how can I assure complex, mission-critical applications and deliver a flawless end-user experience?
CA Application Performance Management delivers a 360-degree view into all user transactions across the hybrid cloud infrastructure to understand the health, availability, business impact and end-user experience of critical enterprise, mobile and cloud Web applications, allowing organizations to proactively diagnose and resolve problems while optimizing the performance of critical, revenue-generating services.
executive summary

Challenge

IT organizations are under tremendous pressure to deliver more services at a faster rate while providing a flawless end-user experience. These pressures can lead to complex composite applications built over time that span physical, virtual, hybrid cloud, and legacy environments, making it difficult for IT organizations to ensure optimal performance, provide that flawless experience end users demand, reduce complexity and result in time-consuming finger pointing when problems do arise.

Opportunity

CA Application Performance Management (CA APM) helps organizations understand the actual end-user transaction experience and application service delivery. It links transactions to business value and the underlying IT infrastructure, delivering rapid, proactive problem identification and triage to help resolve problems before they impact end users and revenue-generating services.

Benefits

CA APM is designed to put IT organizations firmly in control of end-user experience by enabling them to proactively identify, diagnose and resolve problems before end users and revenue-generating services are affected, while assuring consistently high service levels that meet the demands of business. CA APM helps customers boost IT productivity and increase collaborations among diverse teams and enables them to adapt more easily to constantly changing IT environments.
Section 1: Challenge
Delivering exceptional user experience with complex hybrid cloud applications

IT organizations today are faced with the dual pressure of exploding demand for services—fueled by mobile devices and the consumerization of technology—and a mandate from the boardroom to keep budgets lean. Despite these challenges, IT organizations must ensure increasingly complex applications used by customers, employees and partners are operating at peak efficiency and provide a flawless end-user experience. Many of these applications may have roots in legacy mainframe environments with newer components layered on top that encompass physical servers, virtualized systems, and cloud-based services as demand increases and needs change.

While these composite applications that mix newer and legacy technologies have helped sustain growth, they also add to the level of complexity in the way such applications and services are built and managed. Today’s customers, be they consumers using your services or employees that rely on the applications to be productive, are finicky when it comes to slow response times and degraded service. For employees, it means lost productivity and frustration as applications are slow to respond. Worse, for external customers it may mean abandoning a transaction and heading to a competitor to do business.

Without proper visibility into end-user experience, application performance and the efficiency of the underlying infrastructure and/or supporting cloud environment, IT organizations will spend much of their time maintaining systems and fire-fighting problems, rather than focusing on innovation and contributing new ways to boost revenues and drive productivity. This problem extends to the development process as well, as a lack of visibility into application performance during the development phase may hinder the ability to find critical bugs that could delay availability of new updates or features.

The shift of applications to virtualized and cloud-based environments means some or all of the components contributing to the delivery of a critical, and often customer-facing, service are no longer owned, maintained or operated by the organization they support. To complicate things further, when dynamic virtualization and cloud computing are involved, the particular components that encompass the service delivery path are sometimes fleeting and in a state of flux, making it extremely difficult to understand the underlying dependencies of a particular service. So, how can enterprises ensure the overall health and responsiveness of their virtual and cloud-based applications, when by their very definition, they are often less permanent and more agile than the hardware and servers they replace?

To keep pace, IT management must focus on the application and, more precisely, the transaction. It’s the only constant for which IT is accountable as more infrastructure and platforms are moved to the cloud and virtualized environments. In addition, as reduced cycle times force the blending of development and operations teams, the only common context across the complete service delivery lifecycle is the transaction itself.

Current legacy approaches to application performance monitoring may be inadequate because they lack complete visibility into how network behavior and complex hybrid cloud infrastructures impact both transaction performance and end-user experience. This limited scope can create a major blind spot that puts critical end-user transactions and revenue-generating services at risk.
Section 2: Solution

Eliminate blind spots with a 360-degree view of end-user experience

CA Application Performance Management (CA APM) delivers 360-degree visibility into all user transactions across the hybrid cloud infrastructure—physical, virtual, cloud and mainframe—to understand the health, availability, business impact and end-user experience of critical enterprise, mobile and cloud applications. With CA APM, organizations can proactively identify, diagnose and resolve problems throughout the application lifecycle to put organizations firmly in control of the end-user experience and optimize the performance of critical, revenue-generating services.

