



# SAP Monitoring: Performance Management Your Business Can Count On

Using the right tools and techniques, you can identify, understand, and predict performance issues and bottlenecks before users see them, regardless of access point or device.



User-reported performance issues often raise stress levels within an organization and can lead to internal finger-pointing and distrust. For complex, highly customized, and globally deployed enterprise applications such as SAP, the situation gets magnified. It's critical for fast-moving organizations to have full, end-to-end insight into each SAP transaction, from client to database, and through all the infrastructure and server tiers in between. It's especially important to have actionable insight into shared infrastructure that delivers SAP to end users, as poor performance of the network links, WAN, application acceleration, load balancers, Citrix, and virtual desktop infrastructure can have a devastating effect on the SAP end-user experience despite the core SAP infrastructure working fine.

Without this insight, you risk lack of accountability, IT employee disengagement, and loss of productivity within your entire organization as you search through logs and use ad hoc means to manually uncover "SAP issues," which may, in fact, not be core SAP issues at all. Further productivity losses ensue when employees fall back to slower, error-prone manual processes when SAP performance gets in the way. Beyond this, there's the



possibility of associated security risks and errors, all of which can negatively impact your business. It's important to have the right tools, processes, reports, and visualization in place to target the root cause of SAP performance issues.

### The Benefits of SAP Performance Management

Global companies of all sizes use SAP enterprise application software to handle complex business processes that support the business's success. The SAP software covers important areas, including logistics, product development, manufacturing, sales and distribution, service, financial accounting and controlling, human capital management, and quality management. Thousands or even hundreds of thousands of employees use it every day as the core means of completing their jobs. Any issues related to it can potentially cripple your enterprise. Therefore, having the ability to properly monitor and manage SAP performance, end to end, will save your company time and money, and even increase your competitiveness.

Given that SAP applications are often highly customized and depend on complex connectivity

among globally deployed systems across data centers, wide area networks, application delivery infrastructure, and the cloud, it can be a challenge to locate and resolve issues when they arise. Getting to where you can pinpoint, isolate, and resolve SAP issues fast, through visualization and reports, offers many tangible and intangible benefits enterprise-wide. For instance:

- **Ensuring SAP adoption:** The ability to resolve issues quickly increases the usefulness and continued adoption of SAP-based solutions across groups and departments as confidence grows.
- **Sustaining productivity gains after SAP rollout:** Given how important SAP is to most organizations, the continuous service these processes provide will ultimately increase employee productivity and the bottom line.
- **Ensuring process automation benefits:** With the automation SAP applications provide, ensuring maximum performance will improve global organizational efficiency, as less time is wasted on error-prone manual processes. This, however, is possible only if the automation works as designed; you must control and react quickly should there be any process automation issues. Any delay in detecting issues, such as network connectivity disrupting document flow between branches, can lead to a snowball effect that disrupts supply chain operation for hours or even days.
- **Eliminating reactive problem management:** Cutting down wasted time from slow application

response can reduce or eliminate help-desk tickets and related costs in IT organizations that are already overworked.

• **Turning incident management into business planning:**

Additionally, the increased reliability of SAP-based services leads to lower operating costs and a more motivated and productive workforce on both the business and IT sides. Business can plan the operations, taking into account planned upgrades on the IT systems side, while IT can make the business aware of incident risks using quantitative data on past systems performance correlated with business activity levels.

Ultimately, the benefits from all of these performance management improvements will compound over time, but it all starts with a plan.

## Start With a Performance Management Strategy

The first step in any SAP performance monitoring strategy is to take a tiered approach, measuring performance at every tier. This includes the front end (the SAP web client and GUI applications), SAP middleware servers, third-party systems

integrating with SAP, the databases, and all the communication infrastructure in between, for every SAP transaction.

Next, include application delivery chain elements, such as virtualization, Citrix components, LDAP servers, and other servers that are part of your specific SAP implementation. It's important to track activity and performance by region as well, to understand how changes in global activity affect your SAP applications and infrastructure.

Finally, arrive at the complete picture of the environment that determines how SAP applications are delivered to end users by including precise measurements of the firewalls, load balancers, WAN optimization controllers, application acceleration infrastructure, shared network links, network tunnels and classes of service that carry the SAP traffic, and performance experienced at the remote locations where end users reside.

At this point, break down performance measurements by transaction type and SAP module to get finer granularity within your SAP applications — for every SAP application user identified by the login name. Viewing performance results aggregated together, as well as broken down by various cross

sections of geography, module, and SAP T-Codes gives you the insight needed to uncover hidden problems within applications, networks, and supporting environments.

