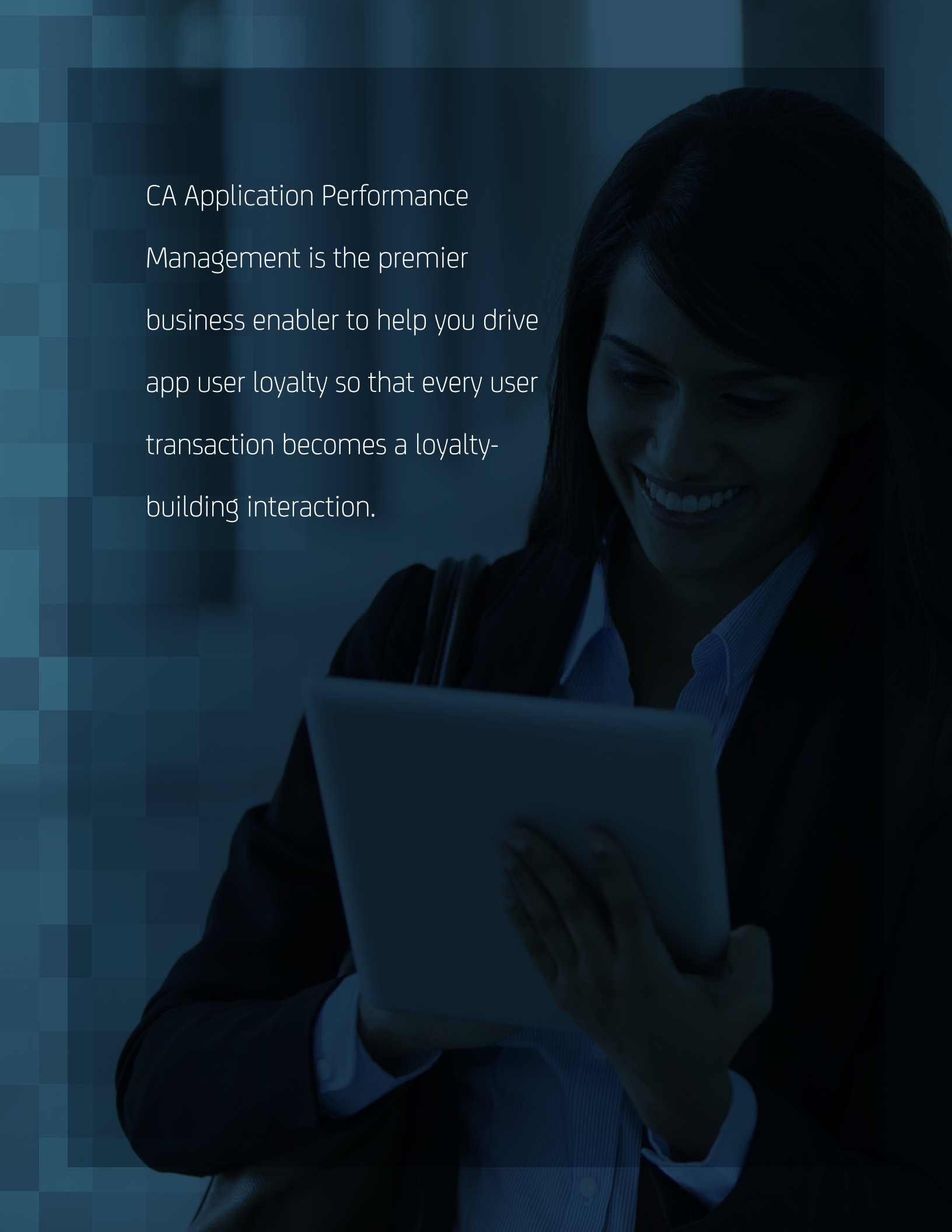# Our Apps Are the Face of Our Business, but What Impression Are They Leaving?

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CA Application Performance

Management is the premier

business enabler to help you drive

app user loyalty so that every user

transaction becomes a loyalty-

building interaction.

Executive Summary

Challenge

In the application economy, the quality of digital interactions determines business reputations, market share and profits. And in the age of rapid adoption and rapid rejection, you have mere seconds to impress your users. Despite the enormous complexity of today's applications, your end users expect a flawless app experience, regardless of how, when or where they access your app. This means that digital performance and app issues aren't IT issues, they're customer satisfaction and retention issues.

