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## DESIGNING INCREMENTAL DATA MIGRATION FOR MULTI-DATABASE SYSTEMS

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### **ABSTRACT:**

*The multi-database system is a kind of the distributed database system. It is a cluster of independent database systems. The distributed database system including the multi-database system has some problems. One of these problems is data migration between individual database systems in the multi-database system. Many reorganization techniques for distributed database systems are already proposed, but these techniques are not always adaptive to the data migration in the multi-database system. Incremental data migration is one of the solutions for this problem and it is easy to implement in the multi-database system. In this method, a large data migration is divided into small data migrations and other operations are inserted between these small data migrations.*

*Keywords: - multi-database, data migration, incremental data migration.*

### **1. INTRODUCTION**

Databases are used widely in every field. The cost of maintenance and running the database is decreased to a greater rate. There is quite importance of the data stored on the old existence database system. This method divides one large data migration into small data migrations. By inserting other queries between small data migrations, the turn-around times of other queries are improved. However, some small data migrations are repeated incrementally until all target data are moved. There was no direct tool available in the market for data migration purpose so this problem is been overcome in this approach. Using this solution on primitive data types is been created. In earlier days there was no option for users for data migration, the databases would have to be recreated which was tedious.

There will be multiple databases on one side like Oracle, My Sql etc. which will be used for migrating from one source type to destination type like My Sql to Oracle and more. Select firstly source database then

transform it to intermediate form. Make changes if required like adding columns, rows etc. Select option for exporting like only table or only data. Select destination type and migrate.

## **2. RELATED WORK**

### **2.1 Design and Application of Data Migration system In Heterogeneous Database**

The process of data migration have two steps first table to be Migrated Primary key and foreign key are created in object in database and second data in source database are migrated into object database. and the old system are already been replaced by more powerful system here in this process of data migration data cleaning ,transformation, and loading into the new system its mainly switching on single/multiple old system to new system.

“There are the three type of method like Data migrated by tools beforehand, data migrated manually beforehand, data generated by new system afterword. Executing SQL over encrypted data in the database-service provider model. ETL (Extract Transform Load) can extract transform and load data from old system to new system. And second cost and error ratio are relatively high typically this data are those necessary for the new system while old system can't provide

### **2.2 Executing SQL over encrypted data in the database-service provider model**

Rapid advances in networking and Internet technologies have fueled the emergence of the “software as a service” model for enterprise computing. Successful examples of commercially viable software services include rent-a-spreadsheet, electronic mail services, general storage services, disaster protection services.”Database as a Service” model provides users power to create, store, modify, and retrieve data from anywhere in the world, as long as they have access to the Internet. It introduces several challenges, an important issue being data privacy. It is in this context that we specifically address the issue of data privacy. There are two main privacy issues. First, the owner of the data needs to be assured that the data stored on the service-provider site is protected against data thefts from outsiders. Second, data needs to be protected even from the service providers, if the providers themselves cannot be trusted.

### 3. EXISTING SYSTEM

This type of Migration tool is available for only single database.

Updates done in the existing database are not reflected in the migrated database type.

In the existing system for migrating data use classical system (locking, insertion, deletion and snapshot function).

### 4. PROPOSED SYSTEM

There will be multiple databases on one side like Oracle, MySQL etc. which will be used for migrating from one source type to destination type like MySQL to Oracle and more. Select firstly source database then transform it to intermediate form. Make changes if required like adding columns, rows etc. Select option for exporting like only table or only data. Select destination type and migrate.

There should be repository of databases for data migration purpose. These databases are firstly created. Then data that is required is been inserted as records. There will be three types of databases i.e. in MySQL, Oracle and Access.

Firstly the user has to select the source database type from which data is to be migrated. If user wants to update the database before migration, it can be done like adding new column, record etc. A particular column or data can also be migrated. Select the destination database type and do the migration. The scope over here is to migrate data from one database form into another.

