

Brief: Forrester's Shopping Guide For Mobile Application Performance Management Solutions

Mobile Application Performance Management Is A Critical BT Agenda Solution For Optimizing Mobile Moments

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WHY READ THIS BRIEF

Your firm needs a mobile strategy to transform into a digital business. A well-executed strategy will ensure that customers are continually engaged with your firm and employee productivity is optimized via mobile apps. Thus, infrastructure and operations (I&O) professionals must be able to proactively measure and guarantee mobile app performance. This need has led to the development of mobile application performance management (mAPM) solutions, which promise rapid performance feedback and forward-looking business insight into the performance of mobile apps. The problem is that mobile app performance is based on a myriad of variables, such as mobile device hardware, the network carrier, and business user or customer behavior. Use this report to understand which core capabilities and features you should look for in a good mAPM solution.

MOBILE MEASUREMENT THAT INCLUDES MAPM IS VITAL TO MOBILE SUCCESS

Mobile strategy continues to be a top business priority in all industries, with nearly a half of technology decision-makers globally prioritizing expanding their internal and external mobile strategy.¹ Thus, fast feedback on performance is vital via a mobile measurement strategy.² Mobile measurement is the responsibility of all technology management professionals, and for I&O, represents an opportunity to influence the BT agenda.³ I&O professionals should take the lead here by driving the investment in mAPM solutions or enhancements to current monitoring tools. mAPM solutions help with the following mobile measurement challenges:

- **Multiple device manufacturers.** The mobile device market is awash with different tablet and smartphone providers. Most I&O professionals have heard of Apple, BlackBerry, Samsung, Nokia, LG, and HTC, but this only represents a small crumb of the number of mobile device manufacturers in the market. In the past four years, we have seen Chinese entrants such as Huawei Technologies and ZTE, and Amazon, which recently launched its Fire Phone.⁴ Because of the vast amount of device manufacturers in the market, your mobile measurement strategy must include mAPM solutions, which can proactively monitor device variables such as battery life and storage capacity.
- **Multiple operating systems (OSes) and mobile app versions.** Today, mobile OS platform use is a two-horse race between Google Android and Apple iOS⁵; but tomorrow, there will be growing customer demand for additional platforms such as Windows, Firefox OS, and Fire OS. Mobile apps rely on the underlying OS for performance and availability, so your mobile measurement strategy must include solutions capable of monitoring your business users' and customers' OSes. Also, your



