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Optimizing Service Levels Through Database Monitoring

An Introduction to CA Unified Infrastructure Management

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Executive Summary

CA Unified Infrastructure Management (CA UIM, formerly CA Nimsoft Monitor) tracks a wide array of availability and performance metrics for database servers. Additionally, the solution monitors SQL query response times and transaction rates. The solution supports multiple database platforms, including Oracle, Microsoft SQL Server, IBM Informix and IBM DB2. All database status data is analyzed for real-time alert generation, archived for performance reporting, and leveraged for SLA creation, monitoring and reporting.

CA UIM for Databases

While it is of utmost importance to monitor the database for high availability and peak performance, it is also critical to monitor the database in the context of the business service it supports.

CA UIM provides database monitoring from a server perspective (monitoring database server integrity), and from the end-user's perspective (monitoring response times for defined SQL queries). The end goal of the solution is to ensure the database is always available and running at peak performance so it does not compromise business productivity and end-user satisfaction.

Primary Features	Additional Features
▪ Real-time, 7x24 database health check monitoring ▪ Database availability, performance and SLA compliance monitoring ▪ Web-based status dashboards for CIOs, database managers and DBAs ▪ Historical archive for performance and SLA reporting ▪ Support for a range of database platforms, including Oracle, Microsoft SQL Server, IBM Informix and IBM DB2	▪ Database cluster monitoring ▪ Monitors database event logs ▪ Monitors active users ▪ Centralized and remote monitoring capabilities ▪ Database resource utilization monitoring and reporting ▪ Broad alert notification options—SMS, cell, pager and email ▪ "Profile-based" monitoring definition—unique monitoring defined per database ▪ Real-time alerting and reporting for dozens of key database performance indicators ▪ Reads and analyzes database table entries for alert generation and trend reporting

Service-Centric Database Monitoring for Tracking End-User Experience

To gain an end-user's perspective of database performance, CA UIM can submit a single or multi-line SQL query from any source system to any remote database server. The product will break down SQL query response times by network connect time and by each of the SQL query phases that occur on the target database, such as connect time, prepare time, record set time and fetch time. The individual and total response time metrics are monitored for proactive alert generation, and archived for long-term trend analysis, problem diagnosis and SLA compliance reporting.

Real-Time Database Dashboards

CA UIM offers comprehensive dashboard views for all database platforms. Figure A offers an example of a dashboard for an Oracle database. Similar views are available for Sybase, Microsoft SQL Server, IBM Informix and IBM DB2.

