4 PLAYS TO DRIVE SUCCESS

Future-Proofing Your App Environment

PAYCHEX, NASDAQ & BMW

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Introduction

**IT infrastructure is more flexible than ever before.** Today, IT teams can spin up environments quickly and efficiently in response to availability of resources and other business needs. But this flexibility comes at a price: As we create more distributed systems and infrastructure components, we introduce more complexity into our application environment, usually in the form of siloed data. Without transparency and monitoring of these silos of data, however, many companies put themselves at risk for significant performance problems.

Fortunately, application performance monitoring (APM) solutions remain instrumental in getting visibility across all facets of the IT environment. Today, extremely sophisticated solutions can track, monitor, and alert IT teams when something goes awry, providing a valuable head start when it comes to remediation.

**Problem is, under the weight of mounting data, IT leaders are still spending too much time reacting to alerts and not enough time building proactive, automated solutions for ongoing performance issues.**

What’s more, the rise of DevOps demands more and faster innovation. And while organizations are deploying more code than ever before, there’s evidence it comes at the expense of visibility.

Case in point: A recent AppDynamics survey of 6,000 IT leaders across the globe found that while almost half of enterprises release new features or code at least monthly, 91% say their monitoring tools only reveal how each release drives the performance of their own area of responsibility, drastically reducing visibility into and preparation for managing potential system-wide issues.

This is all to say: If you’re just treading water in response to this deluge of data, then you’re not alone. But planning for the future of performance monitoring is now absolutely critical to business success. And that means building a truly holistic, automated, and proactive approach.

Based on the challenges we’ve seen across the industry, and inspired by the amazing ways we’ve seen our own customers optimize their application environments, we’ve mapped out four of the most critical areas to focus on when attempting to future-proof your application environment.

**The Four Key Plays**

1. **AIOps:** using artificial intelligence to enhance IT operations.
2. **Cloud migration:** moving data and apps from on-premises to the cloud.
3. **Digital Experience Monitoring:** combining APM and EUM (end user monitoring).
4. **DevOps:** automating processes between IT and software development.

In the pages that follow, you’ll find tried and tested strategies for running these four key plays, as well as insight and real-world advice from companies that have successfully positioned themselves for the future of performance monitoring. Together, these stories and the insights they yield form a practical roadmap you can use to guide your organization.

**As you move through the playbook, remember that no one strategy is better than another.** Here at AppDynamics, we’ve seen some customers thrive by executing on all four plays, or just one or two. It all depends on the resources you have available and the speed at which you need to drive organizational and business change.

**Ready to dive in?**
The AIOps Play

Using artificial intelligence to enhance IT operations
Rewind to a decade ago when the world was first introduced to what we now call “DevOps,” a movement designed to enable efficient cross-collaboration in the face of continuous software delivery and rapid deployment. At the time, the DevOps movement forced engineering teams to become more agile with regard to development processes. However, in order for them to realize the dream of truly nimble product development, it wasn’t just devs that needed to change, it was IT, too. That’s why, in recent years, AIOps solutions have emerged as a way to manage the information, infrastructure, and activities required to support complex application environments.

**AIOps: The process of combining machine learning and AI to find patterns in application performance and predict the future impact on the customer experience, business, and brand.**

So what does an AIOps approach look like in today’s application environment?

One need not look further than Paychex, a leader in payroll and HR services that serves more than 650,000 small to midsize companies. Before Paychex partnered with AppDynamics, the company had transformed from service-based to SaaS-based to meet growing consumer demand for a 24-hour self-service model. Developing an AIOps strategy with AppDynamics helped Paychex apply intelligent traffic routing and analytics to proactively optimize capacity and experiences for millions of users.

*Let’s explore what that strategy looked like.*

“AIOps, to us, is kind of a continuation of our transformation into agile, DevOps, and continuous delivery. It was enabled by all of those things to allow us to have an infrastructure that’s automated.”

David Wilson  
Senior Director of Infrastructure & Architecture  
Paychex
There’s a huge opportunity to redefine what proactive means for businesses. Today, it’s seen by many as hoping that they spot a problem before the customer does, or before people start complaining on social media. Consumers today will not tolerate poor digital performance, so businesses need to move to a model where proactivity means identifying the issue before it even happens. AIOps is the answer.

