

EVOLVE OR DIE: HOW MOBILE ANALYTICS CAN STOP YOU FROM GOING EXTINCT

EXECUTIVE SUMMARY

With 61% of customers leaving as a result of poor customer experience, businesses need to improve mobile performance or risk decline

Most enterprises have frontline mobile solutions that are operational, yet few have systems that could be called optimised.

They probably have tools for managing and securing mobile systems, but not for improving them.

Real time Mobile and Wireless Analytics enables the business to get the most out of their mobilised services by identifying the issues that regularly impact a mobile deployment, enabling organisations to take proactive measures to mitigate them.

With Mobile and Wireless Analytics, organisations can make the leap from fixing things after they break, to preventing them.

This makes frontline staff more efficient, effective and satisfied; leading ultimately to an improved customer experience, driving up customer satisfaction and retention.

This paper provides an overview of real time Mobile and Wireless Analytics, explains how it enhances enterprise and mobile device management and highlights how it helps organisations improve productivity, reduce cost, and gain new value from existing mobility investments.

STATISTICAL ANALYSIS FROM MOBILE DEVICE ANALYTICS PROGRAMMES AND RESEARCH SHOWS:

61%

of customers stopped doing business with at least one company last year because of poor customer experience [i]

78%

of enterprise professionals said mobile analytics would improve productivity [ii]

23%

increase in total cost of ownership for every 1% raise in mobile device failure [iii]

30%

is the average frontline mobile device utilisation hole [iv]

"Applying these new types of analytics tools will maximise the value of mobility, and optimize the user experience and spend."

Gartner Cool Vendors in Mobile and Wireless Analytics, 2017 [v]



INTRODUCTION

As mobility has become commonplace and core to business operations, many organisations are struggling to achieve significant new value and continued positive returns on their mobility investments.

One of the reasons is that the overall reliability of their mobile infrastructure has not kept pace with the significant advances in mobile applications and network capabilities. Software crashes, dropped network connections and dead and dying batteries are all still relatively commonplace.

Organisations need to make their mobile solutions more reliable to realise the productivity improvements, cost savings and customer service benefits from mobility programmes.

Mobile Device Management (MDM) and Enterprise Mobility Management (EMM) systems (referred to simply as "MDM" and "EMM" in the remainder of the document) assist in deploying, managing, securing and updating applications and mobile devices.

They do not look at either the actual performance of the mobile service end to end, or the wider context.

"The use of mobile technology has become mainstream, and, as the level of innovation is tapering off, it's time to take advantage of new analytics tools to optimize mobile technology usage"

Gartner Cool Vendors in Mobile and Wireless Analytics, 2017 [vi]

This leaves a substantial gap in ensuring mobile enterprise performance is optimised. This gap limits an organisations' ability to identify and solve reliability problems and to optimise their mobile solutions, which ultimately reduces user productivity, customer service and the ROI for mobile programmes.

Now organisations can bridge the gap by applying a new type of real time Mobile and Wireless Analytics that has been specifically developed for the enterprise. This type of advanced platform lets organisations optimise mobile environments, rather than simply monitoring and troubleshooting them.

"Getting the insight that truly makes a difference for device reliability, performance and user efficiency takes more than reviewing basic downtime reports and repair records. You need to learn what causes devices to slow down or fail, and what can be done to prevent it. The more information you can get about how your devices perform and what affects their performance, the more value you can get out of them."

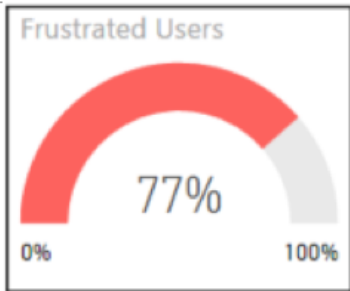
TERRY SOLESBURY - ROYAL MAIL



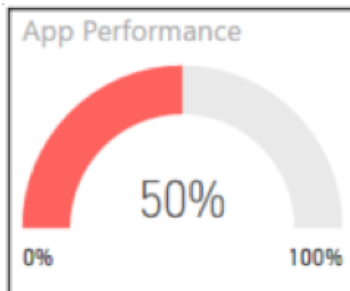
DELAYED REACTION IS NO LONGER ENOUGH

Businesses depend on their mobile operations more than ever before, and workers depend more on their mobile devices, so the entire solutions needs to be more reliable. Nobody wants to be remembered for the time a service appointment was missed or a delivery was late!

