

DX Application Performance Management

Ensure a Flawless User Experience with Unmatched Insight and Intelligence

Executive Summary

Challenge

The quality of digital interactions determines business reputations, market share, and profits. Moreover, 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 only IT issues; they're customer satisfaction and retention issues.

Opportunity

Many application performance management (APM) solutions fall short of delivering critical insights around user experience and app performance. A better solution offers both application performance and deeper insight into digital behaviors across web and mobile user sessions coupled with advanced analytics to spot anomalies earlier, predicts behavior, and enable informed automatic corrective actions. A smarter solution can supercharge DevOps by providing a common performance language in both production and pre-production environments.

Benefits

DX Application Performance Management (DX APM) an essential part of our AIOps solution delivers mobile-to-mainframe insight for user behavior, code level, root cause diagnostics, anomaly detection, embedded prescriptive analytics, autonomous remediation, enterprise scale and management, and metric performance 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.

Ensuring Flawless Experiences with Analytics-Driven Insights

End Users Expect a Flawless App Experience—Every Time

Digital applications must deliver a flawless, even inspiring experience every time. In today's digitally-driven economy, where apps have become the very heart and soul of your business, you have mere seconds to impress your users. 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. As a result, more and more organizations are increasing their focus on customer experience—yet, in a recent survey, 95% of businesses still face challenges collecting end-user metrics and gaining insight into the customer journey.¹

Why AIOps is Critical for a Modern APM Solution

With this increased reliance on applications, it's more important than ever that IT organizations monitor and manage the end-user application experience across all environments: physical, virtual, web, mobile, wearables, cloud, containers, and mainframe. The ability to predict, identify, diagnose, and fix application issues is imperative with today's environment of complex, noisy, and dynamically changing applications. For organizations seeking to build positive user experiences, using analytics and machine learning becomes a critical capability for any APM solution. As a result, modern APM solutions have evolved to include AIOps that correlate and analyze data across users, applications, infrastructure, and network services. These AIOps solutions apply machine learning and advanced analytics to deliver a new level of visibility and actionable insights.

DX APM: Comprehensive, Modern Application Performance, and User Experience Monitoring

DX APM, an essential component of our AIOps solution provides actionable insights into the end-user experience as customers engage, transact, and interact through today's modern applications. With deep visibility from APIs and containers to custom apps and back-end business processes, our solution empowers DevOps teams to pinpoint problems faster, eliminate performance blind-spots, and identify needed improvements—in apps, functions, and code.

DX APM: The Catalyst to Stimulate User Loyalty and Differentiate Your Business

DX APM delivers a comprehensive monitoring solution across the end-user experience, application, infrastructure, container, and cloud services, to help teams ensure great user experiences and speed application delivery by providing in-context performance details across the entire application delivery chain.

With DX APM, operations and app teams can:

- **Gain insights into digital experience.** DX APM enables users to gain a 360-degree view of user experience, performance, and app usage from both a real-user and synthetic perspective. Our solution provides real-time insights into user experience across omnichannel, user behavior, journeys, funnel analytics along with code-level visibility into app problems or crashes.
- **Discover, trace, and diagnose application issues.** DX APM automatically discovers and traces application transactions from the user to backend support infrastructure and cloud services. Universal monitoring makes it easier to monitor modern applications and infrastructures with smart instrumentation. A powerful topology model lays the foundation for analytics and guides workflows to find the culprit of an issue easily.

1. Improving User Experience and the Bottom Line, Dimensional Research, December 2018

- **Monitor modern application architectures.** DX APM provides support for modern architectures, such as PHP, Node.JS, MongoDB, Docker Containers, Kubernetes, Cloud Foundry, Azure, Amazon Web Services, and more. Our solution is built to instantly detect, discover, and monitor microservices-based clusters, projects, services, pods, or containers together with hosted apps and underlying supporting infrastructure or cloud services.
- **Deliver operational efficiencies with actionable intelligence.** Our AIOps solution, a key part of DX APM, helps teams simplify and speed triage through automatic anomaly detection, alarm clustering, and suppression and complete diagnostic insights from app to infrastructure. DX APM utilizes our AIOps solution for analytics and machine learning techniques across various data types, providing faster autonomous remediation and insights into the user experience that help to drive better business outcomes and operational efficiencies.
- **Achieve enterprise scale and ease administration.** DX APM, built on an open and scalable architecture, quickly scales to meet the performance requirements of the most demanding environments. An open platform based on a microservices architecture allows for easy scaling of services, quick onboarding of new tenant, and easy upgrading.