Transformation step will be defined to migrate from one type to other like for example, if we want to transform from Access to Oracle then rules for this transformation will be defined.

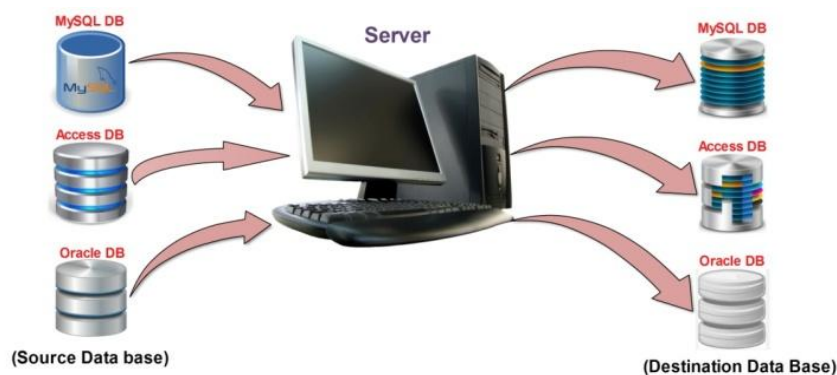


Figure 1. System Flow

*Steps for migration are as follows:*

- 1) User can select a source database from all possible options
- 2) Read source database and transform in intermediate form
- 3) Destination database will be selected
- 4) User can do some changes in the imported database
- 5) User can select options for exporting such as:
  - a) Export only table structure
  - b) Export table and data
- 6) Exporting can be done to the selected destination database

Similarly for other migrations will be like:

1. MySql -> Oracle
2. MySql -> Access
3. Access -> Oracle
4. Access ->MySql
5. Oracle -> Access
6. Oracle ->MySql

#### **4.1 ALGORITHM:**

1. Start
2. Specify source and target schema
3. Select all objects which should be migrated
4. Define the mapping methods and transformation scripts
5. Manual edit the generated objects
6. Execute DDL script to create target schema
7. Setup data transformations and column mappings
8. Configure server side bulk data transfer
9. Target schema created and data transferred
10. End

