

CA Technologies Bridges Development, Distributed, and Mainframe Silos with Cross-Enterprise Application Performance Management (APM)

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*IT & DATA MANAGEMENT RESEARCH,
INDUSTRY ANALYSIS & CONSULTING*

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Abstract

CA Technologies' Cross Enterprise Application Performance Management (APM) solution is a set of integrated products bridging distributed and mainframe systems and spanning development and production life cycles. Cross Enterprise APM integrates the deep monitoring capabilities of CA Application Performance Management (CA APM: formerly CA Wily Application Performance Management) with those of CA SYSVIEW® Performance Management.

CA APM is well-known as an industry leader in the distributed application performance management space, while CA SYSVIEW is a leading z/OS mainframe solution. The improved integration incorporates a consolidated and customizable dashboard with drilldown into composite applications running across both heterogeneous, non-mainframe systems and IBM's Customer Information Control System (CICS) running on a z/OS mainframe.

CA Technologies is also extending the scope of “end-to-end application management” to encompass both pre- and post-production performance assessments. CA Cross-Enterprise APM and CA Mainframe Application Tuner solutions support pre-production software and Quality Assurance (QA) testing, identifying performance problems before software goes into production – when they're cheaper to fix. These solutions extend the reach of APM to include drill-down detail for both pre- and post-production monitoring as well as identification of tuning opportunities related to critical mainframe processes.

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This ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) paper details CA Technologies' expanded support for mixed application environments and composite services. For many companies, both distributed and mainframe visibility are key requirements for “enterprise ready” management solutions. EMA sees CA Technologies' cross-product integration as a major step forward, as application support professionals are increasingly demanding better mainframe information as part of end-to-end transaction and application support.

IT Transformation: From Managing Technology to Managing the Business Service

While today's companies increasingly rely on IT as a business enabler, IT services continue to grow in complexity. Distributed and composite services often span diverse applications and platforms, as well as virtual technologies and Cloud services. They integrate with one another and with systems controlled by external partners and customers. Each additional tier, platform, connection point, and network segment increases overall cost and magnifies the risks of performance problems and downtime. This proliferation of dynamic, interdependent services is forcing changes to IT roles and processes, and to the types of tools required to efficiently manage this transformation.

In terms of roles and processes, we are seeing the rise of “DevOps” teams in which IT specialists trained in development, operations, or both are collaborating. Technology-savvy companies are also forming cross-functional Infrastructure Services and Centers of Excellence groups whose charters are to collaboratively manage business services that cross traditional technology silos. In support of these changes, high-performing IT organizations are supplementing silo tools with more integrated solutions that address today's increasingly diverse and interconnected technology environments.

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All Roads Lead to the Mainframe

Often, discussions about managing distributed applications exclude consideration of the mainframe. The assumption seems to be that companies run “either” mainframe “or” distributed applications. In fact, many companies run both and, more often than not, distributed transactions incorporate both mainframe and non-mainframe platforms.

EMA research finds that, of the world’s largest companies¹, 70% are running mainframe applications and 64% have deployed Service Oriented Architecture (SOA), Web applications, and/or Web Services. In terms of “distributed applications,” more span both distributed and mainframe platforms (73%) than traditional “distributed” platforms alone (54%). It is little wonder that “end-to-end application management” is the goal for so many of today’s enterprise management vendors, and the “holy grail” for IT support teams.

For most IT professionals, the mainframe is a “black box.” This presents problems when distributed technology specialists attempt to manage transactions that span both distributed and mainframe systems. When asked about their specific challenges, the responses are revealing:

- “We are unable to pinpoint sources and causes of problems”
- “Applications are unstable”
- “Can’t get less than 30 second response time”
- “Can’t see transaction and data flow between tiers.”

Technology support teams are still in the process of transitioning from managing technology silos to managing business services. Distributed applications are forcing this evolution, as support personnel find they cannot guarantee performance and availability Service Level Agreements (SLAs) for critical business services without cross-functional collaboration and products.

The cross-tier mainframe/distributed integrations that CA Technologies has incorporated into its APM solutions help such teams make the transition. These integrated products provide a basis for solving the unique problems of cross-platform distributed services more efficiently than products supporting “either” mainframe or “distributed” transactions alone.

