

Tech Notes

Using Database Monitoring Tools to Measure, Manage, and Prove SLA Compliance

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Proving that departments within your company are getting what they paid for.

Justifying the cost of a new database server.

Maintaining the good reputation of your valuable IT team.

If any of the above statements sound familiar, your company is probably using Service Level Agreements (SLAs) to track IT costs. Ensuring high availability and peak performance for enterprise systems is not quite enough these days. IT departments are being called upon to report on that performance and to prove they are meeting SLA requirements.

SLAs transform IT departments from being reactive to being proactive, where they have clear performance objectives and measurements. This paper discusses the production DBA's role in meeting those objectives and describes how Embarcadero® Performance Center™, a best-of-class database monitoring tool, fits into the picture.

With real-time and historical database monitoring, the production DBA can help provide context and insight into the customer's experience and bottom-line results. With the right tools, the production DBA can be a proactive part of IT's successes.

Database monitoring is an important part of keeping enterprise systems up and running according to expectations. As a result of effective database monitoring, production DBAs can make strategic decisions based on meaningful, real-time information and can prioritize their response to changes in the environment based on impact to business, users, and SLA compliance.

Embarcadero Performance Center ensures the production DBA has the right information to help meet SLA requirements and prove it. Performance Center includes the following features:

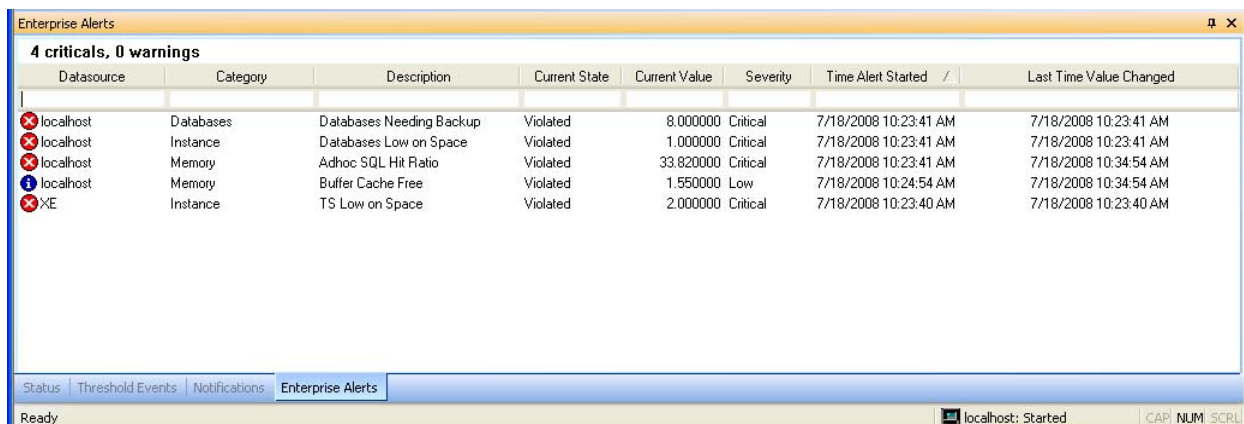
- Real-time alert reports that allow DBAs to view the health of each database in the enterprise.
- Ability to create custom statistics that incorporate the thresholds of specific SLA requirements.
- Flexible trending reports that help write future SLAs.
- Accurate historical reports of database downtime.

FIRST THINGS FIRST: PREVENTION

Reacting quickly to user complaints is a key ingredient of most SLAs. Recognizing when one of these complaints is a database problem is the key role of the production DBA.

Real-time monitoring helps the production DBA stay on top of the issues that dictate how he spends his day. Conditions like low disk space or unanticipated queries that hog memory are issues that need to be addressed sooner rather than later. Configuring threshold alerts that are above what the SLA requires is an old trick that helps the production DBA be more proactive. But when multi-tasking is commonplace, it is important for the production DBA to be able to sort through alerts quickly and prioritize his time accordingly.