CA APM monitors all Web and non-Web transactions as they traverse the hybrid cloud infrastructure and automatically links those transactions to the dependent application, network and infrastructure components to provide a view of application health, enable prioritization of incidents based on business impact and quickly pinpoint problems across disparate technology silos. Powered by the CA APM Transaction Model, CA APM delivers a 360-degree view of transactions that provides a single source-of-truth on application performance, empowering IT organizations to reduce costly and time-consuming problem resolution guesswork, increase productivity and collaboration, and improve alignment with business owners, while delivering consistently high service levels that meet business objectives.

CA APM is uniquely designed for today’s large, complex and heterogeneous production and pre-production environments. CA APM deploys rapidly with little overhead, scales to manage billions of transactions and is easy for both business and IT executives to use, accelerating time to value while increasing return on investment. CA APM is trusted by more than 1500 large enterprises and service providers to manage the performance and availability of their critical and revenue-generating services. CA Technologies is in the Leaders Quadrant of the “2011 Magic Quadrant for Application Performance Monitoring.”

Figure A.
Infrastructure-aware application triage map

With infrastructure-aware application triage, performance data and infrastructure events are displayed in an intuitive application map for quick diagnosis of problems anywhere in the transaction path.
**Achieving 360-degree visibility into critical applications**

The most recent release of CA APM features a number of key new features and enhancements that better ties application performance to the underlying physical, virtual, mainframe or hybrid cloud infrastructure to help eliminate blind spots and provide the 360-degree view required by today’s enterprise-scale IT organizations. Chief among the features that will help drive greater application performance and visibility:

**Infrastructure-aware application triage:** Expands visibility into dependent hybrid cloud infrastructure components to quickly identify, diagnose and resolve transaction performance problems caused by networks, servers and databases. Performance data and infrastructure events are presented in an intuitive graphical map that provides a 360-degree view of the end-user experience, empowering customers to accelerate problem resolution, boost IT productivity and increase collaboration among diverse IT teams.

This feature is made possible through integration with CA Service Operations Insight and allows operations staff to view application delivery statistics next to network health data in a single console, allowing teams to more quickly answer whether the application or network is at fault for an outage.

**Private cloud application triage:** Expands the visibility into virtual infrastructure to proactively identify, diagnose and resolve transaction performance issues in private cloud environments. Performance data and virtual infrastructure events are presented in the same intuitive graphical map to pinpoint and fix problems before end users and revenue-generating services are affected.

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**Figure B.**

**Visibility into the private cloud**

CA APM’s private cloud application triage provides insight into the physical hardware and virtual servers executing the transaction.
Unified end-user experience monitoring: Unifies end-user experience and network performance monitoring through a single appliance that provides a single source-of-truth on how network behavior impacts the end-user experience, making it faster and easier to identify, diagnose and resolve transaction problems caused by the network. Unified end-user experience monitoring also helps IT organizations understand how infrastructure components affect service quality and how effective the network is at delivering applications to users.

This feature is a result of full integration between CA APM and CA Application Delivery Analysis (CA ADA, formerly CA NetQoS SuperAgent®). The CA ADA add-on provides application-aware infrastructure monitoring for any TCP-based application—without desktop or server agents—to deliver a consistent and common set of response-time metrics, mitigate risks from planned changes and unexpected events and resolve problems faster. By providing the TCP-level view of applications running over the network and from tier-to-tier within the data center, CA ADA enables rapid troubleshooting of network and performance bottlenecks and provides insight into the duration, frequency, pervasiveness and severity of problems. An understanding of normal performance is established via automatic, intelligent baselines, which when deviations are detected, CA ADA gathers diagnostic data that helps further enable faster resolution of performance problems. All of this information is accessible from a single console.

Figure C. Unified end-user experience monitoring view
The unified end-user experience monitoring view combines network health statistics with the graphical application map to help find problem root cause more quickly.
**Expanded support for Adobe Flex and non-Web applications:** CA APM features expanded visibility into and monitoring of Flex and non-Web applications to provide a more comprehensive view of end-user experience across a broad range of Web, non-Web and rich Internet applications. This expanded reach builds on CA APM’s heritage of providing deep visibility into Java and .NET-based applications.

Other key enhancements in CA APM include:

- **Lean agent:** The industry leading CA APM agent technology has been optimized to run even more efficiently and effectively in large, production and pre-production environments.

- **Bullet-proof management:** CA APM’s Enterprise Manager is strengthened and optimized for large, heterogeneous and complex hybrid cloud environments to deliver even more value and higher ROI.

