APPDYNAMICS
part of Cisco

Ebook

6 Ways to Accelerate Migration to AWS

Moving to AWS: Doing It Right

Enterprises are moving applications to AWS at breakneck speed in search of improved agillty and cost savings. All of this is driven by a desire to become more customer-centric. Behind the scenes though, there is a significant impact for development and operations teams who are building and releasing these applications, and they often encounter the following:

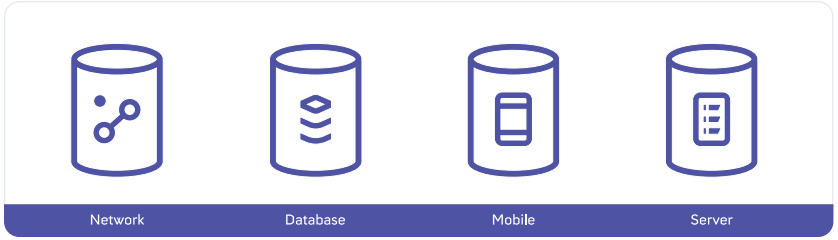
Distributed Architectures: Microservices, containers, and the use of multiple AWS Availability Zones have created a more expansive and richer IT landscape.

Additional Dependencies: APIs that connect to third-party services outside of the organization may not always perform as expected. The customer does not care who is at fault, they simply want a frictionless engagement with the applications.

Faster Release Cycles: Release frequencies have shifted - to monthly, weekly, daily, or even hourly deployments. No matter how minor some releases may seem, they all have the potential to impact the customer experience.

Siloed Monitoring is a Thing of the Past

Historically, monitoring has reflected the departmental nature of Development and IT Operations teams, who each used a tool for their area of responsibility, such as:



Proliferation of these tools has often led to:

Finger Pointing: More time spent proving innocence vs. collaborating, results in slower Root Cause Analysis (RCA) and poor team collaboration.

Lack of Visibility: No insight into end-to-end execution times, which causes "watermelon KPIs," i.e. looks green, but users still struggle.

Suboptimal Prioritization: Teams are unaware of the true business impact of what has occurred.

A New Monitoring Approach Is Required

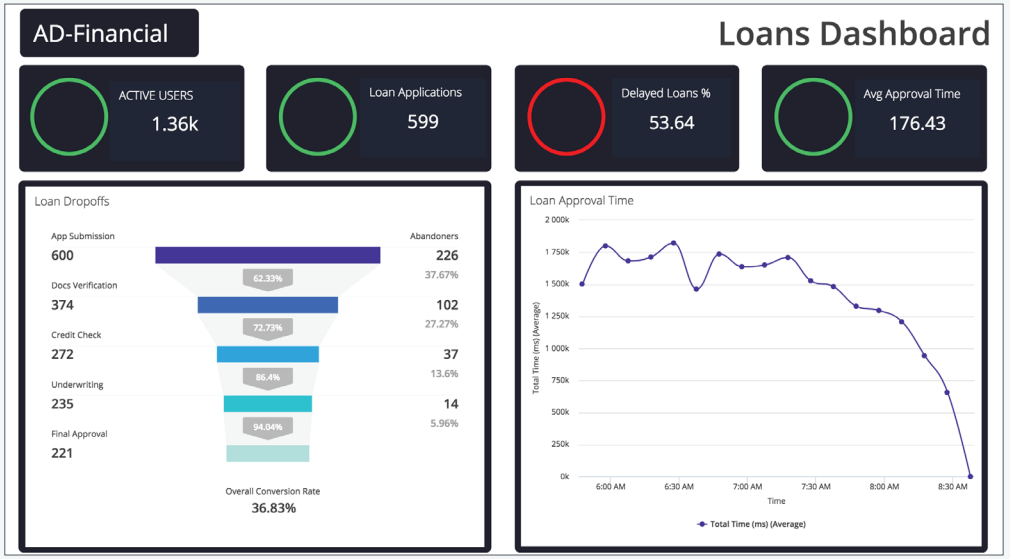
Application Performance Management (APM) has gained momentum over the past few years - and for good reason, as it:

1. Obtains the data where it has the richest context: the intersection of data creation and computation.
2. Reflects the health and performance of any underlying supporting technical stack, whether infrastructure, network, or database. If any of them are under-delivering, the monitored application health is impacted.
3. Provides powerful analytics on the front-end (whether mobile or web apps), for not just performance metrics, but also on sequences of user actions, crash context, devices used, OS, networks, and third-party dependencies.

