

Defining Mobile App Intelligence

Ensuring Superior Mobile
App Responsiveness to Build
Business Advantage

Mobile apps transform daily life

The explosion of mobile devices, the advance of increasingly improving wireless networks, and the adoption of cloud technologies by enterprises and developer companies alike, have moved the mobile app market into a boom phase. According to Future Business Models & Ecosystem Analysis 2012-2016, users are predicted to download more than 66 billion mobile apps per year by 2016, more than double the 31 billion apps installed in 2011. The advance of multi-screen access and the shift to multi-tasking are also driving impressive growth. The report reveals that, while smartphones will continue to account for the majority of mobile app downloads, tablets, such as the iPad will account for one in every four apps installed by 2016.

Fueling this tremendous growth is the rate at which organizations and consumers are using mobile apps to accomplish daily tasks. Indeed, the 'shiny object syndrome' of mobile apps has been replaced by the realization that they are truly an integral part of our daily routine. It is little wonder, then that a whopping 57 percent of CIOs say that mobile devices and apps are either a high priority or essential to their strategic agenda. Overall, mobile services and mobility rank third among the Top 10 CIO priorities for 2015, according to a 2014 National Association of State Chief Information Officers survey.

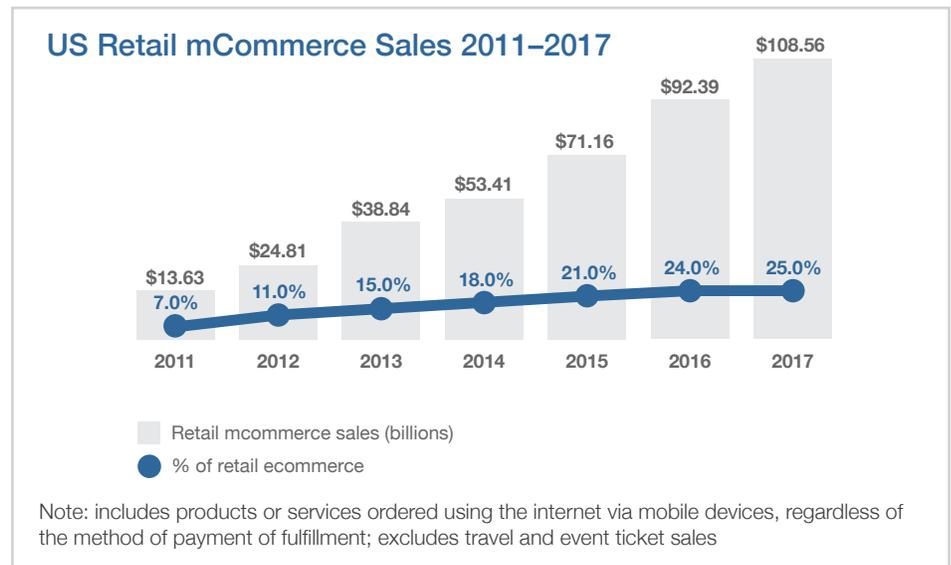
Key Findings

The advance of mobile apps is transforming a wide variety of verticals.

Retail

In the U.S. between this year and next year, mobile commerce sales are expected to increase 77 percent from \$71.6 billion to \$92.4 billion. By 2017, mobile commerce will have generated more than \$108 billion in retail sales.

In addition, by 2017, eMarketer estimates that more than 70 percent of online retail sales will occur on tablets, but smartphone purchasing will continue to rise steadily.



Service

When given the option, the majority (84 percent) of consumers would rather use a mobile app instead of calling a company call center for routine inquiries such as checking their balance, checking flight status and other tasks. Moreover, 85 percent of consumers expect to turn to a mobile app first for customer service over the next year.

Government

Organizations are embracing mobile and soon mobile apps to reinvent and deliver public services for on-the-move citizens. This year nearly 6 percent of consumers surveyed used a mobile app to file their U.S. Income Tax. An Accenture digital government study found that more than half of respondents would rather use mobile websites and mobile apps for routine transactions.

In summary: The pivotal role of mobile apps turns up the pressure on organizations to deliver business critical applications on mobile platforms. The next section will explain why monitoring and managing app performance is essential to delivering apps that users will want to use.