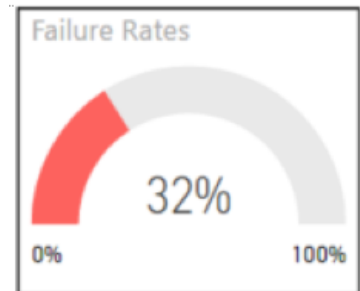
Unfortunately, most organisations have yet to make sufficient investment in preventing performance problems that inconvenience frontline mobile workers and prevent them from doing their jobs. Consider:



mobile device failures result in frustrated users [vii]



administrators experience app performance problems [viii]



managers say failure rates are a major concern for field mobility [ix]

Despite the fact that most organisations are now using EMM systems, these statistics show that mobile service failures are common, and costly.

The persistent mobile performance problems and widespread EMM use indicate there are significant limitations to traditional EMM.

Only 51% of organisations that implemented EMM systems reported receiving significant benefits, and 78% say it is important to implement services that activate the under utilised functionality and capabilities of their existing MDM solutions [x].

Real time Mobile and Wireless Analytics bridges the gap to get the best out of your mobile devices, infrastructure and management software.

MAKE THE LEAP FROM MANAGING TO OPTIMISING

At B2M, we have seen that Mobile and Wireless Analytics (referred to as "MWA" in the remainder of the document) can add significant value in numerous scenarios. Two of the most frequent we found are:

1. Where the mobile system is small, localised or fairly static in nature; requiring limited manual application, device and infrastructure updates. Applications that focus on Terminal Emulation often fit this mode of use.
2. Where the mobile system is more dynamic, complex, regionally or internationally dispersed and therefore likely to be managed by an EMM system.

In the first case, mobile deployments may not require an EMM, and so the MWA client can be remotely activated over the air for some device types, or readily manually deployed and activated for others.

Once activated, the MWA platform collects and analyses data about the device, battery, wireless networks and main application. Immediately this provides a new level of asset visibility.

Then, over time it records normal behaviours, and thereby identifies and alerts on exceptions: like device reboot disruptions, poor battery charging practices creeping in, degradation in wireless network coverage or batteries in need of replacement.

Collectively this allows the operations team to proactively and incrementally optimise the running of the mobile device estate, correcting disruptive issues as soon as they arise and preventing small issues developing into bigger operating headaches.

For those situations where an EMM is in place, the principles are very similar, although the failure characteristics will differ due to the increased rate of inherent system change. Naturally it will have the same key benefits as in the first example, however in what will be a more complex and dynamic system - it will become much easier to troubleshoot, particularly across multiple business units, time zones and vendors.

