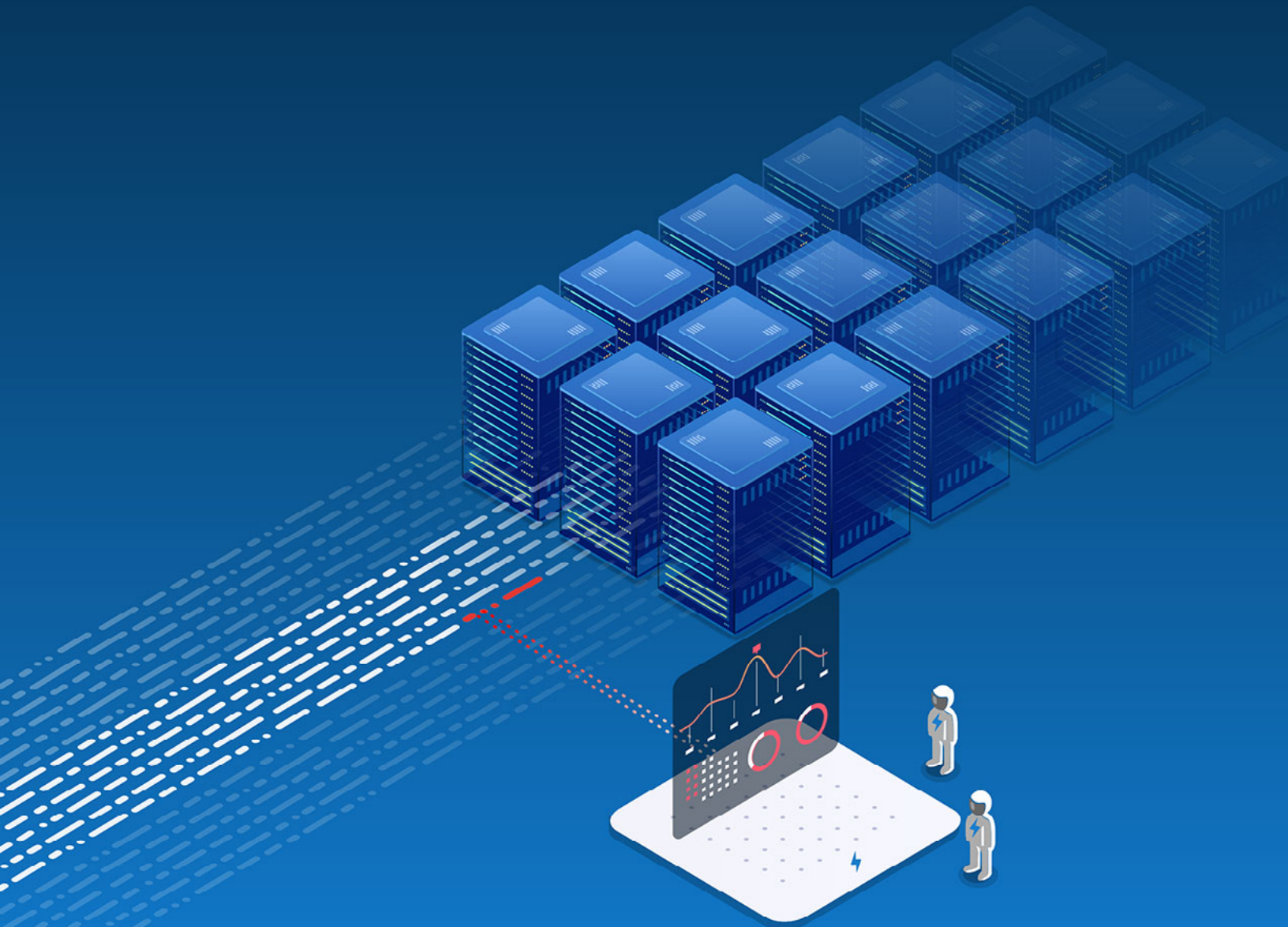




Actionable APM

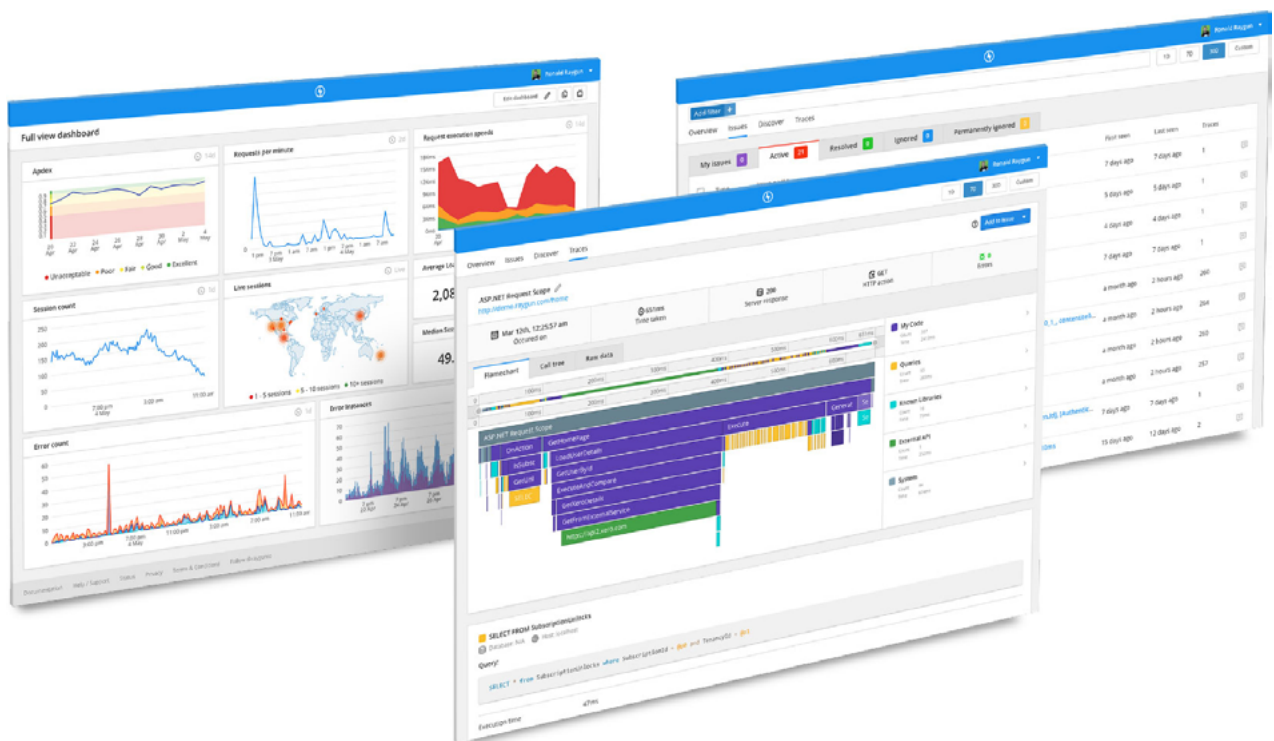
Your Guide to Modern Application Performance Monitoring



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Foreword

Software has never been easier to develop, yet harder to support.

As technology evolves and new best practices infiltrate the software engineering landscape, your web and mobile applications become increasingly more frankenstein in their nature as they get larger and more complex.

No doubt that if you started building your products and systems from scratch today (knowing what you know now), things would look very different.

Teams struggle to integrate older legacy, yet mission critical systems and technical debt into their future roadmaps. You end up shuffling around the outskirts of your codebase to orchestrate the pieces, without any issues falling through the cracks.

You're often tasked with changing the wheel, whilst accelerating the car at the same time.

But this strategic game of chess that you play with your software applications isn't about you and your architectural problems. It's about your customers. The end users. Their businesses and livelihoods can be relying on your application working as expected.

Errors and crashes drive them crazy, performance issues suck their productivity and broken checkout flows stop credit card wielding potential customers from giving you their hard earned money.

What you're really lacking is complete visibility on these issues.

Do you know where every bug lies?

Do you know exactly how many users are affected by poor performance of your app?

Can you deploy new features and products with complete confidence, knowing that you have the x-ray vision required to see when users are encountering these problems?