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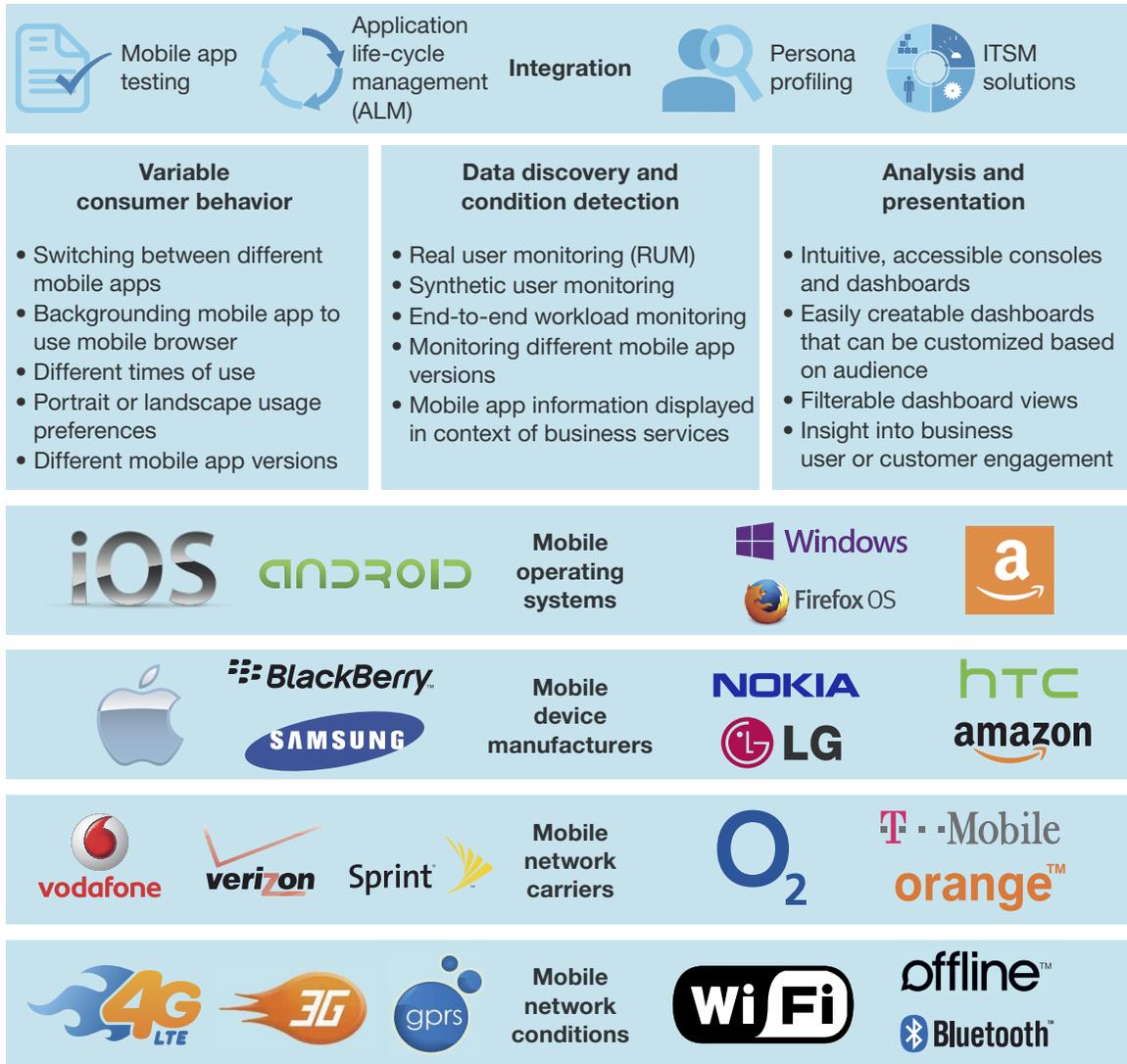
business users and customers might continue to use older versions of your mobile app and OS; mAPM solutions address this challenge by monitoring a wide number of OSes and all mobile app versions.

- **Variable network connections.** Mobile apps are designed to be used on the move, so a business user or customer will make use of various network methods, ranging from Wi-Fi, 3G, 4G, and eGPRS. Also, business users and customers might want to use your firm's mobile apps while they have limited or no network connection. mAPM solutions allow you to monitor for all of these network possibilities.
- **Variable business user or customer behavior.** Since 2009, the focal point of mobile strategies has been the mobile app.⁶ But Forrester's mobile behavioral data shows that US online consumers use their smartphone apps sparingly and they conduct the same type of tasks through their mobile browsers, so monitoring and measuring activity within the mobile app will not provide enough insight.⁷ Additionally, your mobile measurement strategy must include solutions that can measure the full business user or customer journey, including when users switch to the mobile browser to complete certain tasks. mAPM solutions allow you to monitor and understand business users' and customers' mobile app and device use.

MAKE SURE THESE CORE CAPABILITIES ARE IN YOUR MAPM REQUIREMENTS LIST

The continuing need for a mobile strategy will lead to a growing number of mAPM features and solutions. mAPM solutions ensure that your employees and customers have great mobile moments, as they help your firm analyze performance and optimize business outcomes.⁸ This makes mAPM a key part of Forrester's IDEA life cycle.⁹ To select the right mAPM solution, make sure that you base your decision on the following core capabilities (see Figure 1).

