



WHITE PAPER

Application Performance Management

**Managing the Performance of
Oracle Application Environments**

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Executive summary

To compete in today's information-rich environment, organizations require ERP assets like Oracle Applications (OA) to deliver three strategic attributes:

- Fast response to end users
- High data handling efficiency
- Compelling business process differentiation

However, none of these attributes are inherently part of these off-the-shelf applications. User customizations, differences in usage profiles, and variations in data volumes lead to performance variances at different sites that frustrate business initiatives. A one-size-fits-all approach cannot correct these variances. Only the IT group can make ERP assets perform in a way that maximizes end-user and organizational performance.

Standing in the way is a multi-tier environment in which components are highly partitioned, interdependent and dynamic. IT needs a solution like Precise that creates an end-to-end view of performance across the enterprise. Such a view lets IT pinpoint performance bottlenecks wherever they are and avoid the cyclical fray of finger pointing that inevitably occurs when different views and expertise are brought to bear on the slowdown. The result is an IT group more aligned with the business and better able to contribute to the success of their end-users.

Introduction

Ever since the early 1990s, organizations by the thousands have implemented Oracle Applications (OA) packaged solutions for human resources, financial accounting, logistics, production control and other core business processes. They like the fact they don't have to build these applications from scratch and can get state-of-the-art features out of the box. Companies can offload software development to ERP vendors and be left free to focus on core competencies. Many times, however, these advantages have come at the price of diminished performance. Products marketed to the largest number of buyers often don't match the unique needs of individual customers. It is analogous to buying a suit. Custom tailored suits fit better than suits bought "off the rack" but they are more expensive and you have to wait longer. They also involve production risk — something that doesn't occur if the suit already exists. The same holds true for ERP software: each environment is different, with site-specific customizations, usage patterns and data volumes. Those differences mean that the performance of an "off the shelf" or one-size-fits-all application might vary dramatically site-to-site or day-to-day.

But *must* customers sacrifice application "fit" when they buy their OA packages off the shelf? Specifically, must they sacrifice performance? While this has always been an ERP issue, it is one that customers could more easily live with before the Internet forever changed the IT landscape. Back then an application either ran on a desktop PC (fat client model) or a timeshared computer (thin client model). The database usually ran on the thin client's app server, resulting in a two-tier architecture. Solutions with multiple tiers — such as Web servers, app servers, and firewalls — were minimal to nonexistent. If optimizing performance was a challenge (as it usually was) then at least there were only a few places for application glitches to hide.

The typical environment

Today's typical transaction in an Oracle Applications environment may cross four or five tiers depending on the breadth and scope of the application. Each tier with its associated components adds complexity. But even as the new environment has made problems harder to find — and, therefore, fix — it has also made their impact more dramatic. That's because processes have become far more tightly synchronized with supply chain partners and customers. Outages of even a few moments' duration are both embarrassing and costly.

No wonder companies now expect great performance from their off-the-shelf assets.