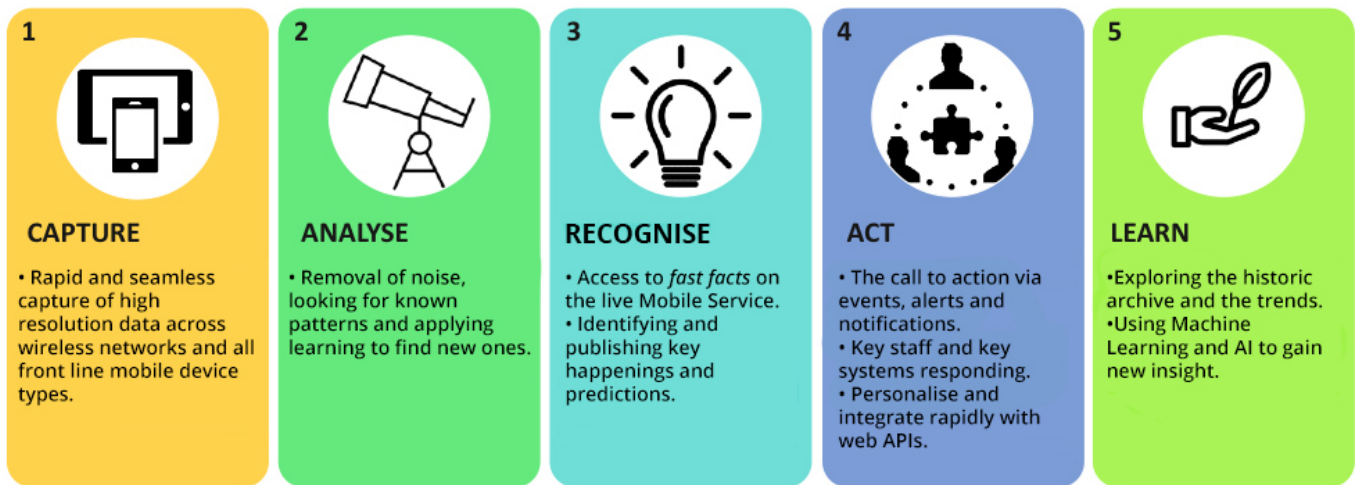
Whilst EMM reporting is typically on a device by device basis and historical in nature, MWA monitors much more actively. It captures greater levels of information, searches for patterns and groupings, and gives operations staff or automated workflows the information to act on information immediately rather than retrospectively.

EMM and MWA Comparison

Category	Enterprise Mobility Management	Mobile and Wireless Analytics
Software	Application inventory - per device.	Real time application usage across all devices, unauthorised applications; CPU and memory consumption by application; apps running in the background; software resource conflicts; utilisation data by application. Real time alerts to software issues or unauthorised applications.
Wifi & WLAN Connectivity	Connected/not connected, time of last login; location when last logged in - per device.	devices connected/not connected and number of connectivity disruptions. Ability to drill into individual devices for time of last login; location when last logged in. Real time alerts to WLAN connectivity issues.
Cellular & WWAN Connectivity	Connected/not connected, time of last login; location when last logged in - per device.	Real time visibility of all devices showing number of devices connected/not connected and number of connectivity disruptions. Ability to drill into individual devices for time of last login; location when last logged in. Real time alerts to WWAN connectivity issues.
Cellular & Mobile Data	SIM card details per device.	Real time visibility of data usage across all devices. Ability to drill into individual devices for SIM card details and individual data usage, plus source of data usage by application. Real time alerts to excessive data use or data limits being reached.
Disruptions	Uptime/downtime per device.	Real time visibility of uptime/downtime across all devices. Total disruptions, average disruptions by device; CPU cycles used by application and function; CPU peaks and valleys; memory allocation. Ability to drill into individual devices. Real time alerts to performance issues.
Battery	Percentage of devices that experienced battery failure per device.	Battery consumption by device type to identify trends that affect part of the estate. Monitor battery temperature to detect abnormal thermal changes. Real time alerts for excessive/unusual battery drain or
Utilisation	Uptime/downtime per device.	Real time visibility of utilised devices vs not utilised devices compared to the average utilisation for the business. Real time alerts if under utilisation increases.

HOW MOBILE AND WIRELESS ANALYTICS WORKS

MWA can be thought of in terms of the five stage process below:



Over the last three years, the convergence of a number of key digital trends has made it possible to create a cost effective MWA capability for enterprises. These include:

- The proliferation of highly connected mobile devices in the enterprise.
- The commoditisation of cloud platforms that underpin "Everything as a Service" models.
- The emergence of RESTful Web APIs as the defacto interfacing standard.
- The arrival of real time Big Data engines.
- The rapid developments in Machine Learning and now Artificial Intelligence (AI).

Combining these advanced capabilities makes it possible to build a secure, scalable, flexible and high value MWA platform.

Today, a best in class MWA is built on a massively scalable foundation supporting fixed and fluid data structures, with computing and storage capacity on demand.