Opportunity

Many application performance management (APM) solutions fall short of delivering critical insights around app users. A better APM solution offers advanced analytics to spot anomalies earlier, enables informed, corrective action and provides deeper insight into digital behaviors and crash analytics across web, mobile and wearables. A smarter APM solution can supercharge DevOps by providing a common performance language in both production and preproduction environments.

Benefits

CA Application Performance Management (CA APM) delivers mobile-to-mainframe insight for code level, root cause diagnostics, embedded prescriptive analytics, enterprise scale management and metric analysis for the most demanding apps. The solution provides 20/20 insight into the complexity of your apps, so you can pinpoint and resolve performance issues quickly and ensure that every user transaction becomes a loyalty-building interaction.

Section 1: Challenges in the Application Economy and the Need for APM

Applications reign supreme

Businesses driven by software are widely adopting agile methods to accelerate the development and delivery of new applications, which are key to establishing a competitive edge, attracting new customers and increasing market share. According to a recent survey, leading IT organizations are currently delivering four or more customer-facing applications per year to their businesses.[1] This data comes from a recent survey commissioned by CA Technologies, which questioned 1,400 senior IT executives in global organizations with more than $500 million in revenue in 13 countries and across five industries (financial services, health care, retail, telecom and media/entertainment). Half of these organizations state that the application economy is disrupting their industry, with 94 percent saying they feel pressure to launch new applications.[2]

In addition, the importance of applications is growing. Analyst research firm App Annie reports that by 2020, the app economy could double in size to $101 billion.[3] And while large markets, including the U.S., Japan and China, remain central to overall app revenue growth, tremendous opportunities exist in fast-growing markets like India, Indonesia, Mexico and Argentina.[4]

End users expect a flawless app experience—every time.

Digital applications must deliver a flawless—even inspiring—experience every time. In today's application economy, where apps have become the very heart and soul of your business, you have mere seconds to impress your user. The quality of the applications that the business builds and the performance of those applications are essential to the quality of your customer's digital experience. Yet, in a recent survey commissioned by CA, only 20 percent of respondents rate themselves as "very good" at providing a seamless digital experience across multiple platforms.[5]

Why APM is critical.

With this increased reliance on applications, it's more important than ever that enterprises monitor and manage the end-user application experience across all environments: physical, virtual, web, mobile, wearables, cloud, containers and mainframe. The ability to identify, diagnose and fix application issues quickly is imperative with today's environment of complex and dynamically changing applications. For organizations seeking to impress and build loyalty to their brands via positive digital experiences, APM is a key solution.

> "By 2020 the app economy could double in size to $101 Billion."
>
> – App Annie

Section 2: Deliver an Inspiring User Experience by Proactively Monitoring the Apps That Drive Your Reputation.

CA Application Performance Management

CA APM is designed to be the premier APM solution in the marketplace for enterprise organizations that demand the absolute best when monitoring the applications they rely on to drive revenue, strengthen their brand reputations and gain a competitive advantage. Many of the largest and most innovative global organizations use CA APM to build, deploy and manage applications, so that every user transaction becomes a loyalty-building interaction.

CA APM can scale to meet the performance requirements of the most demanding environments—whether for cloud service providers, managed service providers or large enterprises.

In a very real sense, the world economy runs on CA APM. The majority of the Fortune 500 global organizations that want to ensure the best end-user experience with their applications entrust their brands to CA:

- Seven out of the top 10 banks

- Seven out of the top 10 telcos

- Seven out of the top 10 health care organizations

CA APM: The catalyst to stimulate user loyalty and differentiate your business.

Across the application lifecycle, CA APM delivers a solution that is easy, proactive, intelligent and collaborative. This means easy deployment of APM agents to get value in minutes; automatic visibility into each native mobile or web-based transaction; intelligence and insight about end users' interactions with your applications, from mobile to mainframe. CA APM acts as the catalyst for DevOps to fuel collaboration across the organization by providing a common vocabulary to analyze performance data, thereby instilling continuous performance improvements at every stage of the software lifecycle.