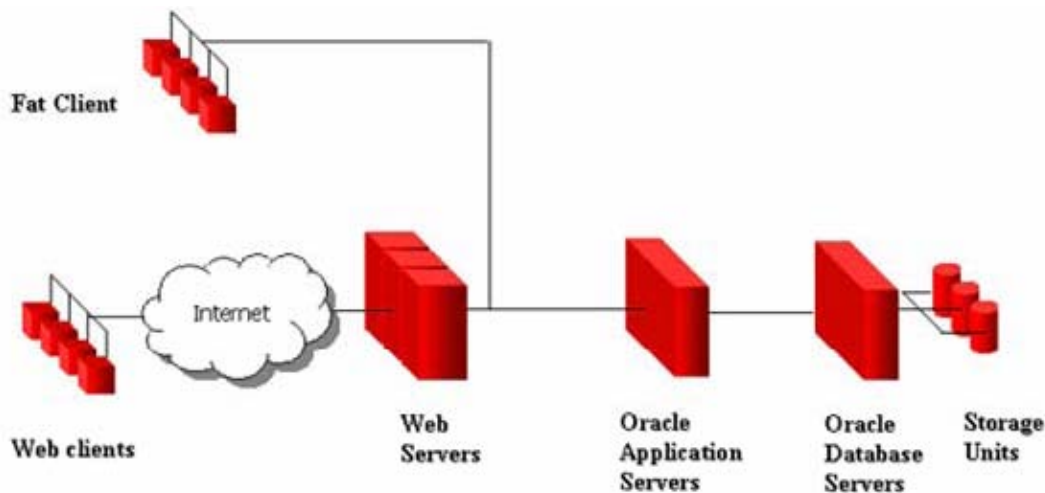


Figure 1 A typical Oracle Applications environment spanning multiple tiers

To continue to meet vertical market needs like Oracle Financials or Oracle Manufacturing, Oracle continues to add more functionality and more components that increase complexity. Couple that with a distributed, multi-tier environment and you are faced with some significant performance management challenges. In a recent Oracle white paper on performance tuning an Oracle Applications 11i environment the authors state, *"The increasing breadth and depth of the applications technology stack means that adopting an 'end-to-end' approach, addressing all system components, is becoming more and more demanding. However, the end-to-end approach is the only way to start investigating any complex issue that may have several contributing factors. Furthermore, in OA, it is becoming more difficult to locate and resolve issues when working with each technology stack component in isolation."*

Challenges managing the environment

The challenge is: *How can one achieve excellent performance in today's complex environment with an application that still follows the model of one size fits all?*

The answer to this question is important because of the strategic role information technology now occupies in the modern enterprise. Application performance has become strategic to the business, for three reasons:

First, is the growing numbers and importance of end-users. More employees do more of the organization's work on computers, and customers and trading partners are more likely to do business with the organization online. According to a Gartner Group study, businesses must compete not only on product availability, cost and quality, but also on the quality of the information they publish for consumption by collaborating partners. That means that if application response is poor, the damage is compounded. Not only will it directly affect production to a greater degree than in the past, it is much more likely to directly impact a customer or business relationship.

The second reason application performance has become strategic is that the environment is generating much more data for the organization to collect, store, and analyze. Furthermore, those tasks are also getting harder thanks to the growing diversity of technologies, each of which has its own data issues, which ERP must accommodate. One example is mobile applications. Those will push even more data at the enterprise and also require faster processing speed. And as more data populates more places and is updated with greater frequency, data synchronization will become much harder to do and also much more important.

Third, globalization is making business process innovation a key competitive advantage. That's especially true in mature markets where the business process itself has become the prime competitive differentiator. Businesses will pursue a best-of-breed approach to building the IT infrastructures that implement these differentiating business processes.

Response to end users, data handling efficiency, and business process differentiation: these have become the three keys to business performance in the Internet era. That is what has changed to make the performance of the technology strategic. What *hasn't* changed is the standard set of design principles by which ERP vendors create technology. Specifically, those call for:

- Wide ranging core functionality that can be customized to meet specific customer requirements
- Support for multiple platforms to accommodate today's heterogeneous computing environments
- Modular design to enable customers to mix and match the application modules they need to run their business
- Extensibility through third party or vendor-supplied development, query and reporting tools to enable enhancement and customization

Managing the Performance of Oracle Application Environments

Vendors recognize the need to tailor standard functionality through site-specific customizations, extensions, and selections of platforms and modules. That said, vendors leave performance issues up to the enterprise and its IT department. One way to boost performance would be to replace or modify the ERP code so it delivers the best end user response and data handling efficiency possible at each site. That, of course, is rarely practical. A more workable approach is to have the company's IT group optimize ERP performance *after* implementation.

