

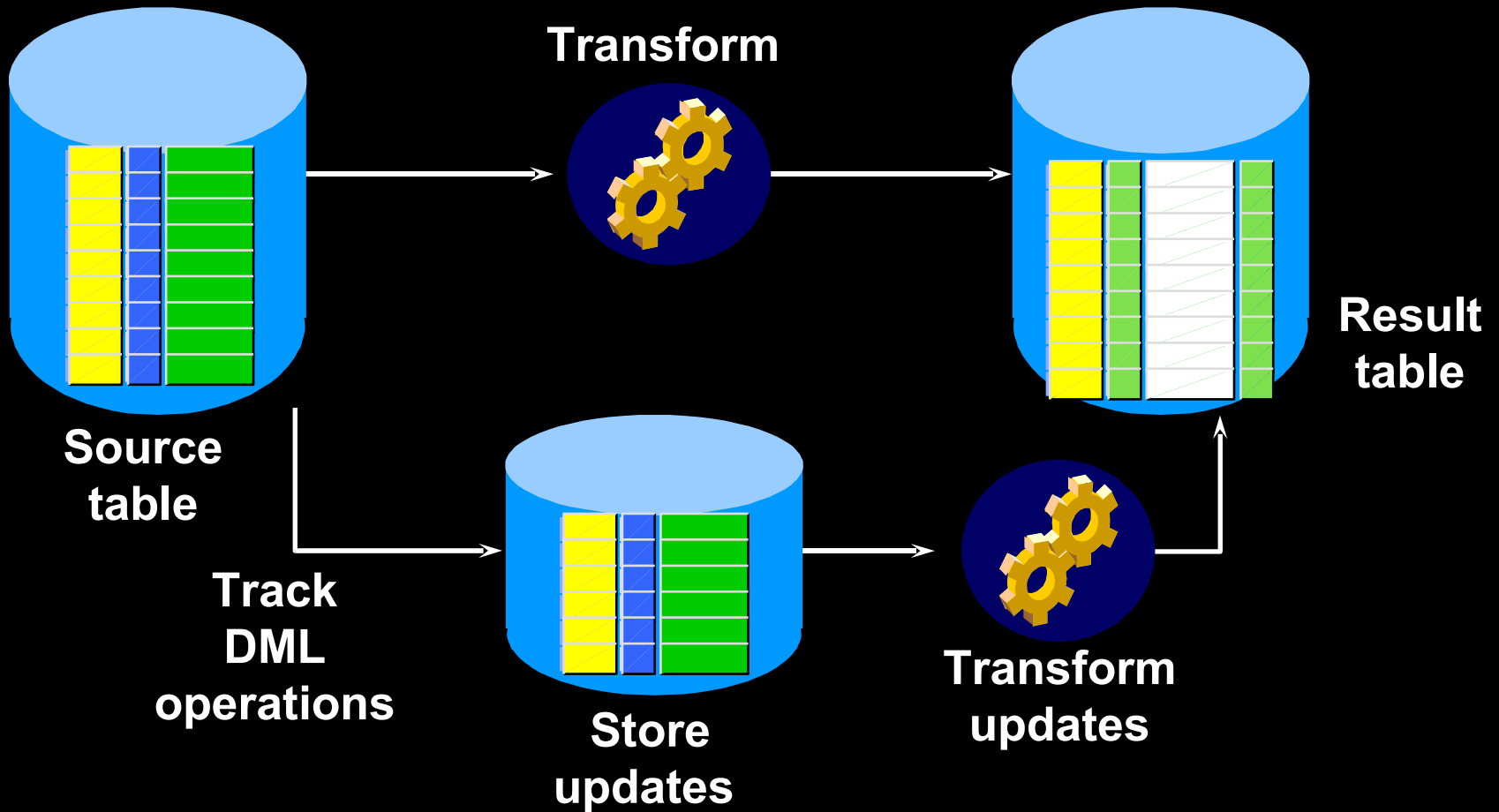
Online Table Redefinition

- **Occasionally, there is the need to reorganize a large heavily-used table.**
- **Previously, these redefinitions forced the table to be unavailable for the duration of the operation.**
- **From Oracle9*i*, table redefinitions can be performed online.**
- **The table to be redefined must have a primary key.**

