



TABLE PARTITIONING: IMPROVED DATA AVAILABILITY AND MANAGEABILITY

Table Partitioning allows customer data to be better organized in storage, increasing the speed of data access and reducing total operational costs. Table Partitioning can greatly enhance the availability, manageability, and performance of almost any enterprise database. Since table partitioning is transparent to the application, it can be easily implemented for any kind of application because no costly and time-consuming application changes are required.

WHAT IT DOES

Table Partitioning enables tables to be subdivided into smaller pieces. Each piece of the database table is called a partition. A partition has its own name, and may optionally have its own storage characteristics. From the perspective of a database administrator, a partitioned table has multiple pieces that can be managed either collectively or individually. This gives the administrator considerable flexibility in managing a partition. However, from the perspective of the application, a partitioned table is identical to a non-partitioned table; no modifications are necessary when accessing a partitioned table. Logically, it is still only one table.

Table Partitioning offers three methods that control how the data is placed into partitions, namely:

Range. The data is distributed based on a range of values of the partitioning key.

- ▶ Grouped based on a range of data
- ▶ Business can archive and make historical data read-only
- ▶ Example: For a date column, the 'January-2013' partition contains rows with partitioning-key values between '01-JAN-2013' and '31-JAN-2013'

List. The data distribution is defined by a discrete list of values of the partitioning key.

- ▶ Grouped based on a field or group of fields
- ▶ Business can segment and report by region for efficiency
- ▶ Example: Reporting for a specific country only - for a region column as the partitioning key, the 'North America' partition may contain values 'Canada', 'USA', and 'Mexico'

HIGHLIGHTS:

- ▶ Tables split into multiple, self-contained locations
- ▶ Queries only access what they need
- ▶ Maintenance can be on a partition basis
- ▶ No application changes required
- ▶ In place migration

Sub-partitioning. Group based on a combination of the above choices [by Region by Date]

- ▶ Application can further isolate specific data access
- ▶ Example: Running a report for orders for 'Canada' for 'January-2013'

BENEFITS

Partitioning for Availability

Partitioned database tables provide partition independence. This characteristic of partition independence can be an important part of a continuous availability strategy. For example, if one partition requires maintenance, all of the other partitions of the table remain available. This also provides you with the ability to rebuild the indexes for multiple partitions at the same time. The availability of the database has increased due to the isolation of a partition.

Partitioning for Manageability

By partitioning tables into smaller, more manageable units, database administrators can use 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 create a historical data partition containing data with a date range of prior to 'January 2013'. Or the database administrator could rebuild the indexes for one partition while the rest of the partitions and the database are available for updates.

Partitioning for Performance

By limiting the amount of data to be examined or operated on, partitioning provides a number of performance benefits. Query pruning can now be isolated to a particular partition and the index for that partition. This can make a query perform more efficiently because the partition has its own index that is local. This allows the application to potentially spread index contention across multiple indexes rather than having a single index cause a bottleneck.

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WORLDWIDE HEADQUARTERS

Progress Software Corporation, 14 Oak Park, Bedford, MA 01730 USA Tel: +1 781 280-4000 Fax: +1 781 280-4095 On the Web at: www.progress.com

Find us on  facebook.com/progresssw  twitter.com/progresssw  youtube.com/progresssw

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