Arnaud van Rietschoten
Vice President IT Service Management and Digital Workplace
The Emirates Group
How to deploy AIOps

Although this is a relatively new term, the practice of AIOps isn’t new territory. There’s a tried and true path to adjusting your ops teams for the AIOps use case. And there’s no need to go all-in. The following framework focuses on building incremental trust in the technology through a thoughtful, data-driven rollout.

PRE-DEPLOYMENT: RETHINKING MEAN TIME TO RESOLUTION (MTTR)

Before deploying an AIOps solution, you need to know how to measure its value. This requires breaking down the time it takes your team to address performance anomalies measured in MTTR into two broad areas: problem time and solution time.

**Problem time** is when you try to understand the incident through root cause analysis.  
**Solution time** is when you resolve the incident and verify return-to-normal state.

Why break MTTR into these categories? Because different phases of deploying AIOps will improve different portions of MTTR, and you’ll want to track each of them before and after deployment to justify your investment. In other words, each subdivision becomes the focus of each phase of deployment.

**Phase 1: Reducing problem time**

The first phase of deploying AIOps requires leveraging machine learning to understand your application environment. This is best achieved with an AIOps-powered APM solution. In this scenario, remediation is easier to achieve since the solution becomes intelligent about your app environment over time and can automatically surface and remediate issues that arise. By running this kind of AIOps play within your IT environment, you’ve got the potential to build a truly proactive approach to performance monitoring — without necessarily adding more IT resources or pulling people off important projects.

**How BMW Solved Problems Faster and Delivered More Consistent Experiences**

When BMW implemented the AppDynamics AIOps solution, the Central Nervous System for IT, they gained a broad and deep view of their complex business ecosystem while freeing up resources to drive continued innovation.

For BMW, being able to solve problems faster meant delivering consistent experiences sooner — and to the level of excellence that customers have come to expect from the brand.
We want to be able to focus our spend and get as much innovation out of that stream as possible.

Guy Duncan  
Vice President of Digital Services and Operations  
BMW Group

“When we look at the complexity involved, we look for partners [like AppDynamics] to help solve problems for us. That’s really important to us because we don’t want to waste developer time building those types of tools.”

BMW itself is one small sliver of a global ecosystem comprised of process partners, the vehicles themselves, and the cellular networks they run through. For their organization, the trick was to begin their AIOps deployment in the QA and test environment for a lower-risk, yet still valuable, introduction to this complex environment, given the lesser business impact of pre-production.

With that tip in mind, simply leverage an AI-powered APM solution and let it learn about your environment. You can always add your own specific KPIs on top of your solution’s automatic baselines, if you have them. In minutes, this gave Guy and his team a broad view of their ecosystem and massive clarity about potential problems.

Now it’s time to apply that visibility to production.
**Phase 2: Automating actions**

With your trust in AIOps growing, you’re ready to take on solution time by automating actions. Operations can apply AIOps to mean time to fix (MTTFix) in three steps:

1. Parse the root cause(s) your AIOps solution identified to select the correct issue to address. Data can help determine whether auto-remediation is necessary.
2. Decide whether to fully automate an anomaly resolution. Again, start with low-risk tasks, perhaps based on existing SOPs or by growing available resources.
3. Connect the low-risk remediations to the specific root cause, then connect that visibility to a fully-automated action.

And there you have it. There’s still some work to be done to achieve true proactivity but these automated and predictive insights will get you off to a solid start. You’ll soon simplify the demands of your application environment, building stronger connections between IT and the business along the way.

“The continued growth of our business directly correlates with our ability to scale and innovate new technologies, which is why the level of visibility and insight AppDynamics provides us is so useful. Central Nervous System for IT is a game changing AIOps solution that will help us to scale and adopt newer technologies that will further improve our identity platform for customers.”