Modern day APM offers a level of insight into your codebase unlike anything you've experienced before.



How modern APM encompasses a new generation of monitoring tools

Modern day APM is customer centric. Modern day APM is insightful. Modern day APM is actionable.

Modern day APM makes YOU the hero of your organisation. The person and team willing to put the customer first.

Traditional APM solutions have trained today's corporate leaders that putting your metrics onto an office dashboard is an adequate level of visibility. To spot abnormal dips or spikes in timeline graphs is offering sufficient detail into problems that affect end users.

You're told to fix an issue and pointed in the general direction of the problem, then spend hours digging around looking for an answer.

Reducing JavaScript errors on your website by 50% is deemed a great success, but in today's fast paced, highly competitive online arena, it's simply not good enough. There's still a large number of people experiencing issues. Are you seriously going to call that a win?

So what should modern day application monitoring look like and how can your team adopt today's best practices around monitoring to become the best they can be?

APM grew from a need for software vendors to understand how users experience their web and mobile applications. It progressed quickly because: (1) businesses started to recognise the negative impact of poor application performance, and (2) operations teams have developed the need for a real-time, holistic view across their data.

As Marc Andreessen pointed out in his famous essay (Why Software Is Eating The World) - "Six decades into the computer revolution, four decades since the invention of the microprocessor, and two decades into the rise of the modern Internet, all of the technology required to transform industries through software finally works and can be widely delivered at global scale".

As software became increasingly distributed, users also started to diverge in their use of technology. Suddenly visibility of the issues that were happening to them whilst interacting with that software became completely obscured.

The truth is, there's no loyalty when it comes to software, and the world's four billion internet users don't have time for downtime.

This includes slowdowns, which can be 10 times more likely than outages. Your products must work the way customers want and expect, or your customers become your competitor's customers.

The ability to detect and resolve application performance problems quickly is now the key to success.

61% of customers globally switched their allegiance from at least one company in 2017, due to receiving a poor customer experience.

Bad software experiences have just as much impact as things that happen to us offline, but often we do not compare them with the same severity.

Take this example. What if you went out to buy a new pair of shoes and the person at the checkout refused to take your money and let you purchase them? Offering no explanation as to why.

No doubt you'd leave frustrated, slowly filling up with rage at why you made all this effort, thwarted at the last step of your purchase for some unknown reason. A software issue on a retail website could cause the same thing to happen, just online.

Do you report this issue? Do you spend your precious time detailing it to the company in question? I don't think so. Nobody does. You just go and purchase them from a competitor instead.

If this happened frequently enough in the offline world, someone in that company is going to find themselves out of a job pretty soon. Yet when it comes to our software, we're often happy to let this kind of thing happen without such a rush to fix it, or have zero visibility of it even occurring.

We'll often celebrate that 50% drop in error rates on our dashboard. We'll marvel at our ability to improve the ingestion times on our API. We high five when we finally fix that bug that's been hanging around for the last two years, likely affecting thousands of users.

For end users of your software, that's not good enough.

Developers tend to live in code, far away from any negative effects that code is having on the end user.

The reason we don't let poor quality software experiences take the same precedence as real world interactions is customer empathy.

After all, your 'users' are just numbers on your dashboard right? They don't have names, or feelings, or complain to your face. They're just numbers. In reality, they're individual humans, that want to be delighted and not frustrated by the products you spent so much time and effort building to serve them.

We need to become customer centric in our development, monitoring and reporting practices.

Modern APM helps raise issues into view, working through their resolution as a team.

Often we rely on drops in our success metrics to notice when things are not working in the way we'd like them to be. But are you monitoring what's going wrong? The things that are failing, slow and could be improved? And highlighting them on your dashboards?

You need to be, and modern, action orientated APM helps build this workflow of things to improve in your software applications into current development workflows, effortlessly.

How is modern APM different?

Despite being a relatively mature space, APM has been struggling in different ways to keep up with the pace of the technology and the software it monitors.

TRADITIONAL APM

MODERN APM



Gaining X-ray vision into your software performance

If you're still using a traditional APM product, or nothing at all, now's the time to explore what modern APM tools have to offer.