Figure 1 Core mAPM Capability Requirements



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Data Discovery And Condition Detection Capabilities Are A Base Requirement

First and foremost, a good mAPM solution must safeguard customers' and business users' mobile moment, when they pull out a mobile device to get what they want in their immediate context. At this point, your mAPM solution must automatically alert you to any mobile app performance issues. mAPM solutions must:

- **Rapidly detect business user or customer mobile issues.** Make sure that the mAPM solution has real user monitoring (RUM) features that enable you to quickly detect customer-affecting performance and availability issues. You must be able to see the exact steps that a business user or customer took leading up to an issue, such as the screens they looked at, the application service calls they made, network connectivity changes, which other applications were running, etc. Importantly, the information presented to you should be in the context of the business service being consumed. Also look for synthetic monitoring features that allow you to run automated scripts that simulate a business user activity so that performance can be proactively monitored.
- **Monitor mobile transactions from an end-to-end perspective.** Detecting front-end mobile data such as device type, hardware, OS, mobile app version, carrier, and network data is just a given. An mAPM solution must also assist in monitoring the full workload that is supporting the consumer's mobile app (i.e., each function of the mobile app through to the database and mainframe). The Standard Bank of South Africa recently had an outage that was reportedly caused by hardware failures on the mainframe, which illustrates why this function is so important.¹⁰ If monitoring the full workload is not possible, check that the solution can easily integrate with your other monitoring solutions that cover these areas.¹¹
- **Detect crashes and auto-baseline alert rules.** The number of variables affecting a mobile app's availability and performance, such as device type and carriers, means that application crashes and errors are inevitable. An mAPM solution needs to detect fatal crashes and non-fatal errors with traces that enable you to identify the root cause with code analysis. The solution should automatically group these crashes and errors so you can efficiently prioritize them, such as by the number of business users or customers affected. From a performance-alert perspective, the mAPM solution must be able to learn application usage patterns in order to auto-baseline performance-alert rules and thus ensure that performance alerts are in the context of application usage.

Analysis And Presentation Capabilities That Provide Engagement Plus Business Insight

mAPM solutions will record and detect a lot of data. It's important that this data is stored efficiently no matter whether you choose an on-premises or software-as-a-service (SaaS) solution. But it's what you do with this data that matters, and so mAPM solutions must:

- **Analyze and display technical mobile information in context.** mAPM solutions make it easy to access technical data quickly. At a glance, dashboards must be available that show device, carrier, network, mobile app, and business user experience information. The user interface (UI) must make it easy to delve into further technical detail such as crash, error, and transaction performance, and network data such as latency and network errors. This data should be filterable

via time, mobile app version, OS, device model, carrier, and geolocation, at a minimum.¹² An easily navigable interface that lets you access information quickly is vital when working to resolve performance issues and keeping mean-time-to-resolution (MTTR) to a minimum.¹³

- **Provide insight into business user or customer engagement.** A mobile app is only useful if business users or customers use it. mAPM solutions must present information such as how long each customer session on a mobile app lasts and the number of daily active users (DAUs) and monthly active users (MAUs) so your business teams responsible for mobile strategy can plan future updates. Additionally, mAPM solutions must provide details of the business user's engagement throughout the entire mobile app so you can identify UI issues such as screens or functions that cause the user to exit or background the app and help your mobile app developers improve the UI.
- **Provide business-relevant information in context.** Your firm's enterprise mobile app strategy should increase business revenue. Mobile apps should either enhance employee productivity or optimize customer engagement with your business. Therefore, mAPM solutions must make it easy to display the link between mobile app performance and business revenue. You can use this insight to prioritize your firm's mobile app portfolio by ensuring that decisions on which mobile apps to retire or develop are based on sound revenue insight. Additionally, you must be able to look back at different mobile app versions to understand the full impact of your firm's mobile strategy on the business.
- **Encourage your business to create its own insight.** Automatic dashboards are a must for mAPM. But your firm would potentially miss a wealth of insight from the data it collects by only sticking to the out-of-the-box dashboards. Turning this data into information and insight requires querying the data, and so it's important that the mAPM solution has querying features that allow the operator to link data elements together. For example, it should be possible to link data on which mobile devices generate the most revenue from your mobile apps, as this will let your business plan future development. It's important that both technology and non-technology-management professionals can easily use querying features.