Apps for competitive advantage

The rate at which mobile apps are becoming the primary way that content, commerce and critical business applications are accessed and activated by users across all demographics and social strata has taken many organizations by surprise. The race is on as organizations harness the power of mobile apps to increase efficiency, control costs, and improve customer service. In fact, roughly 4 in 5 large companies would like to purchase mobile apps for a variety of business use cases, according to a recent survey of company executives conducted and published by Partnerpedia, a mobile app development services company.

Among the findings;

- 90% intend to buy apps for use by their employees
- 48% want apps for their customers
- 2% are buying apps for contractors

The 2014 Enterprise Mobile Application Survey confirms this trend, highlighting the shift in the types of applications organizations plan to mobilize.

Instead of focusing on enabling activities such as e-mail (no doubt approaching saturation at this point), companies are sharpening their focus on apps that encourage customer interaction and improve customer loyalty (as evidenced by the rise of Business Intelligence and CRM to first and second place respectively on the list of top 10 internal applications to be mobilized in 2015). It is clear, then, that enterprises no longer consider mobility as the last step to implementing a business application. Instead, they see it as the first and crucial step to developing and deploying a comprehensive and effective strategy to empower users and engage customers.

Starbucks says that their Android and iOS mobile apps have 13 million active users, generating about 7 million transactions weekly. Starbucks expects 16 percent of its store transactions are using mobile payments as of the first quarter 2015.

Top 10 internal applications through 2014	Top 10 internal applications most likely mobilize 2015
Email, calendar, contacts	Business intelligence
Mobile optimized intranet access	CRM
Field service (dispatch, etc.)	Custom internal workforce apps
CRM	Mobile optimized intranet access
Business intelligence	Field service (dispatch, etc.)
Custom sales tools	Custom sales tools
Custom internal workforce apps	Field service, location based service
Video conferencing	Travel and expense
Travel and expense	Email, calendar, contacts
Field service, location based service	ERP

Risky business

Mobile apps aren't only a way to deliver great service, but they can also influence how users view a company. 92 percent of consumers state they felt a company was innovative after experiencing good customer service delivered by the company's app. Overall, 89 percent said that they felt those companies were customer focused, 88 percent said those companies were easy to do business with, and another 86 percent said they had high confidence in the strength of these companies.

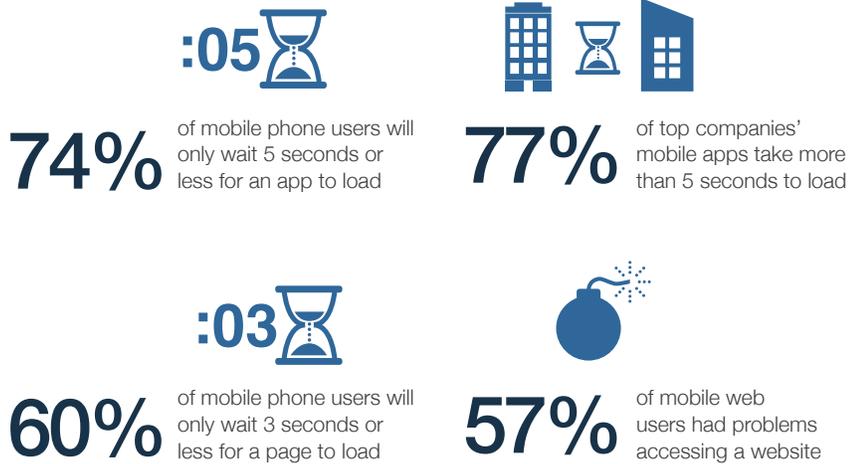
By the same token, delivering a bad mobile app experience can do irreparable damage to a brand. 81 percent of consumers felt discouraged from wanting to use the app in the future, while 77 percent questioned their ability to serve customers, and another 73 percent have a lower opinion of the company. More than half (58 percent) said that they would switch to a different company after a bad customer experience on their mobile app.

Fast company

On one hand, the mobile app space is vibrant and full of opportunities with a spectrum of devices — from smartphones to tablets — redrawing the boundaries of what users can do (and do fast!). On the other hand, this new landscape also brings new challenges around app responsiveness and reliability; all are linked to the customer expectation that their mobile experience should beat the one delivered by their desktop computer. More specifically, 71 percent of all users expect mobile services to match or exceed the availability and performance of desktop experience.

Studies show that half of mobile users abandon a page if it doesn't load in 3 seconds, and three out of five won't return to the site. The impact of poor application performance on both user productivity and customer experience, then is indisputable.

What mobile users are experiencing...



Think of the road warrior at a remote site, trying to pull vital contract data necessary to complete a big sale. If she runs into poor performance or an app that doesn't work at all, that sale may never happen.