APM tools help you get to the 'why' as quickly as possible. Letting you drill down into the root-cause of any application issue. Or at least they're supposed to.

Most traditional APM solutions give you clues and a point in the right direction, rather than the exact answers that modern APM solutions can offer. That extra level of insight can make all the difference when trying to diagnose, reproduce and resolve issues.

As a result your Mean Time To Resolution (MTTR) for performance issues and software errors can be dramatically reduced.

Think of it as your mission control for your software quality. Somewhere that gives you complete, real-time visibility over your applications, so that you have the information to make quick decisions and resolve problems with speed.

Among other metrics, APM collects data on:

- Execution speed of requests - how fast your app executes requests
- Requests Per Minute (RPM) - the volume of requests moving through the app
- Response time - the time it takes to give users what they asked for
- Apdex (Application Performance Index) - how satisfied your users are with your response times
- Top active issues - the performance issues you need to fix right now
- Slowest queries/requests/traces/API calls/methods - the things to improve

Just having this data isn't enough though. What's the point of having a haystack without being able to find the needle? As our ability to collect big data increases, the need to analyse it does also. It's all about capturing the right data, in the right way and asking the right questions.

APM facilitates the 'intelligent use of data'. To know when and why a problem occurs. A key by itself doesn't offer much value, it needs the corresponding lock. The context upon which to take an action.

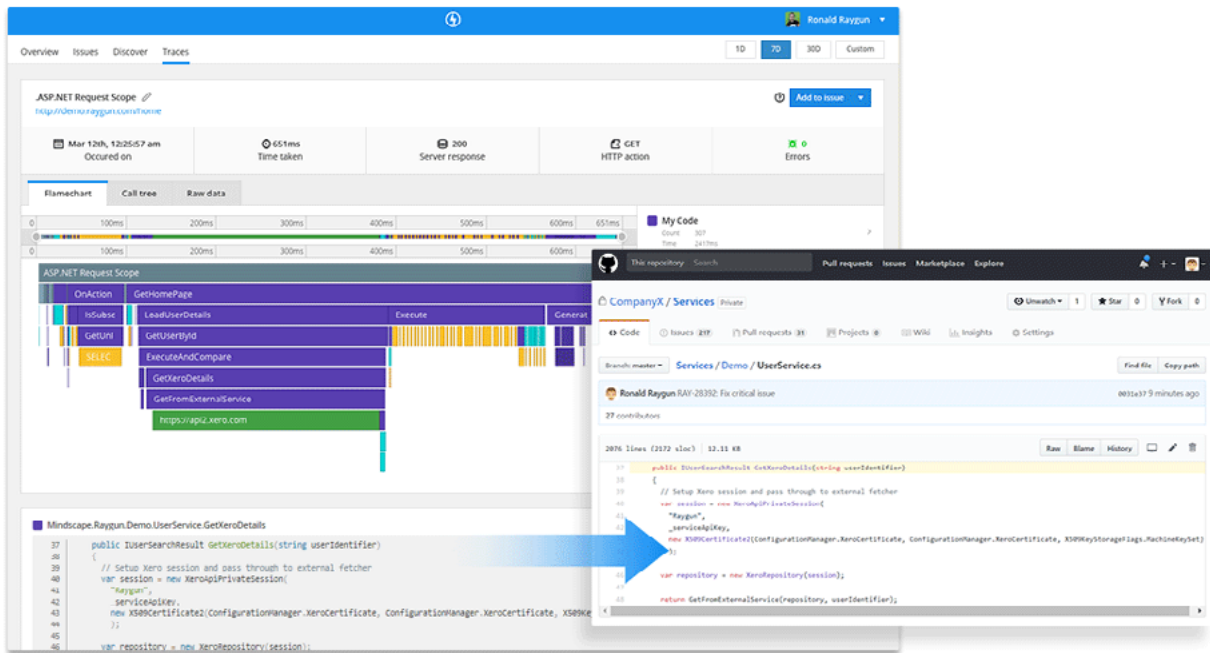
Whether referring to elite athletes, staff, or our web and mobile applications, the aim is to monitor, maintain, and improve our performance. To always do better.

