



Data Marts (storage component of HDFS)

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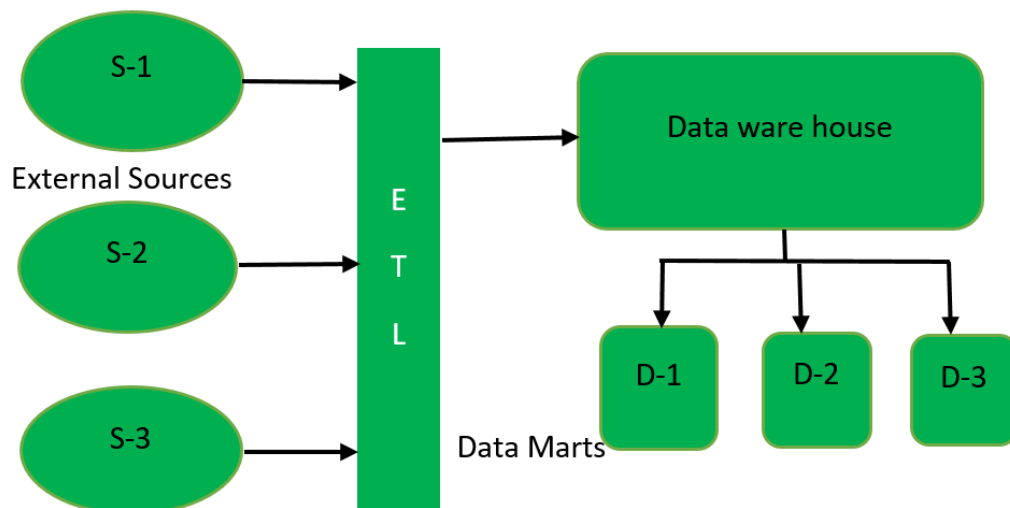
[Datawarehouse](#) and Data Mart, both are storage components of HDFS.

Data mart is such a storage component which is concerned on a specific department of an organization. It is a subset of the data stored in the datawarehouse. Data mart is focused only on particular function of an organization and it is maintained by single authority only, e.g.m finance, Marketing. Data Marts are small in size and are flexible.

Types of Data Mart:

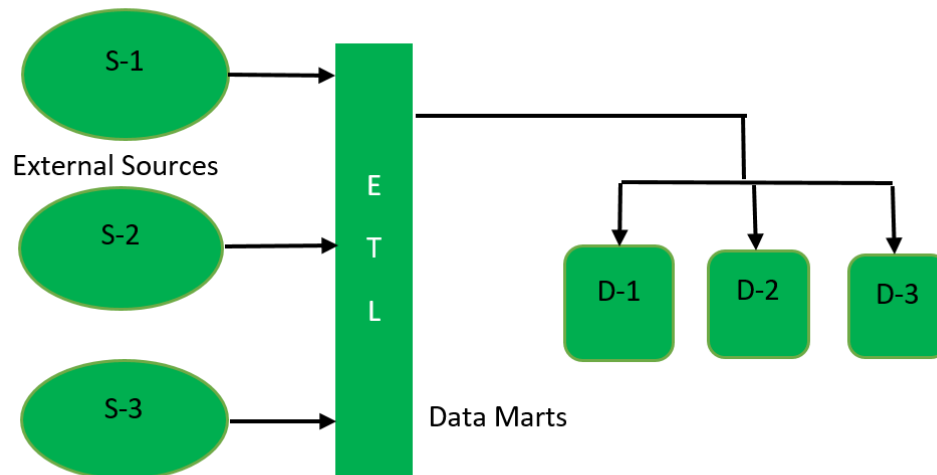
There are three types of data marts:

