

The Benefits of Deploying Application *and* Infrastructure Performance Monitoring

Ensuring that applications and infrastructure perform better together through comprehensive visibility and authoritative insight

Today's Application Performance Delivery Challenges

Business-critical IT application infrastructures are becoming increasingly shared and multi-tenant, supporting many applications, which continue to increase in complexity and scale. The need to bring new functionality time-to-market faster to remain competitive is driving continual change. Facilitated by the adoption of agile development and DevOps deployment techniques, the result is a continual state of infrastructure change to meet the fluid and dynamic environment while delivering a flawless end-user experience. The supporting infrastructure is required to deliver hyper-responsive performance and complete availability.

Today, each IT domain lives in a stovepipe, with minimal understanding and view into other domains. Problems in one domain frequently impact other domains, and applications in a shared environment, resulting in much time wasted conferring and attempting to correlate things like server resource utilization, storage port contention, datacenter network, and application response time data from various application performance monitoring (APM) tools. Tedious, error-prone data-finding tasks keep staff from more important work, such as actually optimizing IT resources.

Additionally, building in application SLAs, especially in hybrid data center environments, in the face of enormous scale and ongoing changes is nearly impossible. Application owners need a complete real-time view of the infrastructure servicing their applications, while the infrastructure teams need to see how application workload changes are affecting or will affect overall infrastructure performance. Today's approaches to providing this type of cross-domain visibility are causing excessive finger-pointing and preventing IT organizations from creating and adhering to application SLAs.

Application Performance Delivery



Application Performance Monitoring (APM)

APM solutions focus on behavior and performance of the application, its internal code structure components, and its supporting runtime environments and components of the operating system on the servers that application is deployed on. They usually capture the web user experience of an application or service. APMs measure internal code call or method response times, errors and load, and other aspects such as page requests, response time, database SQL query times, and queue depths for things like MQ or Enterprise service buses like Tibco. They measure response times of the

queue managers, database components, gateways, and utilization of physical, virtual and web-application servers. APMs tell a customer if the application is working well and if not, leads them to the problem causality if the problem is in the code or runtime environment.

Infrastructure problems cannot be sufficiently diagnosed with APMs because they are largely blind beyond the server they are deployed on, network and storage metrics. Although many APM vendors claim otherwise in an effort to be more broadly relevant, they simply can't find or diagnose any but the simplest infrastructure problems.

APM tools are typically used by application support, operations, and development teams to rapidly identify, isolate, and repair application issues. These teams usually have a high-level understanding of how user networks or data center infrastructures operate, but not nearly the detailed knowledge required to resolve infrastructure related issues. They live and breathe application code, integration points, and component (server, OS, VM, JVM, etc...) metrics. They call in the network team when they think there is a network issue or the virtualization and storage managers when they think it's server or storage related. APM tools can be of limited value as they lack real-time visibility of how the application interacts with its supporting infrastructure components.

Application-Centric Infrastructure Performance Monitoring (AC-IPM)

Application-centric IPM solutions focus on performance and availability management of the hybrid data center infrastructure, from the application client to the storage, both within the data center and increasingly in the cloud. The best App-centric IPM products record hundreds of metrics in real-time, correlate time-relevant events from the client to the storage, and point to potential problems and optimization opportunities through advanced analytics. IPM solutions quickly tell an IT manager if the infrastructure is working well and if not, leads them to the problem causality. To be effective, App-centric IPM products must:

- Continuously capture, correlate and analyze system-wide heterogeneous infrastructure performance as measured by response time, plus utilization and health metrics, in real-time
- Provide a comprehensive view of system-wide infrastructure performance, from client, to server, to

network, to storage in the context of the applications being serviced

- Must leverage an analytics framework for contextual understanding, correlation and discovery. Gathering and presenting metrics in a dashboard is insufficient. Predictive analytics are essential to preventing performance problems and outages.
- Offer vendor-independent definitive insights that are accurate and actionable by the operations and engineering teams
- Scale to handle a very large number of physical devices and the associated metrics without risk of hitting a limit

Virtual Instruments

Virtual Instruments offers the industry's leading App-centric IPM platform. It empowers IT staff to deliver on the complex requirements of their application infrastructure. Virtual Instruments provides vendor-independent insights into the performance and availability of the end-to-end system—across physical, virtual and cloud environments. We intelligently correlate and analyze an unmatched breadth and depth of data, transforming data into answers and actionable insights. This enables applications and infrastructure teams to collaboratively promote and guarantee performance-based SLAs, dramatically increasing the value of the infrastructure. Enabling VI products include:

- VI's application I/O profiling enables engineers and architects with the essential insight needed to optimize the cost and assure the performance of networked storage infrastructure, eliminating the risk and guesswork associated with changes, migrations or consolidations.
- VI's infrastructure monitoring offers a unique combination of software and hardware probes to correlate and analyze a breadth and depth of data never before possible—collected non-intrusively from throughout the end-to-end infrastructure. This highly accurate and comprehensive solution enables IT managers to start proactively managing performance, stop reactive troubleshooting, and achieve significant cost optimization across their infrastructure – all in a vendor-independent approach.



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