploying a consumer device in retail presents a big change when it cannot run the POS software or communicate with systems and peripherals already installed in stores.

The following describes a wide range of considerations when selecting a mobile POS device.

Running Existing POS Software

Windows is a key component in the retail environment and continues to thrive, installed on 87 percent of POS terminals shipped in 2012, as reported by the IHL Group.² Consequently, the majority of POS and back office software runs on Windows: tying POS terminals to headquarters; collecting big data on every transaction; supporting reward programs; and monitoring inventory levels and shipments automatically – all happening in real time. These Windows-based POS systems and POS applications deliver a lot of time-proven, retail-specific features, such as processing power, database integration, remote management, multi-user capabilities, as well as others.

Integration Effort

When introducing a tablet to the retail environment, its operating system will have a large bearing on the integration effort. For retailers who already made large investments in enterprise infrastructure, much of it running on Windows, selecting

a Windows-based tablet capable of running the existing retail software suite is likely to minimize the integration effort.

On the other hand, retailers who select tablets with an incompatible operating system may need significant support from their retail software vendor to connect the tablets to their information systems. Non-Windows tablets used for mobile POS could require new POS software, which adds cost, time, and complexity. There are also decisions to be made about integration, such as:

- **Less Effort:** Allow the mobile POS to be a virtual island, not fully integrated in the corporate infrastructure, or
- **More Effort:** Create bridge systems to link the mobile POS to the rest of the infrastructure

An example of an island device comes from a high-end restaurant that decided to deploy a wine selector application on a consumer tablet. It wasn't linked to the back-end system; and therefore, it was unaware of which wines were in stock. Customers would choose wines using the tablet, only to find out later they were unavailable, so they had to go through the wine list again, which detracted from the dining experience. While printed wine lists can also be inaccurate, diners have a different expectation of electronic devices – that the information is always up-to-date.

Business Process Impact

Using non-Windows consumer devices could pose issues for retailers forced to deploy new POS software, which may not replicate established business processes, like how to accept a return if the product is now on sale. This means employees need to be retrained to master different transaction flows for both cash wrap stations and mobile POS. For a period of time, there will be no experienced users available to quickly work through the transactional disparities since the mobile POS software will be new to everyone.

Introducing new POS software can sometimes result in more transactional

mistakes, slower transaction processing, and employee frustration. If the frustration reaches a peak, employees may avoid using the new mobile POS devices or even sabotage them. People instinctively resist change, so retailers should carefully manage business process changes. The amount of push-back to change is typically a function of the degree of change and how helpful the new systems are.

IT Staff Skills

For any tablets brought into the retail environment, IT must have the expertise to manage and maintain them, which necessitates specialized training and/or hiring. The integration effort will also require IT skills related to the OS, and these skills may not reside in-house unless the OS is already deployed on other systems. Retailers shouldn't assume that technical staff familiar with using popular

About Motion Computing*

Headquartered in Austin, Texas, Motion Computing* is a leading global provider of tablet PCs and supporting mobility solutions for vertical markets, including retail, healthcare, construction, and field service. Rugged, lightweight, and highly mobile, Motion tablet PCs are designed for mobile professionals who require real-time computing at the point of service. Users can gather, access, analyze, and transmit the critical information they need in order to be productive in today's de-centralized work environments.

Motion offers a line of tablet PCs based on Intel® processors and Windows* OSes, and when coupled with an array of tailored accessories and services, provides mobile professionals with high levels of power, security, portability, and manageability. Customers report improved efficiency,⁵ accuracy, and overall performance while saving time and reducing costs.⁶ Integrated features, peripherals, software, wireless, and services come together to provide a complete mobile computing solution for vertical business environments.



consumer devices at home translates into expertise in deploying and supporting them in-store.

For these reasons, tablet PCs from Motion Computing are Windows-compatible, allowing them to run nearly all retail software suites and interface more easily to the store's computing and networking infrastructure.