Integration Capabilities That Speed Up Response And Optimization

One of the key requirements for mobile strategy is speed while maintaining quality, such as speed in development, delivery, and response time when a mobile app is not meeting customer or business user expectations. While an mAPM solution is central to your mobile measurement strategy, the data recorded is useful to other mobile delivery processes. This means that any mAPM solution you choose must have an open application programming interface (API) to, at a minimum, allow easy integration with the following:

- **Mobile app development technologies to optimize build processes.** The importance of mobile has led to an explosion of solutions designed to help your AD&D colleagues build great mobile apps.¹⁴ The market is flooded with solutions that help your developers code, build apps quickly, test apps, and manage the application development life cycle.¹⁵ mAPM can provide value to a number of these solutions. For example, mAPM can be integrated with mobile app testing solutions, as synthetic end user monitoring provides quick performance tests. Business user or customer engagement information can be integrated with solutions such as Usersbox, a persona profiling service, to enhance persona knowledge and ensure that mobile apps meet customer needs.¹⁶
- **Operations management technologies to speed up response.** Your firm's mobile apps will have associated incident and problem management processes that utilize IT service management (ITSM) solutions, which manage incident resolution, and so you need integrated alert data from your mAPM solution. mAPM provides details on an issue, which you can use to automatically create service desk tickets to speed up the incident management life cycle. Also look for documented guidance on integrating mAPM solutions with run-book automation (RBA) tools so that alerts can trigger scripts that automatically fix issues such as needing to add more capacity to the mobile app's infrastructure workload.¹⁷

RECOMMENDATIONS

THINK OF BUSINESS NEEDS FIRST WHEN MAKING MAPM SOLUTION DECISIONS

Successful mobile strategy execution requires that an mAPM solution be part of I&O's monitoring strategy. Ensuring that mobile apps meet customer or business user experience expectations in regard to performance, availability, and usability is paramount to guaranteeing that your firm's mobile apps receive great reviews — essential for mobile strategy success.¹⁸ Beyond making sure that an mAPM solution has the core capabilities and features required to monitor mobile, you must also make sure that your solution purchase is based on business needs and agreement with other stakeholders. Before making any mAPM solution investment, I&O professionals should:

- **Discuss mobile strategy with marketing leaders.** Mobile strategy is part of your firm's digital business transformation. Today, in enterprise organizations, chief marketing officers (CMOs) play a significant role in driving this transformation.¹⁹ Thus it's vital that you discuss mAPM requirements with your marketing leadership colleagues to make sure that investment decisions reflect overall digital business transformation requirements, and, more specifically, take into account mobile app plans over the next two years. Getting feedback here will ensure that your mAPM business case directly references your firm's mobile strategy, which is essential in securing the adoption funding you need.

- **Team up with mobile app developers to understand technical requirements.** Mobile app development is different from traditional Java or .NET application development. Mobile app AD&D teams are small, focused, and follow an agile release schedule designed to meet customer needs and demands.²⁰ The insight from an mAPM solution is key to these teams, as regular performance feedback helps developers improve the design of mobile apps and refine knowledge of customer requirements for future mobile apps. Thus mAPM solution purchase decisions must involve mobile app development teams to ensure that the solution will meet technical requirements and reduce the likelihood of duplicate future purchases.
 - **Work with mAPM solution vendors to understand their wearables road map.** Today the mobile ecosystem is focused on smartphones, tablet devices, and mobile apps. But tomorrow, wearable devices and apps represent the next phase of the mobile revolution.²¹ Thus, your mAPM solution vendor must have clear plans for how its mAPM solution will evolve to encompass various wearable tech developments, such as eyewear and watch technologies.²² mAPM solution vendors should explain these plans and, if possible, demonstrate them to you via mockups and beta solutions during your mAPM solution vendor selection.
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SUPPLEMENTAL MATERIAL

Survey Methodology

Forrester's Business Technographics® Global Developer Survey, 2014, was fielded to 1,716 business and technology decision-makers located in Australia, Brazil, Canada, China, France, Germany, India, New Zealand, the UK, and the US from SMB and enterprise companies with two or more employees. This survey is part of Forrester's Business Technographics and was fielded from February 2014 to April 2014. Research Now fielded this survey on behalf of Forrester. Survey respondent incentives include points redeemable for gift certificates. We have provided exact sample sizes in this report on a question-by-question basis.