AppDynamics: full-stack performance monitoring for AWS

APPDYNAMICS: A MAJOR ENABLER IN THE MOVE TO AWS

AppDynamics stitches together execution times and health of the supporting technology tiers and delivers an end-to-end view into customer experiences, down to the technology element contribution. Simultaneously, AppDynamics provides a higher-level view, which facilitates team collaboration when discussing topics such as login times, payment transactions, and so forth.



The above dashboard shows engagement of customers seeking loans across multiple criteria.

AppDynamics and Accelerates Migrations

There are six areas to consider when migrating to AWS, each of which contributes to whether a migration is completed on time, delivers on objectives, and is viewed as a success.

Pre-Migration

Understand Architecture Dependencies

Migration

Obtain and Share KPIs Across:

Application	Infrastructure	End User Experience
		

Post-Migration

Prove Business Value	Support People and Process Improvements
	

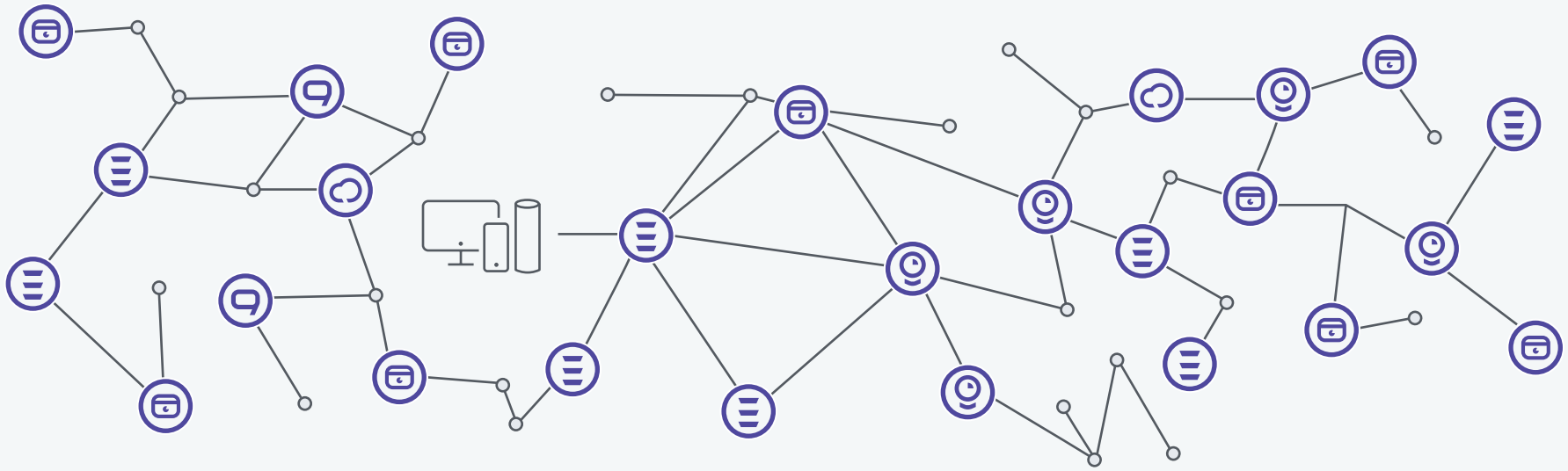
Pre-Migration

UNDERSTAND ARCHITECTURE DEPENDENCIES

Applications have evolved significantly over the past few years, becoming more complex as new capabilities are added. The problem is that cloud-native architectures (e.g. microservices) potentially create even more team silos, causing more proliferation of different monitoring tools and making the backend architecture of an application even more complex.

Static and often outdated CMDBs do not reflect true application architecture, dependencies and behavior, slowing down AWS migration.

