

ORACLE PARTITIONING

KEY FEATURES AND BENEFITS

ORACLE PARTITIONING

- Broadest and most comprehensive partitioning offering on the market
- Partitioning improves the Performance, Availability, and Manageability for a wide variety of applications
- Key enabler for Information Lifecycle Management inside the database: online 'tiered archiving' dramatically reduces the TCO
- Implementation without application changes

Oracle Partitioning, an option of Oracle Database 11g Enterprise Edition, enhances the manageability, performance, and availability of a wide variety of applications. Partitioning allows tables, indexes, and index-organized tables to be subdivided into smaller pieces, enabling these database objects to be managed and accessed at a finer level of granularity. Oracle provides a comprehensive range of partitioning schemes to address every business requirement. Moreover, since it is entirely transparent in SQL statements, partitioning can be applied to any application, from OLTP to Data Warehousing.

Benefits of Oracle Partitioning

Partitioning can provide tremendous benefits to a wide variety of applications by improving manageability, performance, and availability. In its 9th generation, Oracle Partitioning is proven key functionality for building multi-terabyte systems or systems with extremely high availability requirements.

For example, it is not unusual for partitioning to improve the performance of certain queries or maintenance operations by an order of magnitude. Moreover, partitioning can greatly reduce the total cost of ownership, using a "tiered archiving" approach of keeping older relevant information still online on low cost storage devices. Thus Oracle Partitioning enables an efficient and simple, yet very powerful approach to the Information Lifecycle Management for large environments.

Oracle Partitioning for Manageability

The Oracle Partitioning option allows tables and indexes to be partitioned into smaller, more manageable units, providing database administrators with the ability to pursue a "divide and conquer" approach to data management.

With partitioning, maintenance operations can be focused on particular portions of tables. For example, a database administrator could back up a single partition of a table, rather than backing up the entire table. For maintenance operations across an entire database object, it is possible to perform these operations on a per-partition basis, thus dividing the maintenance process into more manageable chunks.

A typical usage of partitioning for manageability is to support a 'rolling window' load process in a data warehouse. Suppose that a DBA loads new data into a table on weekly basis. The load process is then simply the addition of a new partition.

Adding a single partition is much more efficient than modifying the entire table, since the DBA does not need to modify any other partitions. The same is true for

purging data from a partitioned table. You simply drop a partition, a very cheap and quick data dictionary operation, rather than issuing a DELETE command, using lots of resources and touching all the data to be deleted.

Oracle Partitioning for Performance

When data volumes increase, a common concern is that system performance will degrade because of all the extra data that has to be examined. Oracle Partitioning eliminates this problem, by limiting the amount of data to be examined or operated on, thus significantly improving performance beyond what is possible with a nonpartitioned table. Oracle Partitioning option provides a number of performance benefits, including the following:

Partitioning Pruning: Partitioning pruning is the simplest and also the most substantial means to improve performance using partitioning. For example, suppose an application contains a Shipment table containing a historical record of shipments, and that this table has been partitioned by day. A query requesting shipments for a single day would only access a single partition of the Shipments table. If the Shipments table had 2 years of historical data, this query would access one partition instead of 730 partitions. This query could potentially execute appr. 700x faster simply because of partition-pruning. Partition pruning works with all of Oracle's other performance features. Oracle will utilize partition pruning in conjunction with any indexing technique, join technique, or parallel access method.

Partition-wise Joins: Partitioning can also improve the performance of multi table joins, by using a technique known as partition-wise join. Partition-wise joins can be applied with two tables are being joined together, and both of these tables are partitioned on the join key. Partition-wise joins break large joins into smaller joins that occur between each of the partitions, completing the overall join in less time. This offers significant performance benefits both for serial and parallel execution.

Oracle Partitioning for Availability

Partitioned database objects provide partition independence, which is an important part of a high-availability strategy. For example, if one partition in a table is unavailable, all of the other partitions of the table remain online and available; the application can continue to execute queries and transactions against this partitioned table, and these database operations will run successfully if they do not need to access the unavailable partition.

Moreover, partitioning can reduce scheduled downtime. The performance gains provided by partitioning may enable database administrators to complete maintenance operations on large database objects in relatively small batch windows.

Information Lifecycle Management with Oracle Partitioning

Today's challenge of storing vast quantities of data for the lowest possible cost can be optimally addressed using Oracle Partitioning. By understanding of how data is accessed, the independence of individual partitions is the key enabler for addressing the online portion of a "tiered archiving" strategy. Specifically in tables containing historical data, partitioning enables individual partitions (or groups of partitions) to

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RELATED PRODUCTS AND SERVICES

- Oracle Advanced Compression

be stored on different storage tiers, providing different physical attributes and price points. For example an Orders table containing 2 years worth of data could have only the most recent quarter being stored on an expensive high-end storage tier and keep the rest of the table (almost 90% of the data) on an inexpensive low cost storage tier. Through Oracle Partitioning, the storage costs are reduced by factors (cost savings of 50% or more are not uncommon), without impacting the end user access, thus optimizing the cost of ownership for the stored information.

Oracle Partitioning is for Everybody

Oracle Partitioning can greatly enhance the manageability, performance, and availability of almost any database application. Partitioning can be applied to cutting-edge applications and indeed partitioning can be a crucial technology ingredient to ensure these applications' success. However, partitioning can also be applied to more commonplace database applications in order to simplify the administration and costs of managing such applications.

Oracle Database 11g Release 2 is the next major milestone, ensuring that an optimal partitioning technique is available for every business requirement.

Contact Us

For more information about Oracle Partitioning, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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