Performance Center Enterprise Alert Views allow you to view and manage alerts for the entire enterprise from one easy-to-read interface. By using Performance Center to consolidate alerts into an enterprise-wide view, a production DBA can be on the case of performance issues before they get out of control—or worse, cause downtime.



The screenshot shows the 'Enterprise Alerts' window with a summary of 4 critical alerts and 0 warnings. Below the summary is a table with columns: Datasource, Category, Description, Current State, Current Value, Severity, Time Alert Started, and Last Time Value Changed. The table lists five alerts, all with a 'Violated' state and a start time of 7/18/2008 10:23:41 AM.

Datasource	Category	Description	Current State	Current Value	Severity	Time Alert Started	Last Time Value Changed
localhost	Databases	Databases Needing Backup	Violated	8.000000	Critical	7/18/2008 10:23:41 AM	7/18/2008 10:23:41 AM
localhost	Instance	Databases Low on Space	Violated	1.000000	Critical	7/18/2008 10:23:41 AM	7/18/2008 10:23:41 AM
localhost	Memory	Adhoc SQL Hit Ratio	Violated	33.820000	Critical	7/18/2008 10:23:41 AM	7/18/2008 10:34:54 AM
localhost	Memory	Buffer Cache Free	Violated	1.550000	Low	7/18/2008 10:24:54 AM	7/18/2008 10:34:54 AM
XE	Instance	TS Low on Space	Violated	2.000000	Critical	7/18/2008 10:23:40 AM	7/18/2008 10:23:40 AM

Performance Center agent-less install and web-based client allow the production DBA to do real-time monitoring from anywhere that has access. Alerts that come in via a pager, cell phone, or email, can all be viewed via the Performance Center web-client as well.

TRACKING PERFORMANCE PROGRESS

Keeping track of past alerts helps the production DBA recognize “repeat offender” issues and track whether or not any database tuning has helped the problem or made it worse.

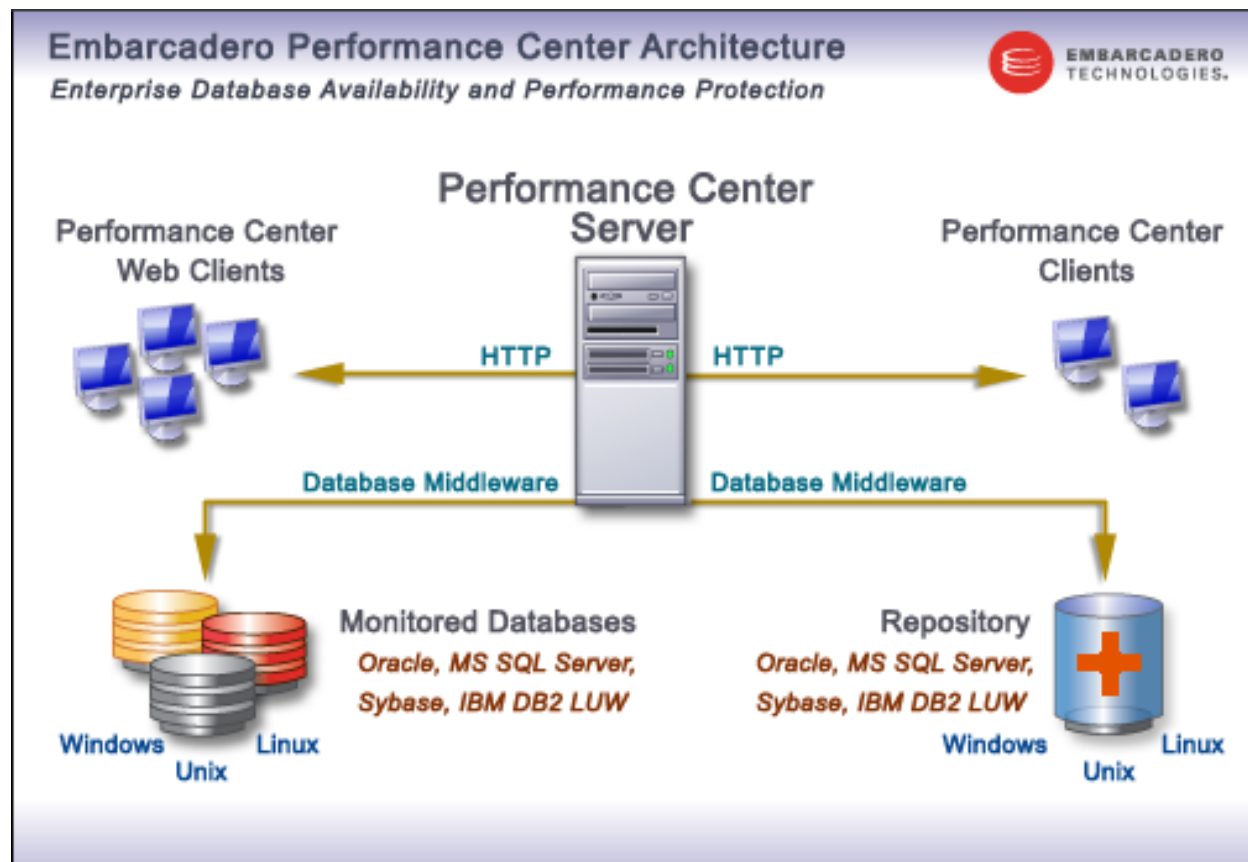
Getting a summary view of past alerts helps production DBA compare historical information. The production DBA can now answer questions like “did this weekend’s fix help SQL performance on the ERP server?” or “did I add enough disk space to the sales database to account for the end-of-quarter activity?” Answering business questions like this is a great way for the production DBA to participate in the SLA process.