*Mark Settle*

*CIO*

*Okta*

In the next chapter, you’ll learn how to further simplify your environment in the cloud.
The Cloud Play
Moving data and apps from on-premises to the cloud
Numerous companies are moving applications to the cloud. If they’re not already doing it, the majority of enterprises are thinking about it. Look at the numbers:

Cloud adoption has become a strategic imperative for enterprises. It’s the price you should expect to pay to transform into an agile digital business. The reason, from a technical perspective, can be boiled down into two key objectives:

1. Actively manage as little infrastructure as possible.
2. Facilitate application innovation as much as possible.

From a business perspective, these goals translate to minimizing cost and maximizing the ability to address new opportunities in managing performance. Namely, our customers tell us, cloud migration creates opportunities to demonstrate the value of APM capabilities such as:

- **Application mapping**: visual flow maps that show components, dependencies, third party calls, app transactions
- **Business transactions**: to understand usage and have clear visibility of how your app drives user experience
- **Unified monitoring**: full stack monitoring and a single user interface in one platform to swiftly detect issues

By tracing transactions end-to-end, APM reveals intersystem dependencies and assures service availability, essentially helping de-risk cloud migrations.

### The state of APM

- **85%**
  are evaluating or using public cloud
  (IDC CloudView, 2017)

- **95%**
  of all compute workloads will be public + private cloud workloads by 2021
  (Cisco Global Cloud Index)

- **81%**
  of enterprises have a multicloud strategy
  (RightScale, State of Cloud Survey, 2018)

### How does that work in practice?

Agero, a leading provider of connected car solutions, implemented AppDynamics APM with a specific goal in mind. The company was having many issues in production with an older application its operation centers relied on to do their jobs. While spending hours identifying the root cause of these issues, Agero was also determined to move its older .NET stack to the cloud and to adopt microservices.
The first step in that process was to establish a performance baseline. “We implemented AppDynamics across our on-premises system, and then we moved the system to the cloud,” says Karen Hutchinson, Agero’s director of DevOps. It was a complex migration that involved migrating databases integrations to Salesforce, Azure, and other third parties. “AppDynamics definitely provided one sheet of paper — a single source of truth — that everyone could look at,” Hutchinson said.

The migration project stayed on track, and Agero was able to continue to serve its customers, even as Hutchinson’s teams upgraded large swathes of code.

This is still just one approach to migration. Before you think about running this play, we’ll go over all your options.

Successfully migrating to the cloud

Cloud adoption is a journey with no single path. Every cloud has its benefits and drawbacks. Like AIOps (and unlike traditional data centers), you don’t have to go all-in on a single cloud provider — nor should you.

A far better approach is a multi-cloud one that leverages different clouds for different applications and workloads, then use monitoring and analysis to hone in on the clouds that make the greatest impact on your bottom line.

So where do you start? It depends on where you are on the cloud maturity curve.

If you are a... Consider...

Pragmatist who’s just getting started. A “lift and shift” approach.

Transformationalist, the stage most of our customers are in, who is ready to take the next step in their cloud journey. Replatforming your application components and middleware to utilize cloud services.

Optimizer who thinks about providing every transaction and function as a microservice. Tearing your infrastructure apart to create a microservice-based architecture.

Traditionalist who manages the classic monolithic, on-premise infrastructure. Reconsidering cloud adoption if you can’t take data off premises for security or compliance reasons.

As long as you can, you will get value from a cloud provider. So, calling all pragmatists, transformationalists, and optimizers: let’s go through each approach and how to analyze its results in more detail.
LIFT AND SHIFT

This works just how it sounds: take your infrastructure, services, or applications and simply transfer them over to the cloud.

But it takes some groundwork. Before you get started, you need to understand your existing architecture. What do your apps look like? What underlying systems support them? Who are your third-party providers? Analyze your application topologies (the data and workflows that intersect your various apps and services) and how different app components interact with and depend on each other. Your analysis will help you answer questions like:

• Which applications should I migrate first?
• How will I monitor and minimize the impact on users before, during, and after?
• What training does my IT staff need to effectively build and operate cloud environments?
• How can I continuously demonstrate benefits of the move?

You can get clarity on your application architecture and all its dependencies internally — via tribal knowledge, siloed perspectives, network guides, and configuration management databases for example. Or you could guess at the cloud infrastructure size you need. Either way, you’ll have an unreliable or fragmented foundation of data to work from.

