

SOLARWINDS DATABASE PERFORMANCE ANALYZER (DPA) OR ORACLE ENTERPRISE MANAGER? THE DBA SAYS THE ANSWER IS BOTH!

Did you know that 90% of SolarWinds® Database Performance Analyzer (DPA) for Oracle® customers use both Oracle Enterprise Manager (OEM) and DPA to solve performance issues? This is not surprising. The combination of OEM and DPA provides the kind of help DBAs need to better understand database performance issues and save time, money, and frustration.

Here are three key reasons why you should consider using DPA alongside OEM to improve performance:

- Pinpoint quickly and directly the root source of the problem.
- Obtain both current and historical performance metrics with less than 1% load on production database instances.
- Get access to proactive alerting, historical charts, resource baselines, and trending reports that managers and developers can understand.

Comparing apples and oranges

There are some very distinct differences between OEM and DPA. OEM was created to help manage the Oracle database environment. According to Oracle's own documentation, "Enterprise Manager is a system management software that delivers centralized monitoring, administration, and life cycle management functionality for the complete Oracle IT infrastructure, including systems running Oracle and non-Oracle technologies."

In contrast, DPA is a tool that is focused on database performance monitoring that uses wait-time analysis. DPA is a comprehensive database performance analysis and monitoring solution for DBAs, IT managers, and application developers. DPA identifies performance bottlenecks, improves application service, and reduces the overall cost of Oracle database operations.

Because DPA is dedicated to solving performance issues, it fills a niche that OEM does not. If a DBA is looking for the root cause of a performance issue, they can use DPA to identify the root cause in just a few clicks.

Can't we all just get along?

DPA is a great collaboration tool. DPA is completely agent-less and puts less than 1% load on the databases being monitored and their hosts. DPA has its own central repository, so developers, managers, and even end-users can easily access it without touching the monitored database. This enables DBAs and developers to fight problems, not each other. DPA's Web-based interface is easy to read and easy to use, so everyone can see the same information from the database, which helps break down communication silos between departments, management, and worker bees. This is especially useful when technical issues need to be articulated to management. With DPA's graphing capabilities, even non-technical people can better understand the impact of performance-related issues.

Standard Edition? No tuning and diagnostics packs, no problem.

DPA also fills a void when a company has a combination of Oracle Enterprise Edition (EE) and Standard Edition (SE). You get OEM with both versions; however the tuning and diagnostics packs are not available with the SE version. Using DPA with Oracle SE can be a lifesaver because DPA doesn't require the tuning pack tables, so the monitoring will be the same for EE as it is for SE. DPA allows you to follow alarms to see problem queries, server resources, trends, and sessions.

A comparison of common performance-oriented tasks in DPA and OEM

Which DBA performance tasks are better suited to OEM and which to DPA? This table compares the two options.

| Performance task | DPA | OEM |
|--|---|--|
| Performance analysis based on wait events with historical trend analysis by SQL, waits, programs, machines, DB users, O/S users, files, plans, objects, modules, and actions | ✓ DPA keeps every-second data for 30 days and daily historical data for five years by default. Historical trending charts are automatically displayed and easy to read. Plus, DPA is multi-dimensional: a cube in which the data (i.e., SQL, waits, programs, etc.) can be viewed in many different ways. | ✗ The data is kept in the OEM repository. However, the default is only seven days. The trend data is also not automatic in OEM. You have to build your own reports or screens if you want to see trending. |
| Monitoring system resources | ✓ | ✓ |
| Recent wait event data detail | ✓ | ✓ |
| Patching | ✗ DPA is a performance-monitoring tool and does not compete with OEM's management console. | ✓ |
| One dashboard/point of entry for multiple DB platforms out of the box | ✓ | ✗ OEM uses separate plug-ins to monitor non-Oracle database monitoring. Also, OEM has agents that add extra load and management considerations. |
| Single dashboard provides performance health check for all monitored databases | ✓ | ✗ OEM is primarily built to monitor Oracle databases. Other databases are limited to health and status (no performance or diagnostic data). |
| User wait time by actual execution plan | ✓ | ✗ |
| User wait time by table and index | ✓ | ✗ |
| Filter wait time by end-user, program, and server | ✓ | ✗ |
| Agent-less architecture. Less than 1% load on monitored server | ✓ | ✗ OEM requires an agent and resides in the same database that it's monitoring. |
| Use of ASH/AWR tables | ✓ DPA doesn't rely on Oracle's proprietary tables, which saves on costs. | ✗ |
| Requires tuning/diagnostic packs | ✓ DPA replaces the database performance, optimization, and availability tools from Enterprise Edition with an even greater depth of response time and historical trend analysis. | ✗ Requires tuning/diagnostic packs. |
| Performance diagnostics for SE | ✓ | ✗ |
| Follow alarms to see problem by hyperlink in alarm email | ✓ With DPA, follow alarms to see problem using hyperlink in alarm email. | ✗ |
| Monitor Data Guard health and log shipping statistics | ✓ DPA monitors Data Guard standbys and read-only. It can also alert on log shipping slowdowns. | ✓ |