Performance Center provides a fast and easy way to get at alert summaries through a quick interface with flexible reports. With Alert Summary Reports, the production DBA can generate a report containing any/all alerts for a selected database. Reports can be within a specific date range, include a specific database, or both.

DON'T LET MONITORING GET IN THE WAY OF THE SLA

Monitoring your databases to ensure SLA compliance should not interfere with actually complying with the SLA. Needing help from a system administrator to install monitoring agents for each database and spending time managing the agent infrastructure can affect productivity and reduce the amount of time that a production DBA has to respond to performance problems. On top of that, agent software can sometimes impact database performance up to five percent.

Performance Center monitors from a single, independent server and its web-based interface is easy to use (see the diagram below). Pre-configured templates make it easy to install and begin monitoring databases “out of the box.”



In short, the agent-less paradigm of Performance Center puts the power of performance monitoring into the production DBAs hands.

WHAT GETS MEASURED GETS MANAGED

Understanding the different nuances of each database application in your enterprise allows the production DBA to tailor performance monitoring to the statistics that matter most. Not all databases can or should be measured by the same statistics. But, as the saying goes, "What gets measured gets managed."

Not only does each database vendor have specific statistics, but each enterprise application you support may have different SLA requirements. Consider departments within your support purview that have smaller budgets. This can translate to having to provide different levels of service for an older version of a database or perhaps a slower server.