An APM solution can provide hard data. For Nasdaq, which manages the single largest stock exchange by volume and a sizable portfolio of applications, it was a challenge to understand the application environment holistically before deciding to outsource APM. The AppDynamics Application Intelligence Platform stood out for the traceability it offered out of the box. It immediately provided Nasdaq access to a whole new level of actionable data.

“

It was simple to deploy. It took minutes, literally. On our first proof-of-concept, we saw results within an hour.

Eric Poon
Director of Operations Analytics
Nasdaq
This visibility was also critical to Wyndham Hotels & Resorts when it successfully migrated its more than 8,000 hotels to the cloud. The team enlisted AppDynamics to help in areas related not just to the flow of data, but also the customer journey.

“These additional insights gave us a holistic view of our applications and how our users interact with our apps, right down to the design and feature level,” says Scott Strickland, the hotel group’s EVP and Chief Information Officer. “This enabled us to focus on other critical improvements and accelerate user acceptance testing during the migration process while maintaining application performance throughout.”

RE-PLATFORM

Here, you might want to make a few cloud optimizations but won’t otherwise change the core architecture of your applications. One major recent development in this area is replatforming from virtual machines to container-based virtualization.

Kubernetes has emerged as a de-facto standard for container orchestration now that 77% of cloud providers use it to manage their containers. The challenge now is how to automate containers. Kubernetes has built-in monitoring tools but largely delivers standalone metrics. To deliver flawless experiences, you need a unified view of all these moving parts.
Optimize

Optimizing (or refactoring) for the cloud means breaking your monolith into a microservices. The benefit: single services can up- or downscale based on demand and evolving requirements. The caveat: your flow map for applications and their dependencies becomes much more complex. A microservice-based architecture might 10x or even 20x your services, whose dependencies are likely complex enough already. Cue the alarm storms.

That’s why it’s important to unify results in a single pane of glass, which shows you only the alarms you care about. If some component downstream has problems with resource shortage, you’ll be able to pinpoint quickly and precisely where the problem happened.

The World Bank had experienced its fair share of finger pointing before it made the commitment to achieve a unified view of its architecture. It chose AppDynamics for its ability to drill down into user sessions and backend transactions for troubleshooting — and quickly said goodbye to war rooms. The results were far fewer outages and opportunities to use data to solve wider business problems.

How can this apply to cloud migration? For Cognizant, a world-leading professional services company, doubling down on cloud migration led the company to AppDynamics for synthetic monitoring.

“Before we implemented synthetic monitoring, we had limited visibility into which geographies had underperforming components. With AppDynamics, we’ve cut the time to address outages,” explains Hariprasad Vijayaraghavan, AVP—Projects, IT application architecture. **The team reduced the time required for root cause analysis from three hours per incident to one hour per incident.** “This has had a positive impact on our business.”

To sum up APM’s role here, remember that a successful cloud migration hinges on:

- A deep understanding of application performance prior to the move.
- Assessing performance throughout the migration to measure value.
- Maintaining key performance measurements to ensure the ongoing health and flexibility of the cloud configuration.

**Now let’s take performance management a step further. You’ve gone deep into your apps, but what about the overall digital experience?**
The Digital Experience
Monitoring Play

Combining APM and EUM (end user monitoring)
Today, thanks to the advent of companies like Uber, Amazon, and Netflix, consumers can do what they want and when they want in just a few clicks within an app. We’re in the midst of an on-demand revolution. In this new world, how brands engage with customers depends entirely on the speed and performance of their digital experiences across channels.

As a result, businesses are now investing in digital transformation to keep up with competitors and customer demands. Seventy-one percent of technologists recognize the urgency to innovate within their organization, according to research from AppDynamics. Unfortunately, though, only 27% are confident in their readiness for digital transformation.

**So, what can today’s technologist do to help their companies innovate and progress on their digital transformation journey?**

People invest significant resources into things like user experience, design, engagement, and acquisition strategies, but those efforts are fruitless if your application doesn’t work as expected. As digital channels proliferate, APM functionalities will expand to cover more territory Gartner predicts. Per its 2019 Magic Quadrant for Application Performance Monitoring, these functionalities should include not just AIOps but also digital experience monitoring (DEM).