With these capabilities, DX APM can help you ensure a positive end-user experience across a broad range of application environments, improve operational efficiencies, and lower the total cost of ownership for managing and maintaining the environment.

Digital Experience Monitoring

Real-Time User Behavior Analytics

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 customers. How can you ensure a great digital experience that elevates your offering above the thousands of other choices customers have?

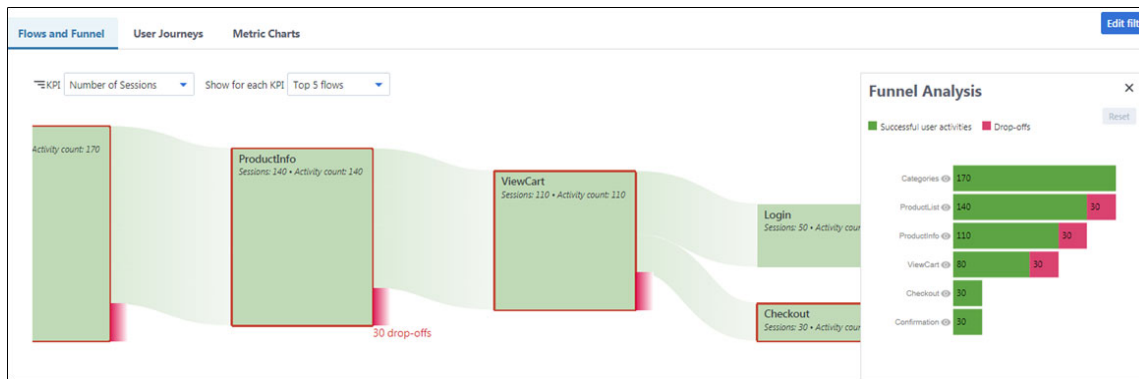
DX APM provides complete visibility and insights to boost user loyalty and maximize potential value to customers. The solution delivers a comprehensive solution to visualize and analyze the user experience and app health, capture, and investigate issues and inform app teams with real-world customer usage data to deliver the most impactful features and fixes in the next app update.

The solution offers clarity into the performance of web and mobile applications to help pinpoint issues across the browser and mobile infrastructure, and enables a better understanding of app usage by geography, carrier, device, and more—delivering dynamic applications that delight users.

Funnel Analysis

DX APM provides insight into the user journey, app flows, and funnel analytics allowing teams to view the entire flow path of those users accessing your application, complete with drop-offs and completed transactions. You can also further slice the data to view sessions for only a subset of users, to identify if an issue is due to device, carrier, app version, or location. In addition, the solution helps to identify an issue or unusual user behavior by displaying if there is an increase in drop-offs or incomplete transactions by the screen for a certain transaction or user path. Paths can be customized for any desired user action and further segmented by user characteristics if needed.

Figure 1: Funnel Analysis



Gain Insights Into End-to-End Digital Performance

DX 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. DX APM provides 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.

Proactive Synthetic Monitoring

Monitor the performance of your applications even at times when you have no real users. The DX APM solution replicates user behavior, so you can monitor application performance and find and fix problems before impacting real users. With nearly 100 monitoring stations around the world, the solution helps you quickly identify and diagnose localized or regional performance issues.

It 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.

For business-critical transactions, like login or checkout, advanced script monitors can be enabled to ensure systems are operating as expected at all times. Should an error occur, like slow load times or an outage, DX APM will immediately alert you—allowing teams to drill down into the issue and correct it before impacting customers.

In addition to script monitors, you can also set up real browser monitors (RBMs) to gain a more accurate picture of how users will experience your website through video session snapshots. Detailed waterfall charts provide even further detail into the load times of all page elements so you can quickly pinpoint which component may be causing delays or errors.