## 4.2. MIGRATION PLAN

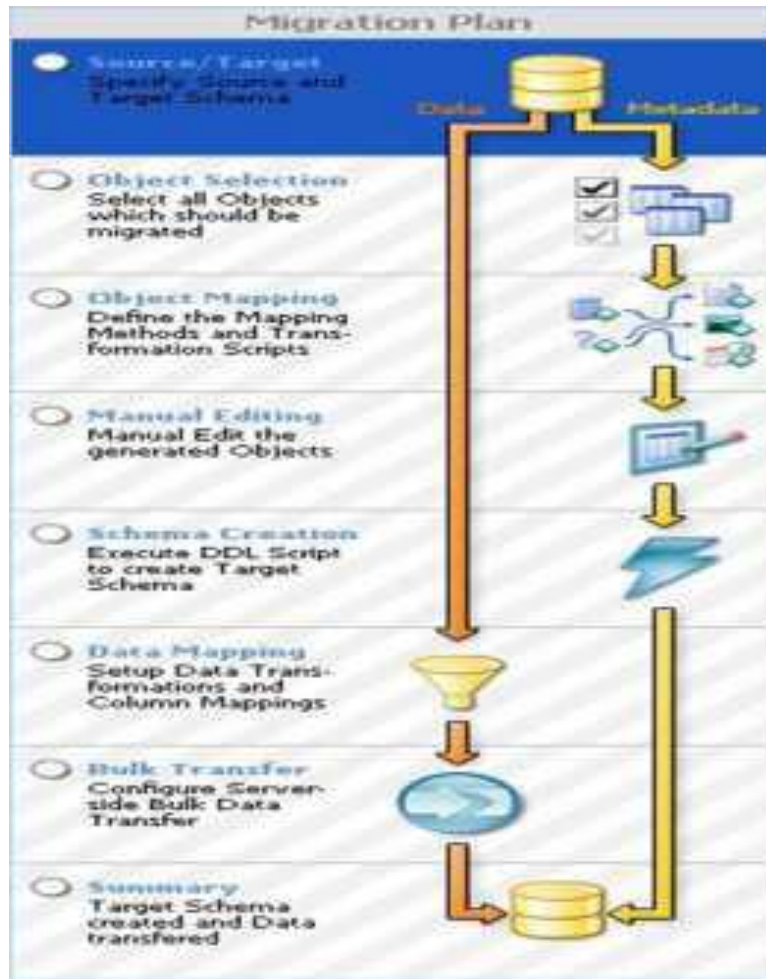


Figure 2. Migration Plan

*Following steps are carried out for data migration:*

1. Source/Target:

Selection of source and destination database is done.

2. Object Selection:

Which tables, columns, views are to be migrated are selected.

3. Object Mapping:

It is technique of converting data in object oriented languages between incompatible types of systems.

4. Manual Editing:

Changes or updating required in the data are done in this phase.

5. Schema Creation:

Schema required for the target database is created by executing some DDL scripts.

6. Data Mapping:

Conversion of set of data values from the data format of source data system to destination system.

7. Bulk Transfer:

The data ready for migration is put together in a proper format and then transferred.

8. Summary

Data migration is successfully performed.

**5. SYSTEM ARCHITECTURE**

To solve the data migration problem no other storage engines are to be used for the loading and storing of the databases. Serialization concept is been introduced here to overcome the problem. In java multiple objects of the same class cannot be created easily. It is quite difficult to remember the names of various objects. With the help of vector these objects can be created into a single unit and these units can be combined together to create arrays in which objects of various types can be stored together. For data migration purpose there should be repository of databases. These databases are firstly created. Then data that is required is been inserted as records. There will be three types of databases i.e. in MySQL, Oracle and Access. The scope over here is to migrate data from one database form into another. Steps for migration are as follows:

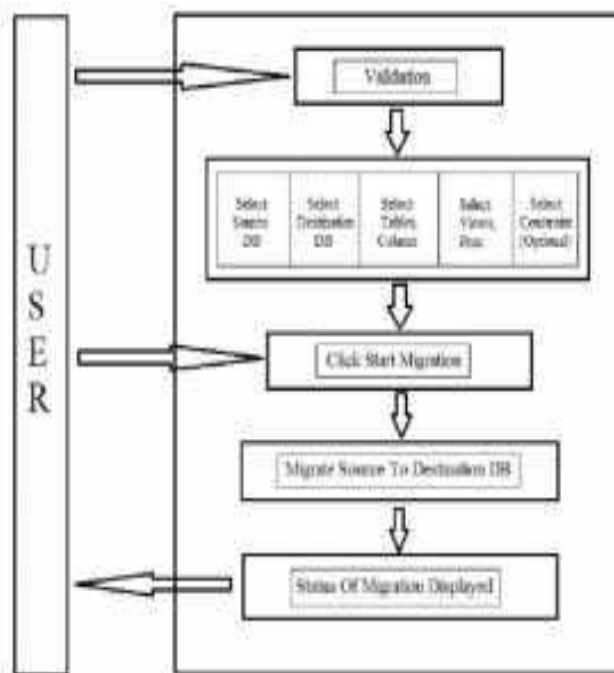


Figure 3. System Architecture



- 1) User can select a source database from all possible options
- 2) Read source database and transform in intermediate form
- 3) Destination database will be selected
- 4) User can do some changes in the imported database
- 5) User can select options for exporting such as:
  - a) Export only table structure
  - b) Export table and data
- 6) Exporting can be done to the selected destination database In step of transformation the rules will be defined to migrate from one type to other like for example, if we want to transform from Access to Oracle then rules for this transformation will be defined.