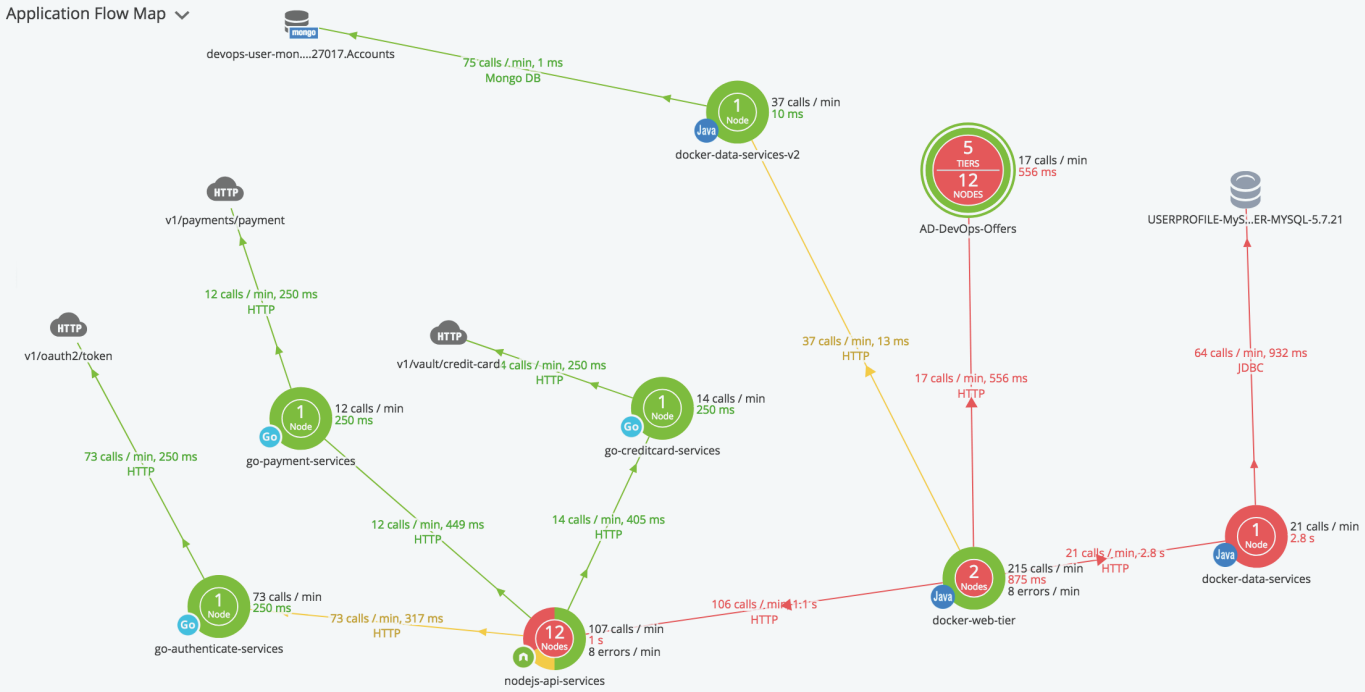
AppDynamics automatically discovers resources, baselines application performance, and helps visualize the real-time interactions of every component. Understanding applications that will be migrated comprehensively is critical to determining whether it's ready to be migrated, replatformed, refactored, or simply "lifted and shifted". What are the app components? How are they connected? What can and should be migrated? And what can't be?



Pre-Migration

AppDynamics addresses all of these questions upon install, automatically creating a real-time, dynamic visual representation (a "Flow Map") of the dependencies and behavior of applications considered for migration. It shows the application supporting tiers, including nodes, message queues, databases, and the transaction flows between them, as well as call volumes and time taken for each request to be serviced. This enables you to:

1. Understand what "migrating application X" really means and create your dependencies checklist, including third parties.
2. Determine performance requirements of existing workloads during low and high periods of business activity, to right size target cloud infrastructure and build your scalability plans.
3. Establish baselines for typical workloads before, during, and after migration, and pilot your project to maintain, or ideally, improve performance.



Migration

Once migration has commenced, it is important to track infrastructure, application, and end user experience KPIs.

RIGHT-SIZE TARGET CLOUD INFRASTRUCTURE

One of the major reasons to move to the AWS Cloud is to reduce costs, as on-premises applications have the tendency to overprovision to cope with peak demands.

