

Teradata Active System Management

Keep Pace with Growing, Complex Workloads

Managing your company's production environment brings change and challenge as the data in your Teradata system become more critical to your business. So, it's becoming more important to ensure that



the right resources are available to meet your business goals. Maybe you need to have reports on the CEO's desk at 8 a.m., or to ensure that long-running complex reports don't adversely affect the response time of consumers querying the Teradata® Database from your web site. For these reasons, you must make sure your systems operate at peak efficiencies while meeting service level agreements across your enterprise. Then, there's the constant concern over workloads that continue to grow in volume and complexity – stretching your existing resources.

At Teradata Corporation, we're making it easier than ever to keep pace with your increasingly complex production workloads, especially those dealing with critical business intelligence, analytics, or tactical queries. How? With Teradata Active System Management.

Teradata Active System Management is a portfolio of Windows®-based products (See Figure 1.) designed to help you:

- > Analyze current workloads and recommend resource allocation categories to best meet your specific business needs.
- > Monitor database requests both before and during execution to ensure data warehouse resources are used efficiently.
- > Adapt the workload mix dynamically to meet your business priorities as workload conditions change.

- > Visualize the current operational environment using state-of-the-art techniques, allowing you to see current and long-term trends.

A Suite of Support

Figure 1 shows the suite of products that supports Teradata Active System Management.

Teradata Workload Analyzer

The Teradata Workload Analyzer (see Figure 2.) is the first step in organizing your workload management program. It collects system usage information from your Teradata Database logs and system tables, analyzes the historical use of the Teradata system, and displays the results in both report and graphical formats. With this information, the administrator can produce high-quality workload definitions that control the system resources. Workload definitions specify which queries and tasks fall into which workload category.

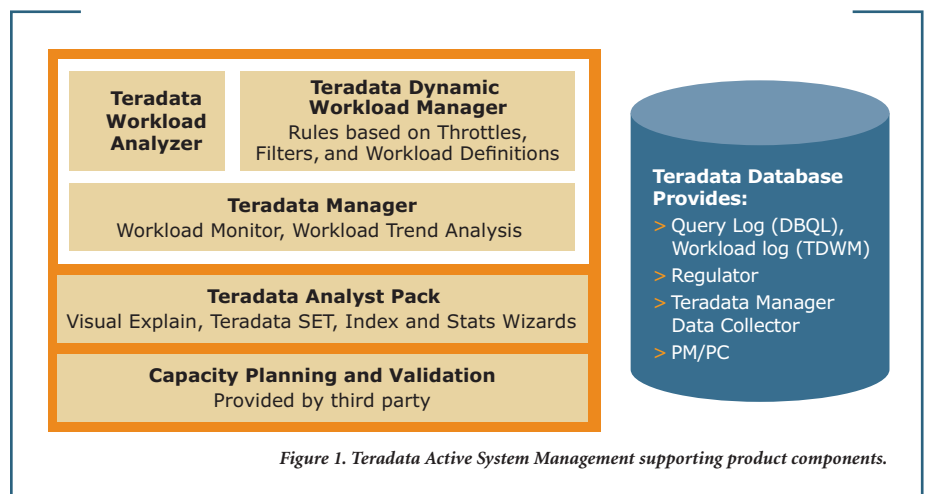


Figure 1. Teradata Active System Management supporting product components.

