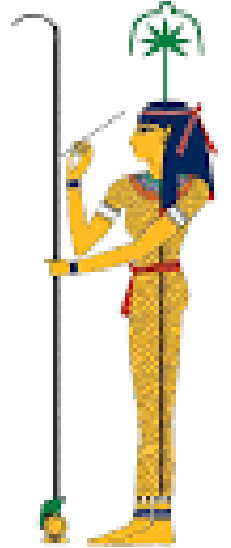
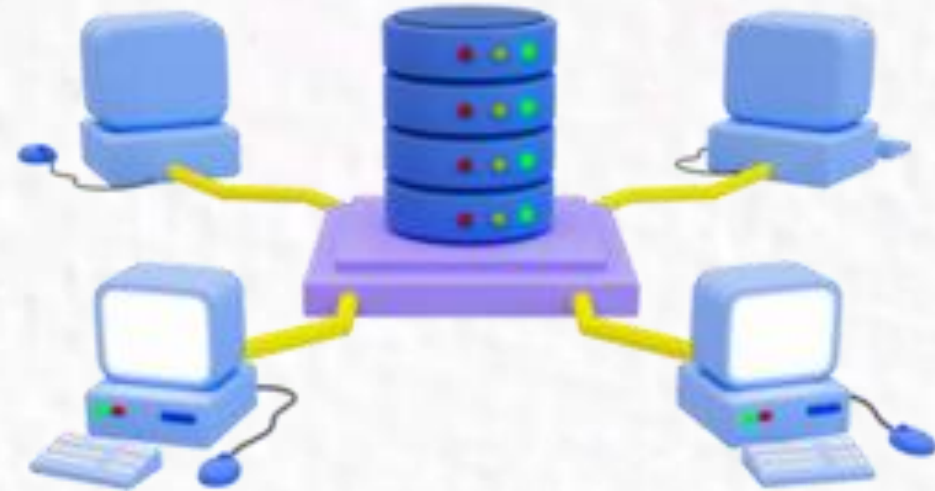