- **Easy**—Simplify and speed the triage process through guided workflows based on industry expertise and best practices to help you easily locate where performance problems originate.

- **Proactive**—Quickly recognize problems as they develop and intuitively understand the most critical and recurrent problems across your application landscape, all with zero configuration.

- **Intelligent**—Automatically detect and monitor application processes without any deep knowledge of either the application or application framework.

- **Collaboration**—Enable better communication between Dev and Ops specialists. Resolve problems faster by providing detailed analysis via a unified view of the infrastructure and apps that affect business services—all while using the same tool in production and development.

With these capabilities and with support for modern architectures, such as PHP, Node.JS, MongoDB, Docker Containers, Amazon Web Services and FUSE, CA APM can help you ensure a positive end-user experience across a broad range of application environments.

Simplify and speed the triage of performance issues.

When user experience suffers, it becomes difficult to pinpoint the issue; too often, you find yourself in lengthy war rooms or assigning experts to triage every issue. As a result, brand loyalty, customer satisfaction and innovation are negatively impacted. This old approach to application performance management just isn't working. It's time for a new approach.

With a modern user interface designed from the ground up, CA APM simplifies and speeds the triage of application performance issues by enabling users to naturally and easily triage application problems—even without extensive knowledge of the application. CA APM provides a business-focused view of the experiences you're delivering across your entire application environment, allowing you to easily view the health and the problems that most impact your business and your customers.

Figure A.

CA APM
Experience View
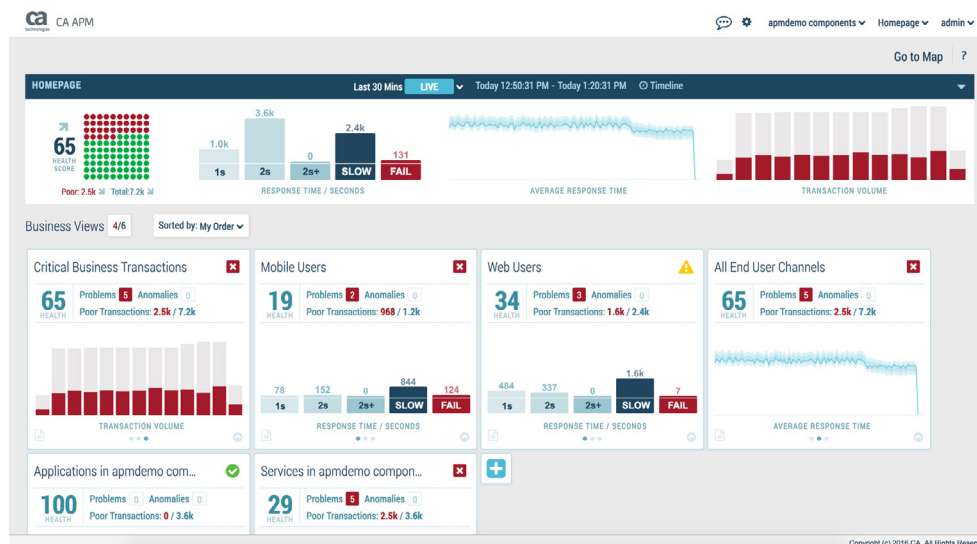
An innovative approach to simplifying chaos.

The CA APM relationship view (patent pending) lets you overlay real-world attributes onto complex application relationship data to simplify the view and minimize the "spaghetti" typically seen in application topology maps. By applying attributes, various users across operations can filter based on geography, business unit, application component, operating system and more, to easily view what is important to them and the task at hand. Reducing the chaos helps you focus on the issue to deliver better customer experiences.

Figure B.