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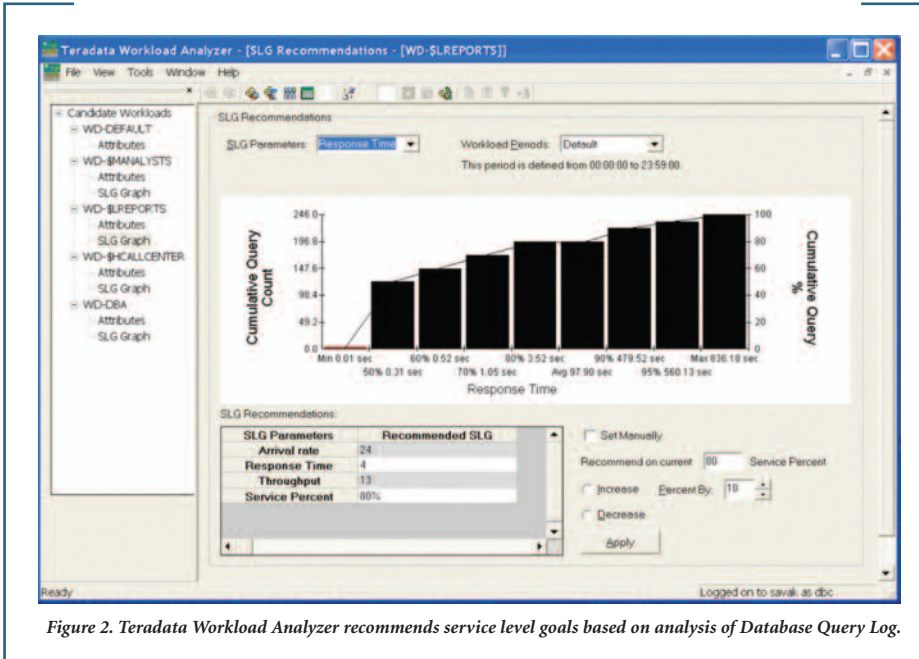


Figure 2. Teradata Workload Analyzer recommends service level goals based on analysis of Database Query Log.

Each workload category can specify priorities, limits on the amount of CPU time, disk I/O limits, and the number of concurrent tasks allowed within that category. Each workload category is assigned a priority to help achieve the highest system throughput while meeting service level goals.

Teradata Workload Analyzer helps database administrators (DBAs) fully understand the normal workloads, peak surges, and abnormal workloads on their system in multiple time periods so they can design the best workload priority definitions. Not only does this ensure higher throughput and satisfied business users, it also ensures you only have to purchase more server capacity when you really need it.

Teradata Dynamic Workload Manager

Teradata Dynamic Workload Manager (DWM) analyzes each database query before and during execution based on your data warehouse workload business rules. Teradata DWM uses thresholds – such as CPU time, I/O count, and response time – to monitor for exception conditions and adjust the priority of executing tasks dynamically. It then monitors and reports on exceptions so your DBAs and systems administrators can make better decisions and take the appropriate actions to meet their service level goals. If a threshold exception is detected, Teradata DWM will automatically execute the response you specified, which can be:

- > Allow the task or query to proceed.
- > Proceed and log the task or query for further analysis.

- > Proceed and alert the administrator or DBA via e-mail or pager.
- > Switch the task into another workload category with a lower priority.
- > Defer the task until previous work is completed.
- > Reject the request.

Teradata DWM is different than comparable solutions because of its ability to define workloads by table, application, users, time periods, processing time, type of statement (Select, Insert, and Join), answer set size, or type of utility (e.g., Teradata FastLoad). It also offers you the opportunity to monitor queries while they're running to ensure they comply with your business rules. Finally, Teradata DWM enables you to define exception handling for tasks that violate your business rules. Example rules include:

- > Allow only five concurrent requests from workload MKTG.
- > On the 15th and 30th of the month between 8:00 a.m. and 3:00 p.m., prevent full table scans in database C.
- > User_Todd can run no more than 10 queries at one time.
- > Between 9:00 a.m. and 4:00 p.m., account SALES cannot have > 4 simultaneous queries in the database.

Teradata DWM also provides for event-driven changes to the set of workload definitions and rules being used. An event can be a quarterly financial close, a hardware failure, or a simple change from daytime to nighttime processing priorities.

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All of the workload categories, priorities, and resource limits can be automatically switched over to an alternate set of priorities and rules defined by the DBA to respond to that triggering event. The DBA doesn't need to be on site or on call 24 hours per day, and the operations staff doesn't need to use complicated procedures to rebalance system priorities. This means your Teradata system can manage itself to achieve optimum throughput under varying conditions and business objectives. This is an innovative, industry first for data warehouse systems management.

Teradata Manager

Teradata Manager's performance monitoring applications collect, query, manipulate,

and display performance and usage data to allow you to quickly identify and resolve resource usage abnormalities detected in your Teradata Database. It also provides central alerting capabilities that database and systems administrators can use to monitor performance characteristics and faults on their Teradata Databases. The system can automatically page, email, or send a message to an SNMP system when predefined events occur.