Forrester's Business Technographics provides demand-side insight into the priorities, investments, and customer journeys of business and technology decision-makers and the workforce across the globe. Forrester collects data insights from qualified respondents in 10 countries spanning the Americas, Europe, and Asia. Business Technographics uses only superior data sources and advanced data-cleaning techniques to ensure the highest data quality.

We have illustrated only a portion of the survey results in this document. To inquire about receiving full data results for an additional fee, please contact data@forrester.com or your Forrester account manager.

Companies Interviewed For This Brief

AppDynamics	IBM
Aternity	Keynote
Crittercism	New Relic
Dynatrace (formerly Compuware APM)	Perfecto Mobile
HP	

ENDNOTES

- ¹ Forty-four percent of global business and technology decision-makers surveyed in Forrester's Business Technographics® Global Priorities And Journey Survey, 2014 stated that expanding mobile strategy internally and externally was a high or critical priority for their IT organization in the next 12 months.
- ² Mobile performance management provides an essential feedback loop to guide the content of your updates. By collecting historical, operational, and real-time data across technical, engagement, and business-aligned metrics, you can gather the information you need to analyze your app's performance, gain insight into what's working and what needs to be fixed, prioritize new features, and repair defects. See the November 18, 2013, "[Measuring Mobile Apps](#)" report.
- ³ The BT agenda is defined by Forrester as technology, systems, and processes to win, serve, and retain customers. See the November 15, 2013, "[The CIO Mandate: Engaging Customers With Business Technology](#)" report.
- ⁴ On June 18, 2014, Amazon announced the launch of Fire Phone, a smartphone with unique hardware and services designed to enhance its core businesses: retail and a digital platform. See the June 19, 2014, "[Quick Take: Fire Phone Fails; Amazon Doesn't](#)" report.
- ⁵ Findings from Forrester's Business Technographics® Global Developer Survey, 2014 of 519 mobile app or web developers shows that 64% support the Android (phone) mobile platform, while 55% support iOS (phone), and 30% support Windows Phone.
- ⁶ In December 2009, Apple filed an advertising trademark for its ubiquitous catchphrase, "There's an app for that" — a tagline that played a large role in Apple's marketing efforts. The rapid growth of the Apple App Store sparked a race among marketers to develop mobile applications and engage with customers in new ways. Forrester captured this sense of urgency in 2009, reporting that "a mobile application frenzy has seized the wireless industry and has even spread to brands not normally associated with mobile." Mobile app fever has continued ever since. See the May 12, 2014, "[Mobile Misconceptions: Uncovering How Consumers Actually Use Their Mobile Phone](#)" report.
- ⁷ In Q4 2013, Forrester's ConsumerVoices Market Research Online Community respondents supported the appeal of using mobile browsers over mobile apps for when they wanted access to a wider range of information while avoiding cluttering their mobile device home screen with apps. For a deeper

understanding and explanation of common misconceptions around consumer behavior using mobile devices, see the May 12, 2014, "[Mobile Misconceptions: Uncovering How Consumers Actually Use Their Mobile Phone](#)" report.