CA APM
Perspectives
(patent pending)
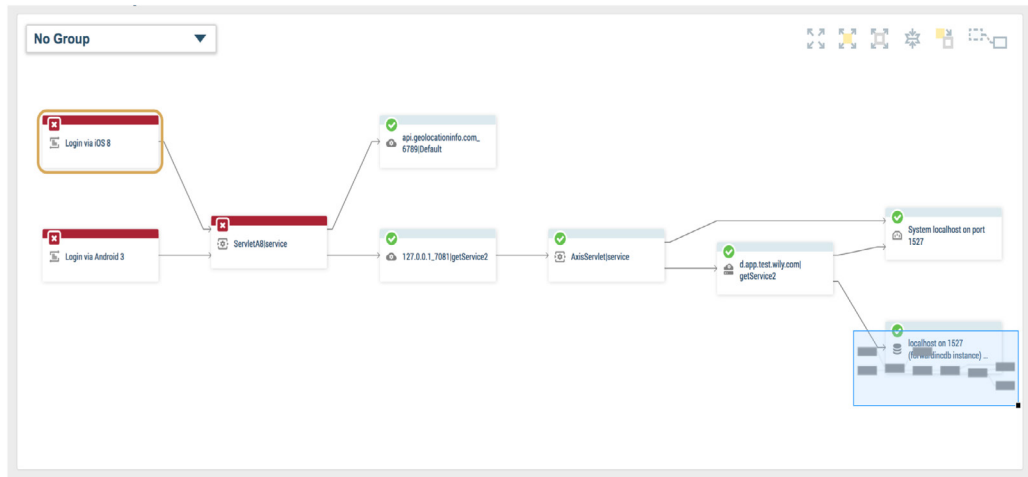
Go back in time to find the start of a performance issue.

One of the first questions asked when performance problems arise is "what changed?" Understanding changes over time and the ability to dive into the changes that precede a performance issue is a key element of CA APM underlying analytics. CA APM has an integrated timeline that lets you see the sequence of change events in chronological order and navigate the series of events to see the impact of change related to the application components. By simply dragging the timeline backward from a performance issue, you can easily identify the start point of the issue, the first affected components and the sequence of events that led to the problem. Finding the true root cause can help you identify the start of performance issues and address future problems.

Figure C.

CA APM Timeline
(patent pending)
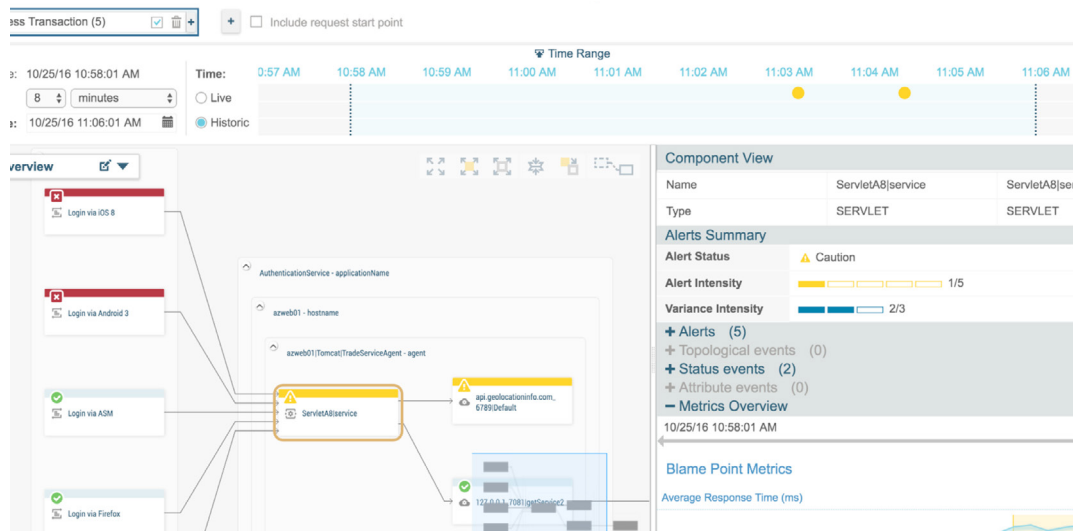
Know when and where to act.

In the past, APM solutions have dealt with false-positive alerts by using baselines. Although this has helped, these approaches typically look at only one part of the problem: severity. A different way to examine the issue is to analyze severity and duration. Is the problem a small one that has been occurring over a long period of time? This could eventually escalate into a larger issue and you would probably want to investigate. Is the problem a medium issue that occurs some of the time? Once again, this should be flagged because it could escalate very soon. Analyzing severity and time arms you with the right information to know when and where you should act.