Reusing Retail Peripherals

Some retailers also have peripherals, like printers, PIN pads, and cash drawers, that can only be accessed using Windows drivers. Since a consumer device running another OS will not be able to communicate with these peripherals, retailers may need to swap out POS peripherals, install new drivers, and retrain associates, which can be costly. A similar shortcoming is some consumer devices do not have a USB port, which makes developing process flow workarounds more difficult.

Using a Windows-based device avoids these issues since it will be able to communicate with the vast majority of POS peripherals. For example, tablets and docks from Motion Computing can communicate with existing peripherals because they support all the required connectivity features: Windows drivers, retail interface standards like

OPOS and JPOS, wireless support (e.g., Wi-Fi and BT), and USB for cabled peripherals.

Motion Computing also offers integrated retail accessories such as 1D/2D barcode scanners and encryption-capable MSR. They are integrated into the tablet housing so as to retain the ruggedness specs needed by retailers while delivering a uniformly professional look to complement brand image.

Locking Down the Mobile POS

Device lockdown refers to a capability that prevents employees from modifying the software image, thus providing a controlled experience for end users. There are many reasons for locking down a device, such as protecting the system from malicious users, enforcing transactional consistency, and increasing system reliability.³ Locking down the software also helps maximize workforce productivity and reduce device maintenance time.

Windows supports lockdown features, such as AppLocker, Windows Firewall, and Group Policy settings, along with others applicable to fixed-function devices, all of which can be implemented on tablet PCs from Motion Computing.

Many consumer devices do not have effective lock-down modes, which means employees can get into areas a retailer does not want them in, even if third party MDM (mobile device management) software is installed. Employees may even try to download an unauthorized application or change other settings. These same people would not be able to manipulate the settings of a traditional cash wrap station, but popular consumer devices are easier to infiltrate.

Since consumer devices are often designed to be single-user devices, enforcing policies for sharing devices with different categories of employees (e.g., cashiers, managers, and IT) takes some effort. With devices supporting multi-user environments, it is possible to assign specific security levels per user, thus controlling who can reconfigure the device, perform transaction overrides, etc.

Home buttons can also be problematic because they allow employees to exit a running program, which takes them out of the standard workflow. Some device vendors do not allow home buttons to be reprogrammed, making them difficult to disable.

Another drawback associated with consumer devices is employees may

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have a notion of what the device should be able to do from their own experiences. In a real-life example, a retailer removed items including the camera functionality, web browser, and App store, leading employees to assume the device was corrupt or malfunctioning. Trying to fix the devices, some employees performed full factory resets, and others took devices home to use their own PCs for troubleshooting.

Maximizing Wireless Performance

In order to avoid an incomplete or inadequate wireless infrastructure, it's often necessary to install multiple access points to cover a large retail space. For that reason, a tablet may have to move between access points, requiring it to be handed off from time to time using a session management technique such as Opportunistic Key Caching (OPK).

Many consumer devices do not support technologies that authenticate users across multiple access points because they are typically designed for sedentary use in home environments with a constant connection to a single router. So as employees move around the store, to break rooms, stockrooms, loading docks, stairwells, and so forth, a consumer device may not automatically switch access points. The resulting intermittent network access can lead to lost data and impact employee productivity. Moreover, a consumer device may not have an optimized antenna (for cost or cosmetic reasons), needed to adapt to a low signal or interference from the many other signals transmitted in-store.

This can be avoided by using a mobile device designed to maintain a reliable connection that works all the time and delivers the speed needed to keep the transaction going smoothly, even in commercial settings.

Motion Computing has been building tablets for more than a decade, leading to a wealth of experience supporting mobility and wireless connectivity in many challenging environments. In retail, there can be interference from adjoining stores (some of which may have over-boosted their routers),

and many consumers bring smartphones that use the same frequencies. Motion Computing designs their retail-oriented tablets with Intel wireless technology and patented antenna technology that deliver outstanding performance. Motion Computing also offers Mobility Services, which can audit, architect, and deploy wireless systems to support specific retailer requirements.