Similarly for other transformations rules will be defined like:

1. MySql -> Oracle
2. MySql -> Access
3. Access -> Oracle
4. Access ->MySql
5. Oracle -> Access
6. Oracle ->MySql

## 5.1. SYSTEM FEATURE

The propose segmentation process is carried out in two separate steps. First, all visual cues are combine to generate probabilistic boundary edge map of the scene second in this edged map the optimal closed contour around a given fixation point is found. Having level cue or regions and the low level visual cues or edges .In fact we proposed a segmentation refinement process based on such a feedback process. Finally, our experiment shows the promise of the proposed method as an automatic segmentation framework for a general purposed visual system.

### 5.1.1 FEATURES

#### 5.1.1.1 Input:

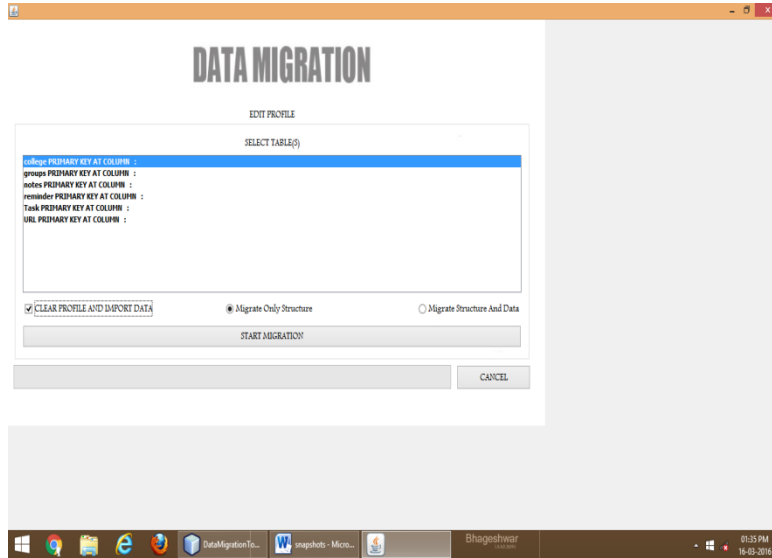


Figure 4. Import from Ms-Access

#### 5.1.1.2 Output

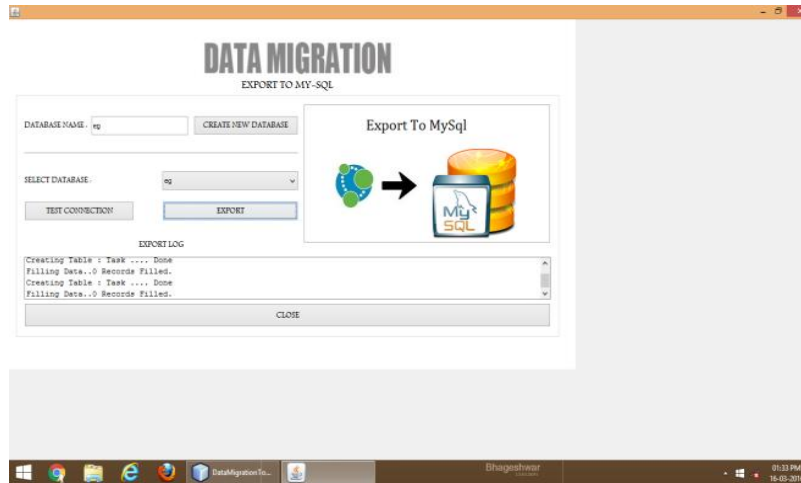


Figure 5.Export to MySql

## 6. CONCLUSION:

The incremental data migration technique on the multi-database system is evaluated based on multiple databases like MySQL, Oracle and Access. From this paper one thing come to know that the incremental data migration technique is effective for the improvement of the execution time. Because of this multi-database system ensures concurrency control, the execution time in this situation is lesser. It doesn't ensure concurrency control. This paper introduces the technique issues of data migration which may contribute to organizations that have data migration demands.

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