Figure 2: Real Browser Monitor

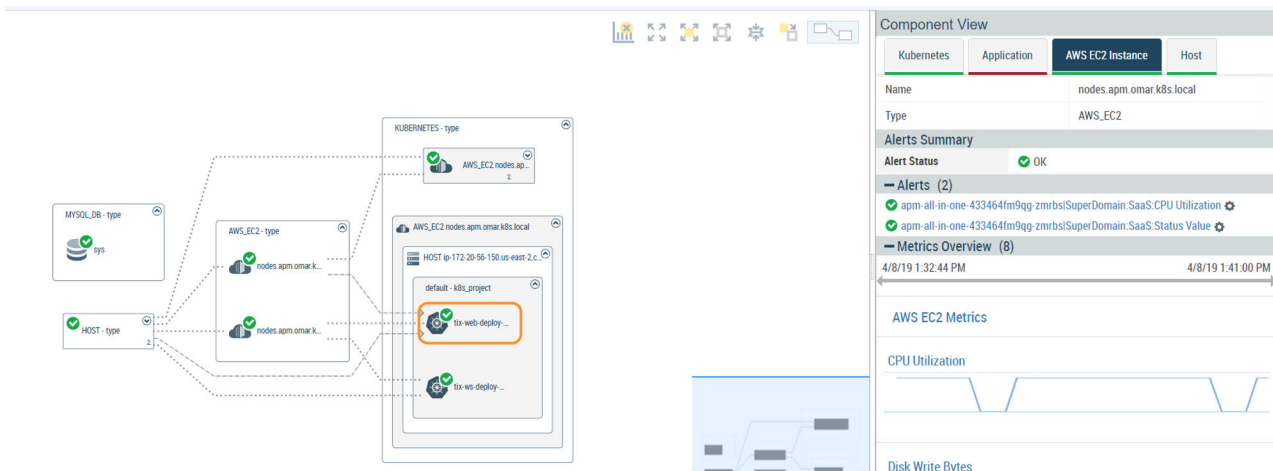


Discover, Trace, and Diagnose Application Performance Issues

Full Stack Visibility Using a Powerful Topology Data Model

By adopting a unified topology data model, DevOps teams have the analytical foundation upon which to collect, group, correlate, and visualize more complex performance conditions spanning applications, infrastructure, and networks. Built as an open, extensible, ontology-agnostic, and using time as a primary dimension, this dynamic model allows teams to purposefully apply AI and machine learning to drive substantive improvements in application performance without sacrificing speed.

Figure 3: Topology Model for Complete Visibility Across Application Ecosystems

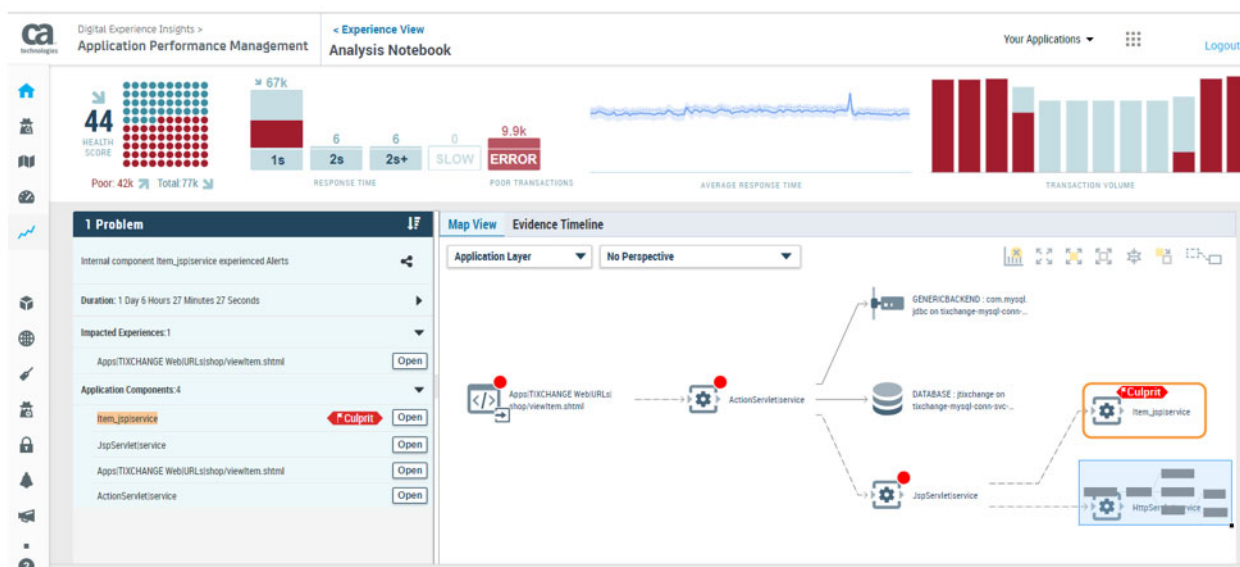


Quickly Determine the Culprit with Assisted Triage

When the experiences suffer, 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 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.