Transacting When the Network is Down

At some point, a wireless or wired network will go down, requiring the POS systems to complete transactions on their own. These systems often can run independently, scan all items in the retailer's database, and even queue up transactions for a batch-load when the network returns.

However, this may not be possible with a consumer device that lacks the computing resources to run a full POS suite on its own, leading to possible lost sales and customer frustration when the network goes down. In cases of natural disasters that result in long periods of network dysfunction, a retailer wouldn't be able to conduct transactions on a mobile POS based on a consumer device that requires persistent network connectivity.

Tablet PCs from Motion Computing have been designed with sufficient processor performance and memory to run full-featured, retail software packages.

Managing Mobile POS Devices Remotely

Retailers who have established remote device management capabilities via Windows tools such as Retail Remote Desktop Connection, Windows Remote Management (WinRM), or Windows Remote Assistance will need to find another way to manage non-Windows devices. This requires the evaluation and purchase of mobile device management (MDM) tools from a third party, and the IT staff will have to learn a new set of



remote management tools.

Tablets from Motion Computing will run the entire fleet of Windows-based device management tools. Selected SKUs implement Intel® Core™ vPro™ processor with Intel® Active Management Technology⁴ (Intel® AMT), which allows IT device management consoles to fix a wide range of system issues, even when the operating system is down. For example, it's possible to repair corrupted drivers, application software, or the operating system for a non-responsive signage system that won't run or boot. This can be done on an Intel Core vPro processor-enabled wired or wireless POS device through a capability called out-of-band (OOB) management.

Ensuring PCI Compliance

In order for a mobile POS to carry out its function, it needs to accept payments, typically from debit and credit cards. This is an issue for consumer devices since they cannot be certified under the Payment Application - Data Security Standards (PA-DSS), as mandated by the

Payment Card Industry (PCI). This means a new compliance plan must be developed (without the benefits of PA-DSS technology) to lower the risk of cardholder data breaches in a way that can gain approval by the PCI.

If a retailer previously developed and is successfully using a PA-DSS certified application to process transactions, this does not have to be abandoned when a mobile POS is deployed. Retailers who use a commercial grade device that runs the same OS (e.g., Windows) as was certified with the PA-DSS application can greatly minimize incremental PCI work and assessments. For example, PA-DSS applications certified for Windows 7 will retain their certification when running on Motion Computing tablet PCs.

An alternative compliance path is to use specialized MSRs containing a controller that encrypts credit card information before delivering it to the payment gateway: a process referred to as Point-to-Point Encryption (P2PE). With this approach, the credit card information would not be stored on the mobile tablet. If switching from a PA-DSS based security method to a P2PE encryption method, new processes must be developed. Before selecting consumer devices for mobile POS, retailers should verify the availability of PCI-compliant MSRs.

Motion Computing tablets offer attached MSR accessories, which can be used with either PA-DSS applications or with P2PE payment processing. Better yet, these tablets are field upgradable, enabling a retailer to first launch mobile POS on

a Motion Computing tablet using their existing PA-DSS application and later upgrade to P2PE. With Motion Computing tablets, retailers can update their PCI processes when they want and deploy mobile POS features incrementally, as needed.

The PCI Council has also stipulated mobile POS devices must be locked down, ensure no malware was loaded onto the device, and prevent the modification of applications – which could pose issues for consumer devices. Even though the PCI Council publishes guidelines which help make systems safer, the retailer is ultimately responsible if data breaches occur.

Lastly, there is the need to read payment cards based on the European EMV (Europay, Mastercard, and Visa) standard that mandates Chip-and-PIN and near field communication (NFC) methods. Because it enhances security, EMV is used in most countries, and the payment card brands have told retailers to move to EMV card readers by October of 2015. Anticipating this requirement, Motion Computing partnered with leading EMV device providers to ensure the API and interface to these devices are supported on Motion tablet PCs.