This allows the advanced analytics engine to pull on massive calculation and data processing resources. By applying the latest in machine learning and AI algorithms MWA can identify complex patterns in the data and distill that into meaningful insights - all in real time.

These key insights, events and alerts can then be made immediately available to a rich mix of enterprise systems through standardised and secure interface mechanisms. This makes it faster, cheaper and easier than ever to publish this information for ready consumption in the rest of the enterprise.

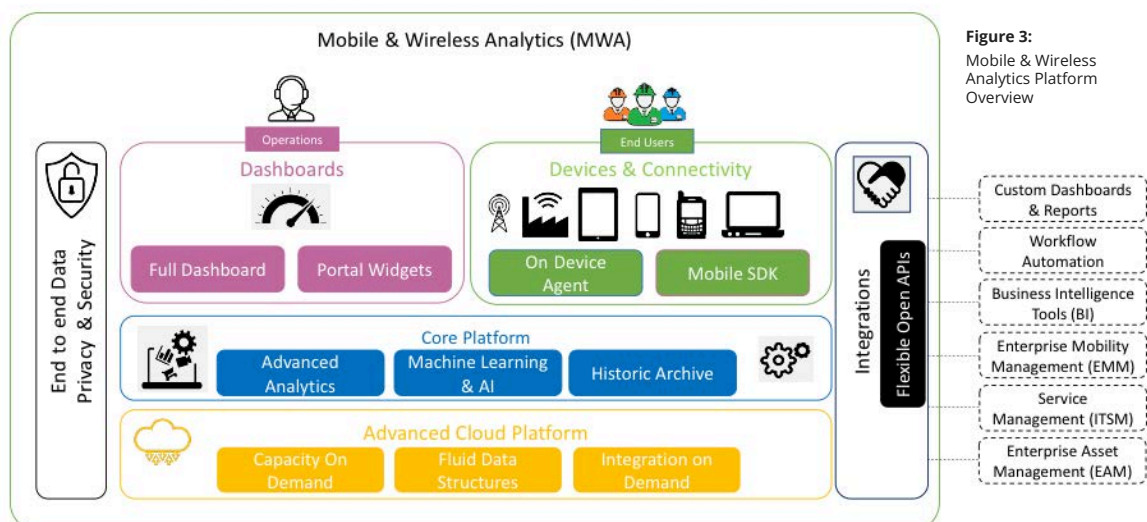


Figure 3:
Mobile & Wireless
Analytics Platform
Overview

MWA OFFERS DRAMATIC IMPROVEMENTS IN MOBILE SYSTEM OPERATIONS

PREVENTING & RESOLVING APPLICATION ISSUES

Slow running applications reduce productivity, frustrate workers and customers, and are a leading source of device crashes.

As noted, 50% of mobile administrators commonly experience application performance problems. Unfortunately, in today's typical mobile systems, tracking these problems down is becoming increasingly difficult.



MWA offers two main categories of assistance:

1. Black box App Analytics

It is possible to determine various attributes of mobile application behaviour, without resorting to code changes.

Exactly what can be observed differs by mobile operations system. However, typical characteristics are App utilisation, version numbers and deployment dates, battery and data usage patterns and wireless coverage available to an App over time.

This helps provide a rich context to trouble shooting activities and does not require any App code change.

2. White box App Analytics

For really detailed App analytics, it is necessary to look inside the App, and so make small source code changes to inform the MWA platform of App specific events. These events could be use case specific task completion Key Performance Indicators (KPIs) - for example, item scans, collections and deliveries per device per day for a logistics application.

As well as capture performance against KPIs, another common scenario is to add start of app day, start of shift, end of shift and end of app day events - to capture the cadence of a normal working day for a specific device grouping.

This provides a repeating pattern, against which to look out for App anomalies, such as a sharp increase in App crashes, typically when a new App or Mobile Operating System change rolls out.

In this way, MWA can identify conflicts among applications, alert administrators to application irregularities before they escalate to crashes, identify applications that are not actively being used but are consuming resources, and identify when Apps are underperforming against targets.

They can also provide App utilisation data to help optimise performance of the software portfolio.

