

ROLES IN DBMS ENVIRONMENT

DATA & DATABASE ADMINISTRATOR,
DATABASE DESIGNERS,
APPLICATION DEVELOPERS & END-USERS

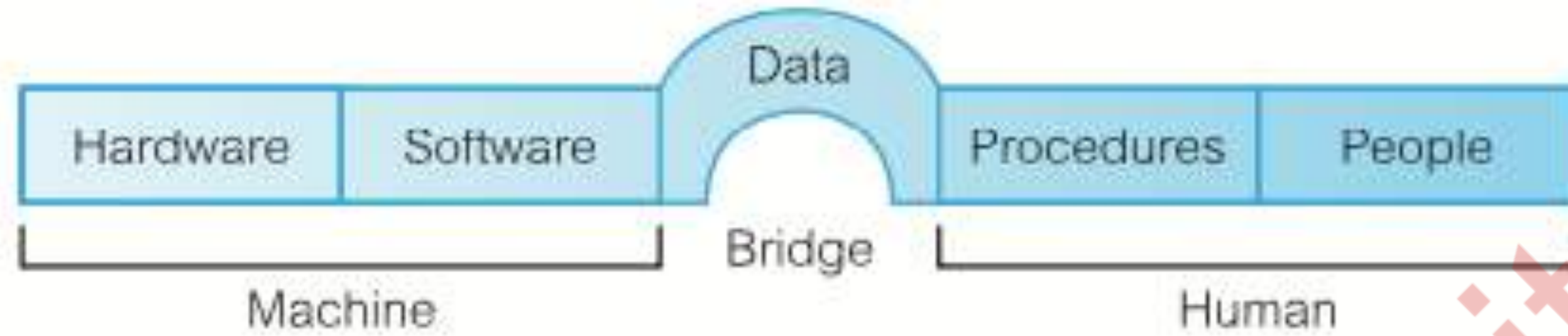
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Lecture 03

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DBMS Environment



ROLES

There are four distinct types of people that participate in the DBMS environment: **data and database administrators, database designers, application developers, and the end-users.**

**ROLES
IN
DBMS
ENVIRONMENT**

DATA AND DATABASE ADMINISTRATORS

The database and the DBMS are corporate resources that must be **managed** like any other resource.

The **Data Administrator (DA)** is responsible for defining **data** elements, **data** names and their relationship with the **database**. They are also known as Data Analyst.

A **Database Administrator (DBA)** is an IT professional who works on creating, maintaining, querying, and tuning the database of the organization. They are also responsible for maintaining data security and integrity.

A DBA has many responsibilities. A good performing database is in the hands of DBA.

DBA RESPONSIBILITIES

The life cycle of database starts from **designing, implementing to administration** of it. A database for any kind of requirement needs to be designed perfectly so that it should work without any issues.

Once all the design is complete, it needs to be installed. Once this step is complete, users start using the database. The **database grows as the data grows in the database**. When the database becomes huge, its performance comes down.

Also accessing the data from the database becomes challenge. These **administration and maintenance** of database is taken care by **database Administrator – DBA**.

Installing and upgrading the DBMS Servers

Design and implementation

Security

Performance Tuning

Backup & Recovery

Documentation

DBA RESPONSIBILITIES

Installing and upgrading the DBMS Servers

DBA is responsible for installing a new DBMS server for the new projects. He is also responsible for upgrading these servers as there are new versions comes in the market or requirement.

Design and implementation

He should be able to decide proper memory management, file organizations, error handling, log maintenance etc for the database.

Performance Tuning

Since database is huge and it will have lots of tables, data, constraints and indices, there will be variations in the performance from time to time.

It is responsibility of the DBA to tune the database performance.

DBA RESPONSIBILITIES

Backup & Recovery

Proper backup and recovery programs needs to be developed by DBA and has to be maintained him. This is one of the main responsibilities of DBA. Data should be backed up regularly so that if there is any crash, it should be recovered without much effort and data loss.

Documentation

DBA should basically maintain all his installation, backup, recovery, security methods. He should keep various reports about database performance.

Security

DBA is responsible for creating various database users and roles, and giving them different levels of access rights.

DATABASE DESIGNERS

Logical Database Designers

The **logical database designer** is concerned with identifying the data (that is, the entities and attributes), the relationships between the data, and the constraints on the data that is to be stored in the database.

The logical database designer must have a thorough and complete understanding of the organization's data and any constraints on this data.