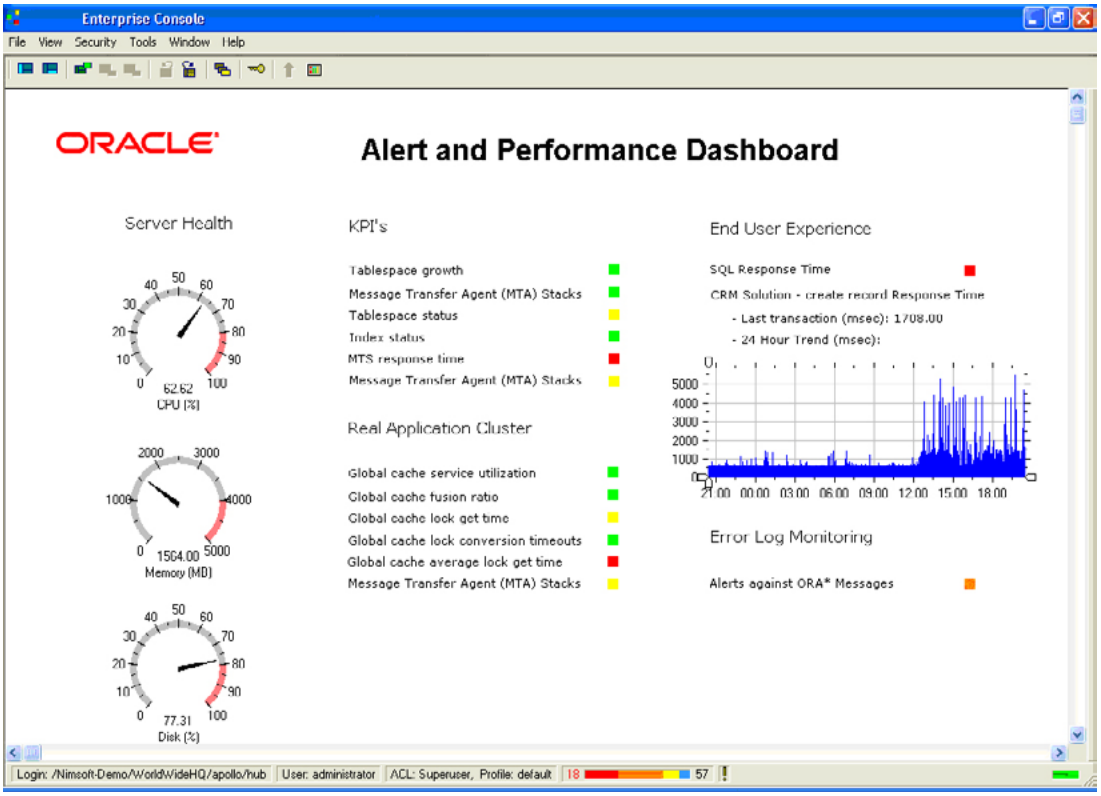

Figure A.

CA UIM offers dashboards that provide at-a-glance views of database status for a range of databases, including Oracle (shown), Microsoft SQL Server, IBM Informix and IBM DB2.

SQL Query Data Monitoring

In addition to response time monitoring, CA UIM can monitor database data values and the number of rows returned from defined SQL queries. This functionality is ideal for proactively monitoring critical data metrics contained in any IT and business database, including inventory quantity, orders shipped, service desk calls and so on. Early warning alerts can be generated when defined thresholds are violated. Additionally, database data values can be archived in the CA UIM database for long-term trend analysis and SLA compliance reporting.

Server-Centric Monitoring for Tracking Database Integrity

CA UIM includes a set of specialized and platform-specific database probes. These probes can be deployed remotely or on the servers being monitored. These specialized probes can capture an array of database metrics, helping DBAs and database managers gain timely awareness of system status. As with the service-centric monitoring approach discussed above, the poll values for each database metric will be analyzed for alert generation and can also be automatically forwarded to the CA UIM historical archive. Once the data is saved to the archive, availability and performance trend reports can be generated. Reports are key to gaining insights into database server reliability, resource utilization and more.

Database Performance and Historical Trend Reporting

CA UIM provides historical performance reporting. With this functionality, administrators can get the visibility they need to spot trends that point to potential issues, and take steps to address them before service levels are affected. Trend reports also provide visibility into database resource consumption. This is key for proactive capacity planning. Database report examples include:

- Transaction rates—reports reveal database efficiency and possibly business productivity
- Database query response times—reports reveal database response time for read and write operations—degrading response times may indicate degrading end-user productivity
- Disk space utilization—reports reveal consumption trends for proactive capacity planning
- CPU utilization—reports reveal utilization trends, ideal for planning additional capacity or for load balancing
- Number of active users—if trends reveal the number of active users is increasing, you may consider purchasing additional user licenses to avoid license limitation issues

Monitoring Databases Against Service Level Agreements

CA UIM provides SLA creation, monitoring and reporting functions. This functionality makes it possible to map database performance metrics into an SLA that is based on database service level objectives (SLO). Achieving service level objectives is key to ensure the database is able to accommodate desired transaction rates and high volume database queries. The solution can continuously analyze database performance and perform calculations to determine if the database SLA is safely in compliance. CA UIM will also determine if an SLA breach is imminent if a problem condition is allowed to persist. The solution includes a color-coded SLA compliance/breach trend indicator. Alerts can be generated when the percentage of compliance decreases below a predefined threshold.

Conclusion

In the application economy, optimizing database performance and availability represents a critical endeavor. With CA UIM, organizations can centrally manage their servers, whether they're running Oracle, Microsoft SQL Server, IBM Informix or IBM DB2—or any combination thereof. Plus, CA UIM requires minimal effort for implementation and training, and will not require extensive ongoing maintenance.

For more information, visit **ca.com/UIM**.

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