IN COMMAND

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Mobile Enable Your Supply Chain

Lowering Total Cost of
Ownership on Rugged Wearables

WHITE PAPER

IN COMMAND –
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LOWERING TOTAL COST
OF OWNERSHIP ON RUGGED WEARABLES

Are you worried about the escalating costs in managing rugged wearable computers? Are you wondering why these rugged wearable computers cost 5x to 10x the cost of consumer electronic devices with one-third features? Are you looking to reduce the total cost of ownership (TCO) onthese rugged devices? If yes, you are not alone. These are some common concerns of any warehouse or distribution center manager who is responsible for managing these devices. This paper addresses the challenges faced by warehouse operators with regards to rugged wearable computers and provides alternative solutions to the challenges they face.

"The advancements in enterprise rugged wearables have not kept up with the advancements in consumers mobile devices"

WHAT IS A RUGGED WEARABLE COMPUTER?

Rugged wearable computers are devices that are worn by users in their arms while performing various functions, like picking and packing in a warehouse setting. Wearable computers provide hands-free way for users to operate the data collection device thereby improving the productivity and efficiency of users. Wearable computers have been in the market since mid '90s and have been proven to improve the efficiency and accuracy of operations. Symbol Technologies (now part of Motorola Solutions) was the first to introduce the wearable computer system, WSS 1000. Other players jumped in once the concept was proven in the market place. LXE (now part of Honeywell), Psion (now part of Motorola Solutions) and few other firms had similar wearable computers in the market.

CURRENT CHALLENGES WITH RUGGED WEARABLE SOLUTIONS

One of the biggest challenges is the lack of options for customers wanting to buy a rugged wearable computer. If you are in the market to purchase rugged wearable computers, you only have two options, Motorola Solutions and Honeywell. Recent years have seen substantial consolidation in the marketplace, with Motorola and Honeywell acquiring other players, like Psion, LXE, Intermec, Symbol etc, reducing the options customers have when they shop for rugged wearable computers. This duopoly has allowed Motorola Solutions and Honeywell to virtually control the market. A problem with lack of competition is that there is no pricing pressure on the incumbents. Unlike every other electronics segment where prices have drastically reduced over the years, manufacturers of rugged wearable computers have held their prices. As an example, cost of an Outbound Systems 9 LBS laptop with 40 MB hard drive (note: hard drive not RAM) was $3999 in 19901. Now, you have multiple options to buy a sub $300 laptop with hundred times capacity compared to the Outbound Systems laptop of '90s. In comparison, the costs of rugged wearable computers have held their prices in $2800 to $3500 range since mid '90s despite reduction in component prices. A second problem with current rugged wearables is the relative lack of innovation and device advancement when compared to consumer devices. As an example, the weight of Symbol WWC 1000 from the '90s was 11.3 oz.2and the weight of the latest Symbol WT4000 series is also 11.3 oz.3. In comparison, the first generation Apple iPod Touch released in 2007 weighed 120g and the latest fifth generation iPod Touch released in 2012 weighs 88g4. That is close to 30% reduction in weight in 5 years. This reduction in weight is in addition to increasing the memory capacity, increasing the screen size, adding back and front cameras and other new features.

1. www.money.cnn.com/magazines/moneymag/moneymag_archive/1990/10/01/86115/
2. Based on WWC 1000 product spec
3. Based WT4000 series product spec
4. Based on Apple iPod Touch Tech Specs.

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The device advancement and innovation can be directly correlated to the amount of R&D dollars spent by consumer electronics manufacturers and rugged device manufacturers. Apple, for example, spends about $3 billion in R&D in 4 categories of products. Motorola, on other hand, spends about $1 billion in R&D on almost 30 different categories of products and services spanning hundreds of different products. The focused R&D spend in the consumer electronics segment driven by the fierce competition is driving the innovation we see in consumer devices.

For all the ruggedness and durability these devices were drummed up to be, they still don't hold up in the industrial and warehouse environments. Some warehouse operators had to keep additional 20% of their devices in stock and always had some devices sent to manufacturers for repair. Even if the devices were covered under warranty, there was effort and cost involved in managing these repairs and maintenance of these devices. As one of the users of Motorola Windows mobile devices, Justin Formella, CIO, MBX Systems, notes "[MBX's Motorola] devices were marketed as ruggedized and industrial, but they didn't hold up well" .

AGE OF CONSUMERIZATION

Most of the technology based devices and applications have their origins in business environments. They were first developed for business applications and then gradually launched in consumer markets. That is until recently. Since the introduction of Apple's iPhone, the consumer electronics industry has driven the advancement of technology devices. Now, many consumer devices are finding their way into enterprise environments. Consumerization is the "growing tendency for new information technology to emerge first in the consumer market and then spread into business and government organizations" . Consumerization of IT is everywhere and more and more businesses are adopting their policies and processes to support this trend. According to IDC Research released in 2012, "iOS will be the top operating system in the enterprise among companies that deploy mobile products to employees" . Many companies, from Kraft Foods, Sunbelt Rentals, D.W. Morgan to Lowe's and GE are deploying consumer devices in their enterprises .

But, even with all the promise and advancement of consumer devices in the business environments, these devices lack some of the core needs of warehouse and distribution center operators. According to VDC Research, the annual failure rate of non-rugged consumer devices in an enterprise environment is 3x to 4x higher than rugged devices and the leading symptom of device failure is cracked display (67%) with dropping of the device as a leading cause (77%) of device failure.