Traditional Oracle Application performance tools have failed

Traditional Oracle Applications tools attempted, with limited success, to meet the performance management challenges of business. Since these tools adopted a "stove pipe" approach, they were limited in their ability to correlate performance between the different infrastructure components. "Stove piped" solutions force technical experts to spend an excessive amount of time correlating multiple metrics to pinpoint the cause of performance degradation versus utilizing a correlated solution that allows the root cause to escalate to the top. Compounding this issue, many of the data collection technologies deployed do not sample frequently enough (e.g. once every 5-10 minutes). Nor do they gather enough information to perform meaningful analysis for the specific problematic time interval. As data from each tier of the application is gathered, a subject matter expert must be added to the team further delaying an appropriate solution due to indecision and communication issues among team members.

"Blamestorming"

Even as traditional tools link various GUI's to create loosely integrated "suites", it is still not enough to solve the problem. It only leads to more "blamestorming"—a nonproductive, cyclical fray of finger pointing in which each department absolves itself of blame for performance degradation, then points to another as the culprit. This is because the metrics are not "truly" correlated due to the nature of the various collectors required to monitor each component individually. When IT fails to pinpoint the sources of degradation, they remand themselves to "firefighting" mode and to a shortsighted vision in which loss avoidance, rather than revenue generation becomes the goal.

To eliminate "blamestorming" and focus directly on the problems impacting the business, the following performance questions must be answered:

- Which Oracle Applications User, Form, Report, Program, Request, Business Unit, and Location are being affected?
- What is the real end-user response time?
- What is the end-to-end transaction response time?
- How much time was spent in the Oracle Application server? In the Form Server?
- How much time was spent in the Web Server?
- How much time was spent in the Database Server? Why?
- How much time was spent between the presentation and application layer?
- How much time was spent between the application layer and the database layer?
- What is the status of the concurrent managers?

Managing the Performance of Oracle Application Environments

A solution that answers these questions enables IT Management to leverage their most valuable resource—their people—to solve performance problems and minimize the impact performance problems have on business performance. Performance management solutions should enable IT to immediately recognize the location of a performance problem in order to deploy the appropriate subject matter expert fast. The right solution would then provide the means for the expert to quickly focus on the problem, isolate the root cause, and correct the situation.

Instead, they focus on specific infrastructure components — none of which matter to either end-users or management. All that matters to end-users is application response time. Likewise, with management — they simply want to know if end-users can do their jobs, if customers are happy with the online experience, if the right parts are being ordered and delivered on time, and so on. To align themselves with end-users and management, the IT organization must adopt a similar view.

Brainstorming or “Blamestorming”?

A recent TV commercial shows people sitting around a conference table on a Sunday afternoon. A systems failure has just shut down the company’s online business. But rather than get to the root cause, people point fingers — at the IT manager, the network provider, the server manufacturer, the software supplier, and so on — each of whom is responsible for a different technology “stovepipe.” What’s missing here is an end-to-end view of the business across “stovepipes” to see how each component’s performance affects everything else. Such a view might have exposed issues before they became failures, and allowed for preemptive action — and a much more pleasant Sunday.

The Precise methodology

Precise for Oracle Applications leverages a step-by-step methodology that enables IT staff to eliminate performance degradation before service is impacted. Once in place, the methodology delivers a more consistent and higher quality experience to users. It simplifies the complex task of finding and fixing performance degradation by tracking key performance indicators specific to the Oracle Applications environment. These unique, high quality metrics are then used to fine-tune the application resulting in faster transactions and response times. The impact is an infrastructure that runs at peak efficiency and an IT staff who focus on implementing Oracle Applications functionality rather than sustaining an inadequately configured infrastructure.

The Precise solution helps:

1. identify the symptoms that could indicate a performance problem
2. determine the problematic tier and application component
3. drill down into the root cause of the problem
4. determine the steps required to improve performance
5. and make sure the steps taken have achieved the desired goal

These combine to form a process that provides a systematic approach to finding and resolving all kinds of performance issues, both predictable and unforeseen.