| Performance task | DPA | OEM |
|---|------------------------------------|---|
| Break CPU time into actionable info at each statement or dimension level | ✓ | ✗ It's difficult to get this information out of OEM because you just get a high-level view. This is not the case if you run an ash report, but that's not dimensional at all. |
| Assign names to SQL statements for management reporting | ✓ | ✗ |
| RAT (Real Application Testing) analysis | ✗ DPA focuses on performance only. | ✓ |
| Graphs for high-level analysis make it easy for non-DBAs to understand analysis | ✓ | ✗ |
| Measure user wait time, not just wait events | ✓ | ✗ |
| Point-in-time analysis | ✓ | ✓ |
| Analyze typical daily distribution of performance bottlenecks | ✓ | ✗ |
| BI analysis to identify trends, correlations, and anomalies | ✓ | ✗ |

How do DPA and OEM really work together?

Below are three scenarios that help illustrate how DPA complements OEM.

Scenario 1

- A user receives an alert from DPA. The alert states that the table space is 97% full for a particular database.
- The user logs into OEM and adds a data file to a table space to get the percent full to go under 75%.

Scenario 2

- A DBA receives an alert from OEM. The alert states that the I/O is running very high.
- DBA logs into OEM and confirms the I/O is high. The performance tab shows that there are several SQL statements running, but the user can't pinpoint exactly where the problem is.
- DBA opens DPA and sees there is one query that is causing 90% of the wait. After drilling into the SQL statement, it is found that this is the new code that was put in the previous night, and it is returning 10 times the amount of data due to a mistake in the code migration.
- DBA notifies the developer and the code is reverted, which fixes the problem.

Scenario 3

- Every Monday morning a DBA gets emailed a DPA report that lists the top 15 SQL statements across all databases running for the previous week. This morning there is a spike in wait time on the report for a particular database from Saturday.
- The user goes into DPA to find out more about what caused the spike and drills into the Saturday incident. The user sees that, because it's the end of the month, the accounting department had been working over the weekend and ran a customized report that caused the spike.
- The user emails the graph that points this spike out with the SQL associated with it to management for the daily OPS meeting to explain what caused the performance incident. Since DPA is easy to read, it is easy to share this information among several groups.

Better together: DPA and OEM

Some Oracle OEM users might assume they would use either tool but not both. However, most Oracle DBAs who also use DPA use OEM for database management (resource usage monitoring, user management, storage management, etc.) and DPA for end-user performance analysis, monitoring, and problem resolution. This cuts back on the time-consuming tasks a DBA has to perform, so they are faster and more efficient, which saves the company money. All DBAs are being asked to take on more tasks and manage more databases in their organization, and DPA is a critical tool in any DBA's toolbox. Also, as DBAs take on more tasks, they don't have time to proactively tune their databases. With DPA, they can offload some of the performance tuning to the developers and establish good performance tuning practices earlier in the development life cycle.

About SolarWinds

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