While managing production systems remains a challenge, the scope of “end-to-end application management” is expanding as well. In the past the term pertained primarily to managing production applications across platforms and tiers; it now encompasses a time-based element as well, covering both pre-and post-production. Businesses are making the connection between quality applications and cost efficiency, with some going so far as to analyze and quantify the cost per production software defect.

A financial services provider, for example, quantified that number at more than \$70,000 per defect. As a result, companies are increasingly looking to more rigorous software testing to reduce the cost of production application support. They are also seeking ways to quantify an application’s potential impact on production systems as part of the pre-release process.

¹ Those with 20,000 employees or more

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In this regard, CA Technologies' CA Mainframe Application Tuner is expanding operational insight into application performance across both pre- and post-deployment. This product provides the drill-down capabilities into mainframe applications necessary to identify the specific line of code or SQL statement that is causing a performance problem, and also identifies tuning opportunities so potential problems can be resolved before they impact users.

Product Lineup

CA Cross-Enterprise APM: The underlying products that comprise CA Cross-Enterprise APM are mature solutions, each with more than 1,000 existing customer sites. CA SYSVIEW is a real-time performance monitoring and management solution. Its coverage includes the mainframe z/OS operating system and its subsystems, including CICS, IMS, CA Datacom®/DB, TCP/IP, WebSphere MQ, UNIX Systems Services, JES2, and JES3. It supports applications running on IBM® WebSphere® Application Server (WAS) (on z/OS and z/LINUX), as well as mainframe and database views from the distributed environment.

CA APM is often cited by other vendors as the “gold standard” for distributed application performance management – the product line to beat in competitive sales situations. Under the covers and in real-time, CA APM traces transactions and “tags” those interacting with CICS. Tags provide the means to measure “spin time” at each tier, as well as other calculated metrics. An agent-based connector mediates across the two solutions, transforming and uploading mainframe metrics to the CA Cross-Enterprise APM dashboards in near real-time.

CA Technologies has deeply integrated the two solutions and continues to add features such as detailed diagnostics and deep-dive triage capabilities for CICS transactions and IBM WebSphere MQ messaging. Capabilities include:

- Real-time consolidated dashboards for aggregated monitoring of mainframe and distributed applications
- Transaction tracing across distributed systems and into CICS and MQ within the mainframe environment and its subsystems
- Visibility to the application in context to its underlying execution fabric for end-to-end triage, troubleshooting, and problem resolution.

Since mainframe and distributed metrics are quantified in different ways, CA Technologies has also rationalized reporting across both platforms with this solution. This provides the basis for new views and reports, including cross-technology time correlations. Such correlations are critical to connecting the impact of an application component utilization spike, for example, to poor transaction performance. In-depth traces can also be run from a workstation, providing additional execution details of cross-platform Java/.NET transactions. In addition, Average CPU time, Average Suspend Time, and other trending metrics (see Figure 1) can be displayed for CICS transaction groups.