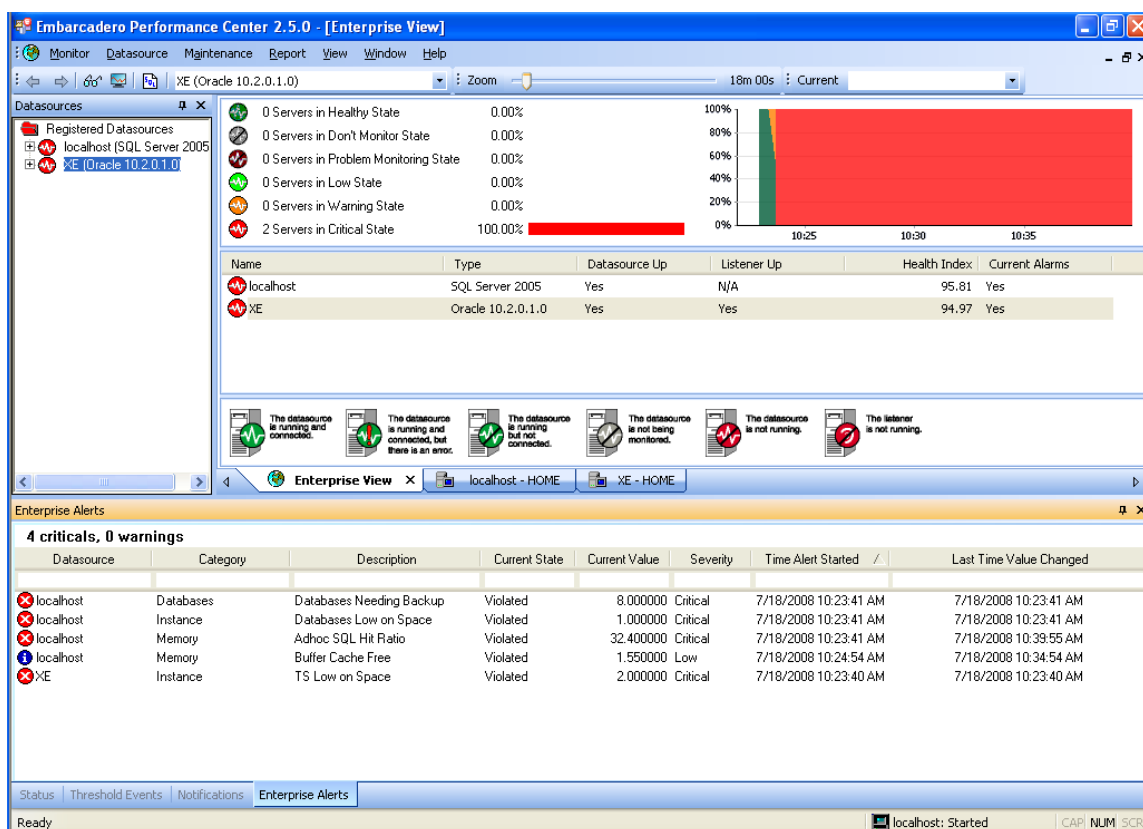
Customizing how each database within your enterprise is monitored is an important way to ensure that SLA requirements are met. Production DBAs need to be able to focus on the statistics that matter most and act on issues that impact SLA requirements.

The Embarcadero Health Index is a single indicator that communicates the overall performance level of each monitored database and allows for fast diagnosis of database problems across your entire enterprise. Production DBAs save time by being able to customizing health indexes according to the statistics relevant to a specific application and a specific SLA.

By sampling critical statistics in the areas of memory, I/O, contention, space, network, objects, users, and SQL, Performance Center is able to quickly ascertain a database's complete performance picture. The result is a single statistic that can be used to determine how well each database is performing. Each Health Index for a database can be customized so that individualized thresholds and measurements that apply to each unique database scenario can easily be established.

Performance Center's out-of-the-box Health Index templates include weighted categories that you can customize according to the parameters you need. All monitored statistics can be factored into a Health Index.

For example, when creating a Health Index for a Sybase database that you know is being installed on a server with limited disk space, you can weight the "Databases Low on Space" statistic as the highest percentage of your index.



As shown above, Performance Center provides a single view of each configured Health Index for the enterprise. It allows you to observe IBM® DB2® LUW, Microsoft® SQL Server, Oracle®, and Sybase® databases in a single view and drill down into any detail of a database's performance to determine root cause of each problem.

AVAILABILITY AND PERFORMANCE: MAKING YOUR CASE WITH HISTORICAL REPORTING

Gathering meaningful metrics to support SLA costs is an important part of being a good business partner within your company. As part of SLA compliance, a production DBA should be able to provide reports on two of the most common aspects of an enterprise system: availability and performance.