**DEM: Monitoring the “operational excellence and behavior of a digital agent, human, or machine, as it interacts with enterprise applications and services.”**

*Gartner*

DEM builds on EUM (end-user experience monitoring), which looks specifically at human interactions with an app, to monitor the experience of all digital agents across every aspect of your digital footprint. It renews focus on the customer — whose experience, after all, should be the focus.

“I think the biggest misconception in operations is that application performance is system performance,” says Matt Chotin, technical evangelist for AppDynamics, “but those are not the true indicators of what your user is experiencing.”

Traditionally, monitoring tools let you know how your systems were performing but offered little insight into how performance issues impacted CX-driven business goals. And while web analytics tools revealed how website interactions affect revenue, they failed to connect adverse user behavior (like a spike in abandoned shopping carts) with a root cause.

For years this lack of visibility was accepted as the status quo. Now, IT leaders are taking action to own the digital experience end to end. To monitor it, they must be able to correlate the customer experience with application performance and the overall business impact.

Here’s how that works.
Developing a DEM strategy

To begin this play, you’ll want to put together a team that includes:

- Someone familiar with your applications from a tech perspective
- Someone responsible for the production support of the app
- Someone with a high-level understanding of the app’s value to the business

This cross-functional team can contribute different perspectives to the following steps: defining the value of your applications and identifying use case(s) for APM that improve and maintain the digital experience.

1. DEFINE BUSINESS VALUE

Applications that have a significant impact on business results generally fall into three buckets.

Imagine you’re a retail store. Your business-critical environment would comprise:

1. Externally-facing apps that bring in revenue (example: ecommerce)
2. Externally-facing apps that mediate customer interactions (example: looking up product information), affecting metrics like acquisition and churn and, in turn, revenue
3. Internally-facing apps that deliver core business functionality (example: order fulfillment), affecting employee productivity

Poor performance of these apps will erode not just your bottom line but the value of your brand. Defining the value of your app itself, by placing it in one of these buckets, is the first step to driving better business outcomes.

2. ESTABLISH A USE CASE

The next step is to understand your use case for applying business intelligence to your enterprise, which is typically easier to brainstorm by riffing off the experiences of other companies. Here are five of the most common we see with our customers:
Business health

Who it’s for
Businesses that want to understand the impact of application performance on key business drivers.

How it works
Business health monitoring converges business data with application data to find the root cause of issues related to business KPIs.

How to apply it
Suppose you just launched a big product but noticed a decline in sales. If you were using AppDynamics for your APM solution, your IT team would be able to see from alerts whether this is because of a decline in loyal shoppers that day (a business problem) or a bug in the checkout process (an application error). If an application error, real-time insights would simulate the impact on sales and identify how to fix the problem.

“AppDynamics gives us the ability to identify the most critical business transactions, set baseline performance KPI for them, and then closely monitor them to ensure that there’s zero regression and optimal performance.

John Natsioulas
Senior Performance Manager
PEXA

User journeys

Who it’s for
Businesses that have a vested interest in the user finishing a journey.

How it works
User journey monitoring measures the performance and business impact of each step a user takes on their path through an application.

How to apply it
Take a look at Vodafone, a leading provider of mobile communications whose success is built on digital interactions with more than 500 million customers globally. On average, they see 1 million visitors per day. The digital team used user journey monitoring to trace users’ actual paths down its key channels, tracking the number of active users, where drop-offs occur, and precisely how KPIs were impacted, ultimately accelerating mean time to resolution and promoting collaboration across teams.
“We are now able to use AppDynamics to get a full, end-to-end view in a single pane of glass.”

Kamlesh Patel
Senior IT Service Manager
Vodafone
**Business journeys**

**Who it’s for**
Businesses that differentiate themselves by the efficiency and quality of their processes.

**How it works**
Rather than analyze performance through the lens of a user, business journey monitoring evaluates the success of an entire business process, first by breaking it up into milestones and events.