The differential analysis capability in CA APM uses advanced algorithms and analytics, new to the APM market, which mirror the work that a human operator would do to monitor transactions. This new approach involves no configuration and automatically produces alerts that catch both slow-growing, chronic problems and fast-acting, acute ones. When trouble is brewing, highly diagnostic transaction traces are automatically captured and made available for review. No complex rules and configuration are required for success.

Finding the right evidence with assisted triage.

When the experiences suffers, wading through the noise to find the root cause of an issue is like being a detective looking for a high-profile suspect. Finding the culprit often requires that you manually sift through the vast amounts of data to assemble all the right pieces of information needed to triage even the most basic application issues, let alone those in complex and dynamically changing environments. CA APM simplifies these tasks with assisted triage, an intelligent engine that utilizes Differential Analysis and Timeline along with automated best practices and expertise to guide you directly to the suspect. Within CA APM, Assisted Triage provides an easy path of intuitive workflows with evidence notebooks to determine and verify the exact root cause of an issue, speeding application triage to deliver a flawless customer experience.

Insights into digital performance: 20/20 insight for root cause diagnostics.

CA APM provides insights across the entire digital application delivery chain to ensure an optimal end-user experience through 360-degree performance visibility across web, mobile to mainframe and into cloud and containers. CA APM integrates with CA App Experience Analytics to deliver insights needed to improve the digital performance and user experience across web, mobile and wearables, and into mission-critical, back-end application environments.

Focus on digital experience.

In today's digital application economy, providing the best user experience is critical to building customer loyalty. With more than one million mobile apps available for download, you have one chance to provide a great user experience and deliver value to your digital customers. How can you ensure a great digital experience that elevates your offering above the thousands of other choices customers have?

CA App Experience Analytics is a SaaS-based and on-premises solution that provides your business analysts, app developers, IT operations and support teams with complete visibility and insights to boost user loyalty and maximize potential value to customers. CA App Experience Analytics delivers a comprehensive solution to visualize and analyze user experience and app health, capture and investigate issues and inform app teams with real-world customer usage data to deliver the most impactful features and fixes in the next app update.

Figure D.

CA App Experience Analytics
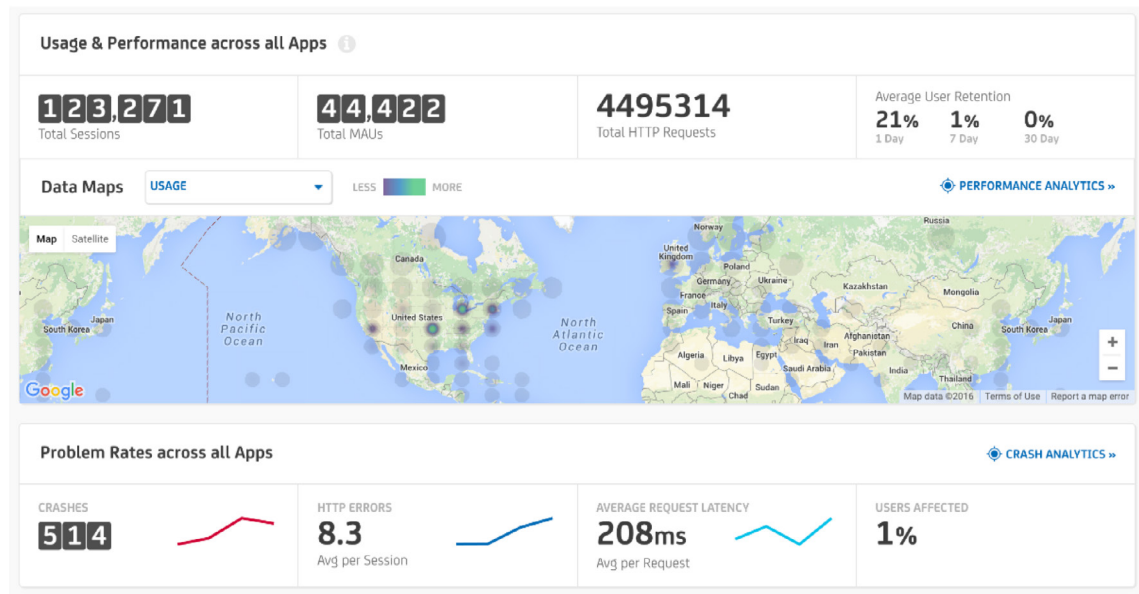
CA APM integrates with CA App Experience Analytics to provide insights across all digital channels and into back-end supporting applications. Using the solution, IT operations teams can fix issues quickly by investigating where issues reside across the end-to-end web and mobile app infrastructure. IT operations teams and support teams can then feed that real user data back to the app development teams to improve the next version of the app, greatly enhancing the user experience. The solution offers clarity into the performance of mobile applications to help pinpoint issues across the mobile infrastructure, and enables a better understanding of app usage by geography, carrier, device and more, in order to deliver dynamic applications that delight users.

