Converged Application and Infrastructure Performance Monitoring

How to Proactively Discover, Diagnose and Resolve Performance Issues in Applications

A Technical White Paper

eG
Total Performance Visibility

APM's History

Up until a few years ago, managing an IT infrastructure involved gaining visibility into the availability, performance and utilization of each and every tier of the infrastructure, correlating the performance of the different tiers and identifying where potential performance bottlenecks lie. This aspect of IT performance management is referred to as infrastructure performance management (IPM) today (see http://www.computerworld.com/article/2474120/infrastructure-management/infrastructure-performance-management-the-final-piece-of-the-puzzle.html)

As IT applications have been increasingly used to support online businesses, there is an increasing realization that application performance is more important than that of the infrastructure. Ensuring that a server's CPU utilization is normal is not a guarantee that users are happy with the performance of the application. Application performance management (APM) is the area of IT performance management that focuses on applications and their performance.

Industry analysts like Gartner have viewed infrastructure performance management and application performance management as being distinct. In the 2016 Magic Quadrant, Gartner defined APM suites as one or more software and/or hardware components that facilitate monitoring to meet three main functional dimensions:

- **Digital experience monitoring (DEM)** — This relates to the availability and performance monitoring of the experience of a digital agent (human or machine). This area of work includes real-user monitoring (RUM) and synthetic transaction monitoring (STM) for both web- and mobile-based end users.

- **Application discovery, tracing and diagnostics (ADTD)** — Application discovery, tracing and diagnostics is a set of processes designed to understand the relationships between application servers, to map transactions across these nodes, and to enable the deep inspection of methods and other host resources. It combines three formerly separate dimensions (application topology discovery and visualization, user-defined transaction profiling, and application component deep-dive) under a common name. All three dimensions are primarily focused on problem remediation and are interlinked.

- **Application analytics (AA)** — Application analytics enables the automated detection of the source (or root cause) of performance anomalies for HTTP/S transactions supported by Java and .NET application servers through machine learning, statistical inference and/or other methods.

By definition, APM has not included the infrastructure. Furthermore, it specifically focuses on applications, and mainly on web applications. So APM's roots naturally orient it toward code-level issues. Enterprises have tended to look at one set of vendors for infrastructure performance monitoring and to another set of vendors for APM for monitoring Java, .Net, Python, and other applications.

APM's Focus — Inefficient Application Code, Errant SQL Queries, Runaway Threads

IPM's Focus — Virtualization Issues, Server Hardware Issues, Storage & Network Issues

The problems APM addresses include issues like inefficient application code, errant SQL queries or runaway threads. So APM monitors the user experience and focuses on identifying if application slowdowns that are caused by the application.

But, what if the cause of the performance issue is not in the application?

Infrastructure Performance Management

Infrastructure performance management looks at the various infrastructure components (application servers, database servers, web servers, etc.). Today's application architectures have become more web-based, cloud-driven, dynamic and virtualized; these applications are heavily dependent on the underlying infrastructure:

Most IT organizations have looked to separate infrastructure monitoring tools – either a single tool or multiple tools. In fact, in many IT organization infrastructure monitoring is still highly fragmented.

But today more than ever, applications and infrastructure are interdependent. Applications run on virtual machines, access different types of storage and may even be distributed across different suppliers.

As IT infrastructures evolve in scale and complexity, it is not sufficient anymore to use a silo-based approach for monitoring wherein each technology tier is monitored independently. The increased adoption of virtualization and cloud computing has introduced new dependencies between tiers. A problem in one tier (e.g., virtualization) affects other tiers (e.g., applications) and, in turn, the quality of service delivery.

Managing multiple consoles, sifting through dozens of false positives, and manually comparing metrics from different tools makes IT infrastructure monitoring complex and time-consuming. Without a unified view of the entire infrastructure, IT departments struggle to deliver the quality and reliability that today's business requires.