How do you best implement such a strategy? Dynatrace has a unique solution and set of best practices to enable the right level of performance monitoring within your SAP implementation. Let's take a closer look at how this solution can help your organization.

## Dynatrace Network Application Monitoring for SAP Drives ROI

Dynatrace Network Application Monitoring lets you monitor SAP application performance and correlate it with related network performance and application delivery infrastructure performance. Looking at both the application and network elements together through a Dynatrace lens gives a complete picture of an SAP application's performance so you can address issues faster and prevent them from happening again. It also lets you identify and resolve problems from the perspective that matters most — your users' experiences.

Dynatrace NAM provides problem detection, triaging, and long-term performance management through instant alerting, actionable dashboards, problem-troubleshooting workflows, and flexible on-demand reporting to help you correlate the unique characteristics of your SAP deployment to uncover tricky performance issues and pinpoint the

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root causes of problems. Not only does Dynatrace create meaningful business-centric application performance reporting, it improves the auditability of SAP processes and users.

## Transaction-Based Performance Reporting

Dynatrace's SAP performance insight capability is based on the power of recognizing and tracking SAP T-Code transactions and individual transaction screens across the whole network, for all users recognized by name. At a glance, these capabilities include:

- **Automated recognition** of all SAP T-Codes and screens, including custom-made ones
- **Automated recognition** of all SAP Remote Function Call (RFC) by name
- **Automated identification** of all SAP users by login name and across GUI, WebGUI, and RFC tiers
- **Automated monitoring** of the SQL database tier performance down to individual SQL
- **Performance monitoring** for network infrastructure tiers of firewalls, load balancers, WAN optimization, and application acceleration



controllers, all in context of the named SAP transactions and named users

- **Performance monitoring** of the end-user experience with the Citrix application delivery for XenApp and XenDesktop

Internally, Dynatrace recognizes around 75,000 types of transactions that appear within standard SAP implementations, across different lines of business. Knowing these transactions, Dynatrace-generated reports use meaningful names in a standard SAP language understood by everyone involved from both the SAP Basis team and the Operations team. It also includes a flexible, configurable management solution to handle SAP customizations, so you can create business-centric and meaningful application performance reports for the specialized SAP processes supported by the custom-made "Z/Y" T-Codes.

Beyond the typical SAP clients, applications, and infrastructure, Dynatrace provides database query-level insight, supporting Oracle, Microsoft SQL Server, IBM DB2, SAP Sybase, and more. Dynatrace's NAM monitors and analyzes application network traffic, specifically decoding SAP DIAG, RFC, and HTTP protocol communication between clients

and SAP NetWeaver servers. This approach covers encrypted and unencrypted traffic, including HTTPS, and the industry-only solution for passive decryption of SAP Secure Network Communications.

One advantage of Dynatrace's approach is that it doesn't impact the performance of the applications being measured. It also doesn't require instrumentation of every server in your SAP implementation. Since SAP applications are complex and distributed — there are often hundreds of servers — instrumenting each would be complex and intrusive. Dynatrace's agent-less approach eliminates this issue; it uses passive probes to analyze all real user network traffic flows and build a complete performance picture with no gaps, no sampling, and no interpolations. This approach also helps customers that want to monitor a broad portfolio of apps where they don't have access to the source code to add instrumentation. With Dynatrace, you get total insight without requiring application-specific knowledge.

## The Real End-to-End View

The key advantage of Dynatrace is its ability to report performance issues for SAP and non-SAP systems alike, including sub-GUI infrastructure (Citrix XenApp and XenDesktop), network components (load balancers like F5 and firewalls), and integrated apps via the SAP RFC protocol as well as SOAP and XML communications. It also lets you

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## Case Study: Tracking Down a Global Performance Killer

Lenovo is a global leader in high-tech manufacturing, with \$39 billion in annual revenue, more than 54,000 employees, and customers in almost every country. Lenovo depends on SAP for its critical business management system to supply critical computer equipment to its global customers. The performance of the highly distributed infrastructure that Lenovo employees around the world use is critical to supporting daily operations.

To monitor and manage SAP performance, Lenovo IT deployed network monitoring tools tailored to work with very specific applications. As business has grown, this siloed approach wasn't able to detect broader performance issues across the entire application infrastructure and delivery chain. The monitoring data collected was relevant only to specific applications and their development teams, leaving holes along the way. As a result, it was impossible to get an end-to-end perspective on application performance from the user's point of view, and individual teams often spent too long proving issues weren't related to their components.