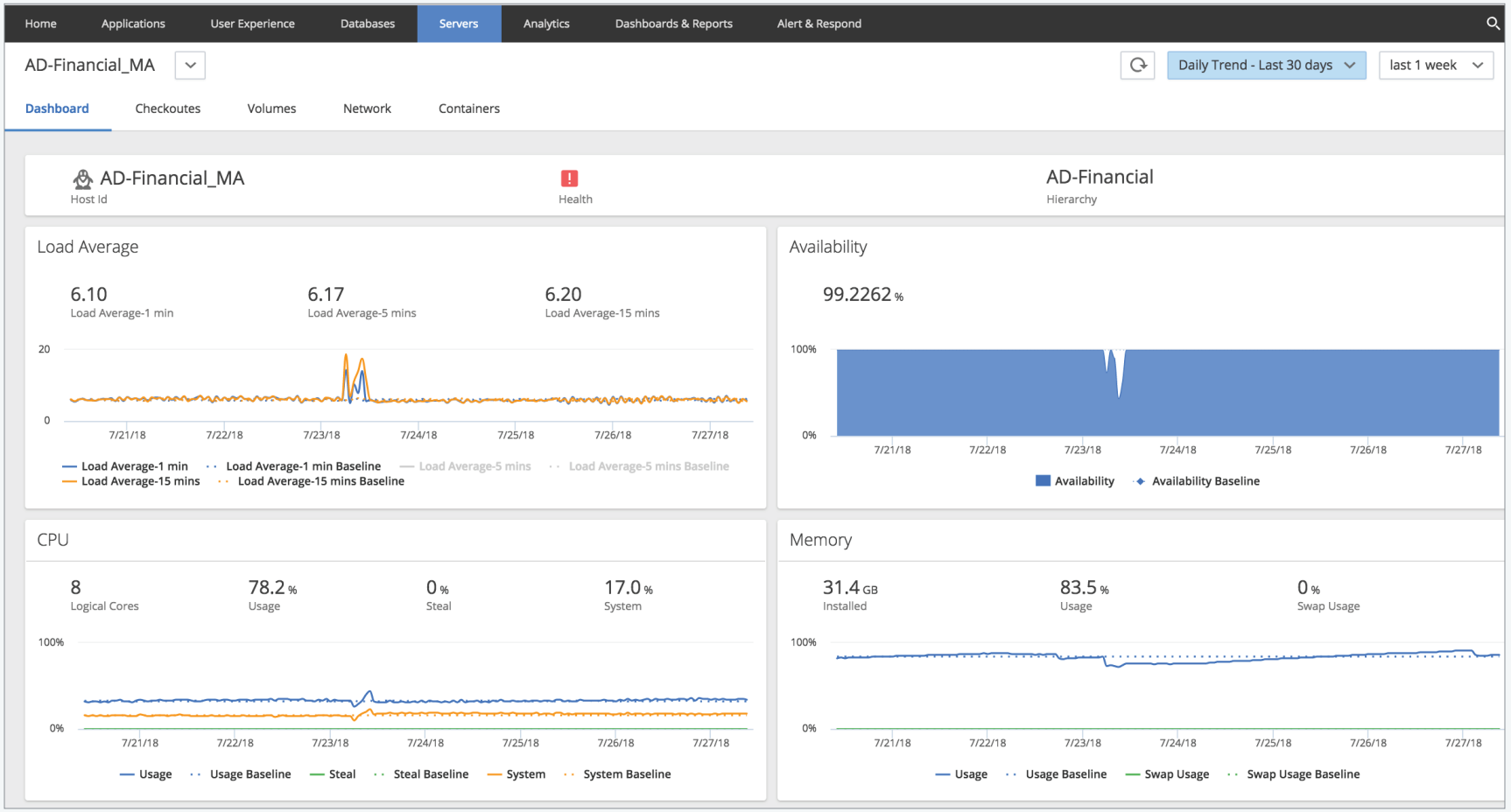
It's important to ensure that AWS infrastructure (instances, services) and application configuration are right-sized. The goal is to deliver on the target user experience while not overspending, but this is difficult if application workloads and throughputs are not known (i.e. pay for what you need, and not only for what you use).

Before migration, application workloads and throughput are baselined by AppDynamics' infrastructure visibility capabilities. Collected KPIs such as resource utilization, delivered experience, and throughput, are collected during migration to assist in the initial sizing and adjustments of the required AWS infrastructure.

Some of the benefits of infrastructure visibility include the ability to:

1. Gain insight into how Amazon EC2 instances and databases are performing on AWS to validate instance choices made or to make right-sizing adjustments.
2. Verify database performance and calls being made by the application.
3. Check server and database performance during real user or load testing. Timelines can be configured to focus on a specific test cycle.