The need for APM solutions to span business transactions, applications and infrastructure is critical. Having different consoles for application code visibility vs. IT infrastructure management leaves visibility gaps and demands more expertise from everyone involved.

> *In managing these applications, it is easy to lose sight of the forest and focus on the trees. In this case, the forest consists of business- and user-facing applications, while the trees are the underlying hardware and software infrastructure silos. Visibility to both, plus analytics capable of correlating the two in context to the end-to-end transaction, are the most important elements of application performance management (APM).*

Converged Application and Infrastructure Monitoring

A converged application and infrastructure performance monitoring solution solves these problems by providing a single integrated tool. From an infrastructure perspective, it should provide *reach*; i.e., it should cover all the different platforms that exist in the enterprise and provide a true single pane of glass view. From an application perspective it should provide *depth*; i.e. the level of visibility needed to drill down into application code issues.

Why Converged Application & Infrastructure Monitoring? Business Growth, Lower Costs.

Performance Diagnosis

Application Delivery Optimization

Infrastructure Right-Sizing

Continuous Operational Awareness

Real-Time Customer Support

Perhaps most important, a truly converged application and infrastructure solution will provide higher levels of automation, including end-to-end and top-to-bottom correlation and self-healing capabilities (automated remediation) for critical applications and their supporting infrastructure. This way, it can automatically determine if an application slowdown is due to code level issues or due to infrastructure issues, and in either case it provides the level of automated diagnosis that is needed to make troubleshooting and problem identification fast and definitive.

The advantages that converged application/infrastructure performance management provides include:

- A converged solution facilitates fast and effective root-cause diagnosis
- Minimizes learning curve for administrators
- Enhances operational efficiency through more automated analysis and problem identification and by eliminating finger-pointing across silos
- Ensures user satisfaction & productivity by enabling proactive management
- Accelerates IT transformation by providing a single, end-to-end view of performance for development, operations and business staff

APPLICATION PERFORMANCE MONITORING
- ✔ End-User Experience Monitoring
- ✔ User-Defined Transaction Profiling
- ✔ Application Topology Discovery & Visualization
- ✔ Application Component Deep Dive
- ✔ Analytics & Reporting

INFRASTRUCTURE MONITORING & AUTO-DIAGNOSIS
- ✔ End-to-End Infrastructure Visibility
- ✔ Automatic, Cross-Tier Performance Diagnosis
- ✔ Preemptive Problem Detection and Alerting
- ✔ Auto-Baselining and Thresholding
- ✔ Comprehensive Reporting & Trending
- ✔ Automatic Topology/Dependency Discovery & Mapping
- ✔ Configuration Change Tracking and Correlation

CONVERGED APPLICATION & INFRASTRUCTURE MONITORING

eG Enterprise: Converged Application & Infrastructure Monitoring Solution

In today's virtualized, hybrid-cloud environments, ensuring a great user experience is no longer human-manageable. The factors that affect performance are far too varied and interdependent for even the most talented teams to manage without cross-silo intelligence.

eG Enterprise offers the only truly converged application and infrastructure monitoring solution – enabling you to manage the performance of your entire service delivery chain from a single console with fully automated, self-healing event correlation and alerting. Converged application and infrastructure eliminates the need for war rooms and finger-pointing, so administrators get ready answers to the toughest application performance problems.

LIVE DEMO
Request a personal walkthrough to learn first hand how eG Enterprise can help improve performance and operations in your business environment.

FREE TRIAL
15-days of free monitoring and diagnosis, in your own infrastructure. Try it and learn exactly how eG Enterprise helps you ensure a great end-user experience and improve IT operations.

About eG Innovations

eG Innovations is dedicated to helping businesses across the globe transform IT service delivery into a competitive advantage and a center for productivity, growth and profit. Many of the world's largest businesses use eG Enterprise to enhance IT service performance, increase operational efficiency, ensure IT effectiveness and deliver on the ROI promise of transformational IT investments across physical, virtual and cloud environments.

To learn more visit www.eginnovations.com/apm.

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