

 eBook

Ushering in a New Era of APM for the Enterprise

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Introduction

In today's enterprise, applications are the lifeblood of the business. Whether you're talking customer-facing e-commerce, banking and travel applications, or business-critical apps for your internal employees and partners, applications are what enable you to do business. It's no wonder that 86% of organizations agree that application services are very or critically important to their business.¹

Exactly how critical? Consider the following statistics:

- A 1-second delay in response time can reduce conversions by 7%, page views by 11%, and customer satisfaction by 16%²
- More than half (51%) of online consumers in the US said that site slowness is the top reason they would abandon a purchase³
- When online service fails, 75% of consumers move to another channel, which can lead to millions of lost dollars⁴

When an enterprise application doesn't work, it not only leads to complaints and fewer conversions, but also a loss in revenue and damage to a company's reputation. And this is exactly why application performance management (APM) has become a must-have practice in enterprise IT departments today.

In recent years, however, many IT teams have grown disillusioned with APM. According to InformationWeek's 2013 APM Survey, APM is less

trusted, less desired, and less used than in 2010. This is due to a number of reasons, but in large part to the fact that the enterprise technology landscape has drastically changed over the last few years, leaving many legacy APM solutions no longer up to snuff.

Whether the greater cost, added complexity or lack of visibility, it seems many APM solutions today aren't meeting the needs of enterprise users. But hope shouldn't be lost. A new breed of enterprise APM has emerged to fill that gap – APM that is fast and easy to install, offers deep visibility, and keeps enterprises nimble enough to respond to business demands no matter what they require – whether new technology platforms, rapid deployments, or mobile support.

This eBook examines the current enterprise technology landscape; the challenges this is creating for enterprise APM; and how the new era of APM is helping companies reduce costs and grow their business, while building a better performing – and ultimately, more profitable – app.

¹ "InformationWeek 2013 Application Performance Management Survey," InformationWeek, October 2012.

² "Application Performance Management: The Lifecycle Approach Brings IT and Business Together," Aberdeen Group, November 2008

³ "Adventures in Retail: The Other Line's Moving Faster," Brand Perfect, November 2012.

⁴ "Four Steps for Optimizing Customer Service Operations," Kate Leggett, Forrester blog, February 2013.

CHAPTER 1

The New Enterprise Technology Landscape

In order to understand today's APM challenges, it's important to first see the broader context for how Application Performance Management emerged in the first place. In the following pages, we'll take a deeper look at what's going on in enterprises today, and how the latest technology trends are impacting APM practices.

Big Data

The Priority

With the rise of multimedia, social media and the Internet of Things, enterprises are now being flooded with massive amounts of data. Being able to analyze those very large data sets has become a key competitive differentiator by allowing businesses to improve productivity, create more efficient supply chains and significantly enhance the way they interact and market to their customers. Both the business decision-makers and technology decision-makers realize this, so much so that data analytics and business intelligence are CIOs' number one technology priority in 2013.⁵ This also explains why big data is expected to drive \$232 billion in global IT spending through 2016.⁶

The Impact

Big data applications like Hadoop or NoSQL are a whole other beast when compared to traditional enterprise applications. The sheer volume and velocity of data they process can make it difficult for traditional, on-premise APM solutions to keep up.

⁵ Gartner Executive Program Survey, January 2013.

⁶ "Big Data Drives Rapid Changes in Infrastructure and \$232 Billion in IT Spending Through 2016," Gartner Research, October 2012.

Mobility

The Priority

As slicker, more sophisticated smartphones, tablets and laptops began entering the hands of consumers, and employees started using those devices when working offsite or remotely, it quickly became apparent that the Bring Your Own Device (BYOD) trend was here to stay. Despite concerns about security, a 2013 TechRepublic survey revealed that 62% of companies either already have or plan to establish BYOD policies by the end of 2013. The proliferation of mobile devices is also influencing the direction of corporate app development. In fact, 91% of developers now plan to deliver content and services to a mobile audience, compared to 66% in 2012.⁷ Overall, the mobile app market is expected to increase to almost 183 billion downloads in 2015.⁸

The Impact

From social interactions and mobile banking to corporate email and web conferencing, consumers are moving their personal and work lives into the mobile space. As they do, they expect companies to be both mobile-capable and well integrated into the mobile landscape. This will require a significant shift in application architectures as they strive to deliver the most dynamic mobile end-user interfaces.