Migration



The above diagram shows CPU and memory consumption, peak and normal load periods, and more.

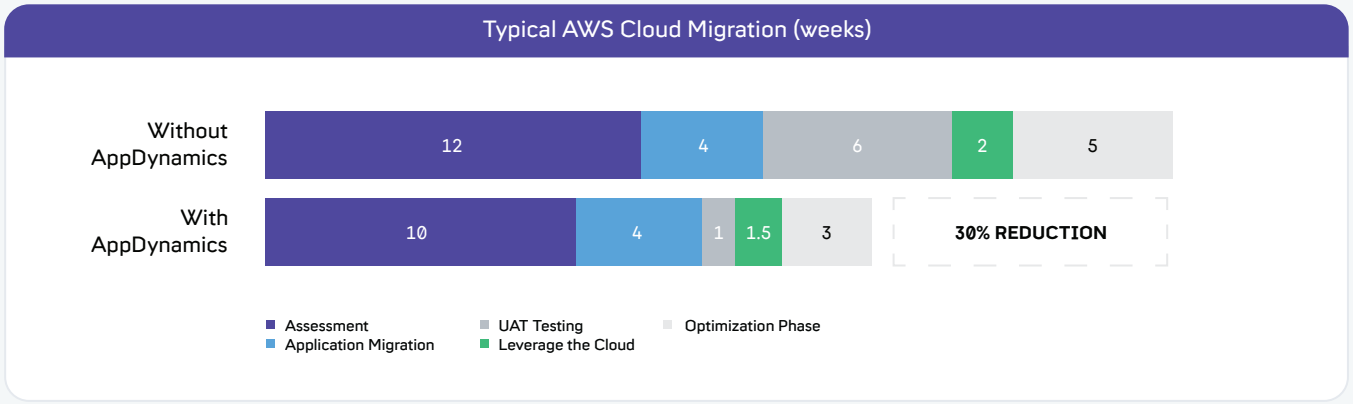
Migration

ACHIEVING TRUE APPLICATION INSIGHTS

Migrating to AWS is a significant step forward for most organizations that promises numerous short, medium, and long-term benefits. Whether it's done as a one-off to test the waters, or as part of an all-in approach, the key is to accelerate the move by ensuring the following:

1. End-to-end visibility of technical and business performance, before, during, and after AWS migration to prove success.
2. Identification of challenges such as code defects or need for additional capacity.
3. Comprehensive series of financial and performance insights to determine the business impact of the migration.

AppDynamics delivers on those requirements and has an impact at every stage, but where the biggest advantage and most ROI is seen is during User Acceptance Testing (UAT). This stage is key to proving to migration and business stakeholders that applications are performing equally or better on AWS. Application owners require evidence that the user experience and volumes of transactions have not been negatively impacted. AppDynamics provides proof points for end-user experience, resource consumption, cost, and the performance of critical transactions and business performance indicators.



Customers typically see a 30% reduction in overall migration timelines

Migration

AppDynamics provides deep insights into how Business Transactions are performing (see the Transaction Score dashboard on next page). The timeline can be configured to show data collected during a test cycle or canary deployment. On this dashboard, it's easy to see slow performing Business Transactions and how they have deviated from the calculated baseline of expected performance.

This enables you to achieve the following:

1. Quickly understand how an application is performing from a user and business perspective.
2. Focus on one specific Business Transaction in order to understand root causes of an issue.
3. Triage and decide on which performance issues need attention based on user experience and business priorities.

"The ability to trace a transaction visually and intuitively through the interface was a major benefit AppDynamics delivered.