**How to apply it**
For Carhartt, an outdoor apparel company, those milestones and events include ordering, inventory, and checkout. It was crucial, while moving to agile, for the company to identify operational gaps in this ecommerce environment before they impacted the business. When the IT team deployed the AppDynamics business intelligence platform Business iQ, they could compare the number of orders to the number of items in their inventory and switch promotions according to supply. This drove the company’s first million-dollar day in sales.

“With Business iQ, we’ve been able to demonstrate that IT can work with the business and help drive a competitive advantage.”

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**Customer segment health**

**Who it’s for**
Businesses that want to understand and maximize the value of their most critical customer segments.

**How it works**
Customer segment health monitoring analyzes segmented customer experiences (for example, what customers are using which features) to understand how application usage behaviors impact the business.

**How to apply it**
Take the case of Okta, a leading provider of identity management for the enterprise. Okta found that the flexibility of its innovative platform was both a blessing and a curse: its fast-growing list of enterprise customers was creating new, unanticipated ways to use the solution.
“With the broad set of use cases that people are solving with our product, they can actually change things that could potentially break our service,” says Hector Aguilar, CTO and SVP of Engineering at Okta. “So we actually have to design for the unknown. Monitoring and staying on top of all of that — how our customers use our system — across our entire customer base is a big effort.”

Using AppDynamics to connect applications and manage API access, Okta could adapt their technology to each segment’s growing needs, leaving its engineering team free to innovate.

Release validation

Who it’s for
Businesses releasing newer versions of their application or migrating from legacy infrastructure to new infrastructure.

How it works
Release validation compares the before and after of production code release in the context of customer experiences and business KPIs.

How to apply it
For enterprise customer experience platform Medallia, engagement is key. Medallia’s power lies in the meta task of managing its own KPIs while letting its clients define theirs, which have a direct impact on the company’s internal approach to development. Tracking usage data with AppDynamics gave Medallia clarity on which feature sets to prioritize to meet its clients’ growing needs. These incremental releases offered them greater control and agility.

Right now, any team that is building a new product uses Business iQ during development to foresee potential issues. Real-time performance management is foundational to our business. We want to know if we’re going to have any hiccups during the software development lifecycle. That way, once deployed, our end user experience can be crisp, engaging, and snappy.

Stefan Krantz
Senior Director of Engineering
Medallia
Now that you’ve determined the use case appropriate to your business, you need to identify the metrics you want to track. Financial? Intangible? Which metrics come together to tell the right story? And could a layperson immediately understand from that story whether the business is healthy or not?

Once you’ve defined your metrics, built your dashboards, and created baseline alerts, you’re ready to let the rubber of your use cases meet the road of real-time intelligence. As long as you act on those results with the customer at the forefront, your DEM strategy will succeed.

“AppDynamics is a key piece of our digital transformation — it’s mandated to be on every single new application and all of our existing applications. It’s providing the data that a variety of different business users need to see what’s actually happening with the user experience, what’s working and what’s not. We couldn’t do it without AppDynamics.”

Michael Makar
Senior IT Manager
World Bank Group
The DevOps Play
The term “DevOps” has been around for a few years. You might have heard varied definitions of the philosophy and its benefits in a largely conceptual manner. But what does it really mean?

Let’s start with a definition: DevOps is part Dev (developer) and part Ops (operations) staff. What it doesn’t mean is each team adopting the skill set of the other — that doesn’t make sense for many enterprises. Rather, adopting DevOps means your organization operates in a way that enables developers and operations to work closely as a team, throughout all phases of application development and production support.

What’s up with the “first dev, then ops” alternative?

Not long ago, a major real estate developer reached out to AppDynamics when struggling with this approach. The company’s .NET installation was having problems with a third-party service with specific write-to-disk requirements that were configured properly in development, but not in production. Dev was siloed off from Prod with no process for keeping both environments in sync. The end result: ongoing performance problems in production.

This is why DevOps emerged as another essential part of digital transformation. And it’s no surprise that the movement is rapidly gaining favor around the world. In the 2019 Global Development Survey from Evans Data, 72% of developers reported working in an established DevOps environment.

For you to create the same frictionless collaboration between Dev and Ops requires a culture shift. You need to create a culture of continuous improvement by making it simple for each team — and by extension, LOBs — to get the data they need for their role in the DevOps toolchain. With that, everyone can work toward common goals and achieve better results faster.