1. Dependent Data Mart –



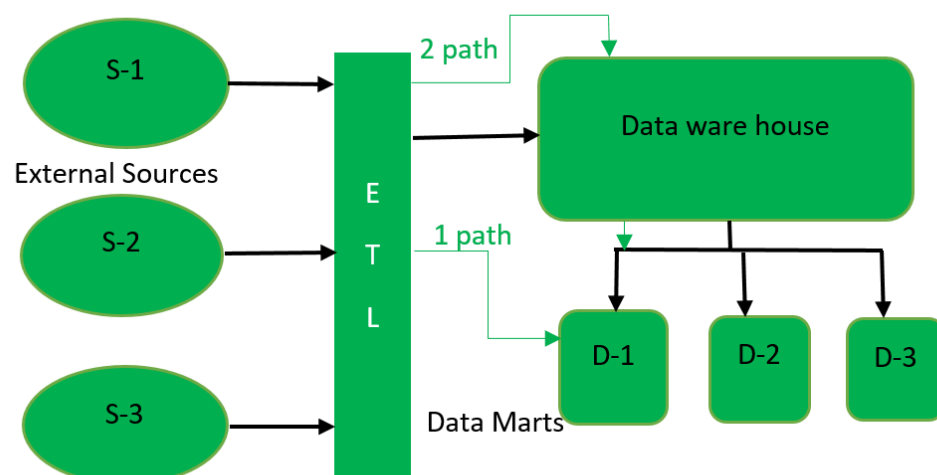
Dependent Data Mart is created by extracting the data from central repository, Datawarehouse. First data warehouse is created by extracting data (through ETL tool) from external sources and then data mart is created from data warehouse. Dependent data mart is created in top-down approach of datawarehouse architecture. This model of data mart is used by big organizations.

2. Independent Data Mart –



Independent Data Mart is created directly from external sources instead of data warehouse. First data mart is created by extracting data from external sources and then datawarehouse is created from the data present in data mart. Independent data mart is designed in bottom-up approach of datawarehouse architecture. This model of data mart is used by small organizations and is cost effective comparatively.

3. Hybrid Data Mart –



This type of Data Mart is created by extracting data from operational source or from data warehouse. 1Path reflects accessing data directly from external sources and 2Path reflects dependent data model of data mart.

Need Of Data Mart:

1. Data Mart focuses only on functioning of particular department of an organization.
2. It is maintained by single authority of an organization.
3. Since, it stores the data related to specific part of an organisation, data retrieval from it is very quick.
4. Designing and maintenance of data mart is found to be quite cinch as compared to data warehouse.
5. It reduces the response time of user as it stores small volume of data.
6. It is small in size due to which accessing data from it very fast.
7. This Storage unit is used by most of organizations for the smooth running of their departments.

Advantages of Data Mart:

1. Implementation of data mart needs less time as compared to implementation of datawarehouse as data mart is designed for a particular department of an organization.
2. Organizations are provided with choices to choose model of data mart depending upon cost and their business.
3. Data can be easily accessed from data mart.
4. It contains frequently accessed queries, so enable to analyse business trend.

Disadvantages of Data Mart:

1. Since it stores the data related only to specific function, so does not store huge volume of data related to each and every department of an organization like datawarehouse.
2. Creating too many data marts becomes cumbersome sometimes.

Features of data marts:

Subset of Data: Data marts are designed to store a subset of data from a larger data warehouse or data lake. This allows for faster query performance since the data in the data mart is focused on a specific business unit or department.

Optimized for Query Performance: Data marts are optimized for query performance, which means that they are designed to support fast queries and analysis of the data stored in the data mart.

Customizable: Data marts are customizable, which means that they can be designed to meet the specific needs of a business unit or department.

Self-Contained: Data marts are self-contained, which means that they have their own set of tables, indexes, and data models. This allows for easier management and maintenance of the data mart.

Security: Data marts can be secured, which means that access to the data in the data mart can be controlled and restricted to specific users or groups.

Scalability: Data marts can be scaled horizontally or vertically to accommodate larger volumes of data or to support more users.

Integration with Business Intelligence Tools: Data marts can be integrated with business intelligence tools, such as Tableau, Power BI, or QlikView, which allows users to analyze and visualize the data stored in the data mart.

ETL Process: Data marts are typically populated using an Extract, Transform, Load (ETL) process, which means that data is extracted from the larger data warehouse or data lake, transformed to meet the requirements of the data mart, and loaded into the data mart.

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