IMPROVING CONNECTIVITY

Did you know that roughly 40% of organisations receive at least 300 connectivity related trouble tickets per month? [xi]

Or that nearly half of administrators said they could not easily diagnose the cause of connectivity problems [xii]



MWA can help administrators quickly restore connectivity and prevent its loss in the first place by providing insight about how different WiFi and wide area wireless (Cellular or Mobile) networks affect device and application performance.

MWA solutions can also report data use by application, so organisations can fine tune business processes for different coverage zones, and provide details about whether lost connectivity was caused by network, software or hardware component issues.

INCREASING UTILISATION

Optimising the size of the mobile device population is one of the most effective ways to optimise costs.

If organisations do not have enough functioning devices then work will stop, revenue will suffer, and customer service will decline.

Keeping too many spares drives up costs by keeping capital needlessly tied up in devices that go unused.

To find the right balance, organisations must understand how many devices they really own and how many of them are available, then optimise device performance to minimise out of service time.

Almost every customer we've worked with has learned that the number of devices it has available for work is far different from the number it thought it had. This is particularly important during seasonal peaks.

It is typical for 30% of an organisations' mobile devices to be unused on any given day. [xiii]



MWA can prevent these problems and associated expenses by:

- Providing an accurate, real time inventory and status for the mobile device estate.
- Issuing alerts when devices have not logged on for an unusual period, which can indicate the device has been lost or stolen.
- Location monitoring, including tracking to the last known location. This prevents unnecessary purchases to replace devices that may have been considered lost but are still within the enterprise and appear unavailable because of dead batteries or lack of network connectivity.
- Delivering accurate, real time information about device health, so devices can be serviced and maintained proactively, instead of being taken out of service for emergency unplanned repairs.

B2M's analysis of mobile device analytics data for hundreds of thousands of devices found that **most organisations can reduce their device populations by at least 10% by using Mobile and Wireless Analytics** to optimise utilisation.

You can calculate savings using the [B2M Solutions ROI Calculator](#).

Use the calculator to input your own device type, number of workers and other variables to see the savings potential for your organisation.

PREVENTING BATTERY FAILURES



Battery drain is a leading cause of device failures, and is a failure point that emphasises EMM limitations.

EMM software would provide a log report showing a dead battery was the cause of a device failure but would not do anything to prevent the failure from happening.

MWA prevents battery related device failures in several ways. For example, it can flag a device that is rapidly losing its charge.

It could go beyond basic alerting by informing the administrator the reason the battery was draining, perhaps for example because a GPS driven App was running in the background.

That added insight gives administrators the information they need to fix the issue on the device, and on any others in the device population that may be in the same circumstance.

REDUCE FAILURES & UNPLANNED DOWNTIME

The real time insight from MWA allows support operations to become proactive instead of reactive.

It changes a MDM system from something that reports problems to something that prevents them.

Like an MDM solution, MWA can provide real time information about an individual device status, but unlike MDM, MWA can also provide the information for ALL devices and predict how the devices will perform based on their status and multiple other variables.

That provides time to make configuration changes, issue alerts and take other actions to prevent device failures, unplanned downtime and lost productivity.

IMPROVED PRODUCTIVITY

Lost productivity from equipment downtime is the most expensive component of mobile device total cost of ownership (TCO).

Therefore reducing lost productivity has the greatest potential to increase the value of mobile operations. As previously noted, every 1% increase in an organisation's mobile device failure rate can raise the mobile device TCO by 23%.

Besides the lost productivity, costs also rise because overtime may be required to make up for time lost, customers may be due refunds or discounts because of late deliveries, missed appointments or failure to meet service level agreement (SLA) commitments.

Organisations also suffer from employee and customer dissatisfaction plus damage to brand reputation when devices fail and impact productivity.

The disruptions caused by device failures in a corporation that does not invest in MWA will impact competitiveness and ultimately create negative pressures on share price.



A Latin American company was in the midst of deploying a large number of handheld computers to employees to better support its customers.

The devices it was deploying had MWA pre installed and active and a third party EMM product was installed. The devices immediately began experiencing disruptions and reboots.