Technology today allows for us to do so much more than in the past, but the fundamentals remain the same. If you have a business, you have products or services to offer, and in order to succeed you need customers to provide and sell to - Happy customers.

Reaping the rewards of action oriented APM

You can't fix what you don't know is broken.

Enterprise architecture is currently stuck between the old world and the new. The old world being monolithic, and the new world being microservices.



Traditional APM providers who monitor predominantly on how many servers you are monitoring force you to limit your visibility to a small part of your infrastructure. Monitoring double the amount of servers means double the cost. This isn't the case with modern APM that allows you to monitor unlimited servers / hosts, giving you a full breadth view of your entire application stack.

Container friendly APM solutions are built to handle fluctuating data volumes and offer full context and visual breakdown of the timeline as the page loads, including your code's execution time, method calls, database queries, third-party libraries and external API calls.

With systems becoming more complex and fragmented by the day, it's crucial to make all possible linkages eventually refer to the same primary location of the data.

A single source of truth is important to avoid linking to duplicate (or de-normalised) data elements that result in outdated and incorrect information.

Making your data centralised and accessible, across departments, allows your teams to 'sing from the same song sheet'. A superpower most teams are yet to realise. Modern APM increases efficiency and collaboration, because everyone can agree on what is the true and trusted data. As a result your MTTR can be reduced, leaving you confidently leading the pack.

As modern APM is well suited to microservices architecture, done right it can not only increase efficiency, but also help you avoid unnecessary technical debt.

An APM solution that offers seamless integrations with the most popular third-party workflow tools such as Slack, Jira, GitHub, and PagerDuty, lets you extend your reach within the organisation quickly.

Adding issues into existing workflows and tools that are already prevalent within the existing team make adoption and approval processes faster.

Users want more, technology allows for more, and we're only ever going to collect more data. You need to be able to shrink and stretch easily to the needs of those users.

According to a report from Accenture, approximately one-third of customers indicate that they have higher expectations of companies they engage with than the previous year; and this has been steadily increasing. Topping the list of 'experiences' they expect to be better – speed.

Rollbacks and bug fixes in production are expensive.

If you can leverage APM to detect issues right from your test environment to when in users' hands in production, issues are less likely to affect the end customer. Helping your team squash problems quickly during the software development life cycle is key.

If your customers aren't satisfied, they won't remain your customers.

Customer Experience (or CX) is the sum of all the touchpoints that a person has with a business over their time together. In 2016, 75% of companies said that their top objective was to improve customer experience.

Companies are investing heavily in CX initiatives, but without appropriate metrics, one thing they can't translate that investment into is financial impact.

The underpinning assumption of modern APM is that 'things won't always work perfectly' and there's always room for improvement. Companies that excel at customer experience grow revenues 4% to 8% above the market.

Since you can't please all of the people all of the time, being able to fix things fast is what matters. Modern APM can help you achieve this and demonstrate to your peers that you care about the end customer experience, not just your specific area of the codebase or infrastructure.

Next steps

Whether you use an application monitoring tool already or are hoping to get started with one soon, the insights these tools can offer help you:

- Improve the customer experience
- Find faults in your codebase you didn't know existed
- Remove performance bottlenecks slowing down your applications
- Help you resolve issues with greater speed and accuracy

In today's highly competitive online world it's simply not acceptable to leave it up to users to report issues. Firstly, they don't, and secondly the sophistication of monitoring tools available to developers today means they shouldn't have to.

Full visibility on every issue affecting end users is easily within reach, as long as you have the right tools in your software development environment.

Modern APM tools help you make smarter decisions, with deeper insights than traditional APM solutions that offer clues, rather than answers.

Development teams spend their time worrying about their infrastructure, their technical debt, their codebase and their development roadmaps. However this mindset often neglects what is truly important to the wider business - Whether users are having good experiences.

Customer-centric software development starts with gaining visibility into issues your users experience.

It's modern APM that gives you this superpower.

Ready to get started on your journey to better software experiences for your users?

See why Raygun APM helps you discover and resolve performance issues in your applications with greater speed and accuracy.

With smart pricing, detailed visual flame charts and automatic issue detection, no other APM tool gives you the level of visibility into performance issues affecting your customers.

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