- ⁸ Mobile engagement is not complete if you're flying blind. Capture, track, analyze, and act on the data to improve your mobile experience. Unless you instrument the app and the back-end systems of engagement, you cannot possibly improve your service or develop insight into what your customer wants from you. Build data collection and analytics into each app release. See the January 24, 2014, "[Re-Engineer Your Business For Mobile Moments](#)" report.
- ⁹ You can serve customers in their mobile moments if you undertake a new business discipline we call the IDEA cycle — identify mobile moments; design the mobile engagement; engineer your platforms, processes, and people for mobile; and analyze results to monitor performance and improve outcomes. See the January 24, 2014, "[Re-Engineer Your Business For Mobile Moments](#)" report.
- ¹⁰ Source: Gia Nicolaides, "Standard Bank's System Still Experiencing Delays," EyeWitness News, January 9, 2014 (<http://ewn.co.za/2014/09/01/Standard-Bank-Internet-banking-still-offline>).
- ¹¹ The following TechRadar report is the first of five that examine 18 categories of business technology monitoring solutions. Use the reports to understand why business technology monitoring matters, what categories of technology to consider, and the maturity and business value of these solutions as you assemble your business technology monitoring road map. See the September 9, 2013, "[TechRadar™: Business Technology Monitoring, Q3 2013, Part 1 Of 5](#)" report.
- ¹² Geolocation is the process or technique of identifying the geographical location of a person or device by means of digital information processed via the Internet. Source: Oxford Dictionaries (<http://www.oxforddictionaries.com/definition/english/geolocation>).
- ¹³ Many metrics define the quality and performance of IT systems and services as well as for the individuals, organization, and the business itself. One of the more common metrics for IT operations is mean-time-to-resolution — MTTR is often also referred to as "mean time to repair" — and is a good metric to gauge an organization's performance at executing incident management and problem management processes. It represents an elapsed time that begins when the incident actually occurs and when it's formally resolved to the satisfaction of the customers affected. See the June 30, 2011, "[Enhance Service Visibility To Reduce MTTR](#)" report.
- ¹⁴ Over the next 10 years, we expect the market to winnow down the 100-plus solutions we're currently tracking to a more manageable number. In the meantime, application development and delivery professionals need to step carefully through a chaotic, hype-filled minefield of tool choice in order to deliver five-star mobile applications to customers, employees, and partners. See the May 6, 2013, "[Choose The Right Mobile Development Solutions For Your Organization](#)" report.
- ¹⁵ In the tools and technology report for the mobile app development playbook, we map out the current mobile app development categories that are on the market. These include mobile development tools, mobile productivity platforms, application life-cycle management tools, and specific integration solutions such

as mobile back-end-as-a-service (BaaS). See the May 6, 2013, "[Choose The Right Mobile Development Solutions For Your Organization](#)" report.

- ¹⁶ Personas offer a proven solution for a common design challenge: Keeping the end user in mind during all phases of design, development, and testing. See the February 19, 2013, "[The State Of The Art Of Personas](#)" report.
- ¹⁷ RBA and other automation forms, such as workload automation, have the capability to perform actions from a predefined library, often extensible, within the framework of a specific workflow. What you need to do to fully automate an IT process such as incident and problem management is to determine the appropriate action sequence for a given issue (the process workflow) and find the right triggers to initiate that sequence. See the October 2, 2013, "[Technology Spotlight: Automate Application Performance Management](#)" report.
- ¹⁸ There are hundreds of thousands of mobile apps out there, and they're all competing for the same mobile users. If you want to reach your customers with a custom mobile app, you want to make sure you create one that will get high ratings. In short — stars matter. See the November 7, 2012, "[Build Five-Star Mobile Apps](#)" report.
- ¹⁹ As might be expected in 2014, marketing dominates most digital responsibilities. Marketing is responsible for social media marketing in 80% of firms, digital marketing strategy in 72%, social CRM in 65%, customer experience strategy in 64%, customer analytics in 57%, digital media selection in 53%, CRM in 51%, web strategy in 43%, and web design in 39%. See the May 7, 2014, "[The State Of Digital Business 2014](#)" report.
- ²⁰ Mobile applications are called "apps" for a reason; they are generally smaller and less complex than traditional Java, .NET, or web applications. It makes sense, then, that when we asked five-star app development shops about the composition of their teams that we would find a pattern favoring smaller, more focused development teams. On top of this, organic release schedules are a requirement in order to help teams meet user and market demands. See the November 7, 2012, "[Build Five-Star Mobile Apps](#)" report.
- ²¹ Perpetually connected wearables will enable workers, partners, and customers to experience new levels of immediacy, simplicity, and context in their mobile computing experiences. Wearables aren't just a consumer phenomenon; they have the potential to change the way organizations and workers conduct business. See the January 6, 2014, "[The Enterprise Wearables Journey](#)" report.
- ²² Forrester believes that the Apple Watch — starting price \$349 — will firmly establish the wearables category, just as the iPhone redefined smartphones. The Apple Watch includes creative new user interface elements, such as haptic wrist taps and the digital crown, which feel natural on the wrist rather than transplanted from the phone. See the September 9, 2014, "[Quick Take: Apple Puts Mobile Moments At The Center Of Its Strategy](#)" report.

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