Given the critical role mobile apps play in delivering a good customer experience as well as supporting essential business processes, organizations cannot afford to 'run blind'. However, reports show most organizations possess alarmingly little insight into mobile application performance.

With mobile apps becoming increasingly vital to a business' overall performance, it is important to manage and improve—not just measure—application responsiveness and performance. Thus the focus and purpose of mobile application intelligence centers on helping companies detect, prioritize, isolate, diagnose, repair, and prevent problems before users or a business are impacted. The aim is to improve customer experience, boost loyalty and increase enterprise efficiency.

While many organizations are realizing the need to understand mobile app performance, many are missing the mark when it comes to building the capabilities necessary to fully track responsiveness in real time.

To date the top two methods companies rely on to evaluate mobile application performance are user ratings on app stores and social trend analysis. The problem with these methods, however, is that companies must be proactively finding application performance problems before negative posts are made to app stores, Twitter, and other social sites.

Mobile App Intelligence Defined

Mobile app intelligence (MAI) is about monitoring and managing the responsiveness, performance, and availability of mobile apps. MAI solutions alert the extended mobile business team to disruptions in availability and/or quality to end users when accessing mission-critical applications. In addition to real-time monitoring, MAI tools should also prevent problems from occurring by detecting the early warning signs of performance and quality issues. This includes not only the app itself but the cloud services, networks, and device OS's that the app runs on. The goal is to ensure that the app responsiveness meets or exceeds either a formally stated performance target or the users' performance requirements. Responsiveness in this sense relates to both speed and availability.

Back to (mobile) business basics

The findings collected in The Challenge of Application Performance in a Mobile Application World show organizations are currently behind the curve when it comes to managing and understanding mobile application responsiveness and user experience.

It reveals the number one pressure driving app performance strategies of organizations is the increased importance of mobile access (69 percent). Only 30 percent of the organizations surveyed had implemented any kind of infrastructure or strategy to monitor or measure mobile application performance, although over half (54 percent) reported plans to do so.

Clearly, organizations have sharpened their focus on mobile app performance but to succeed at this essential task, organizations must build an arsenal of capabilities that not only allows them to know and understand what can go wrong, but to also have actionable insights that allow them to avoid errors and other malfunctions altogether.

Whether companies are supporting remote workers or catering to consumers, they need to be sure that mobile apps deliver what users expect.

It goes without saying that mobile apps have a lot of ‘moving parts’ –and partners – and a lot can go wrong. Energy and resources, however, should be spent on focusing on 3 levels (Device, Network, Ecosystem) where problems can arise, and must be addressed.

- **Device: devices are highly fragmented**

On the client level there are many variables to factor into the equation including: screen sizes, OS variants, OEMs and device features, behavior under different ‘environmental’ conditions such as the wireless (cellular/Wi-Fi) signal and protocol, the number and composition of applications running on the device, and resource consumption (memory, battery, throughput).

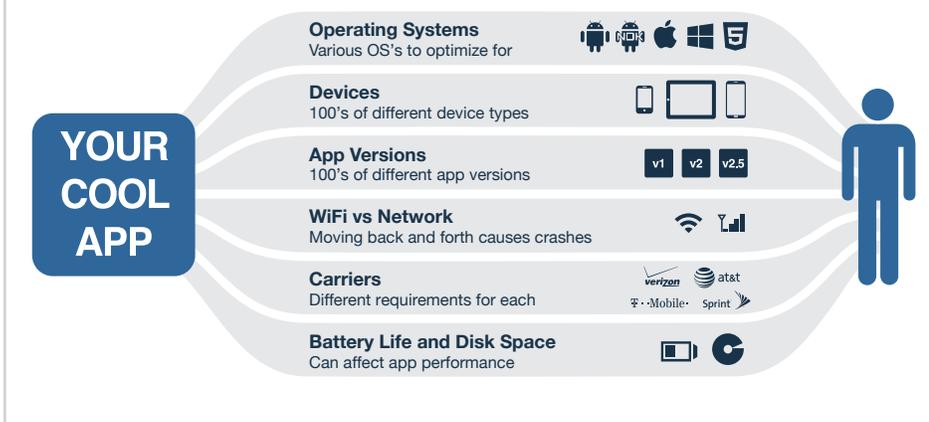
- **Network: connections are not always reliable**

Tracing performance problems with apps is intertwined with network performance. Issues such as latency at the end points, the amount of data transferred and the bandwidth available can cause an app to crash or cause latency issues. Understanding how network performance affects apps is critical for delivering uniform performance for all your users.