Focus on microservices and cloud.

CA APM provides visibility into the performance and health of applications using a microservices architecture and enabling technologies such as Docker Containers, Node.js and Cloud Foundry. Microservices compartmentalize the application by function, allowing for greater application flexibility and portability, and increasing the rate of application updates and changes. This functionality introduces a new layer of complexity to an already complicated application environment. CA APM simplifies things by allowing users to view the impact of change and create role-based, task-oriented views—helping users better understand application performance and quickly triage application issues.

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For IT organizations migrating to the cloud, CA makes it easy for customers to purchase and use CA APM by offering usage-based pricing through Amazon Web Services (AWS) Marketplace. Now available on demand, customers can quickly and easily purchase and run CA APM in the AWS cloud on an hourly basis—which eliminates the time and resource commitment associated with running software on-premises.

CA APM on AWS is an excellent option for short-duration projects, as well as for customers whose application performance monitoring needs are unpredictable and who need to elastically scale up or down based on demand.

Figure E.

CA APM Monitoring AWS and Docker Containers
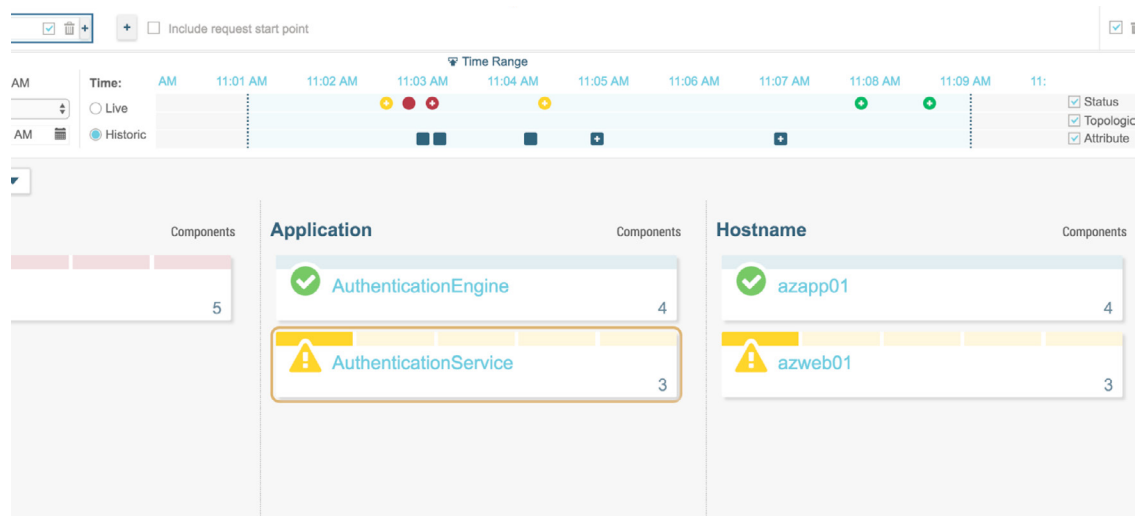
Focus on middleware.

CA APM has 20/20 visibility into all your transactions from the mobile device, through the middleware and back into the mainframe/database back end. Middleware components can't be ignored because they often represent the secret sauce of transaction routing and transformation for many enterprise customers. Coverage of middleware ensures the required, end-to-end visibility that results in accurate and actionable performance metrics. CA APM monitors an extensive list of middleware components, such as middleware from IBM®, Oracle, Red Hat, Software AG, Tibco, and more—as well as non-Java™ environments like MQ.