**Rock solid, industrial strength APM**

CA APM provides a single, platform-independent solution that spans physical, virtual, hybrid cloud and mainframe environments, allowing customers to use the technologies that make the most sense for them and gain more value from their technology investments. Key CA APM features include:

- **End-user experience monitoring** – Ensure exceptional end-user experience and consistently high service levels that meet business objectives by monitoring all end-user transactions (Web and non-Web) 24x7 with low overhead. CA APM accurately measures end-user transaction performance to prove IT is delivering against SLAs, business objectives and SaaS vendor commitments.

- **Smart triage** – Reduce downtime and optimize the performance of revenue-generating services by proactively identifying, diagnosing and resolving performance problems before they impact end users. CA APM maps all transactions to the dependent infrastructure in real time for a single view of application health, business process flow and the entire transaction path to quickly triage issues, help eliminate problem resolution guesswork and accelerate mean-time-to-repair.

- **Rapid root-cause diagnosis** – Improve IT productivity and control costs by quickly and accurately diagnosing problems occurring deep within the application and infrastructure. End-user experience monitoring capabilities are unified with deep-dive problem diagnosis features to understand performance issues in context, pinpoint failures and speed problem resolution. Rapid problem identification and resolution often can be accomplished without impacting end users and disrupting revenue-generating services.

- **Business-centric management** – Assure high-value transactions receive the highest service levels by understanding problems in business context to identify critical transactions that may be at risk, prioritize problem resolution efforts, dispatch the right resources and fix the problems that impact revenue or key end users. Performance and availability information is presented in business terminology, providing application health metrics that can be easily understood by non-application experts and easily communicated to business users.

- **Application lifecycle management** – Improve application quality early in the lifecycle and accelerate time-to-market for new services by monitoring transactions in pre-production environments—development, quality assurance and performance testing—driving quality from start to finish. Increase collaboration between production and pre-production teams by leveraging a common technology throughout the application lifecycle.
• **SOA performance management** – Quickly troubleshoot performance issues in composite application environments through a graphical visualization of business processes and their flow within a service-oriented architecture (SOA). CA APM provides out-of-the-box SOA performance management for leading SOA infrastructures.

**Business Transaction Management built in**

There is hype in the marketplace that Business Transaction Management (BTM) and Application Performance Management are two different things. In reality, the functionality of BTM point-products is just a subset of features within CA APM.

BTM is a term used to describe tools that offer transaction profiling and real-user experience monitoring. BTM tools trace the path and analyze the resource use of transactions across all the IT components they traverse. This collected data is correlated to end-user response time, individual component response time, and other parameters to improve root cause analysis, performance management and capacity planning activities.

With CA APM, customers can handle those functions and much more as transaction and user-experience is the lifeblood of the solution. CA APM improves on BTM by offering:

• **Business-centric management** – Performance and availability is presented in business terminology as well as technical terminology, providing application health metrics that can be easily understood by non-application experts and easily communicated to associated business users.

• **Visual application triage map** – Provides real-time and dynamic application mapping, enabling customers to quickly triage issues and gain a faster mean-time-to-repair by reducing the need for custom dashboard creation.

• **Automated transaction identification** – Analyzes network traffic flows and automatically extracts transaction definitions, making it possible for non-experts to quickly identify transactions and accelerate deployment.

• **End-to-end transaction tracing views** – Provides new transaction sequence views to more clearly represent the path of cross-tier transactions to improve problem triage, including mainframe environments.

With CA APM, IT organizations can pinpoint bottlenecks quickly and anticipate future problems by automatically discovering, mapping and monitoring all transactions and transaction flows at every tier. CA APM is powered by the CA APM Transaction Model that unifies and simplifies performance data to provide a single source-of-truth on application behavior and its impact on critical business services. The CA APM Transaction Model is integrated with the CA Unified Service Model (USM), which unites information from diverse domain managers to create a high level abstraction of the monitored business service. CA APM publishes and consumes information from the CA USM via the CA APM Transaction Model. Competing solutions and point products do not offer this.
Get complete visibility into mission-critical applications
The CA APM solution includes a number of add-on capabilities that allow organizations to further extend the reach and visibility into transaction performance and end-user experience while helping to quickly identify, diagnose and resolve problems before end users and revenue-generating services are impacted.

Cross-enterprise monitoring extends to legacy systems
CA Cross-Enterprise APM monitors the real-time performance of distributed applications accessing mainframe applications and traces distributed and IMS transactions to and through mainframe CICS environments to deliver an extensive, end-to-end view of application health and availability. In addition to monitoring the performance of distributed applications, CA Cross-Enterprise APM also monitors health metrics of critical mainframe components and delivers deep visibility into the performance of key mainframe resources including IBM's z/OS® operating system, IBM® CICS® and IBM Websphere® MQ and DB2 to help identify and isolate performance problems. CA Cross-Enterprise APM is sold as an add-on capability to CA APM for those customers that require deeper visibility into mission-critical legacy and mainframe application performance and health.