Online Table Redefinition Features

- **A nonpartitioned table can be converted into a partitioned table and vice versa.**
- **The organization of a table can be changed from a heap based to IOTs and vice versa.**
- **Non-primary key columns can be dropped.**
- **New columns can be added to a table.**
- **Parallel support can be added or removed.**
- **Storage parameters can be modified.**
- **A column can be renamed.**

Online Table Redefinition



Online Table Redefinition Syntax

1. **Determine if the table is a candidate for online Redefinition by calling the procedure `dbms_redefinition.can_redef_table`.**
2. **Create an empty interim table with all the desired characteristics.**
3. **Start the Redefinition process calling `dbms_redefinition.start_redef_table`.**
4. **Create any triggers, indexes, or constraints on the interim table.**
5. **Grant privileges on the interim table.**
6. **Finish the Redefinition process calling `dbms_redefinition.finish_redef_table`.**

Online Table Redefinition: Synchronization and Abort

- It is possible to periodically synchronize the interim table with the original one.
- The `dbms_redefinition.sync_interim_table` procedure performs the synchronization.
- This is recommended if there is a large amount of DML being processed between the start and finish of the redefinition.
- The `dbms_redefinition.abort_redef_table` procedure aborts the operation.

Online Table Redefinition: Example

You want to reorganize the non-partitioned table `HR.EMP (EMPLOYEE_ID, FIRST_NAME, SALARY, PHONE_NUMBER)`

- Rename column `EMPLOYEE_ID` to `EMPNO`
- Multiply the `SALARY` column values by a factor of 1.10 and rename to `SAL`
- Drop column `PHONE_NUMBER`
- Add a column `DEPTNO` with default value 10
- Partition the table by range on `EMPNO`

Online Table Redefinition: Example

```
SQL> EXEC dbms_redefinition.can_redef_table('HR','EMP');
```

```
SQL> CREATE TABLE int_emp          -- interim table
 2  (empno          NUMBER PRIMARY KEY,
 3  first_name     VARCHAR2(20),
 4  sal            NUMBER,
 5  deptno         NUMBER DEFAULT 10)
 6  (PARTITION emp1000 ..., PARTITION emp2000 ...);
```

```
SQL> EXECUTE dbms_redefinition.start_redef_table('HR', -
 2  'EMP', 'INT_EMP', 'EMPLOYEE_ID EMPNO, FIRST_NAME -
 3  FIRST_NAME, SALARY*1.10 SAL');
```

```
SQL> EXECUTE dbms_redefinition.sync_interim_table -
 2  ('HR','EMP','INT_EMP');
```

```
SQL> EXECUTE dbms_redefinition.finish_redef_table -
 2  ('HR','EMP','INT_EMP');
```

Online Table Redefinition Limitations

- **Primary key columns must be the same type and have the same number of columns.**
- **The following are not supported:**
 - **Tables without a primary key**
 - **User-defined data types**
 - **BFILE or LONG columns (LOBs are supported)**
 - **Tables with materialized view logs or materialized views defined on them**
 - **Horizontal subsetting of data**
- **New columns being added must not be declared as NOT NULL until the redefinition is complete.**

Online Table Redefinition Limitations

- **The redefinition must be done within the same schema.**
- **Snapshot or materialized view logs defined on the table are dropped as part of this redefinition.**
- **The following tables cannot be redefined:**
 - **Tables in the SYS or SYSTEM schema**
 - **An overflow table of an IOT**
 - **Materialized view container tables**
 - **Advanced queuing tables**
 - **Temporary tables**
 - **Clustered tables**