Focus on mainframe.

CA APM closes the loop on 360-degree visibility of applications by tracking user transactions within the mainframe. CA has been monitoring mainframe applications for years, and with the CA Cross-Enterprise Application Performance Management (CA Cross-Enterprise APM) component, is uniquely positioned to provide detailed infrastructure and transaction metrics with drill-down capabilities for all mainframe subsystems. CA Cross-Enterprise APM enables a unified view of enterprise transactions by monitoring the real-time performance of customer-facing applications that span the mainframe.

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As the solution helps users identify and isolate performance problems by monitoring health metrics of critical application components, it also delivers deep visibility into the performance of key mainframe resources, including IBM z/OS®, UNIX® System Services, TCP/IP, IBM WebSphere® MQ, CA Datacom/DB, IBM IMS™ and IBM DB2® for z/OS, in a single, unified APM dashboard with drill-down capabilities. This unified view empowers IT and the business with important data to make informed decisions, without the need for specifics skills in other tools or environments.

Figure F.

An end-to-end application flow, including mainframe
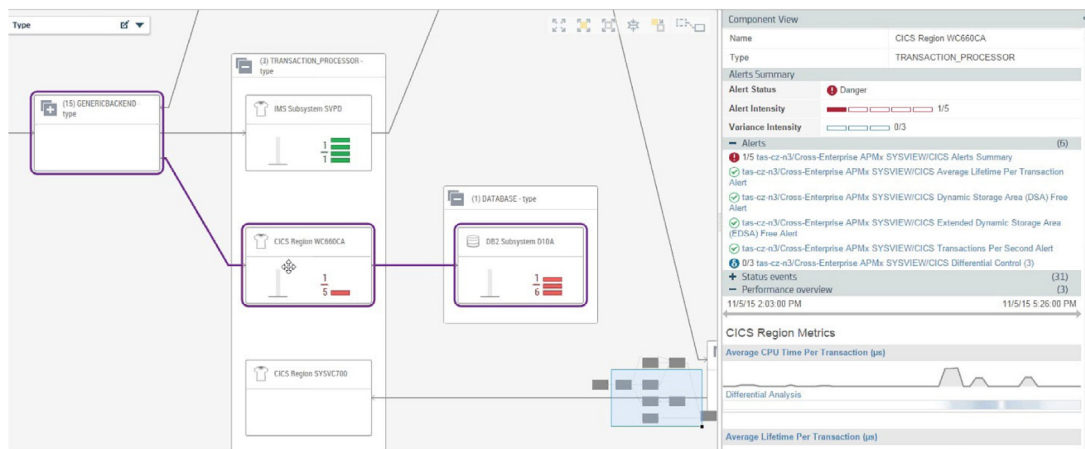
Focus on synthetic monitoring.

Monitor the performance of your applications even at times when you have no real users. CA App Synthetic Monitor replicates user behavior so you can monitor application performance and find and fix problems before real users are impacted. With nearly 100 monitoring stations around the world, the solution helps you quickly identify and diagnose localized or regional performance issues. CA App Synthetic Monitor also gives you visibility into cloud-based applications that are outside enterprise control. Available as SaaS with optional on-premises monitoring stations, the software is easy to set up, so you can monitor mobile, web and cloud applications in a matter of minutes. CA App Synthetic Monitor provides synthetic transaction monitoring that fully integrates with CA APM, allowing you to not only identify performance problems but drill down to find the root cause.

Achieve enterprise scalability.

Whether you're a large organization or a smaller and growing one, CA APM can meet your scalability requirements. We offer full-featured APM capabilities that scale to monitor billions of transactions in the most demanding data center, cloud or hybrid environments. Start with one instance of CA APM, enterprise manager (EM), to collect up to 500,000 application metrics, and grow to monitoring billions of metrics across your applications every day.

These customers can attest to the vast scalability of CA APM:

- A large communications service provider uses CA APM to monitor more than 25,000 Java virtual machines (JVMs) across multiple data centers, capturing 25,000,000 metrics every 15 seconds and reporting into over 400 EMs, many of which are in the customer's internal cloud.