⁷ "Zend Developer Pulse: Taking the Pulse of the Developer Community," Zend Technologies, 2013.

⁸ "Worldwide and U.S. Mobile Applications, Storefronts, Developer, and In-App Advertising 2011-2015 Forecast: Emergence of Post-download Business Models," IDC, June 2011.

Cloud Computing

The Priority

Cloud computing is no longer the groundbreaking, new trend it was a few years ago, but that certainly hasn't slowed down its growth in the enterprise. Analyst firm IDC has predicted a 130% increase in cloud computing by 2016. Enterprises are using the Cloud for anything from file sharing and email to databases and customer relationship management (CRM). The benefits are simply too hard to resist: cost savings, greater agility, lower risk, and the ability to get up and running immediately.

The Impact

Running services in the Cloud can create a sense of risk and uncertainty when it comes to meeting performance expectations. You can't assume the cloud vendor will take care of overseeing application availability and service performance. If something goes wrong, it's your team that will be held accountable, making it imperative that your APM solution truly understands the dynamics of the Cloud and is designed to help accelerate your cloud migration initiatives.

Social Technologies

The Priority

Enterprises are continually striving to expand reach, often on a global scale. Now, departments are not just spread across floors or campuses, but across oceans and continents, making it difficult to work together efficiently and in meaningful ways. To solve the problem, many companies today rely on collaboration technologies that include anything from instant messaging and web conferencing to video chats and social media. Corporate-focused social technologies, such as Cisco WebEx Social and Microsoft Yammer are becoming increasingly popular. Businesses are also more social in their external activities; whether it be interacting with customers via Facebook and Twitter, or posting content to sites like Tumblr and Pinterest.

Despite the new business opportunities these trends in enterprise IT bring, they're also creating a number of problems for legacy APM tools. Enterprise applications have evolved into a complex collective of distributed software components and cloud services, which require more robust performance monitoring features and in-depth visibility across the entire technology stack. Without these new capabilities, your APM efforts are bound to suffer.

The Impact

Consumers now expect social media to be integrated into all of their digital interactions, but incorporating third-party sites into your application can have a serious impact on its performance. To deliver the functions and features your users expect, you'll likely have to include not just one but multiple social network connections, along with a slew of other third-party components. This just creates more complexity for traditional web performance monitoring tools.

CHAPTER 2

Tackling APM Challenges

While the first generation of APM solutions was adequate for simpler architectures and largely homogenous environments, the demands of today's more sophisticated models (as explored in Chapter 1) have sparked the need for more advanced APM solutions. A few of the most significant challenges are explored on the following pages.

Inflexibility

Many traditional on-premise APM tools do not adapt well to today's rapid and agile development cycles. After a long implementation cycle, most of these tools are useless by the time they go live, since the application has already changed.

Limited visibility

Cloud-based architectures are now the norm, but legacy APM tools don't offer the deep visibility required to monitor newer technologies like Ruby, Python, and Node.js, in addition to enterprise staples like Java and .NET that are coming into the enterprise. Traditional APM tools also have limited visibility into native mobile apps that communicate with their web applications. They are limited in their ability to monitor other systems like F5, Amazon Web Services, and MySQL.

Additional hardware requirements

On-premise solutions require your own hardware and resources. That means additional time for your team to update, provision, and maintain your APM system – which ultimately translates into greater cost.

Lack of focus

When you're pressed for time, you don't want to get bogged down by too much information. With too much information, it's hard to find what's really wrong. Unfortunately, legacy APM solutions struggle with this – they present too much information, without indicating what is wrong or what exactly it is that people need to see.

More staff time

The time it takes to maintain legacy APM systems is not insignificant. Upgrades have to be planned, and if you're an especially large company, they may need to be planned a whole year out. This often leads to running on very old versions of the legacy product, not to mention, missing out on the opportunity to take advantage of newer capabilities.

If you find yourself currently facing these challenges, you're not alone. In a 2012 survey, nearly half of the CIOs that participated stated they were not confident that they could meet increased user expectations and demand without improving their current APM capabilities.⁹ The good news is you have options, including slicker, more advanced APM solutions that give you the flexibility and breadth of features to keep your enterprise applications running smoothly, no matter what. The only trick? Know exactly what to look for in an enterprise APM tool.

