

APPLICATION PERFORMANCE MANAGEMENT IN DEVOPS



In an age where enterprise businesses are committing to the paradigm shift that comes with a DevOps culture, modern professionals are learning the value of microservices. Microservices architecture in tandem with containers makes it easier for developers to standardize and automate infrastructure environments, application environments and resource configuration with code. One way this occurs is with application performance management.

Application performance management, commonly known as APM, is also sometimes called application performance monitoring. A key element of DevOps, APM allows developers and operations project stakeholders to monitor and review the backend of applications in real-time. Using APM tools, developers can respond faster to bugs and bottlenecks.

In the following article, we will be examining APM by:

- Defining DevOps culture and methodology
- Exploring what is APM and how it fits into a DevOps framework
- Looking at the business value of APM
- Discussing the importance of APM for enterprise businesses

Keep reading to get the facts on application performance management and monitoring:

DevOps Culture and Methods

DevOps is a core set of business practices that bolster IT development by centering collaboration, communication, and integration between development teams and operations stakeholders. The first thing that business leaders considering DevOps must do is scrap old mindsets about development

and the role it plays within the organization.

DevOps centers the IT departments by empowering it with support and collaboration from operations, instead of the proverbial head-butting that often befell the businesses of yesterday. In DevOps, fingerpointing and issues of transparency and accountability are replaced with microservices that automate mundane tasks allowing for better communication and collaboration between departments.

By committing to the principles of continuous integration and continuous development, developers are encouraged to build toward the next goal. The result of a properly implemented DevOps approach is the agility and flexibility to be constantly delivering software builds. With application development speed at the heart of each sprint, APM has become the rising star of DevOps.

APM Methodology

In DevOps, any APM is tasked with three main monitoring goals: identifying problems, isolating problems and solving them by diagnosing the cause. Here's a closer look at each:

Identifying Problems

The APM framework enhances the user experience by proactively monitoring for issues before a problem occurs. There are different kinds of monitoring tools that businesses can use depending on what needs monitoring. These tools work at the infrastructure and application levels and can offer passive solutions like user experience monitoring, or proactive solutions like synthetic monitoring, where the user interactions are synthesized to reveal problems.

This requires end-to-end discovery services to be in play, monitoring all user touchpoints and backend activity to detect problems as they occur.

Isolating Problems

Once problems have been discovered and identified, they must be isolated from the environment to reduce the overall impact of the problem and troubleshoot it. An APM should track the deployment of code into any environment and provide analytics. This allows developers to track bug fixes and A/B test the best way to solve problems.

Diagnosis

A problem which has been detected, identified and isolated using any number of automated microservices for monitoring, like the ones described above, is ready for diagnosis. This is the level in which monitoring gets turned over from operations stakeholders to developers to respond to the issue that has been detected. During this phase developers can diagnose problems at the code-level, they can review logs of data to assist in determining diagnosis, they can leverage chat-level communication with operations stakeholders using collaboration tools or rely on machine learning data patterns to flag errors.

Further Defining APM and It's Place in DevOps

If DevOps is about greater agility and application development accuracy and speed, then APM has

intrinsic business value to any company whose adopted this mindset. That's because APM has an important role in delivering on a flawless end-user experience, over and over again, in a continuous delivery environment. All of the above supports the goals of DevOps. Here's how:

APM and Application Dependencies

Between system infrastructure and other services, microservices, middleware, and libraries, applications have a number of dependencies. It's important that development teams have a way to support the configurations of all of these integrated systems and processes. That's especially true considering the rapid adoption of containers and virtual machines into an already highly integrated space. With all of these resources relying on one another, it's essential that configuration and application dependencies are monitored.

To create the best user experience, development and operations must work together to monitor and maintain all the parts that create the whole infrastructure. Using application performance management tools, a high level of monitoring is available as a microservice to enterprise businesses.

Planning for Usage Scenarios

While it's impossible to anticipate all the things you might need to know to manage your application, like sudden surges in traffic, or sudden interest in a certain feature or product, by implementing DevOps best practices within an APM framework, operations and development teams can get a better handle on expected user patterns and traffic surges. This is done by way of tools that monitor users in real time allowing developers to respond quickly to unusual user behavior.

Managing Application Delivery

Finally, APM tools allow the DevOps team to manage what matters most: application delivery. This is achieved by fostering an environment of communication and collaboration between everyone involved with the application, be it users, project stakeholders, QA testers or development teams. Everyone important to the success of the delivered application is part of a cycle of useful feedback. This effectively allows teams to:

- Consider all variables, like changing deployment models and end points.
- Coordinate among teams responsible for the configuration of the environment in each step of the development process.
- Test against several common validations, like performance or pre-production testing, with transparency.
- Update application for new features and validations as they are deployed.

For these reasons, a sound APM framework is essential to achieving a smooth application delivery process when it comes to DevOps teams.

The Importance of APM for Enterprise Businesses

An APM is an essential tool for adopting a DevOps focus in your organization. While not a new product to hit the market of resources for enterprise businesses, APMs have only recently gone beyond being a strictly operational tool with help from the bridge created by DevOps between operations and development teams. With a newly implemented DevOps mindset, a properly

implemented APM instance can offer important information and collaboration to both operations and development teams. The result is development teams have more access to feedback, data, and analytics in the development phase that they wouldn't normally have until an application hits production.

The nature of APM frameworks complements DevOps, naturally. One example of this, as described in this article, is how using APM can help developers understand what to expect from a user planning standpoint, allowing them to bake in contingency plans prior to release. This is supported by the continuous delivery of features that is characteristic of DevOps.

Even once an application has been delivered, APM's enhanced monitoring features allow for quick identification, isolation, diagnosis and, ultimately, the resolution of frustrating bugs and bottlenecks that would otherwise impact user experience. In that way, an APM is an essential tool for keeping DevOps teams aligned with delivery goals while still able to focus on problems from earlier releases.

BMC: Your DevOps Partners

If staging your organization for DevOps has gotten you in over your head, you're not alone. With many frameworks and microservices to choose from, the possibilities may seem endless. BMC's DevOps experts support you at every stage of your transition.

With BMC as your DevOps partner, you'll be on track to radically shorten your release times, making your DevOps organization run more smoothly. You'll have all the tools you need at your fingertips to do everything from build collaborative workflows to orchestrating those workflows.