Raising the Bar for Tablet PCs

In the hands of retail sales associates, Motion Computing tablet PCs based on Intel Core vPro processors can deliver an enhanced shopping experience and

raise sales assistant productivity. These multi-function devices are ideal for both specialty stores and large retail chains, given they can be used for mobile POS; price and inventory lookup; consultative selling; or as a laptop, self-service station, or tablet. In a retail setting, the device can play eye-catching content that heightens brand awareness and enables sales associates to increase brand engagement. The tablets can run multiple, compute-intensive applications simultaneously without sacrificing performance or security.

Key Benefits of Intel vPro Technology

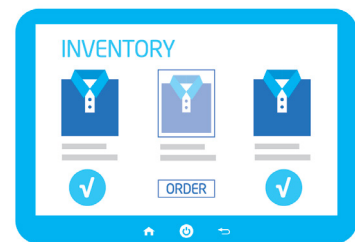
- Enhanced remote management capabilities
- Automatic processor speed up,⁷ when needed
- Multiple-task execution
- Hard drive encryption
- Built-in energy saving features
- Anti-theft technology
- High-definition graphics
- Long battery life



Sales assist apps wield tremendous power – delivering up-to-the-minute product and inventory information and helping sales associates expertly lead customers to a buying decision.



IHL Group estimates: 45% of all retailers have a rational approach toward adoption of mobile devices in their stores, with about half using the devices specifically for mobile checkout.



The very least that customers expect today is an inventory lookup and order fulfillment app. Without it, your sales go elsewhere.

The Safer, Easier Approach

Most retailers have solid, well-integrated, and highly-available IT infrastructure that delivers stability, data protection, and real-time business analytics. A majority of in-store systems run on Windows because the operating system supports full-featured software, enterprise-level management, and secure lockdown capabilities.

It makes perfect sense for retailers to build upon their large infrastructure investments that have resulted in successful operations over the years. The safer, easier way to add mobility is to use tablet PCs designed for the rigors of retail stores, and which already include management and security features. Rather than modifying and enhancing consumer-grade devices to get them to an acceptable level, and then implementing mobile workflows, it is better to start with mobile devices that are already at the same level as the countertop systems with respect to PCI compliance, connectivity, and manageability.



1 Source: Lora, Fatima D., "IHL Group Dissects Mobile POS 'Hype,'" Retail TouchPoints, June 12, 2013, <http://www.retailtouchpoints.com/mobile/2627-ihl-group-dissects-mobile-pos-hype>.

2 Source: IHL Group* press release, "Despite Pressure From Mobile Devices, POS Terminal Numbers Continue Strong Growth, According to New IHL Report," February 27, 2013, <http://finance.yahoo.com/news/despite-pressure-mobile-devices-pos-130000526.html>.

3 Source: Microsoft* website, "Device Lockdown," <http://msdn.microsoft.com/en-us/library/jj979905%28v=winembedded.81%29.aspx>.

4 Requires activation and a system with a corporate network connection, an Intel® AMT-enabled chipset, network hardware and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating or powered off. Results dependent upon hardware, setup and configuration. For more information, visit Intel® Active Management Technology.

5 Source: http://www.motioncomputing.com/products/index_in_alt.asp?gclid=CKa07uepgLsCFYWDQgod-kgAng

6 Source: http://www.motioncomputing.com/about/news/PDFs/WP_VDC_Mobile_Device_TCO.pdf

7 This feature is enabled by Intel® Turbo Boost Technology, which requires a system with Intel Turbo Boost Technology capability. Consult your PC manufacturer. Performance varies depending on hardware, software, and system configuration. For more information, visit HYPERLINK "<http://www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology.html>" www.intel.com/content/www/us/en/architecture-and-technology/turbo-boost/turbo-boost-technology.html.

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