Inter-query Parallelism

It is a form of parallelism where many different Queries or Transactions are executed in parallel with one another on many processors.

Advantages

It increases Transaction Throughput. That is, number of transactions executed in a given time can be increased.

It scales up the Transaction processing system. Hence, best suited for On-Line Transaction Processing (OLTP) systems.

Supported Parallel Database Architectures

It is easy to implement in Shared Memory Parallel System. Lock tables and Log information are maintained in the same memory. Hence, it is easy to handle those transactions which shares locks with other transactions. Locking and logging can be done efficiently.

In other parallel architectures like Shared Disk and Shared Nothing, the locking and logging must be done through message passing between processors, which is considered as costly operation when compared Shared Memory Parallel architecture. Cache coherency problem would occur.

Example Database systems which support Inter-query Parallelism

Oracle 8 and Oracle Rdb

Intra-Query Parallelism

It is the form of parallelism where Single Query is executed in parallel on many processors.

Advantages

To speed up a single complex long running queries.

Best suited for complex scientific calculations (queries).

Supported Parallel Database Architectures

SharedMemory, Shared Disk and Shared Nothing parallel architectures are supported. We need not worry about locking and logging as because it involves parallelizing single query.

Types

Intra-operation parallelism – the process of speeding up a query through parallelizing the execution of individual operations. The operations which can be parallelized are Sort, Join, Projection, Selection and so on.

Inter-operation parallelism – the process of speeding up a query through parallelizing various operations which are part of the query. For example, a query which involves join of 4 tables can be executed in parallel in two processors in such a way that each processor shall join two relations locally and the result1 and result2 can be joined further to produce the final result.

Example Database systems which support Intra-query Parallelism

Informix, Terradata

References

www.exploredatabase.com

www.tutorialsride.com

Textbook:- Korth 6th Edition