### The Dynatrace Network Application Monitoring Solution

After reviewing several application performance monitoring solutions, Lenovo chose Dynatrace Network Application Monitoring, because it offered the most comprehensive solution, with visibility across the entire delivery chain. NAM provides views into end-user transactions at the application level, end-to-end network performance, and overall application health (see Figure 1).



Figure 1: Dynatrace Application Health Status Dashboard

Once deployed, Dynatrace NAM provided Lenovo with the comprehensive SAP monitoring it needed, including integrated system performance, network and application performance visibility, and overall system availability — all from the user's perspective. Not only does Dynatrace detect performance issues, it provides root cause analysis to determine exactly where the issue is and then helps to resolve it.

Additionally, the Dynatrace mobile application lets Lenovo detect and diagnose performance issues at any time, from any location (see Figure 2). Thanks to Dynatrace, Lenovo IT is able to monitor and manage the performance of its mission-critical applications around the clock with convenience and efficiency.

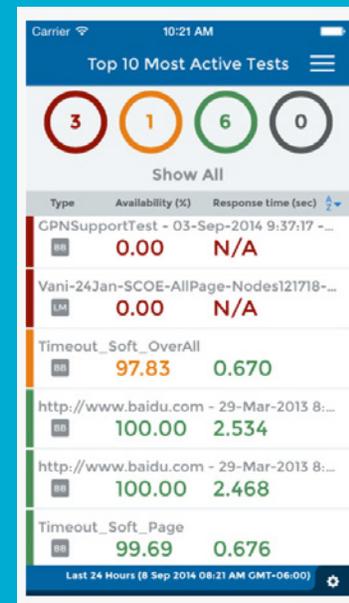


Figure 2: The Dynatrace mobile app lets IT monitor and manage performance anywhere, at any time.

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monitor the efficiency of application delivery to the SAP clients in real time, to assess the real effects of the WAN optimization and application acceleration infrastructure from Riverbed Steelhead, Cisco WAAS, Blue Coat, and other vendors' products.

## Proactive Performance Management and Realistic Service-Level Agreements

Synthetic transaction monitoring, an integral part of the Dynatrace solution, enables measurements of SAP system performance characteristics by executing coherent, repeatable transactions from agents set up at known locations on an internal network or the Internet. Robots perform scheduled synthetic measurements that augment the real user measurements with:

- **Proactive detection** of SAP system availability issues and performance degradation before real users come to work in the morning
- **Consistent measurements** of the same transaction executed in a controlled way, so service-level agreements between business users and IT service providers can be based on coherent data with no variance that's beyond IT's control

Dynatrace manages synthetic monitoring data in correlation with real user performance data, so both sources can be used to drive performance reports and alerts — for example, drive a synthetic transaction alert severity by the number of real

users being active on the SAP system at particular time of day or being typically active on the system should it have been available.

Dynatrace Enterprise and Last Mile Synthetic Monitoring also may be used to get availability and performance insight into the cloud-based, next-generation business suite S/4 HANA (including SAP Simple Finance), as well as other applications based on SAP HANA technology.

## A Performance Management Methodology

Beyond providing software, Dynatrace fosters a methodology called "The Performance Journey," which is a maturity model across a number of performance management and measurement disciplines. It measures production readiness and problem resolution efficiency, where Dynatrace professional services can help you improve applications and network performance, the response time of your IT organization, and resolution effectiveness. Dynatrace can also help you assemble a continuous service-improvement road map, outlining steps needed to improve performance and respond to problems.

Dynatrace's main advantage is its ability to monitor the entire SAP delivery chain, from the end-user device through the network to application servers and down to the back-end database, correlating network performance, server performance, and transaction availability, using an agentless, noninvasive approach. Dynatrace's automated analysis

across the full SAP application domain pinpoints performance problems and their root causes, along with the frame of reason. This frame of reason includes the specific transactions involved and what caused the issue: the network, data center, client, application delivery infrastructure, or a combination of those elements.

Clear reports use language understood by the SAP teams (i.e., SAP T-Codes, RFC function names, and SAP user names), helping to avoid finger-pointing and wasted time. Effective and efficient performance monitoring and problem resolution with Dynatrace ensures that your SAP users are getting the best end-to-end experience with SAP. This approach leads to greater adoption of SAP's automated processes, increased employee productivity, and a faster return on investment. When your internal users and processes are operating smoothly, your customers and your business reap the benefits.

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**Dynatrace** delivers innovative SAP performance management solutions that empower enterprise and service providers to see their apps and digital channels from the end-user perspective. More than 8,000 organizations use these insights to master complexity, gain operational agility, and grow revenue by delivering amazing customer experiences. For more information, visit [www.dynatrace.com](http://www.dynatrace.com).



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