Precise for Oracle Applications

Precise for Oracle Applications focuses on providing your organization with the ability to measure and monitor your application performance end-to-end from the browser through the database right into the physical storage media.

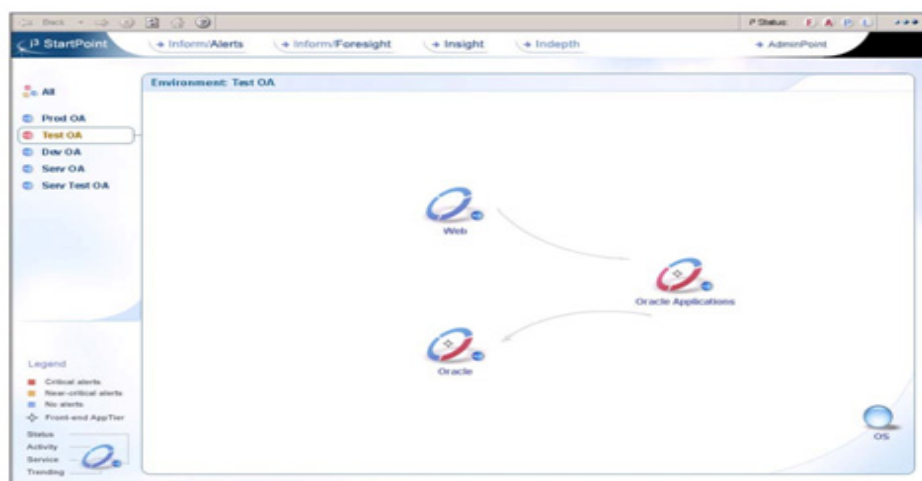
Precise for Oracle Applications provides an integrated application performance management solution that is focused on identifying the service level experienced by the user and identifying the end-to-end path contributions.

View performance management end-to-end

Precise for Oracle Applications makes it very easy to look across your entire application and quickly identify performance bottlenecks. Precise for Oracle Applications provides a visual representation of the performance of each of your Oracle Application tiers. This empowers organizations, such as operations, to quickly identify performance hot spots by tier.

While this information lives in a common interface, the appropriate security and role-based user access controls have been put in place to make sure that people see only the information they are entitled to see. For example, a user from the operational support group may need to be able to drill into a specific component tier to isolate a problem, while a user from production group need only be given enough access to identify that a problem has occurred.

In this example, the application is composed of Web server, Oracle Application server and Oracle Database server tiers.



Precise UI showing an Oracle Applications environment

Detect problems using real-time alerts

Customers have the flexibility to establish performance management thresholds on key metrics in each application tier. When thresholds are exceeded, an alert is generated to ensure production and operations groups react quickly. Response time alerting by Oracle Applications Form, User, Report and Application make this the most comprehensive and Oracle Applications specific performance solution available. Precise for Oracle Applications provides the ability to automatically establish performance baselines, thereby eliminating the need to set performance threshold metrics for all the different application tiers and their components.

Proactive Problem Detection

With Precise for Oracle Applications, application performance issues can be detected and corrected before they become a problem. Extensive reporting features make it easy to proactively tune the performance of your Oracle Applications Forms and Reports. IT organizations can run a set of standard or custom reports to isolate potential problems on any of the application tiers. These reports also provide a way to keep management and customers informed about application performance.