Where can they get that data? From specific sets of tools at each stage in the DevOps lifecycle. For this last play, let’s take a look at each stage and the types of DevOps tools required.

In my experience, organizations that fail to embrace DevOps do so at considerable risk.

Sean Stanford
Consultant with the Global Services team
AppDynamics
“You can’t have successful DevOps unless everyone has the means to work together. Before we had the blame game, but with AppDynamics in place, the hosting team can identify the exact SQL statement or line of .NET code causing problems when the CPU experienced errant behavior. The ability to provide a time slice of what was going on gives a clear and consistent message to the Dev team. It makes it easy to find root cause and take corrective language.”

Jeff Brady
Product Manager
AllScripts
The first step in the DevOps lifecycle is to build a foundation that can support the tools and processes you’ll use on the journey ahead. In DevOps, all tools are built on the same three-pronged premise: virtualization and cloud infrastructure combined with application intelligence.

1. **Virtualization**: Virtual servers automatically and instantly resolve capacity issues, giving you the flexibility to scale dynamically.

2. **Cloud infrastructure**: You can take advantage of virtualization on-premise or in the cloud, but the latter is best. With a cloud platform, you only pay for the resources you use and can ensure remote access to applications.

3. **Application intelligence**: To implement, manage, and maintain a DevOps environment effectively, key stakeholders must be able to monitor application performance from a single source of truth.

It’s technically possible to adopt a DevOps culture without these, but it wouldn’t be very effective in the long run. In practice, DevOps is about automation and agility. You can’t adapt to fluctuating demand using physical servers.

Next, you have to build a framework on that foundation. This framework should consist of the web servers, databases, and search tools the rest of your apps will be built on or integrated with — present and future. Always keep in mind how integrability affects your web server and database choice.

2. **Design**

As we saw earlier, one mistake developers often make is to design applications in a vacuum. Creating an app based on a checklist list of features and capabilities won’t work if you don’t know the customer will use them. A DevOps approach to app design flips that premise upside down to ensure the design is customer-centric in the first place.

Real user monitoring is an effective tool here. By tracking real user sessions, you’ll pick up unanticipated reasons why users aren’t using features, be they unnecessary, too complicated, or bugged with performance issues. You can also monitor most-used features and analyze usage to identify any performance gaps.
3. DEPLOY

The fluid and dynamic nature of a DevOps environment is one of its strengths, but also a unique challenge for IT when it comes to maintaining stable access to network resources and ensuring the IT infrastructure is secure.

When Apartments.com approached AppDynamics with this problem, the web-based company was redeveloping its entire website writing completely new code. The site was expecting up to eight times more traffic due to aggressive marketing activities. For a project as critical as this, rapid issue resolution was essential.

That means bringing automation into play. Automation has completely changed the landscape by allowing enterprises to take full advantage of the cloud and virtualized foundation for faster resolution. Automation comes in three types of tools:

- **Configuration tools**, which help manage IT configuration as modular components and automate implementation to ensure a consistent, reliable, stable environment.

- **Containers**, which take the modular approach a step further by separating the application itself from the underlying operating system.

- **Automated testing**, which works seamlessly with configuration tools to test and verify code as it ships and ensures everything works as expected.

These are the kinds of insights Apartments.com could get as soon as it transitioned to AppDynamics. “It’s easy to implement by design,” says Jonathan Sieja, Technical Operations Manager at Apartments.com. “One of our junior-level guys was able to write a script in an hour and deploy AppDynamics to 60 servers in one day.”

“Right out of the box, AppDynamics starts picking up every transaction that you need to do your job as a DevOp engineer. Implementing a new APM was not originally on my project roadmap, but with AppDynamics’ ease of installation, we changed the tires on the car while it was still moving.

*Jonathan Sieja*

*Technical Operations Manager*

*Apartments.com*
4. MAINTAIN

Your app is developed, but the work isn’t done. Once it’s in active use, you need to monitor and maintain performance as problems arise or end users report them — though ideally, DevOps teams should identify and resolve issues before users notice.