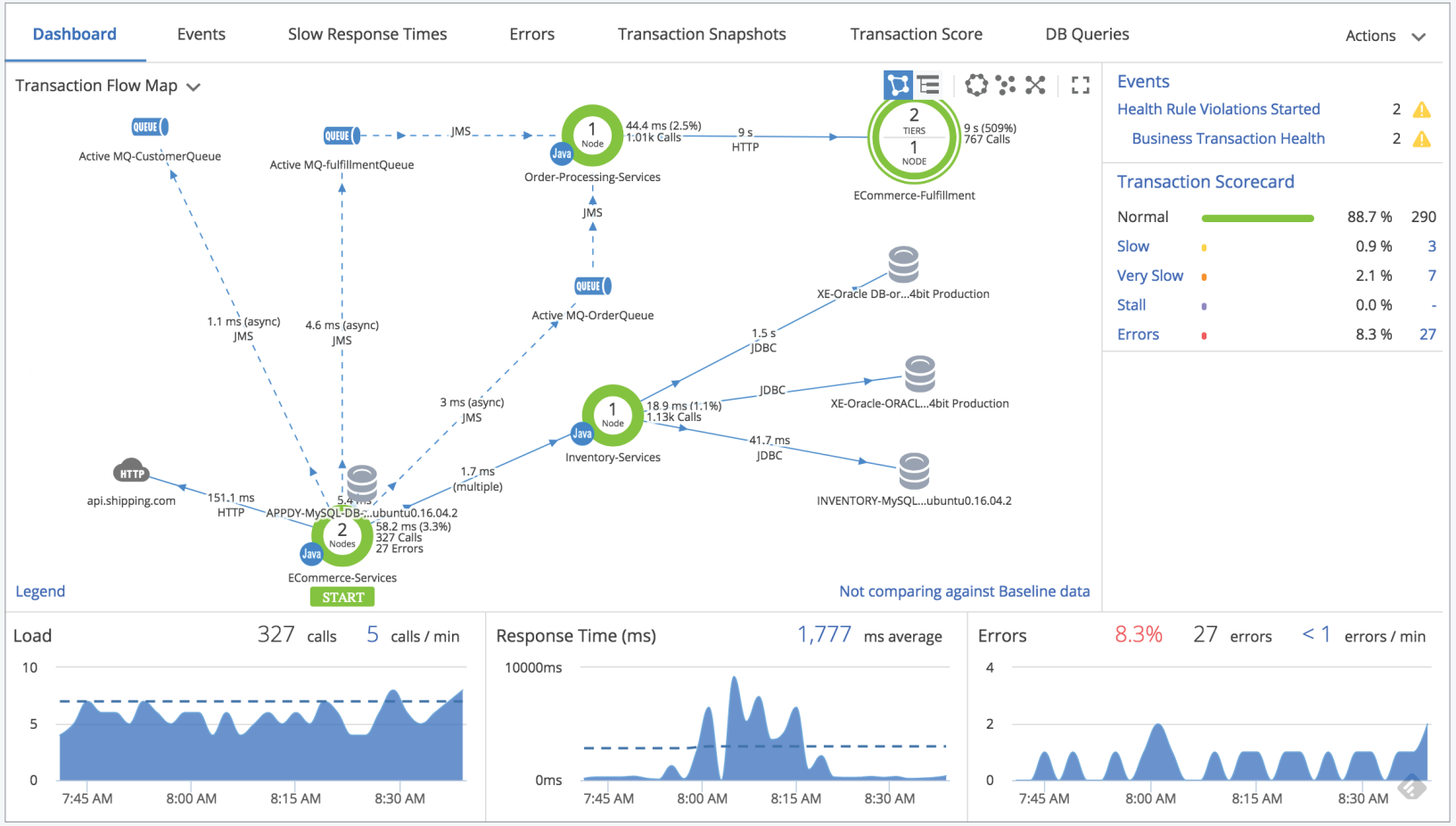
This visibility was especially valuable when Nasdaq was migrating a platform from its internal infrastructure to the AWS Cloud.

We used AppDynamics extensively to understand how our system was functioning on AWS, a completely new platform for us."

