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SUB DATAWARE HOUSE THEORY

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Introduction of oracle and database:

Oracle Database:

is a multi-model database management system produced and marketed by Oracle Corporation. It is a database commonly used for running online transaction processing (OLTP), data warehousing (DW) and mixed (OLTP & DW) database workloads. The latest generation, Oracle Database 19c, is available on-prem, on-cloud, or in a hybrid-Cloud environment. 19c may also be deployed on Oracle Engineered Systems (e.g. Exadata) on-prem, on Oracle (public) cloud or (private) cloud at customer. At Openworld 2017 in San Francisco, Executive Chairman of the Board and CTO, Larry Ellison announced the next database generation, Oracle Autonomous Database.

Why Oracle for the Data Warehouse?

The large data buffer caches in most OLTP Oracle systems make them CPU-bound, but Oracle data warehouses are another story. With terabytes of information to aggregate and summarize, most Oracle data warehouses are I/O-bound, and you must choose a server that optimizes disk I/O throughput.

Oracle has always made very large database (VLDB) technology a priority as evidenced by their introduction of partitioned structures, advanced bitmap indexing, and materialized views. Oracle now provides some features that are ideal for the data warehouse application.

Preparing a Database for the OLAP API Oracle provides specialized facilities for the development and deployment of Java-based OLAP clients: the OLAP API and the BI Beans (Business Intelligence Beans). The OLAP API directly queries the data warehouse. The BI Beans may be used as a layer between the end user and the OLAP API. The OLAP API requires the presence of OLAP catalog metadata in the database. You will need to take these steps to prepare your data warehouse for the Oracle OLAP API: 1. Design and implement the relational and/or multidimensional data stores to be used by analytical applications. 2. Create the OLAP catalog metadata. 3. Create the special materialized views that are used by the Oracle OLAP AP

Data Warehouse Implementation:

Gathering Requirements for BI and Enterprise Data Warehouse implementation and design.

Determination of the physical environment for ETL, OLAP, and database. ...

Data modeling using Star Schema or Snowflake approach for **data warehouse implementation**. ...

Extract, Transform, Load (ETL) ...

OLAP or Tabular cubes designing.

- 1. Requirements analysis and capacity planning:** The first process in data warehousing involves defining enterprise needs, defining architectures, carrying out capacity planning, and selecting the hardware and software tools. This step will contain be consulting senior management as well as the different stakeholder.
- 2. Hardware integration:** Once the hardware and software has been selected, they require to be put by integrating the servers, the storage methods, and the user software tools.
- 3. Modeling:** Modelling is a significant stage that involves designing the warehouse schema and views. This may contain using a modeling tool if the data warehouses are sophisticated.
- 4. Physical modeling:** For the data warehouses to perform efficiently, physical modeling is needed. This contains designing the physical data warehouse organization, data placement, data partitioning, deciding on access techniques, and indexing.
- 5. Sources:** The information for the data warehouse is likely to come from several data sources. This step contains identifying and connecting the sources using the gateway, ODBC drives, or another wrapper.
- 6. ETL:** The data from the source system will require to go through an ETL phase. The process of designing and implementing the ETL phase may contain defining a suitable ETL tool vendors and purchasing and implementing the tools. This may contains customize the tool to suit the need of the enterprises.
- 7. Populate the data warehouses:** Once the ETL tools have been agreed upon, testing the tools will be needed, perhaps using a staging area. Once everything is working adequately, the ETL tools may be used in populating the warehouses given the schema and view definition.

8. User applications: For the data warehouses to be helpful, there must be end-user applications. This step contains designing and implementing applications required by the end-users.

9. Roll-out the warehouses and applications: Once the data warehouse has been populated and the end-client applications tested, the warehouse system and the operations may be rolled out for the user's community to use.