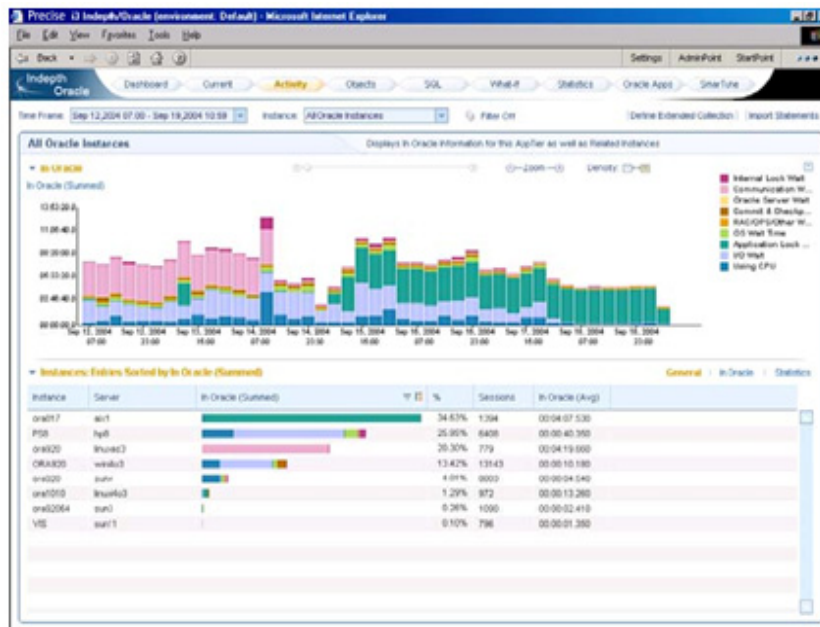
Isolate performance problems by tier

Once an application performance problem is detected, Precise for Oracle Applications allows the performance team to drill into a view of performance across all tiers. This holistic view allows staff to begin investigating the problem by viewing key components and indicators, eliminating tiers and components that are not the problem. Drilling-Down into the Oracle Application tier, Precise provides details about the actual Oracle Forms, Users, Applications, and Servers, including how much of the form's service time is contributed by the Oracle's Form Server.

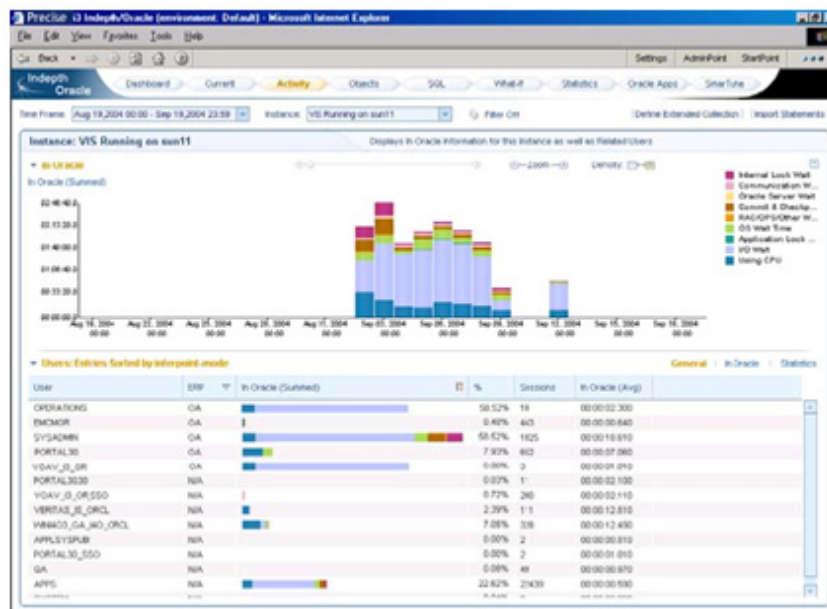
Drill-down into the J2EE tier

Precise for Oracle Applications also provides detailed information about the Oracle servlets that are running in the JVM. Details about the top consuming Java objects (EJB's, Servlets, JSP's) and method-call level time contributions are easy to attribute back to individual transactions to allow IT to assess the scope and impact of slow J2EE performance.

Managing the Performance of Oracle Application Environments



Precise provides a high-level view of your application and database performance.