– HEATHER ABBOT,

SVP Corporate Solutions Technology, Nasdaq

Migration



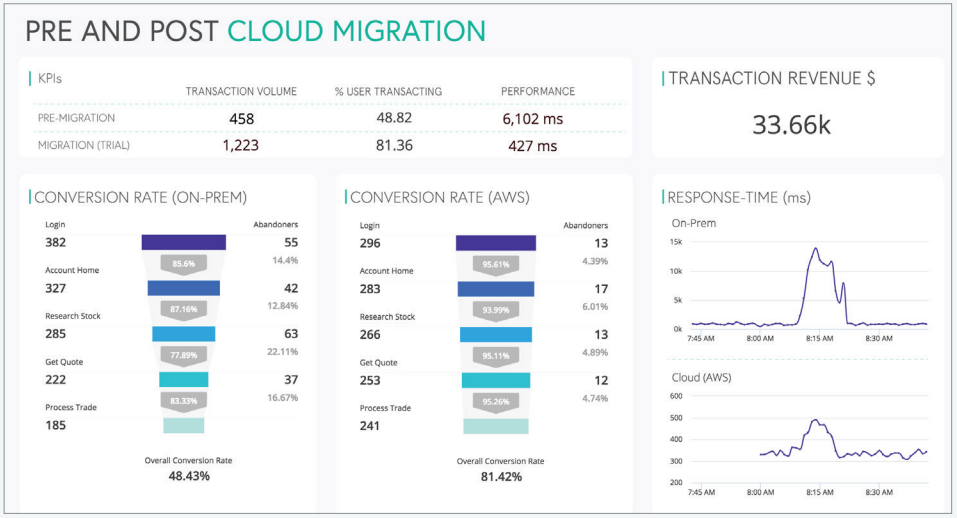
The Transaction Score dashboard above shows two health violations have been triggered and which transactions are not meeting their performance baselines

Post-Migration

PROVE BUSINESS VALUE AND IDENTIFY FUTURE MIGRATION CANDIDATES

Easily compare pre- and post-move baselines from a technical and business perspective in one single dashboard.

Consistent, data-driven, and objective metrics on end-user experiences and business outcomes (ie. transactions volumes) let you compare application performance pre- and post-migration to quickly validate business impact and overall success.



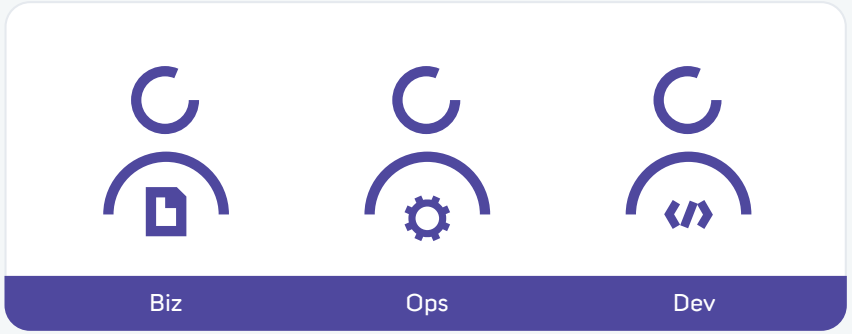
The above dashboard shows how application and business performance have improved once migration to the AWS Cloud is completed.

Post-Migration

SUPPORT PEOPLE AND PROCESS IMPROVEMENTS

As workloads are migrated to AWS, roles within an organization will evolve. Those involved with on-premises applications will likely have new responsibilities. One potential speed bump in this evolution is the existence of siloed monitoring, given multiple technologies and architectures (hybrid, private/public cloud, and others) can exist. AppDynamics enables teams to re-orientate around an application-centric approach that takes a holistic view of each release and its impact. Typical changes that occur include:

- Ensuring that IT development, operations and business teams can collaborate seamlessly during an application incident.
- An increased understanding of application usage patterns and user journeys to better plan application release and change cycles.
- Real-time insights used to support scrum and other agile software development methodologies.
- The easy creation of dashboards so that information is displayed in context for the audience.