- A large online services and tax management company monitors 2.5 million concurrent customer sessions processing 200,000 transactions per second, and uses CA APM to keep tabs on 9,000 JVMs and network components on more than 120 EMs in its private cloud, legacy data center and public cloud.

- A major U.S. bank manages more than 14,000 JVMs and middleware components with CA APM and uses the solution to operate critical applications, like online banking, fund transfers, wealth management, lending and mortgage, investment banking and more.

Sizing and scalability of a CA APM instance is based largely on the number of metrics that are collected and the number of agents instrumenting the application, as opposed to the number of applications being monitored. A single instance of a CA APM cluster (10 EMs) is capable of collecting up to 5,000,000 (500,000/EM) metrics every 15 seconds.[6] CA APM increases this scale by providing visibility across multiple clusters so each team can see the exact—and only—data they need.

Smart instrumentation—proactive, automatic evidence collection.

Understanding the path of transactions is critical in today's application monitoring. When a transaction doesn't complete, you need to understand where the issue took place. But doing application triage often requires in-depth knowledge of the application or the need to modify the application's instrumentation. This translates to a lot of manual effort to get the deep, call-stack visibility you need to see the application performance, and even more effort when instrumentation needs to change based upon changes to the application.

Instead of recreating the issue or taking on the administrative and performance burdens and cost of monitoring every single transaction, CA APM zero-configuration agents include Smart Instrumentation that automatically collects transaction traces when a problem occurs. This feature is customizable and automatically gives you deep diagnostic information about the transaction error, so you can better triage the problem. With Smart Instrumentation, the system learns which transactions are most important to your business and begins to trace anything that takes too long or has errors or stalled transactions. Without any effort on your part, CA APM zero-configuration agents learn and adapt to dynamically changing application environments to spot related components and simplify monitoring. The agent watches what it need to and collects deeper information than necessary, which translates to rapid triage that doesn't require you to have in-depth knowledge of the application or its instrumentation.

Section 3:

Delight Your Users, Differentiate Your Business and Protect Your Experts

CA APM delivers mobile-to-mainframe transaction insight. Get 20/20 visibility into all your transactions from the mobile apps and device through the network, infrastructure and middleware, all the way back into the mainframe/database back end.

CA APM scales to the most demanding apps—at a level you can trust. The solution is uniquely architected to run with low overhead in the largest and most complex IT environments, scaling seamlessly to help you easily manage and verify billions of transactions for critical applications.

CA APM redefines application triage with built-in intelligent analytics. With an at-a-glance view of experience stability over time, along with guided, assisted triage workflows, you can quickly pinpoint and prioritize problems and pull in experts only when you need to.

CA APM provides a personalized view into the health of your app. CA APM allows you to create meaningful perspectives that remove the clutter from the traditional app map to simplify and speed triage. This functionality complements customizable dashboards, so you can see what matters most to you and your stakeholders.

CA APM offers a SaaS delivery option. CA APM is available on-premises for enterprise customers or through Digital Experience Insights from CA, our SaaS-based digital operations monitoring and analytics platform for cloud natives.

Section 4:

Next Steps

If you're serious about building, deploying and managing applications at scale that inspire your users and enhance your brand, CA is the clear APM choice.

Try CA APM for free today.

![ca technologies logo]

Learn more about CA Application Performance Management at **ca.com/apm**

Connect with CA Technologies at ca.com

CA Technologies (NASDAQ: CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business, in every industry. From planning to development to management and security, CA is working with companies worldwide to change the way we live, transact and communicate—across mobile, private and public cloud, distributed and mainframe environments. Learn more at **ca.com**.

1 Vanson Bourne survey commissioned by CA Technologies, "Building a Better Digital Experience: Tough challenges, better benefits, and why it all matters," Oct 2016

2 Ibid

3 App Annie, "App Annie Mobile App Forecast: The Path to $100 Billion," 2016, http://files.appannie.com.s3.amazonaws.com/reports/App-Annie-02-2016-Forecast-EN.pdf?aliId=123245772

4 Ibid

5 Vanson Bourne survey commissioned by CA Technologies, "Building a Better Digital Experience: Tough challenges, better benefits, and why it all matters," Oct 2016

6 CA Technologies, "APM Sizing and Performance Guide," July 29, 2016

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