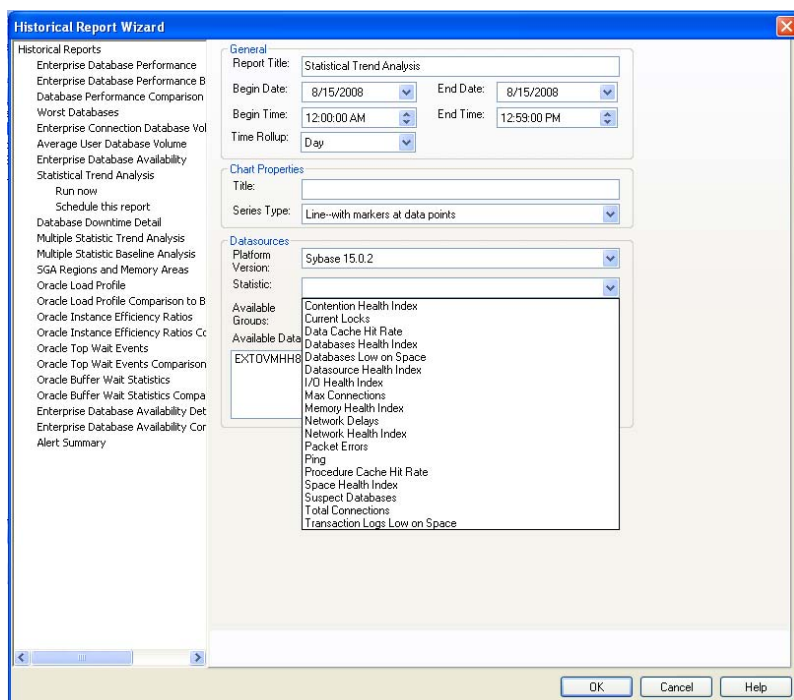
Performance Center offers detailed performance reports that are highly customizable for different audiences including CIOs, IT managers, and business unit managers who assess SLA and performance requirements.

SHOWING DATABASE TRENDS

Reporting on database performance trends helps the production DBA stay ahead of the capacity planning game. By being able to show decision makers the impact of hardware or software purchases, the production DBA can play an important role in ensuring that the IT team has the resources they need.

Proactively ensuring that database servers have enough space and power to keep enterprise systems running smoothly is made a lot easier with Performance Center: ensuring the production DBA has time to play an important role in ensuring that the IT team can continue to support the SLAs that they are committed to.

Performance Center allows you to customize trending reports according to the statistics that are most important. A report that shows the trending for a specific database when it comes to disk space can be generated in minutes (see the below screenshot).



TRACKING DATABASE DOWNTIME

Most SLAs have a zero-tolerance policy of database downtime, or when they do allow it, they allow it only for maintenance. Proving the production DBA responded quickly to problems that could have caused longer downtimes is an effective part of dealing with SLA requirements.

Sharing this information with both internal and external clients is made easier with Performance Center. Performance Center ships with a selection of customizable reports that detail the global performance of all databases in an easy-to-understand format for CIOs, database managers, as well as DBAs. A “Database Downtime Detail” report identifies which databases experienced downtime, when, and for how long. Flexible, concise reporting ensures that everyone responsible for critical application availability and performance stays current and informed.

SUMMARY

Service level agreements put IT departments in control of expectations, requirements, and performance objectives. Because monitoring database availability and performance is so important to nearly every enterprise application, the production DBA needs to make sure he has the right tools for the job.

Being able to monitor databases effectively means that the production DBA is able to take a proactive role in complying with an SLA. Setting custom alerts, configuring unique database “Health Indexes”, and using accurate, easy-to-read report all play parts in ensuring that SLA requirements are met. With Performance Center, the production DBA is able to quickly ascertain a database’s complete performance picture and drill down into the issue at hand.



Embarcadero Technologies, Inc. is a leading provider of award-winning tools for application developers and database professionals so they can design systems right, build them faster and run them better, regardless of their platform or programming language. Ninety of the Fortune 100 and an active community of more than three million users worldwide rely on Embarcadero products to increase productivity, reduce costs, simplify change management and compliance and accelerate innovation. The company's flagship tools include: Embarcadero® Change Manager™, CodeGear™ RAD Studio, DBArtisan®, Delphi®, ER/Studio®, JBuilder® and Rapid SQL®. Founded in 1993, Embarcadero is headquartered in San Francisco, with offices located around the world. Embarcadero is online at www.embarcadero.com.