Cloud monitoring
CA APM Cloud Monitor provides end-to-end transaction response-time visibility into cloud, mobile and enterprise Web applications to understand the health, availability and end-user experience in a flexible and easy-to-use 100% SaaS-based solution. CA APM Cloud Monitor adds:

• **Synthetic transaction monitoring** – Proactively manage the end-user experience around the world through a global infrastructure of more than 60 monitoring stations in over 40 countries worldwide. CA APM Cloud Monitor replicates real-user transactions from these locations to provide rich, up-to-the-minute insight into cloud and enterprise Web application performance. This also helps organizations understand application performance at times when there is no real-user traffic.

• **Cloud application monitoring** – Keep SaaS vendors and MSPs accountable for SLAs by measuring cloud application performance from different locations.

• **Real browser monitoring** – Accurately report on real end-user site experience by using real browsers to accurately measure application performance and help assure that applications are delivering the best possible end-user experience. Designed to meet the needs of today’s Web 2.0 technologies, CA APM Cloud Monitor checks multiple connections and sources that are part of Rich Internet Applications (RIA) to pinpoint failing components and bottlenecks quickly, and resolve problems before users experience delays.

• **Cloud services and API monitoring** – Assure consistently high service delivery levels of cloud-based applications by monitoring availability and performance of key Web services (including services delivered by third-parties) and APIs.

• **Public status (health) page** – Communicate application availability information to key stakeholders (users, developers, management) through a public status page that is simple to customize and use. Application status information is updated automatically and organizations can communicate through a RSS feed which is pushed directly to the public status page.

CA APM Cloud Monitor is available as an add-on capability to CA APM.
CA APM supports the complete application lifecycle

CA APM is not just for production environments as it can be used to support the entire application lifecycle. Customers can improve application quality early in the lifecycle and accelerate time-to-market for new services by monitoring transactions in pre-production environments—development, quality assurance and performance testing—driving quality from start to finish. Increase collaboration between production and pre-production teams by leveraging a common technology throughout the application lifecycle.

CA APM used in combination with CA LISA can help IT organizations more efficiently test applications in development by basing test cases on real-world production data. This allows:

- Prevention of loss of revenue-generating transactions
- Efficient problem solving and lower MTTR
- Measurement of business impact metrics early in the lifecycle
- Improved maturity of the overall lifecycle optimization process within the organization
- Integration of transactional data with performance management disciplines

Key metrics on the go with Executive Insight

CA Executive Insight for Service Assurance (CA Executive Insight) enables IT to quickly and easily provide real-time access to high value metrics that measure the pulse of business. Designed specifically for mobile platforms and with the active user in mind, CA Executive Insight connects executives and decision-makers to real-time views of how the health and performance of key IT services impact business outcome.
• **Real-time metrics** – Arm executives and decision makers with real-time insight into the health and performance of IT services that impact revenue generation, internal productivity and brand value by seamlessly connecting with CA APM as a rich source of high-value performance metrics and business indicators.

• **Interactive dashboards** – Personalize information needs by selecting, organizing, and monitoring real-time business indicators using an intuitive and interactive user interface designed for flexibility, mobility, and collaboration.

• **Mobile device support** – Provide the freedom and flexibility to connect, explore, share and collaborate on information and decisions anytime, anywhere leveraging a wide range of mobile devices including iPhone®, iPad®, Android® devices and laptops.

CA Executive Insight is the perfect add-on to CA APM for IT organizations that need to share key metrics with both technical and non-technical executives on the go.

**Figure E.**
**Dashboard to go**

Users of CA Executive Insight can get a detailed view of a business indicator and use interactive charts to see values change over a range of time, expand or zoom in data range values, create annotations to comment on behaviors and explain values to peers.
Monitor database performance from a single console

CA Database Performance is multi-database performance management and diagnostic product for major distributed relational database management systems. It helps customers proactively manage and alert on database performance across the IT infrastructure, regardless of where the database is located within physical, virtual or cloud environments. CA Database Performance is fully integrated with CA APM and it monitors the availability and performance of databases directly from the CA APM console to provide a unified view of application and database performance. Basic database performance capabilities are included in CA APM and more advanced database features are available as an add-on capability.