Precise allows IT administrators to easily see which users are impacted

Benefits of Precise for Oracle Applications

The need to adopt a proven Application Performance Management solution has evolved from "nice to have" to an "organizational imperative". IT organizations fully recognize the need for network management and system management solutions. Today, given the complexity of Oracle, organizations must adopt a sustainable and supportable approach to application performance management. To be effective, application performance management must be viewed from an end-to-end perspective. The combination of Precise for Oracle Applications coupled with the Precise methodology of managing application performance provides a complete solution. Precise makes it easy for IT organizations to effectively manage and monitor the performance of their applications as a natural extension to their standard operational practices. With Precise for Oracle Applications, IT organizations receive the following benefits:

- A clear understanding of actual application service levels as seen by all users at their desktops
- Holistic, correlated application performance metrics to eliminate "blame-storming" sessions
- Production safe software to provide a performance solution without becoming part of the problem
- Clear understanding of how application performance is affecting business revenue
- Corrective recommendations with supporting data to resolve slowdowns fast
- Reduction in total cost of ownership of your Oracle Applications and hardware investments

Summary

Oracle's packaged applications represent a more challenging environment in which to conduct business. On one hand, business is more dependent than ever on enterprise applications for meeting customer expectations, achieving innovation, and creating competitive advantage. On the other hand, the IT infrastructure is inherently fractured with transactions taking place over multiple tiers, each of which can and perhaps ought to be customized in order to tune performance and differentiate the business. But what works for businesses using Oracle Applications may not work for the ERP vendor looking to sell applications across a mass market with standardized features and functionality. That leaves it up to IT organizations to somehow optimize performance after implementation. To do that, they must align themselves with the business, empower the end-user, and show support for management's objectives. That is no easy task, especially given the technical challenges present. What IT can do is employ solutions that provide a comprehensive end-to-end view of the enterprise — solutions that are easy to use, allow rapid assimilation of historical trends, and can pinpoint performance issues at any level even before problems occur.

Precise for Oracle Applications addresses these challenges and actually simplifies the development and deployment of high performance Oracle packaged applications. Using Precise for Oracle Applications helps companies manage the service level, contain the costs, maximize the efficiency of the operational investment and improve the service levels experienced by the end users.

Precise for Oracle Applications is the industry's first software offering that provides a way to quickly, efficiently and unobtrusively capture the hard to get browser-to-SQL application metrics and present these in a manner that enables crisp communication, rapid proactive or reactive detection, correction and verification through-out the application life cycle.

Precise for Oracle Applications, sets a new milestone in packaged Application management.

Performance Management by delivering a comprehensive integrated software solution that addresses the major service level challenges associated with the timely delivery of quality Web application services that the IT organization needs. This solution:

- Focuses on the application end-user response time
- Provides a view of the actual service levels as seen by all users at their desktop
- Identifies the application end-to-end path
- Presents end-to-end response time contributions
- Isolates the hotspots from the browser to the SQL and the database
- Identifies root cause from the Oracle User, Form, Program, or Request to the underlying poorly performing SQL or systems configuration
- Provides corrective action recommendations with supporting data
- Detects and diagnoses the impact application slowdowns have on service level agreements
- Operates in a production environment with minimal overhead

Managing the Performance of Oracle Application Environments

- Fits all phases of the application lifecycle (Development, QA, Stress Testing, Staging and Production)
- Meets the detection, reporting, isolation and diagnostic needs of all organizations involved
- Has a consistent way of presenting the service level information
- Interfaces with and complements the existing infrastructure frameworks
- Provides baselines and reports trends
- Provides real-time deviation and trend-based alerts

About Precise Software Solutions

Commitment, Focus, Experience

For over 15 years Precise Software Solutions has helped our Global 2000 customers manage business performance in complex, heterogeneous environments, assuring availability and business continuity. Precise offers a complete solution – from discovery through ongoing management – that allows our customers to focus on their core business. We offer the broadest platform support, in terms of enterprise application, operating system, database, and development environment coverage. Precise is the solution of choice for IT as an organization-wide standard for application management.

Visit our Web site

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