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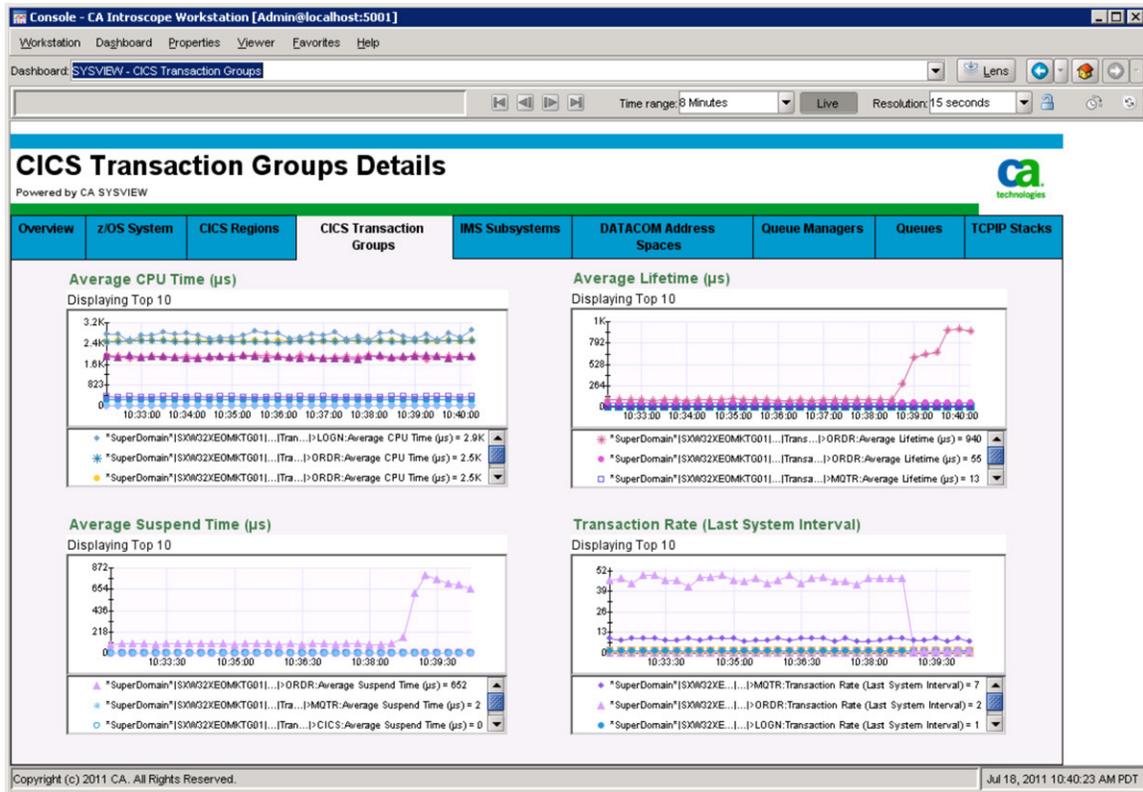


Figure 1: CICS Transaction Groups associate mainframe resources with the applications they support

CA Mainframe Application Tuner: Case studies attest to the fact that tuning is one of the keys to mainframe efficiency and cost containment. Reductions in CPU utilization or disk storage, for example, can save millions of dollars in upgrade costs, including hardware, licensing, and support.

CA Mainframe Application Tuner expands CA Technologies' mainframe support, identifies problem-causing code with detailed application performance analytics and metrics, and proactively identifies potential performance problems by isolating the root causes of unnecessary resource consumption and other application-related problems.

CA Mainframe Application Tuner expands CA Technologies' mainframe support. It identifies problem-causing code with detailed application performance analytics and metrics. It also proactively identifies potential performance problems by isolating the root causes of unnecessary resource consumption and other application-related problems. This integrated solution extends the CA Cross-Enterprise APM offering with advanced application performance analysis that helps prevent application-related problems and uncover tuning opportunities.

CA Mainframe Application Tuner supports a wide range of mainframe environments including DB2, IMS, CICS, IMS/DC, VSAM, TSO, MQ, CA IDMS™, CA Datacom, Adabas, WebSphere Application Server, and Java. CA Technologies has integrated CA Mainframe Application Tuner with CA SYSVIEW to automatically trigger CA Mainframe Application Tuner monitoring when CA SYSVIEW detects a problem.

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Moreover, CA Mainframe Application Tuner is integrated with CA Endeavor® Software Change Manager (SCM) and with the CA Application Quality and Testing Tools so they can share symbolic program information. CA Technologies' tightly integrated solutions redefine the endpoint of Application Performance Management by extending the testing, monitoring, and troubleshooting functions to span both development and production. The addition of CA Mainframe Application Tuner makes it possible to diagnose performance problems down to the source code statement in critical mainframe backend processes.

