

Literature Review of Issues in Data Warehousing and OLTP, OLAP Technology

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Abstract: DATA WAREHOUSING, Online Analytical Processing (OLAP), Online Transactional Processing (OLTP) are key elements for making decision, which now becoming an important aspect of database industry. This will provides an effective and efficient way for making decision and analysing the statistics of the huge data which helps to predict the future of organization and improve the decision making approach.

This paper will give brief of data warehouse, online transaction process and the online analysis process with a provided light on the problems. This paper focus on exploring the problems of data warehousing OLTP and OLAP and their application in modern corporate market world for knowledge discovery

Key words- Data Mining, Data Warehousing, Historical Data, Information Retrieval, Issues in OLAP

1. Introduction

Nowadays Information Technology (IT) has become advanced and innovative from the past working various technologies and services to do more benefit and profit in their organization growth. As due to increasing in the population of world their increase in the data size in their organization. Due to increasing the distances between places and decreasing the time consumption of the consumers in providing services to the consumers. In order to fulfil their services demands organization start their work to be online, and hence they are providing online services like online payment, online registration, online examination, stock updates, advanced technologies etc. In providing these services organizations need to have their own huge databases, data warehouse which we provide technologies like OLAP, OLTP. Using these technologies will reduce the paper work and make the functioning more computerized. To organize the huge data and retrieval of the data will provide more concise data and access them will reduce the time taken for that. This will also improve the predictive analysis and benefited in decision making and enhance the growth of company. Data Warehouse is storage where the whole data is stored and get accesses from there for various purposes. It stores any type of data and also

historical data which helps in decision making by analyzing the past years data we can make the future decision and helps in the company's growth and making organization more efficient. OLAP helps to report data, visualize data, and also provide interaction with different views of the data. OLAP provides summary of data and generates rich computation. OLAP and data mining will act as complementary to each other. OLAP does not provide the hidden data but data mining will explain this. OLTP deals with the current data and visualize those data in form of various reports, through business intelligence. It will provide the transaction data and used in generally by banking and by those who will provide the current status of any data.

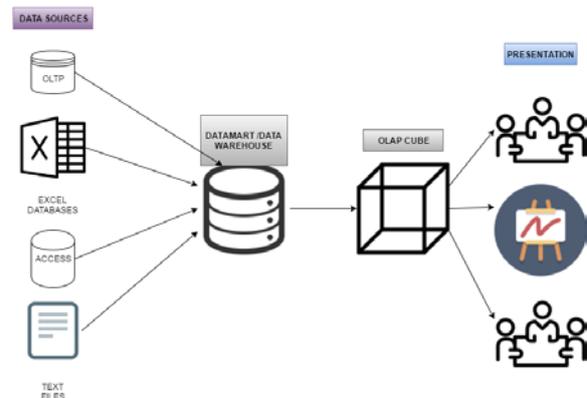


FIGURE I

2. Methodology and Objective

2.1. Methodology

The aim of this research is to study the issues and problems faced by organization research practices. This is a historical research and has been adopted to investigate the issues and problems related to research practice.

2.2. Objective

- Improving the functioning of technology of data-warehousing-OLAP, OLTP.
- Studying the issues and problems faced by organization while applying these

technologies in retrieving the data for analyzing.

3. Trend Analysis

As various organizations are using the technologies for retrieving the data from data warehouse for making future prediction and taking further decisions. System need the system which is having lots of data which needs to access properly so that data retrieved can be analyzed properly and can represent the retrieved data in proper format easily understandable by the users. As these technologies helps for making growth in their organization capital and working efficiently.

3.1. Various sector which will use Data Warehousing Technology

- Banking
- Retailers
- IT Organization
- Stock Market
- Health Care
- Environment etc.

3.2. Areas where these technology can help organization to improve their functioning

3.2.1. Students

It stores the data of all students for analyzing their education qualification details, accordingly take further action.

3.2.2. Transportation

It store the details regarding their timing of their departure and arriving and also analyze their feedback provided by their passenger. It also make changes according to feedback provided to them and make their services effective and efficient.

3.2.3. Predictive Analysis

Used when there is need of predicting the future which depends on past and present data like weather forecasting. It is used for make predictions about unknown future events and analyze data to make predictions about future

3.2.4. Decision Making

Used for taking concise decision appropriately and analysis past data for future prediction.

3.2.5. Banking

Make consistency of business process execution so organization can make a more profound monetary decision fix control of accounts. They computerize money related decision and bookkeeping and monetary production.