What's the Problem?

According to a recent InformationWeek report¹⁰, the primary reasons organizations choose not to use APM products are:

- 1 They require too much staff time to implement correctly **(51%)**
- 2 Lack of expertise to use APM products **(40%)**
- 3 They are too expensive **(33%)**

Clearly, enterprises are in search of an APM solution that's fast and easy to install, and equally as easy to use, in addition to being cost-effective.

⁹ "2012 – The Year of Application Performance Management (APM)," Quocirca, February 2012.

¹⁰ "InformationWeek 2013 Application Performance Management Survey," InformationWeek, October 2012.

CHAPTER 3

What to Look for in an APM Tool

Although enterprise IT budgets will likely see a long overdue increase in 2013, IT executives are still citing cost containment as a key concern.¹¹ This ongoing need to reduce cost has led to the widespread use of cloud computing, and it's precisely why you should look for an APM solution that runs in the Cloud as well. All of those things you're paying for with on-premise APM, including additional hardware, data center space and costs, as well as time and resources spent on infrastructure upgrades, can be avoided with a SaaS model. It's a smaller investment with bigger returns.

¹¹ ComputerWorld 2013 Forecast Survey, ComputerWorld, June 2012.

Why Multi-Tenancy Makes Sense

SaaS-based applications are already being used in other areas of the enterprise, and for the same reason – they make sense for APM. However, it's not just SaaS that you need to look for, as the solution should offer multi-tenancy as well. Unlike hosted, single-tenant architectures, a multi-tenant APM solution continually evolves to meet the collective needs of its tenants. And that includes better scalability and continually improving performance. Take a look at the following table comparing on-premise, hosted and SaaS-based APM below.

Capabilities	On-Premise APM	Hosted APM	SaaS APM
End-to-end visibility	✓	✓	✓
Proactive 24x7 monitoring	✓	✓	✓
Zero infrastructure costs	✗	✓	✓
Immediate implementation	✗	✗	✓
Rapid scalability	✗	✗	✓
Continual innovation	✗	✗	✓
Benchmarking, validation and trend analysis	✗	✗	✓

It's not just the cloud-based platform that's important, as your APM solution should also have enterprise functionality. Below are the must-have capabilities your development and IT teams should be on the market for:

Rapid Root Cause Analysis

When something goes wrong in your application, it's important to have a solution that helps you quickly identify the source of the problem. Individual transaction traces can pinpoint issues to the tiniest detail with code-level diagnostics, including SQL call details, explain plans, and stack traces.

Ability to Monitor External Systems

Be on the lookout for in-depth, real-time insight into the performance of each component of your application stack—from cloud services to the database, caching, networking, queuing, and more. And make sure you can do it from a single dashboard to monitor all the metrics you care about. This way, your DevOps team won't have to worry about logging in and out of different tools to manage internal and external systems in your app environment.

End-to-End Visibility

Ideally, you can find a solution that traces transactions across tiers and services to provide end-to-end visibility. Even better, one that also gives you an easy way to visualize the relationship tiers. Because

the more visibility you have, the faster and easier APM problem resolution can happen.

Key Transactions

Some transactions are more important to your business than others. With the ability to view key transactions, you'll be able to monitor, manage, and track your most critical transactions independent of the overall application. This means an easier way for your DevOps team to prioritize apps that are truly mission critical.

Fine-Grained Diagnosis

You should also look for a low-impact production thread profiler to help you identify hot spots in your app. With this feature, stack traces are collected over a specified duration, aggregated and displayed in a detailed call tree for fine-grained diagnosis. Again, when it comes to identifying superior APM, it's all in the details.

Custom Dashboards

Every enterprise has different drivers and needs, which means that not all dashboards are a one-size-fits-all solution. With custom dashboards, you can build any dashboard you want with any data you want – minus the unnecessary information. For your IT and development teams, that translates into faster problem resolution and greater productivity.

Mobile Support

Enterprise DevOps teams can be a busy bunch, and sometimes they may need access to their APM solution outside the office or on the go. Thankfully, there are APM options available that offer anytime, anywhere access to its service through a convenient mobile app. This way you can monitor all your data from anywhere, while receiving push notifications for all critical problem alerts.