وزارة الاتصالات
وتكنولوجيا المعلومات



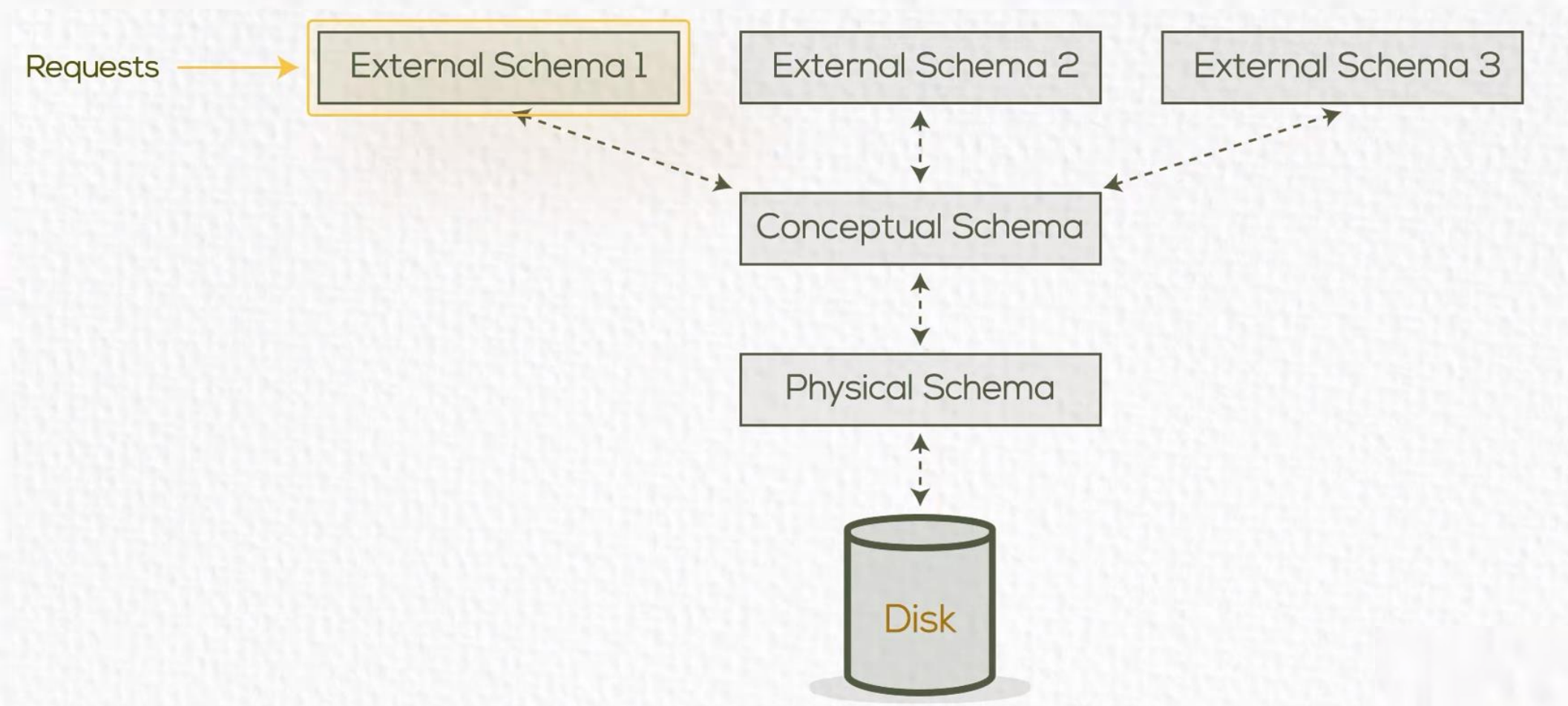
Database Fundamentals Course



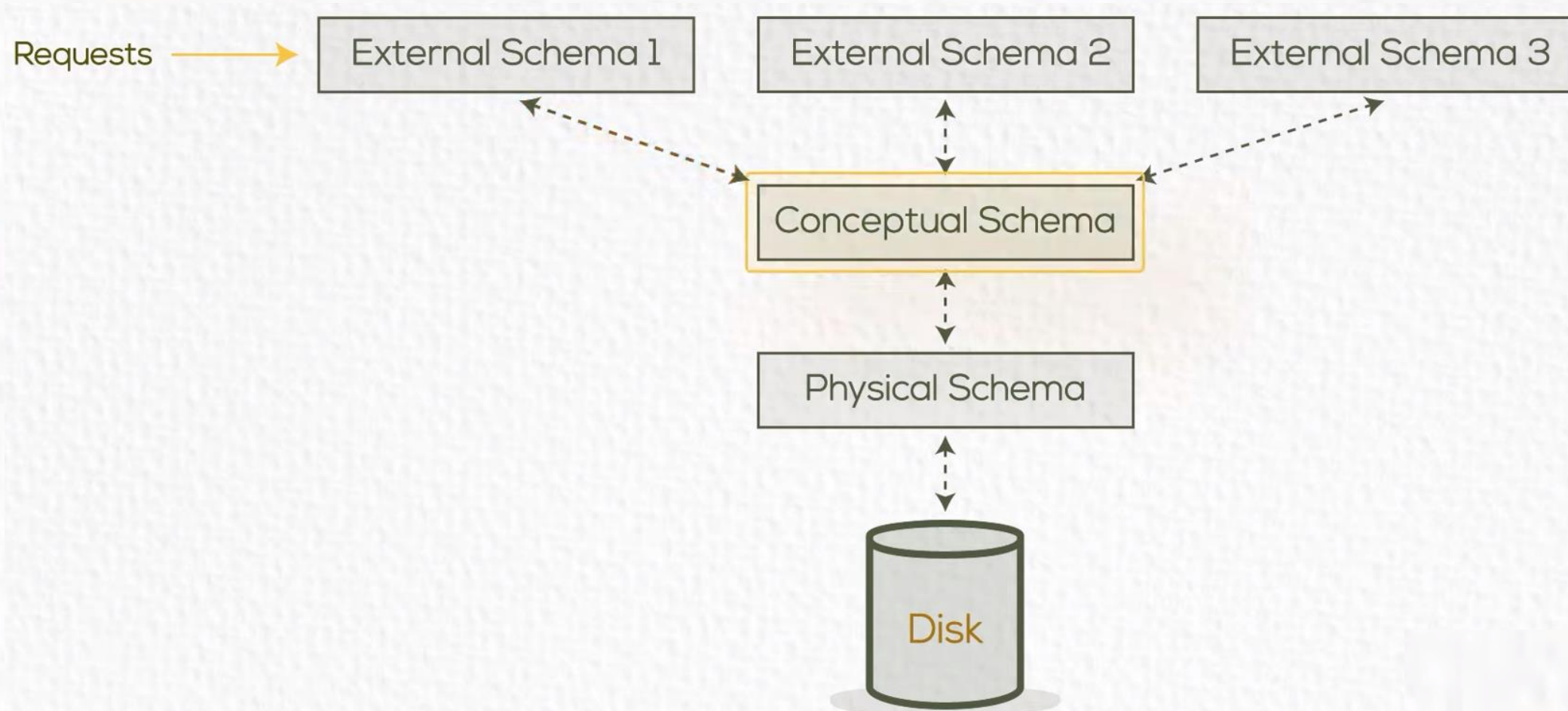