3.2.6. Aircrafts

It store the details regarding their timing of their departure and arriving and also analyze their feedback provided by their passenger. It also make changes according to feedback provided to them and make their services effective and efficient.

4. Issues and problems while using the technologies in Data Warehousing-OLAP, OLTP

There are various problems due to which proper data retrieval from data warehouse is not working. Due to not applying OLAP and OLTP properly while data-warehousing especially in banking areas and also in large enterprises.

4.1. Storing Historical Data

For retrieving historical data we need to apply OLAP technology. But nowadays for every organization data is increasing at such speed which cannot be catch up and to retrieve that data proper OLAP technology is not applied but due to not having proper training and skills it is applied in organization.

4.2. Storing Transactional Data

For performing transaction current data we need to apply OLTP technology. As the time passes with increasing the size of organization simultaneously daily transaction within and outside the organization is also increasing for maintain this transaction we need OLTP technology is not applied but due to not having proper training and skills it is applied in organization.

4.3. Mismatch in data type of data

As we discussed the storing problem of data and for not properly retrieval of data is due to compatibility issue of data type between already data in repository and new data which to be stored in that.

4.4. Costing Problem

For retrieving for data that can be historical or transactional for applying properly and more professionally then for giving proper training to all the users will include more cost for more investment many organization does not invest on this.

4.5. Representation of data to user

Now for representing this large and vast data to the users will also be difficult as for explaining all the reports and statistics we have to spent more time

to give understanding to them and for making presenting data in more interactive and attractively will require more effort.

4.6. Data profiling

In this after retrieving of data while representing that to users that may or may not match the pattern or format of data. It can be possible of not matching the data format of shown data with the format of stored data. Data profiling is all about the pattern, format matching of data with stored data and shown data.

4.7. Real time data feed and access

This issue is regarding mostly with storing the current data which is not analyzed properly which can create difficult to forecast information in organization for any decision to be taken. This information can be related to airplane status to all passengers and also to destination airport, for forecasting weather report.

4.8. Current status of all the aircrafts, water sports, and aircrafts

For showing the current statistics of data of any sports, aircraft, any transportation medium their score, timing, and all data related to them is difficult to show without proper learning of technology and tools.

4.9. Data backtracking

For backtrack all data in such a huge large data warehouse it creates issue for any changes in data and backtrack that data in repository.

4.10. Arrangement of data in reports

For the purpose of data security we have to maintain the data policies, so we have to collect data, accessed, stored for generating the final report.

4.11. Reporting information to users

We have collect information so that the user can take better financial decision to survive in the market by generating the report.

5. Data Analysis

For explaining the issues in using the technologies while data-warehousing of data we consider the case study of spaceships:-

We consider the spaceship as these spaceship need to be sent into space by scientists for analyzing and making research on the data provided by the

spaceships. These spaceships have their data warehouse which uses OLTP/OLAP for providing the real time data to scientist by being there in space. As the scientists need to have all the current status of the spaceship, conditions of spaceship, current environmental factors which can affect spaceship, and information collected by spaceship need to be converted in the scientists' understandable language properly so that they can make their research and also analyze and make future decisions in favour of their country growth. Scientist also need to have the historical data from the spaceship for making the predictive analysis and can make their research effective. For fulfilling all the demands of scientist the spaceship need to have proper data-warehouse in which the extraction, transformation of data can be done through proper filters and loads and the technologies OLAP/OLTP can provide information correctly and proper. By using hypothesis we can also analyze the whole data provided by the spaceships from space. To provide the current status, real time information need to have proper working of OLTP while data warehousing.

But as of now these technologies are to implementing properly due to there is data mismatching problem, storing with correct type of data in warehouse, and also there is problem while providing the real time information to scientist, due to which they make wrong analysis and the spaceships arrive they realize the actual data and then they have to make analysis for that data.

6. Conclusion

As the problems of proper retrieval of data is only because of not having proper operational database system which is having all type of data sources. In ODS there is problem of data organizing, data transaction-historic and current, storing of data, backtracking of data etc. for resolving this problem we have apply proper filters and storage system of storing data source metadata so that only the required data can be shown to users and tracking of data can be possible.

By using various languages- XML, SQL, SQS and many more will help to maintain data in data-warehouse in proper manner so that through OLAP/OLTP we can access data from warehouse and make available to all users. Various frameworks need to use for converting data from computer language to user language and correct information to be represent to all users. In OLTP we need to have proper filters and loads so that costing can be reduced data profiling-pattern matching of data can be improved. With proper framework for representation of data reports should use proper functioning of framework and all the features to be explored more effectively so that decision can be

make out effectively and also in favour of organization's growth.

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