This requires additional automated tools. In a DevOps environment, an app that performs optimally one day could be dysfunctional the next. While the tools you used in deployment should alleviate most issues before they happen, problems inevitably arise. At this stage, you’ll want to add logging and alerting capabilities.

- **Logging** gathers data related to relevant metrics. More than that, a good logging tool correlates the data to produce actionable information DevOps teams can use.

- **Alerting** raises awareness of issues in real time, allowing DevOps teams to address them as they happen. Working in conjunction with logging tools, these help automate crucial elements of maintaining app performance.

"It can be gathering all this great data, but if it can’t trace transactions (that may be failing) through the system to the potential issue, then it’s probably not going to be too heavily used."

Heather Abbott
Senior Vice President of Corporate Solutions Technology
Nasdaq
By enabling proactive alerts for **database locks and application slowness**, DevOps personnel at Cognizant were able to save **20 hours a month** troubleshooting third party applications.

5. **RINSE, REPEAT**

Keep in mind that DevOps doesn’t follow a linear progression. Each stage might overlap or feed into the next, creating a continuous cycle of rinse and repeat. This is how, by nature, DevOps makes it possible to continuously improve app development.

One of the most important elements of this is **proactive monitoring**. DevOps environments are simply too complex and fluid to manage with manual processes and traditional approaches to IT infrastructure monitoring. You need an approach designed for DevOps. A tool like Appdynamics APM can provide the actionable insight you need to function more proactively throughout each new DevOps cycle.

When Australian software developer Adept deployed Appdynamics APM to help manage its two or three annual releases, they found it helped achieve higher performance in all three phases of the company’s release cycle: development and staging, where they found and solved issues before releasing to customers, and production, where they continue to surface problems before customers encounter them and speedily resolve them when they do.

“We knew there were bottlenecks and there were issues in the code. We just didn’t know where they were,” says Steve Clark, Adept CEO. “And we needed something that would provide the transparency to identify them.” After deploying the AppDynamics Application Intelligence agent within the platform in just 30 minutes, the errors and exceptions “lit up like a Christmas tree.”

The result was easier deployment, extreme network- and code-level visibility, and a future-proofed application.

“**AppDynamics gives us real time application and business performance data that enables us to make strategic decisions about our applications. Each and every change to the back-end can have a huge impact on customer experience and business performance, so having access to quantified data both in pre and post production is critical.**

Nicolas Matelot
DevOps Manager
La Poste Group
“Being able to drill down very quickly and spot issues lets us go to the right team and produce evidence, like payload data, so that we’re straight into the fix activity. Cutting out the guesswork helps us to reduce the Mean Time to Resoulation (MTTR) considerably.

Richard Smith
Head of IT Service Management
E.ON
The benefits of AppDynamics are potentially far reaching because we should be able to spend less time troubleshooting, enabling the team to spend more of their valuable time on helping our internal customers on the next new development targeted for production.

“Getting started

Across industries, customer expectations continue to rise. And when they do, you need to be ready. There’s simply too much at stake to continue in the siloed vein of traditional IT systems and business functions. It might sound extreme, but the time has never been more ripe to completely reimagine your app experiences — or be left behind.

Turning that vision into reality will take work, but these plays will get you there as long as you execute on them flawlessly. Throughout the playbook, we’ve given you a sense of the types of tools and processes you’ll need to ensure everything is covered off. Now it’s a case of putting the necessary resources into action.

To sum up, you’ll want to start with:

• An IT team ready to do what it takes to transform into an agile, customer-first business.
• An APM solution with a strong partner ecosystem of the tools you need to integrate.
• A documented strategy for how you’ll adapt each play to your environment.

Not everyone has the in-house expertise to distill these plays into a strategy that gets results for your business (and your business alone!). That’s where AppDynamics can help. We bring the expertise to pull the right pieces together and keep you on track as technologies and consumer demands evolve, so you can be sure of long-term success.

When planning your plays, be sure to keep your playbook handy for helpful reminders and inspiration. Test, learn, and have fun! This is an exciting time for your business. Challenging, but we’re right here with you.
Want to learn more about how customers leverage AppDynamics?

Head to www.appdynamics.com/customers to learn more.