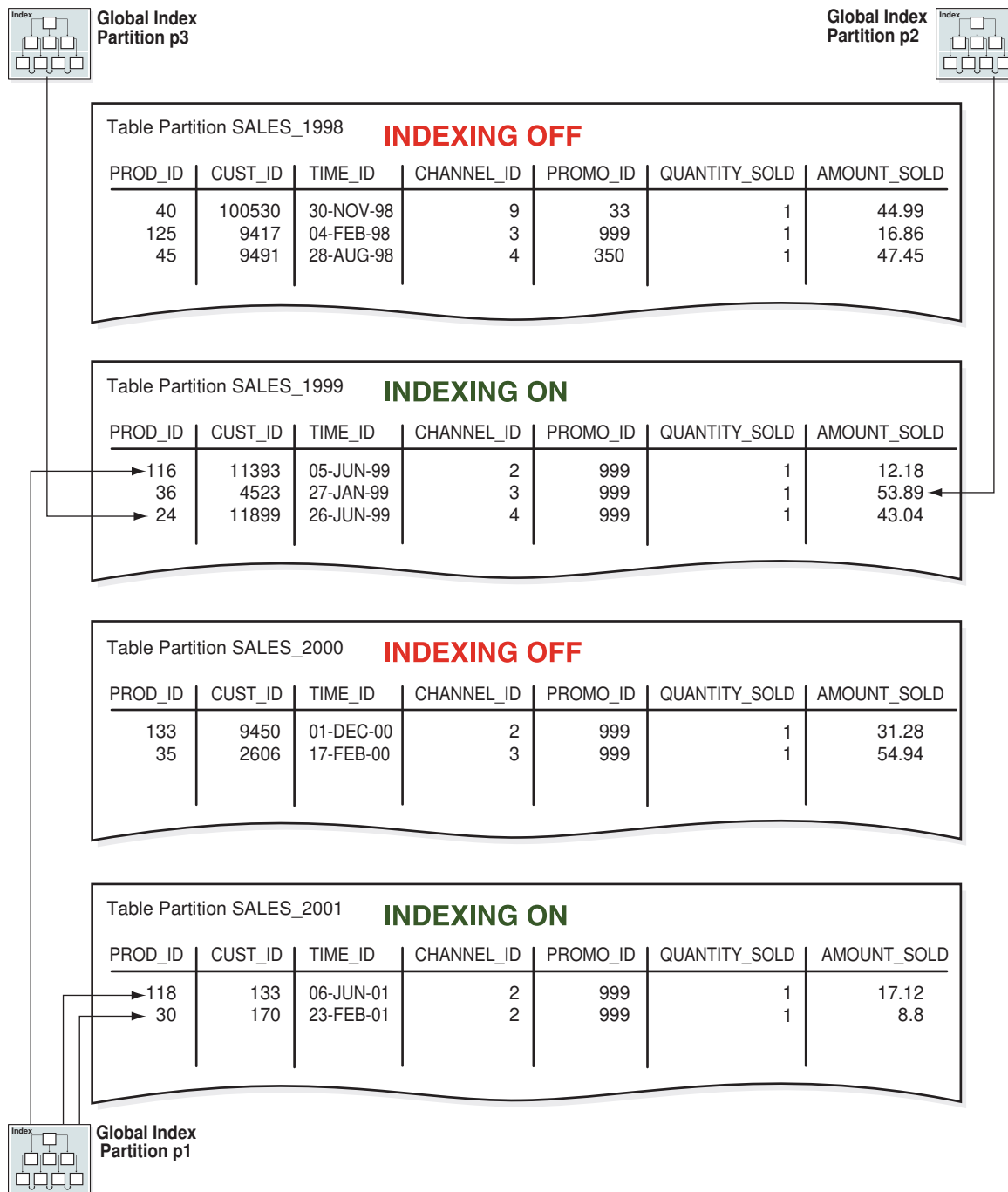


Figure 4-5 Partial Global Partitioned Index



## Overview of Sharded Tables

In an Oracle database, sharding enables you to break up a large table into more manageable pieces called shards that can be stored in multiple databases.

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Each database is hosted on a dedicated server with its own local resources - CPU, memory, flash, or disk. Each database in such configuration is called a **shard**. All

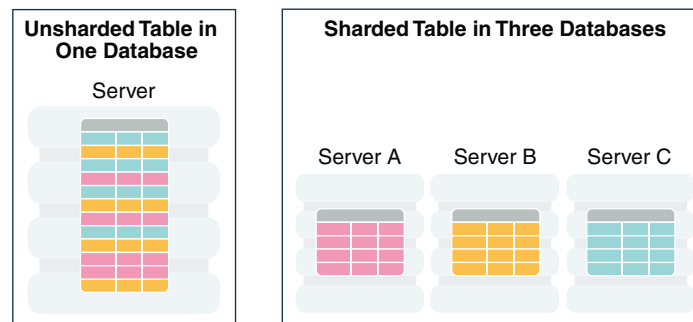
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of the shards together make up a single logical database, which is referred to as a **sharded database**.

Horizontal partitioning involves splitting a database table across shards so that each shard contains the table with the same columns but a different subset of rows. A table split up in this manner is also known as a **sharded table**.

The following figure shows a table horizontally partitioned across three shards.

**Figure 4-6 Horizontal Partitioning of a Table Across Shards**



Sharding is based on shared-nothing hardware infrastructure and it eliminates single points of failure because shards do not share physical resources such as CPU, memory, or storage devices. Shards are also loosely coupled in terms of software; they do not run clusterware.

Shards are typically hosted on dedicated servers. These servers can be commodity hardware or engineered systems. The shards can run on single instance or Oracle RAC databases. They can be placed on-premises, in a cloud, or in a hybrid on-premises and cloud configuration.

From the perspective of a database administrator, an SDB consists of multiple databases that can be managed either collectively or individually. However, from the perspective of the application, an SDB looks like a single database: the number of shards and distribution of data across those shards are completely transparent to database applications.

Sharding is intended for custom OLTP applications that are suitable for a sharded database architecture. Applications that use sharding must have a well-defined data model and data distribution strategy (consistent hash, range, list, or composite) that primarily accesses data using a sharding key. Examples of a sharding key include `customer_id`, `account_no`, or `country_id`.

#### See Also:

*Using Oracle Sharding*

## Sharded Tables

A sharded table is a table that is partitioned into smaller and more manageable pieces among multiple databases, called shards.