- **Ecosystem: third party services bring their own problems**

Integration with third parties may bring value to an app, but can also boost the complexity companies need to understand and manage in real-time. Many sophisticated apps offer authentication, real time audio, realtime video, and push real-time data in a proprietary format. Receiving all this data reliably, integrating it with your app and then push it out to the end user is not an easy task.

The ecosystem is complex



In short, organizations need to both monitor and manage applications across their lifecycle and at all stages of delivery; that means across networks, partner networks, the cloud and on the end-user devices.

360-degree app intelligence for 100-percent success

When all is said and done, end-user experience with an application is what really matters. Effective mobile app intelligence provides the critical information required to optimize availability and response time, ensuring the best user experience.

The next section will explore these best practices, but to get you up to speed we start off with a list of the Top 5 components of an effective mobile app intelligence strategy, equipping you with what you need to know to monitor, manage and — ultimately — improve the overall app experience you deliver. Do it all —in real-time. Don't compromise and limit yourself to tools that monitor just the network. Likewise, don't settle for approaches that focus only on performance at the device level. Use tools and platforms that equip you to effectively monitor and manage it all, at the client, network and third party cloud services levels. And since it's a heterogeneous world, look for solutions that allow you to monitor and track what happens in your apps -across iOS, Android, Windows Phone10, HTML5 and all hybrid combinations in between.

Drill down in the data. Once you pinpoint the cause of the crash be sure your solution can tie diagnostic data back to your app's network data, allowing you to isolate issues or track down misbehaving API endpoints. Even better if your solution goes beyond analyzing metrics such as latency, request and data volume, and can filter all of your endpoints grouped by cloud service; that will help you diagnose the errors in more detail. This is essential and will allow you to narrow in on the factors that have the biggest impact on your app performance.

Error monitoring gives you a touchstone so your app remains stable despite the chaos we know (and love!) in mobile life. If your app is on the fritz you need to know ASAP. Choose a provider that can deliver real-time alarms, notifying your developers so they can proactively manage issues that are delivering a poor user experience. Don't just duck and cover – react fast by knowing when and where errors occur. Once you're alerted, you can bring in the right resources for a fix.

When you have anticipated a failure and have allowed your app to error out silently, it's important to have a solution provider that can collect and deliver the same diagnostic data as it would for a crash. Use these insights to pinpoint issues and manage where code changes are needed most.

Think BIG. Even if you are not a big organization now you should harness a solution that can scale with your business. Solid candidates are ones that have 'Mobile First' baked into their corporate DNA and baked in the capabilities to scale (through a cloud-based infrastructure) from the start. These providers are going to be the pros at mobile app delivery— a position that gives them key insights (drawn from millions of devices and billions of apps) — and makes them a good partner in your wider strategy to make your app succeed.

Visibility matters. Monitoring glaring coding mistakes is just as necessary as sorting out smaller edge cases to win the battle for users and five-star reviews. Choose a solution that allows you to visualize aggregated data on a dashboard. That's really the only way to see how people are using your app, account for all variables and explore exactly where errors occur. Even better if the provider has developed an integrated strategy to show you what is actually happening in the field. Access through a single, easy-to-use dashboard is essential to delivering consistent high app performance as part of your mobile app lifecycle.

Put business goals first. Obviously a mobile app intelligence solution must analyze the performance of your mobile sessions. But an effective approach goes an important step further, tying session analysis back to your business goals (user retention, completing a level in a game, shopping cart purchase, etc). Most importantly, your solution should provide potential fixes or solutions to performance issues. Finally, choosing a provider that can go that one step further and sort the crash groups by the number of users affected is a key element. This will allow organizations to focus efforts and resources on fixing the bugs that have impacted the largest number of users.



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About Aptelligent

Aptelligent provides the world's leading mobile application intelligence solution enabling enterprises to accelerate their mobile business. The company's solution monitors every aspect of mobile app performance and provides a real-time global view of app and transaction metrics across iOS, Android, Windows Phone 10, Hybrid and HTML5 apps. Trusted by three of the top five credit card issuers, three of the top five media companies, three of the top five retailers, and two of the top three hotel chains with the success of their strategic mobile app initiatives. Aptelligent is leading the drive to the App Economy. Learn more at www.apteligent.com.