"iOS will be the top operating system in the enterprise among companies that deploy mobile products to employees" **– IDC Research**

"Motorola devices were marketed as ruggedized and industrial, but they didn't hold up well"
– Justin Formella, CIO of MBX

"In Command could become Swiss army knife of distribution operations"
– IT Program Director, Luxury Apparel Retailer

"In Command is ruggedized device leveraging an off-the-shelf consumer electronic device."

1. www.computerworld.com/s/article/9219421/The_iPad_takes_on_manufacturing?taxonomyId=12&pageNumber=1
2. www.en.wikipedia.org/wiki/Consumerization
3. www.technologyreview.com/view/508111/the-secret-war-between-ios-and-android-in-the-office/
4. www.apple.com/iphone/business/profiles/

LOWERING TOTAL COST OF OWNERSHIP ON RUGGED WEARABLES

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In Command is a Ruggedized Consumer Electronic Device to be used in enterprise environments as an alternative to the rugged wearable computers like Motorola WT4000 and Honeywell LXE HX2. In Command has a consumer electronic device, a proprietary ergonomic rugged enclosure and intuitive set of apps to enable the consumer device to be used in warehouse and distribution environments. The first generation of In Command will be using Apple iPod Touch 5th generation as the core computing device and will be paired with a Bluetooth ring scanner for data capture.

It is the ergonomic rugged enclosure that makes the consumer electronic device deployable in warehouse and distribution environments. This enclosure is designed by a leading industrial design firm and manufactured using precision manufacturing approach. This enclosure is designed to comply with stringent protection ratings to withstand bumps, drops and exposure that occur in the warehouse environments. The enclosure is manufactured using strong and light-weight materials so that the enclosure is rugged yet light-weight. The first generation In Command is 30% to 40% lighter compared to the existing wearable computers in the market resulting in reduced operator fatigue. By utilizing an off-the-shelf consumer electronic device, warehouse operators can not only reduce the initial cost of purchasing the devices, but also improve operator productivity.

First generation In Command device includes an intuitive app called In Command Link (SGL), with patent-pending keyboard technology to enable efficient use of the device in a warehouse environment. SGL uses a set of semi-transparent keyboards, called Soft-Overlay Keyboards(SOK) that enable the operators to use the on-screen keyboard without losing sight of the content displayed on the device which increases productivity and accuracy of operators.

With the consumerization of devices and trend of BYOD, there is an increased focus on developing solutions to manage the devices in enterprise environment. According to VDC research, the "Remote Management and Support Capabilities" is the top concern among mobility issues faced by organizations. In Command leverages Cisco's industry leading Mobile Device Management solution, Meraki Systems Manager. In Command ships pre-packaged with Meraki MDM solution for remote device management. Meraki MDM solution has capabilities to enforce an organization's mobility policies on devices, place restrictions on apps operators can use, perform remote lock and remote erase on devices. Organizations that already own MDM software will be able to use it to manage In Command devices. With current wearable computers, organizations will have to purchase a standalone MDM module from the wearable computer vendor or a third-party MDM solution provider which increases the TCO of wearable computers.

The rugged wearable computers from Motorola and Honeywell have been used primarily as single purpose devices. They act as dumb terminals connecting to inventory control systems and warehouse management systems using protocols such as Telnet and SSH. They are sufficiently equipped to fulfill the functions they are expected to perform now.

In Command, in comparison, is a multi-purpose device. IT program director from a leading luxury apparel retailer, who had the opportunity to review the capabilities of the device, commented "In Command could become the Swiss army knife of distribution operations". The front and back cameras on the device coupled with communication apps like Skype or Facetime could be used for collaboration among warehouse users and troubleshooting issues. The audio and video playback capabilities of the device can be used for on-demand end user training. Built-in GPS and location based capabilities can be used for monitoring and calculating travel within the distribution center. The possibilities for leveraging the capabilities of the device for other functions are endless.

There are many intangible benefits of using a consumer electronic device like Apple iPod Touch. Apple and Samsung ship millions of devices every month. This economies of scale results in reduced cost for end user which cannot be matched by rugged device manufacturers. These consumer devices, especially Apple's, are designed for exceptional user experience, geared towards next generation consumers, the millennial. Most current operators and your future workforce might already be familiar with the user interface of the devices which results in reduced learning curve. Apple's iOS platform and Google's Android platform have also developed a rich eco-system of apps that organizations can leverage. If organizations want to use similar capabilities in existing rugged devices, they would have to develop those capabilities from scratch in-house. The iOS and Android platforms also have a large and focused developer community who continue to develop applications with every release of these platforms. Organizations will be able to easily find talent if they do want to develop in-house applications.

CONCLUSION

The time is ripe for consumer mobile devices to enter enterprise environments such as warehouses and distribution centers. With appropriate rugged enclosures and intuitive apps, consumer devices like Apple iPod Touch can not only replace the existing rugged wearable computers but also provide additional capabilities that warehouse and distribution center operators can leverage. By leveraging an Apple iPod Touch as core computational component, the initial cost of the In Command device is drastically lower compared to the current rugged wearable computers. With the packaged Meraki System Manager as MDM solution, organizations can centrally monitor and manage the devices in their network. The In Command device, with proprietary ergonomic enclosure and intuitive In Command Link app provides the best of both worlds; ruggedness and durability of an enterprise device with lower cost, ease of use and device advancements of a consumer device.

ABOUT IN COMMAND

In Command is a light weight next gen wearable computer for use in Retail, Logistics and Supply Chain industries. Its features include data collection capabilities, picture and video based documentation, video based training and ability to deploy collaboration apps like Facetime, Yammer and Chatter in a warehouse environment. These unique technology advantages are offered at 30% lesser cost compared to the devices in the market today. To learn more visit www.in-cmd.com.