The MWA software issued alerts that identified the issue with one of the installed applications, so the third party software supplier was contacted and promptly released a patch for the problem.

Had that not occurred, the devices would have crashed, but the real time alert and fast action prevented it.

The company estimated that it **saved approximately \$160,000** of lost productivity and downtime.



"Designate mobile analytics as a strategic imperative in your mobile and endpoint planning in order to gain actionable insight into usage patterns"

Gartner Cool Vendors in Mobile and Wireless Analytics, 2017 [xiv]



Many of these failures and their associated costs are preventable. However, as we've seen, EMM alone does not prevent these problems.

An overwhelming majority of mobile system administrators, 78%, believe that gaining more visibility into their mobile device populations would directly result in increased productivity. [xv]

A separate study found that 63% of companies that were leaders in applying increased analytics improved their operating margins by 15% or more, and 60% reduced their risk profiles. [xvi]



Mobile and Wireless Analytics provides the visibility needed to improve mobile worker productivity.

That has been proven in practice, not just theorised by researchers and analysts.

Appliance maker Whirlpool credits an analytics solution applied to the handheld and forklift mounted computers at one of its distribution centres for producing **63% return on investment (ROI)** in just the first **two months**, as detailed in this [case study](#).

PLUG IN TO EXTRACT MAXIMUM VALUE

Real time Mobile and Wireless Analytics platforms provide yet further benefits when integrated with the technology, processes and partners that deliver your mobile enabled services.

An MWA should offer a secure and scalable platform, as well as comprehensive and flexible APIs.

The de facto RESTful Web Service API standard is supported by many leading zero and low code third party enterprise tools, simplifying and accelerating the integration process.

Here is a selection of some of the wider benefits on offer through integration:

- Personalisation of dashboards and reports to match the needs of different stakeholder groups within the organisation - leadership, operations, support and IT.
- Automation of activities through integration with human and machine workflows.
- Greater asset visibility, via integration with rugged and consumer EMM systems, in a step towards true Unified Endpoint Management (UEM).
- Greater operational visibility, via integration into existing service portals showing overall performance against targets and driving continual service improvement.



SUMMARY

Most day to day support for mobile device populations is focused on keeping the lights on! With Mobile and Wireless Analytics, organisations can optimise mobile performance and significantly improve their mobile operations, in less time than they were spending simply maintaining the status quo.

Mobile and Wireless Analytics provides proactive protection to optimise operations and prevent failures.

The technology is a natural and valuable element to add to existing mobility improvement programmes.

Improving reliability and performance are essential at a time when organisations and their customers are relying more on mobile service than ever before.

Before the advent of analytics, mobile device capabilities had grown exponentially, while their reliability and the ability to manage mobile devices had improved only incrementally.

Mobile and Wireless Analytics closes that gap, so that organisations can optimise their mobile devices, user productivity, and service to customers.



In 2017 more than half of organisations (53%) wanted to find new ways to leverage their mobile systems with new capabilities, and 82% said getting actionable insight from analytics, alerts and reporting was important. [xvii]

Implementing Mobile and Wireless Analytics today ensures that you can attain the highest standards of Customer Experience (#CX), safe in the knowledge that the mission critical mobile operations behind the scenes can continue to fulfil the promise, and so stay one step ahead of the competition.

ABOUT B2M SOLUTIONS

B2M Solutions™ is a privately held company based in Abingdon, UK, with marketing and sales operations in Atlanta, GA., U.S.A.

Founded in 2002, the company provides software that delivers valuable insights and actionable analytics for enterprise mobility customers with business critical applications.

The company's software includes Elemez™, a cloud hosted analytics solution that delivers real time information enabling enterprise customers to identify and address problems with their mobile devices that may be affecting device performance, worker productivity and the bottom line.

mprodigy® - B2M's mobile enterprise management platform (MDM/EMM) - goes beyond traditional mobile device management to help companies proactively monitor, analyse and act on information about their business critical mobile devices.



For more information, visit www.b2msolutions.com

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