Web and Mobile Working Together

In this day and age, who doesn't have a mobile app? That's why your APM tool should let you proactively monitor your web and mobile applications through a single-view platform. With an integrated view, you'll be able to monitor how your mobile apps are talking to your web services, and dig deep to pinpoint problems. But not only that, you can understand the performance trends of your business, proactively working toward better performance on both web and mobile applications.

In the end, it all boils down to finding a solution that gives you actionable business intelligence.

Addressing SaaS Security Concerns

Security is one of the key concerns enterprises have about SaaS applications. It's important to realize, however, that SaaS security has come a long way over the years, offering the same - if not better - level of security as your on-premise solutions. Most customers dispel their fears by working with security experts in their organization, or in conjunction with the APM vendor's security experts. As you evaluate your SaaS-based APM options make sure the solution gives you the following:

- SOC 2 compliance
- US/EU Safe Harbor certification
- TRUSTe certification
- Hosting in a Type 2 SSAE 16 SOC 1 certified data center
- The ability to collect or choose NOT to collect potentially sensitive data (e.g. database queries)
- PCI, HIPPA, SOX and other regulatory compliance (if needed)

CHAPTER 4

Enterprise APM Best Practices

Knowing what criteria to look for in an enterprise APM tool is a critical first step toward speeding up your enterprise apps, maximizing revenue and protecting your brand, but simply implementing the solution is not enough. You also need to approach performance monitoring with the right mindset.

What's the best way to ensure enterprise APM success? Follow these five best practices and you'll be on the right track:

1 Know exactly what your end users are experiencing.

Ensuring quality application experiences across all users, browsers, and geographies is a must. That's why you should leverage browser performance data from real end users (not synthetic transactions) – from the moment they click until the page has loaded. You'll be able to see exactly what your customers see by monitoring transactions, JavaScript rendering speed and network latency all from their perspective. And since you're tracking real users, you get real insight into customer experiences by browser type and geography, enabling quick identification of under-performing countries and regions. With that actionable intelligence at your fingertips, you can work on a remediation plan to deliver top-notch user experiences for key target populations of your business.

2 Support a polyglot environment.

Development and IT teams are always looking for ways to rapidly build and deploy apps that get the job done, while shortening their development cycles. In today's era of rapid and agile development, chances are that your applications are built on a combination of Ruby, PHP, Python, Java, .NET or Node.js. Regardless of the languages used in your organization, you should use an APM tool that supports the

associated frameworks and underlying technologies you and your organization use. And more importantly, make sure that solution lets you monitor your polyglot environment from the same single interface.

3 Benchmark your performance.

Although a quantifiable improvement in your app's performance is definitely something worth celebrating, it still doesn't answer the question: is your app truly fast? That's when you need to look to your APM tool for a comparative view of how your app stacks up against competitors. Make sure you're looking at site performance based on four key metrics (end-user response time, server-side response time, error rate, and application downtime) and measure them against other sites like yours. This way, you can work not only on breaking your company's personal bests, but the bests of the industry.

4 Make proactive alerting your friend.

When customers complain about your application's performance, it's already too late. To stay ahead of potential bottlenecks, use your APM tool's alerting feature to set up proactive alerts and notifications, along with error and availability reports, and weekly performance reports. Whether you're deploying a new application into production, fine-tuning an existing app or complementing your existing monitoring solutions, alerts should be used as the first line of defense against performance problems.

5 Settle for nothing less than stringent security.

Depending on the nature of your application, you may be handling sensitive data that you don't want being transmitted to the wrong hands. Implement an APM solution that lets you lock down the available security options so that your employees can't accidentally enable the transmission of sensitive data. Of course, you shouldn't forget about industry-recognized security either. Make sure your APM tool has successfully completed the SOC 2 audit of processes and controls relevant to security and availability. The APM provider should be storing your data in a secure SSAE-16 certified data center and offer regulated environments with PCI, HIPPA, or SOX compliance.

Enterprise Use Case: Tribune Technology

TRIBUNE

A subsidiary of the Tribune Company, Tribune Technology is responsible for

managing the digital operations of America's leading news and information sites. The organization serves roughly 400 to 500 page views per month, making it critical to ensure consistently high performance.

With SaaS-based APM provided by New Relic, the Tribune team can rapidly identify bottlenecks and develop performance improvement updates. This translates into significantly reduced downtime, as well as far greater efficiency and precision in the way it manages performance.