DX APM simplifies these tasks with assisted triage, an intelligent engine leveraging the graphical topology model along with automated best practices and expertise to guide you directly to the suspect. Within DX APM, assisted triage provides an easy path of intuitive workflows with evidence notebooks to determine and verify the exact root cause of an issue.

Figure 4: Assisted Triage



Support for Modern Application Architectures

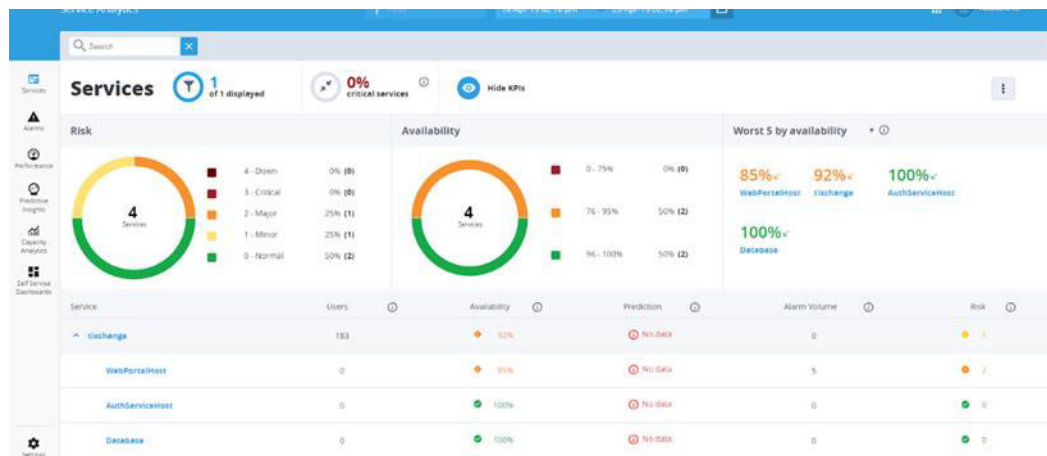
DX APM provides visibility into the performance and health of applications using a microservices architecture and enabling technologies such as Docker, Cloud Foundry, Kubernetes, and other distributed cloud infrastructures. DX APM simplifies the complexity introduced by these modern microservices architectures by allowing users to automatically view the application-orchestration-container-cloud dependencies, view the impact of change, and create role-based, task-oriented views—helping users better understand application performance and quickly triage application issues. Smart instrumentation using a universal monitoring agent simplifies the monitoring process without added any unnecessary overhead to the environment. The AIOps solution, including DX APM, provides the analytics and machine learning algorithms to determine anomalies and patterns in these dynamic and ephemeral environments.

Deliver Operational Efficiencies with Actionable Intelligence

The DX APM solution, fully integrated with our AIOps solution, correlates and analyzes data across users, applications, infrastructure, and network services. The AIOps solution features pre-packaged algorithms and integrations with our leading monitoring and automation tools, to speed time to insight and value. Also, the AIOps solution automatically analyzes log data, and correlates related alerts to predict cascading events-before they spiral out of control.

With the AIOps solution, operations teams can find the root cause of issues faster with more accurate and actionable insights. Once an issue is identified, whether predictively or through automated root cause analysis, IT teams are provided with comprehensive, intelligent capabilities that can automatically execute the remediation tasks required in a complex, dynamic enterprise environment.

Figure 5: AIOps Solution Service Analytics



Achieve Enterprise Scalability and Lower Total Cost of Ownership

Open and Scalable

Whether you're a large organization or a growing one, DX APM can meet your scalability requirements. The DX APM solution is built on the powerful AIOps analytics engine which leverages open technologies such as Elasticsearch, Apache Kafka, and Apache Spark. The solution scales and allows teams to more easily integrate with third-party business or IT data sources to further enrich the data set. The AIOps solution, integrated with DX APM, leverages a microservices-based architecture where independent services are grouped such as metrics, topology store, data export, and API. This architecture makes it easier to scale components as the needs of the application teams grow. The architecture also allows for in-place upgrades in a rolling fashion and easy onboarding of new tenants, to help deliver a lower total cost of ownership.

Next Steps

Learn more about DX APM at www.ca.com/apm.

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