Key Benefits

- **CICS and MQ Transaction Tracing, CICS Transaction Context, Integrated Dashboard:** Transaction tracing through CICS and MQ reveals execution and messaging details that are critical for identifying and isolating application and transaction performance problems. Transaction context relates distributed transactions to CICS resources, revealing the impact of the transaction on mainframe resources. New Distributed to Mainframe Enterprise Dashboards offer an integrated view of the entire transaction, with drill-down into execution and dependency details.
- **Quicker detection and remediation of distributed application performance problems:** For the world's largest companies, application management solutions that don't adequately address the mainframe are viewed as partial solutions. Integrated solutions such as CA Technologies Cross Enterprise APM ensure that mainframe value propositions such as high availability and performance are safeguarded.
- **Mitigation of the effects of silos across technologies, time, and geographies:** In many companies, execution platforms and technology support are distributed across cities, states, or countries. At best, mainframe teams are locked in the data center. At worst, the mainframe is located in one country, and Windows/Linux servers in another. Focal interviews show that cross-tier troubleshooting can take weeks of time, putting the business at risk and consuming the time of IT's most valuable (and highly-paid) technicians. Solutions like CA Technologies Cross Enterprise APM help mitigate this problem by providing a common source of application-related intelligence across heterogeneous technology. This can promote collaboration and speed problem analysis and remediation.
- **Expansion of "end-to-end" management to encompass development and production:** A landmark U.S. National Institute of Standards & Technology (NIST) study² found that the cost of fixing software defects rises exponentially later in the Software Development Lifecycle (SDLC). While a defect discovered in the design phase costs X to fix, the same defect found during testing costs between 5X and 10X. Once the software is in production, the cost escalates to 30X.

The increased cost is due to multiple factors. One is that code is often reused and defects must be fixed in multiple software modules. Another is the sheer development cost of creating and recreating the same software. Perhaps the most expensive aspect of software defects is the impact on production systems and end users. One large high-tech company quantified the average cost of a single outage at approximately \$750,000, and actual cost can be twice that number.

CA Technologies is addressing these risks by delivering APM functionality across the entire application lifecycle. The APM solution addresses application quality early, while applications are still in development and test environments. This positions the CA solutions as valuable additions to development time and QA testing, as well as to production monitoring.

² NIST, The Economic Impacts of Inadequate Software Testing, retrieved August 17, 2011 from <http://www.nist.gov/director/planning/upload/report02-3.pdf>

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EMA Perspective

CA Technologies is making a sizable investment in strengthening its mainframe management story, and for good reason. For enterprise-sized businesses, the entrenched mainframe base shows all indications of remaining strong for the foreseeable future. Companies that can't afford the performance, availability, and security risks of non-mainframe platforms turn to the mainframe to deliver solid reliability that has evolved over many years. From this perspective, CA Technologies' mainframe investments will likely prove to be fruitful.

Cross-technology, cross-enterprise views of transactions and applications offer a common ground for IT engineers speaking different technology (and often different human) languages.

These enhancements improve the overall value proposition of CA Technologies' APM solutions in multiple ways, one of which is from the organizational perspective. EMA still sees many IT organizations that are bogged down with tools and processes supporting silo-based management. While technology silos will remain a fact of life for the foreseeable future, management solutions such as this one help span silos and enable IT teams to more effectively engage in cross-functional application support. Cross-technology, cross-enterprise

views of transactions and applications offer a common ground for IT engineers speaking different technology (and often different human) languages. Incorporating the mainframe fills out the distributed transaction "big picture," bringing the mainframe team into the cross-functional fold as well.

CA Technologies' hardware vendor independence will likely be one attraction for prospects. The strengths of this offering are also attractive. They include depth of integration, breadth of coverage, and a more lightweight installation and maintenance footprint than many competitors.

Nevertheless, there are keen competitors in this space, with IBM and BMC both seriously gunning for a bigger slice of the distributed – mainframe pie. CA Technologies' success will depend on the ability to articulate messaging and clear differentiators to those IT constituencies with the biggest APM headaches.

That being said, EMA sees these enhancements as positive news for CA Technologies customers and non-customers alike. For customers with mainframes and either CA APM or CA SYSVIEW already in place, evaluation of the enhanced, integrated solutions should be a no-brainer. For companies lacking APM solutions, and even those with competing solutions in place, lingering pain points may well provide an impetus to reevaluate.

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About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise IT professionals, lines of business users, and IT vendors at www.enterprisemanagement.com or follow [EMA on Twitter](#).

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Corporate Headquarters:

5777 Central Avenue, Suite 105
Boulder, CO 80301
Phone: +1 303.543.9500
Fax: +1 303.543.7687
www.enterprisemanagement.com
2317.082511

