OLAP vs OLTP

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OLAP - ONLINE ANALYTICAL PROCESSING

SAP BW enables Online Analytical Processing (OLAP) for the staging of information from large amounts of operative and historical data. OLAP technology permits multi-dimensional analyses according to various business perspectives.

At the core of any OLAP system is the concept of an OLAP cube (also called a 'multidimensional cube' or a *hypercube*). It consists of numeric facts called *measures* which are categorized by dimesnions .The cube metadata is typically created from a star schema or snowflake schema of tables in a relational database.

The OLAP Area can be divided into three components :

1. BEx Analyzer

2. BEx Web Application

3. BEx Mobile Intelligence

OLTP - ONLINE TRANSACTION PROCESSING

Online transaction processing, or **OLTP**, refers to a class of systems that facilitate and manage transaction-oriented applications, typically for data entry and retrieval transaction processing . OLTP has also been used to refer to processing in which the system responds immediately to user requests .The main emphasis for OLTP systems is put on very fast query processing, maintaining data integrity in multi-access environments and an effectiveness measured by number of transactions per second. In OLTP database there is detailed and current data, and schema used to store transactional databases is the entity model (usually 3NF).

In general we can say that OLTP provides source data to data warehouses and the OLAP is used to analyze it .So OLTP is also referred as Operative Environment and OLAP as Informative Environment.

DIFFERENCES BETWEEN OLAP and OLTP

	OLTP System	**OLAP System**
Source of data	Operational data; OLTPs are the original source of the data.	Consolidation data; OLAP data comes from the various OLTP Databases
Purpose of data	To control and run fundamental business tasks	To help with planning, problem solving, and decision support
Processing Speed	Typicall Very Fast	Depends on the amount of data involved; batch data refreshes and complex queries may take many hours; query speed can be improved by creating indexes
Database Design	Highly normalized with many tables	Typically de-normalized with fewer tables; use of star and/or snowflake schemas.
Backup and Recovery	Backup religiously; operational data is critical to run the business, data loss is likely to entail significant monetary loss and legal liability	Instead of regular backups, some environments may consider simply reloading the OLTP data as a recovery method
Age Of Data	Current	Historical
Queries	Relatively standardized and simple queries Returning relatively few records	Often complex queries involving aggregations
Data Base Operations	Add , Modify , Delete , Update and Read	Read
What the data Reveals	A snapshot of ongoing business processes	Multi-dimensional views of various kinds of business activities
Data Set	6 - 18 months	2 - 7 years

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