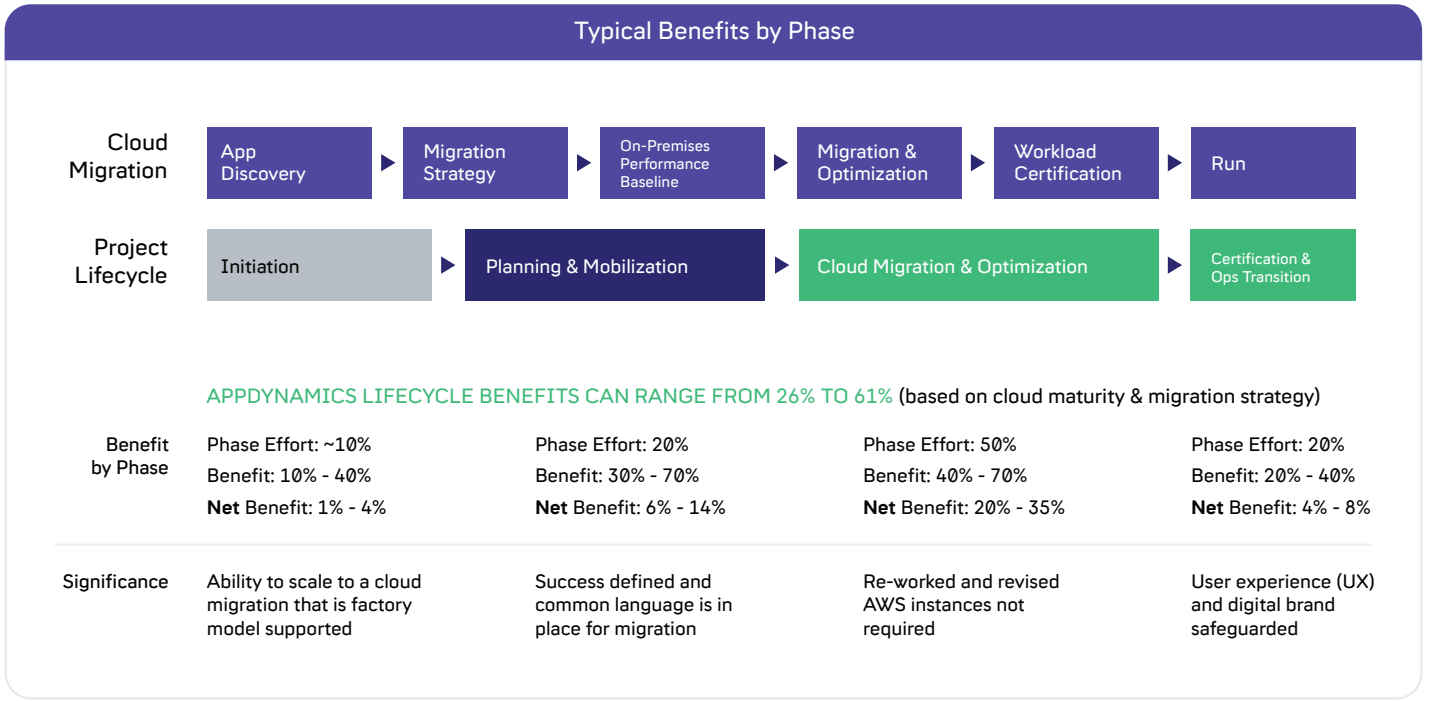


Moving Quickly and Securely to AWS

AppDynamics powers cloud migration in two key ways:

- A single source of truth to make informed migration planning decisions quickly and in confidence.
- The ability to rapidly validate migration success to the business and deliver on user experience expectations.

The diagram below summarizes our customers' experiences and expected benefits at each stage. These will vary with each migration project's complexity, types of applications involved, and the extent to which they are refactored or replatformed.



Application Migration to AWS

ARE YOU DEEP IN THE PLANNING PHASE, IN THE MIDST OF MIGRATING A WORKLOAD, OR LOOKING FOR PROOF POINTS OF SUCCESSFUL CLOUD MIGRATION?

Regardless of the migration stage you are considering, AppDynamics can help you accelerate your migration by enabling you to achieve the following:

- Get consistent end-to-end application monitoring, regardless of environment — on-prem, hybrid, or cloud-native.
- Seamlessly scale monitoring operations for microservices or serverless applications with the industry's most scalable application performance monitoring product.
- Identify dependencies ahead of migration, right-size workloads, and share objective metrics that show the business impact of making the move to AWS.

In short, AppDynamics gives you more confidence, clarity, and control with your migrations to AWS than ever before.

Contact us now to schedule a live cloud monitoring demo.

ABOUT APPDYNAMICS

AppDynamics is the Application Intelligence company. With AppDynamics, enterprises have real-time insights into application performance, user performance, and business performance so they can move faster in an increasingly sophisticated, software-driven world. AppDynamics' integrated suite of applications is built on its innovative, enterprise-grade App iQ Platform that enables its customers to make faster decisions that enhance customer engagement and improve operational and business performance. AppDynamics is uniquely positioned to enable enterprises to accelerate their digital transformations by actively monitoring, analyzing, and optimizing complex application environments at scale.

Learn more at **appdynamics.com**.