Teradata Manager features have been expanded to provide you with a dashboard showing the real-time performance of your workloads at a glance (see Figure 3.). You can also drill down to examine the performance of individual workloads over time. This helps the database administra-

tor or systems administrator analyze whether the current workload settings are meeting performance goals, identify bottlenecks, and quickly correct them. Teradata Manager also contains workload analysis reports, a priority scheduler administrator, query analytics, application scheduling, and an alert facility for event management. That means you can view more information on a single screen, create deeper analyses of your information, and speed interaction with your data for faster resolutions.

Meeting SLAs with Peak Performance

Together, the products that make up Teradata Active System Management provide you with new and better ways to handle your increasingly complex production workloads and to prevent bottlenecks. They allow your administrators to set specific service level goals, monitor adherence to those goals, then take any necessary steps to reallocate your resources to meet your business objectives. What's more, they enable you to analyze workloads beforehand so you can anticipate bottlenecks and proactively eliminate them. Teradata's portfolio of system management products helps ensure your Teradata Database efficiently processes your most critical work and keeps your entire enterprise running at peak performance.

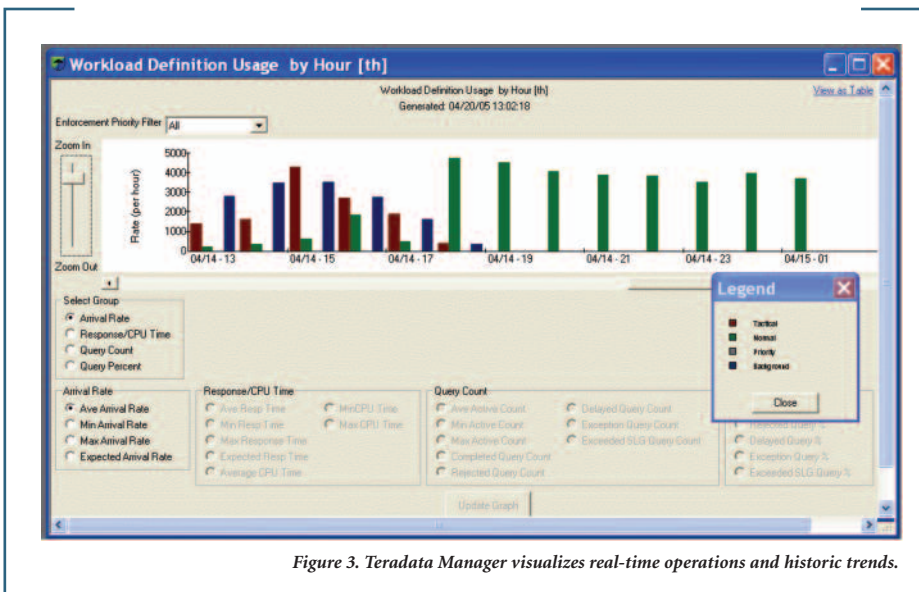


Figure 3. Teradata Manager visualizes real-time operations and historic trends.

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The Teradata Difference

Teradata, the global leader in enterprise data warehousing and analytic solutions, provides affordable, powerful, and easy-to-deploy solutions for companies of all sizes. Our customers receive the innovation, consulting services, technology, and industry-specific applications for a smarter enterprise to compete and lead in their markets.

Teradata brings a blend of technology and experience unavailable from any other source. We've been providing innovative, best-in-class business solutions and

technologies for some of the world's most successful data warehouses for 30 years. Our sole focus is on data warehousing. Organizations around the world rely on the power of Teradata's award-winning solutions and consultants to get a single, integrated view of their business to enhance decision making, customer relationships, and profitability.

Need More Reasons to Choose Teradata?

Teradata customers have deployed our priority scheduler since the mid-1990s to ensure high throughput and efficient system utilization. Building on that

priority scheduler foundation, Teradata Active System Management has been installed and maturing in hundreds of systems. Now, after many major releases, Teradata Active System Management is the most proven and mature dynamic workload manager in the data warehousing industry.

For More Information

To learn more about how the Teradata Active System Management portfolio can help you keep real-time information at your fingertips and build a stronger, more profitable business, contact your Teradata representative or visit Teradata.com.

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