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Introduction to Oracle Database In-Memory

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Oracle Database In-Memory (Database In-Memory) is a suite of features that greatly improves performance for real-time analytics and mixed workloads. The In-Memory Column Store (IM column store) is the key feature of Database In-Memory.

> **Note:**
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> Database In-Memory features require the Oracle Database In-Memory option. For the Database In-Memory Base Level, the IM column store size is limited to 16 GB at the CDB level. See *Oracle Database Licensing Information User Manual* for details on which features are supported for different editions and services.

1.1 Challenges for Analytic Applications

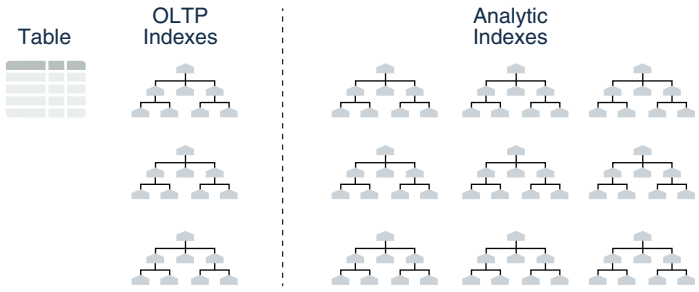
Traditionally, obtaining good performance for analytic queries meant satisfying several requirements.

In a typical data warehouse or mixed-use database, requirements include the following:

- You must understand user access patterns.
- You must provide good performance, which typically requires creating indexes, materialized views, and OLAP cubes.

For example, if you create 1 to 3 indexes for a table (1 primary key and 2 foreign key indexes) to provide good performance for an OLTP application, then you may need to create additional indexes to provide good performance for analytic queries.

Figure 1-1 Multiple Indexes



Meeting the preceding requirements creates manageability and performance problems. Additional access structures cause performance overhead because you must create, manage, and tune them. For example, inserting a single row into a table requires an update to all indexes on this table, which increases response time.