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CHAPTER 5

Better APM Equals Better Business

Companies are increasingly realizing that the speed of their applications directly impacts their bottom line. This has spearheaded web performance as a key enterprise priority, fueling a new performance culture in many organizations. In fact, the performance community now has more than 27,000 members across 84 Meetup groups – and these are all folks like you who recognize the value of using a first-rate APM tool.

With the right SaaS-based APM solution, enterprises can reap the following benefits:

Faster problem resolution.

Companies using modern APM tools can identify and monitor app processes as they are created, with real-time, end-to-end insight into their application's performance. When there's a problem they can spot it immediately—before it affects the end users.

Greater productivity.

With a SaaS-based APM solution, enterprise development and IT teams will be able to manage their apps from anywhere. They'll be able to access the APM dashboard from any browser, whether at their desk or on a mobile device. That means greater flexibility and productivity, which contribute to a better performing app.

Improved user satisfaction.

Enterprises can ensure their app delivers a great experience every time, especially when they leverage real user monitoring. With this feature, they have up-to-the-minute visibility into browser response time to help identify front-end bottlenecks and fix them immediately. The end result: happier users and improved brand reputation.

Lower infrastructure and maintenance costs.

Performance issues eat up a ton of resources. But with the right SaaS-based APM tool, businesses accelerate throughput and increase cluster capacity, which cuts hardware and hosting costs. Plus, finding problems fast means less time and manpower on maintenance.

ROI Spotlight

When it comes to return on investment, choosing SaaS over on-premise APM is a no-brainer. Based on calculations done by analyst firm IDC, New Relic's SaaS-based solution yields a 3-year ROI of 314%, with payback occurring within a mere 3 months. The cumulative benefit for one company will be \$3 million over a 5-year period. That's in addition to saving \$1,449 per user on APM, as well as a 95% reduction in the cost to test applications.

Enterprise Use Case: MercadoLibre



As the largest and most used e-commerce platform and marketplace across Latin America, MercadoLibre supports millions of users across its 13 operations units each month. In 2011, the company decided to redesign and migrate from its previous unified monolithic system to an open API-based platform—a totally decentralized ecosystem running on thousands of servers and web applications.

Thanks to SaaS-based APM from New Relic, individual teams at MercadoLibre were able to transition to the new system without a hitch. As a result, the company can now give individual developers the control and ownership they need to swiftly develop apps and continue to fuel fast-paced expansion.



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Conclusion

With the rise of big data, cloud computing, mobility and other disruptive technologies, enterprise applications no longer look or act the way they used to. This means that enterprise APM tools need to evolve to accommodate the more complex nature of today's IT architectures. If enterprises continue to rely on traditional, on-premise APM solutions, they risk falling into the traps of lengthy and expensive maintenance, time lost on strategic objectives, and poor user experiences.

With a new breed of multi-tenant SaaS-based performance monitoring tools enterprises can achieve huge cost reductions, along with greater efficiency and resource alignment. Your business can enhance its app reliability and reach new heights in user satisfaction with a SaaS-based APM tool like New Relic.

APM Assessment

If you're having doubts about your current APM solution, answer the questions below to see if it's time to find an alternative.

QUESTION	Yes	No	Not Sure
Are we measuring real end-user experiences on our website today?			
Are we meeting customer SLAs?			
Is our app delivering consistent response times across users and geographies?			
Do we have under-performing regions? Do we have a web performance plan in place to correct those problems?			
Is our site delivering a consistent user experience, regardless of browser type?			
Do we know how our website response time and availability compares with our competition?			
Can we quantify how third-party technology and services such as ad networks and payment processes are impacting our site's performance?			
Can we monitor and troubleshoot problems for our mobile app using the same APM tool we use for our web applications?			

Did you answer "No" or "Not Sure" to any of these questions? If so, now's the time to begin evaluating your options.

For a good place to start, visit: www.newrelic.com.

About New Relic

New Relic is a software analytics company that makes sense of billions of metrics about millions of applications in real time. Our comprehensive SaaS-based solution provides one powerful interface for web and native mobile applications and consolidates the performance monitoring data for any chosen technology in your environment. When your brand and customer experience depend on the performance of modern software, New Relic provides insight into your overall performance.

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