Section 3: Benefits

CA APM puts customers firmly in control of end-user experience

As the first and only unified application, infrastructure and network performance management solution, CA APM is a single product that delivers a complete, 360-degree view of the end-user experience by linking business transaction performance to the dependent network and infrastructure components, empowering customers to rapidly isolate, diagnose and resolve problems across disparate technology silos. Powered by the CA APM Transaction Model, this 360-degree view provides a single source-of-truth of business transaction performance that helps customers to:

- **Boost IT productivity and increase collaboration** among diverse IT teams responsible for assuring optimal performance of revenue-generating services, avoiding expensive and time-consuming war-room approaches to problem resolution.

- **Get control of the end-user experience** by better understanding how application, network and infrastructure components affect service quality; how effective the network is at delivering applications to users; and how well the hybrid cloud infrastructure is delivering against business objectives and SLAs.

- **Adapt to constantly changing IT environments** and simplify management of complex, composite infrastructures by monitoring all transactions from start-to-finish across physical, hybrid cloud and mainframe environments.

Because CA APM monitors all Web and non-Web transactions in real time as they traverse the hybrid cloud infrastructure, you can proactively identify, diagnose and resolve problems before end users are affected and assure service-delivery levels meet business objectives. By mapping all transactions to the supporting infrastructure, CA APM provides a thorough understanding of the end-user experience that allows application support and network operations teams to pinpoint failing components and bottlenecks quickly, identify high-value transactions that may be at risk and prioritize incidents based on business impact. This business-centric approach delivers the vital visibility required to optimize the
performance of critical transactions and revenue-generating services—and put you firmly in control of the end-user experience. Additional benefits of the CA APM solution helps you to:

- Assure consistently high service delivery levels meet business objectives
- Increase IT productivity and control IT costs by reducing mean-time-to-resolution
- Accelerate problem resolution across disparate teams by providing a single source-of-truth on application health
- Prove IT is delivering against SLAs, business objectives and SaaS vendor commitments by accurately measuring end-user transaction performance
- Improve application quality throughout the application lifecycle—development, testing, QA and production

Simply, CA APM is a next generation solution that combines cross-enterprise application performance management, business transaction management and end-user experience management with integrated application, infrastructure and network performance management as well as cloud application monitoring in a comprehensive solution that delivers 360-degree visibility into all user transactions across the hybrid cloud infrastructure. CA APM helps organizations to proactively identify, diagnose and resolve problems before end users and revenue-generating services are affected, while assuring consistently high service levels that meet the demands of business.

Section 4:
The CA Technologies advantage

CA APM is an integral part of the Service Assurance solutions from CA Technologies that uniquely link applications, real users, transactions and services with the underlying IT infrastructure. This provides an extensive, unified understanding of how applications and infrastructure deliver business services across physical, virtual, hybrid cloud and mainframe environments. CA APM lets customers leverage the technology platforms that make the most sense for the business with a single, platform-independent solution that scales to help meet the dynamic needs of business. CA APM supports any environment—distributed, middleware, mainframe, virtual, cloud and mobile—and reduces the need to add new tools or hire additional resources to handle new technologies and architectures.

CA Service Assurance and CA APM are supported by CA Services, the largest consulting group—with 1,400 certified consultants and architects located in 25 countries—focused on CA Technologies in the world. The collective experience of CA Technologies earned from more than 35 years of work on thousands of successful CA Technologies projects is unmatched. No other organization has seen CA Technologies solutions in action in more environments than CA Services. The group has one objective: to properly assess the current situation and assist in moving forward as quickly and effectively as possible.
Section 5:
Next steps

You should consider CA APM if you:

• Have trouble proactively monitoring the performance and availability of your critical IT services and applications across the hybrid cloud infrastructure
• Suffer costly downtime for key IT services and applications
• Learn of outages and application issues from end users
• Are unable to prioritize problem resolution based on business value
• Cannot gain complete visibility into end-user experience
• Cannot assure service level commitments from SaaS vendors

CA APM is the single solution that delivers 360-degree visibility into all user transactions across the hybrid cloud infrastructure. With CA APM, organizations can proactively identify, diagnose and resolve problems before end users and revenue-generating services are affected, while assuring consistently high service levels that meet the demands of business.

To learn more about CA APM visit ca.com/apm

CA Technologies is an IT management software and solutions company with expertise across all IT environments—from mainframe and distributed, to virtual and cloud. CA Technologies manages and secures IT environments and enables customers to deliver more flexible IT services. CA Technologies innovative products and services provide the insight and control essential for IT organizations to power business agility. The majority of the Global Fortune 500 rely on CA Technologies to manage their evolving IT ecosystems. For additional information, visit CA Technologies at ca.com.

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