Physical Database Designers

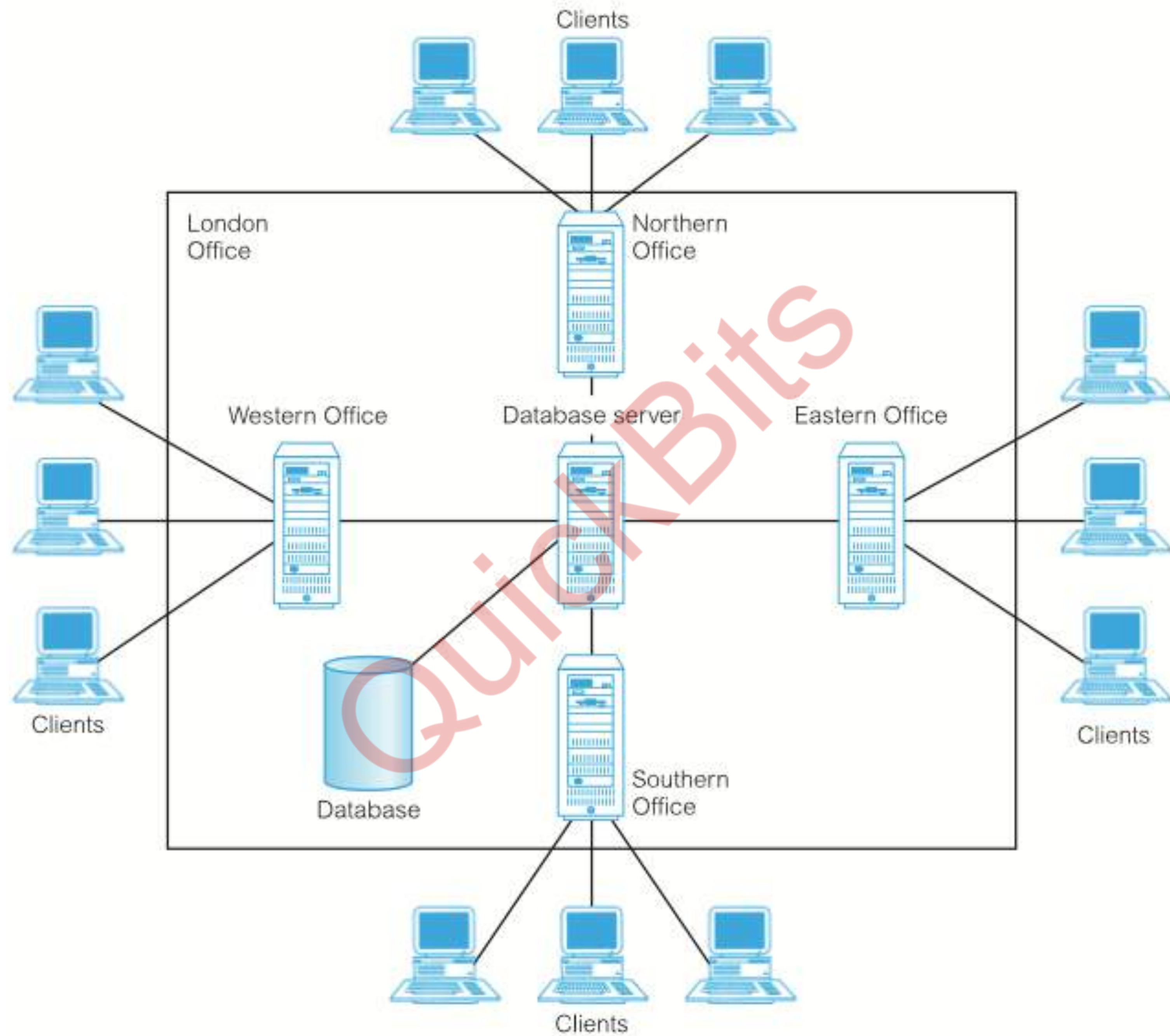
The **physical database designer** decides how the logical database design is to be physically realized.

- mapping the logical database design into a set of tables and integrity constraints.
- selecting specific storage structures and access methods for the data to achieve good performance.

APPLICATION DEVELOPERS

Once the database has been implemented, the application programs that provide the required functionality for the end-users must be implemented. This is the responsibility of the **application developers**.

They are the developers who interact with the database by means of DML queries. These DML queries are written in the application programs like C, C++, JAVA, Pascal etc.



END-USERS

The **end-users** are the 'clients' for the database, which has been designed and implemented, and is being maintained to serve their information needs.

Sophisticated Users

The sophisticated end-user is familiar with the structure of the database and the facilities offered by the DBMS.

Naive Users

These are the users who use the existing application to interact with the database. For example, online library system, ticket booking systems, ATMs etc

LECTURE 04

3-TIER DBMS ARCHITECTURE

1. DBMS Architecture
2. DBMS Layers
3. Data Independence

THANKS

Quinn