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 analytical applications don’t adversely affect the response time of customers querying the Teradata Database from your web site. For these reasons, you must make sure your systems operate at peak efficiencies—and that those systems are readily available to the decision makers who need them, anywhere across your organization. Then, there’s the constant concern over workloads that continue to grow in volume and complexity; stretching your existing resources.

At Teradata, 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 designed to help you:

> Analyze current workloads and recommend resource allocations, or performance groups, to best meet your specific business needs.

> Monitor database requests both before and during execution to ensure your resources are used efficiently.

> Adapt the workload mix automatically to meet your most important 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 foundation of your workload management program. It collects usage information from your Teradata Database logs and system tables, performs various analyses on the information, and then displays those analyses in both report and graphical formats to help you produce better recommendations for workload definitions. Workload definitions provide a complete description of the workload's operating characteristics. They specify which queries fall into the...
workload, timing criteria, such as CPU time, row counts or arrival rates, resources assigned to the workload, thresholds that cause exceptions if they’re exceeded, and what to do if exceptions are detected. For example, the high priority PAYROLL workload involves access to the payroll database by authorized users and is limited to specific transactions. All those transactions must complete in 60 CPU seconds or fewer. If a transaction runs longer, transfer that transaction to a lower priority workload definition with fewer CPU cycles assigned so that shorter tactical queries are given priority in the system.

Teradata Workload Analyzer enables database administrators (DBAs) to accept or reject recommended workload definitions, as well as evaluate existing workload definitions and recommend possible changes to the classification criteria.

Teradata Dynamic Workload Manager
Teradata Dynamic Workload Manager (DWM) analyzes each database query before and during execution based on your data warehouse environment rules. Teradata DWM uses cost thresholds – such as CPU time, IO count, and response time – to monitor for exception conditions and adjust the priority of executing tasks that are in flight. 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. Teradata DWM’s dynamic evaluation capabilities efficiently manage workload submissions to your Teradata Database by noting exceptions to your business rules. If an exception is detected, Teradata DWM will automatically implement the exception action you specified, which can be:

- Allow the query to proceed.
- Proceed and log the query for further analysis.
- Proceed and alert the administrator or DBA via e-mail or pager.
- Switch the query to another workload with different resource allocations.
- Defer submission until previous work is completed.
- Resubmit query at a later time.

You can also migrate rules created under previous Teradata Database releases to Teradata DWM as part of the setup procedure. Teradata DWM lets you set up long-running, non-critical transactions to consume minimal resources during the day and use additional resources at night. It also lets you monitor and evaluate jobs as they are executed, then automatically makes changes so your system can more effectively support additional users. This active management approach ensures your most important work gets done at the most appropriate time, and your system resources are never overloaded – even while you’re asking critical and timely, high-value, complex questions.
Teradata Active System Management

Teradata DWM is different from comparable solutions by 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. It doesn't simply analyze those queries on the basis of gathered statistics or query plans. Finally, Teradata DWM enables you to define complex exception processing options, flagging queries that violate your business rules.

**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 administrator or system 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, running query analysis, application scheduling, and an alert facility for event management. That means you can view more information on a single page, create deeper analyses of your information, and speed interaction with your data for faster resolutions.

**Run at 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 react accordingly. They allow you to measure the impact of adding new applications to your enterprise so there are fewer surprises. 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 both real-time operations and historic trends.

*Teradata*  
*Raising Intelligence*
The Teradata Difference

Teradata has provided innovative, best-in-class business solutions and technologies to some of the world’s most successful data warehouses for 25 years. We’re also the most experienced source for ensuring that systems are available, accessible, and continuously maximizing data for business growth. Our team of business continuity experts is dedicated to eliminating planned and unplanned downtime, protecting system and data levels availability, and protecting you against component level and large-scale outages.

Teradata brings you the power to proactively manage your business. And Teradata solutions help provide analysis to expedite fast, accurate, and consistent decision making across your entire enterprise. We can help you integrate data from every corner of your organization. Teradata also brings you a built-in foundation of industry knowledge, consulting expertise, global customer support services, and world-leading hardware technology — a combination of strengths unmatched in the 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.