Mappings

The processes of transforming requests and results between levels

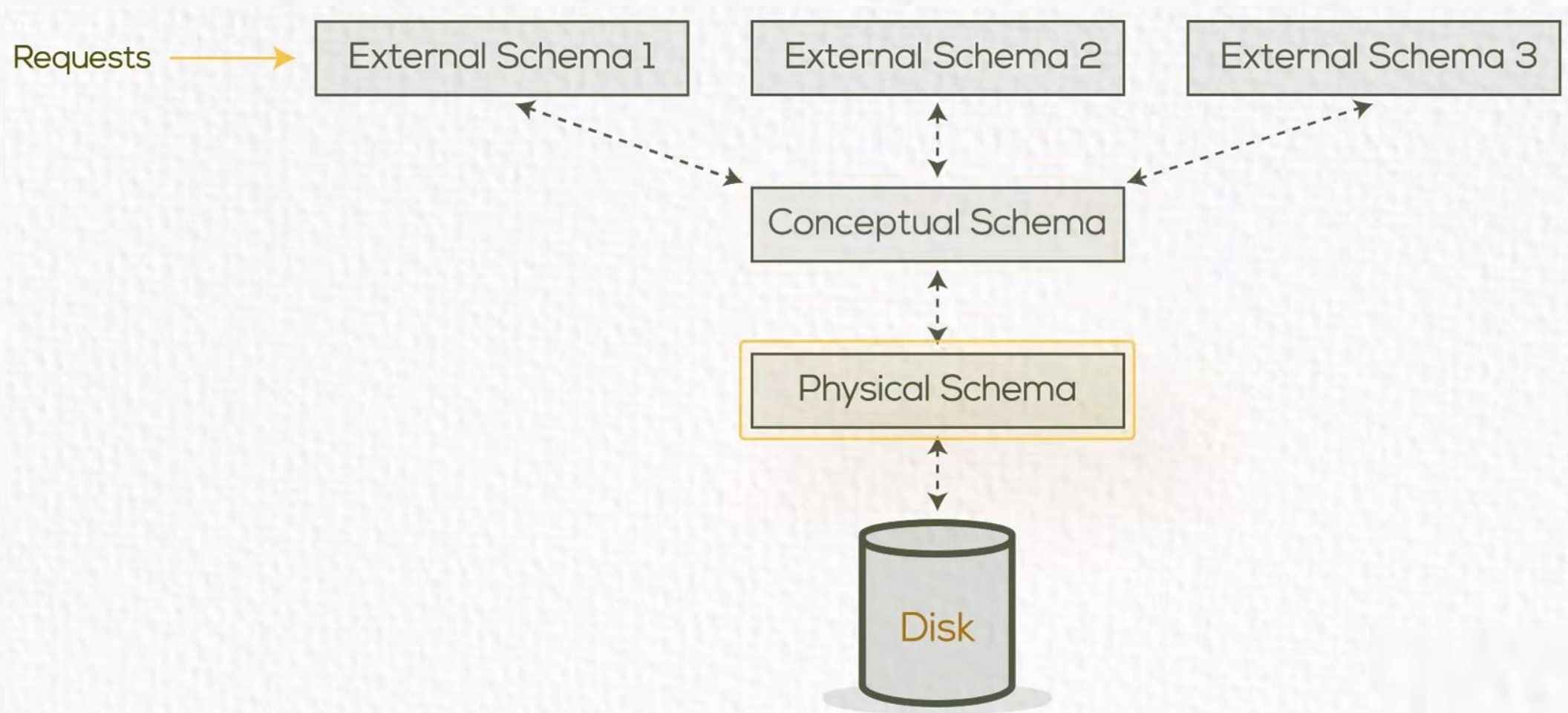
Mappings



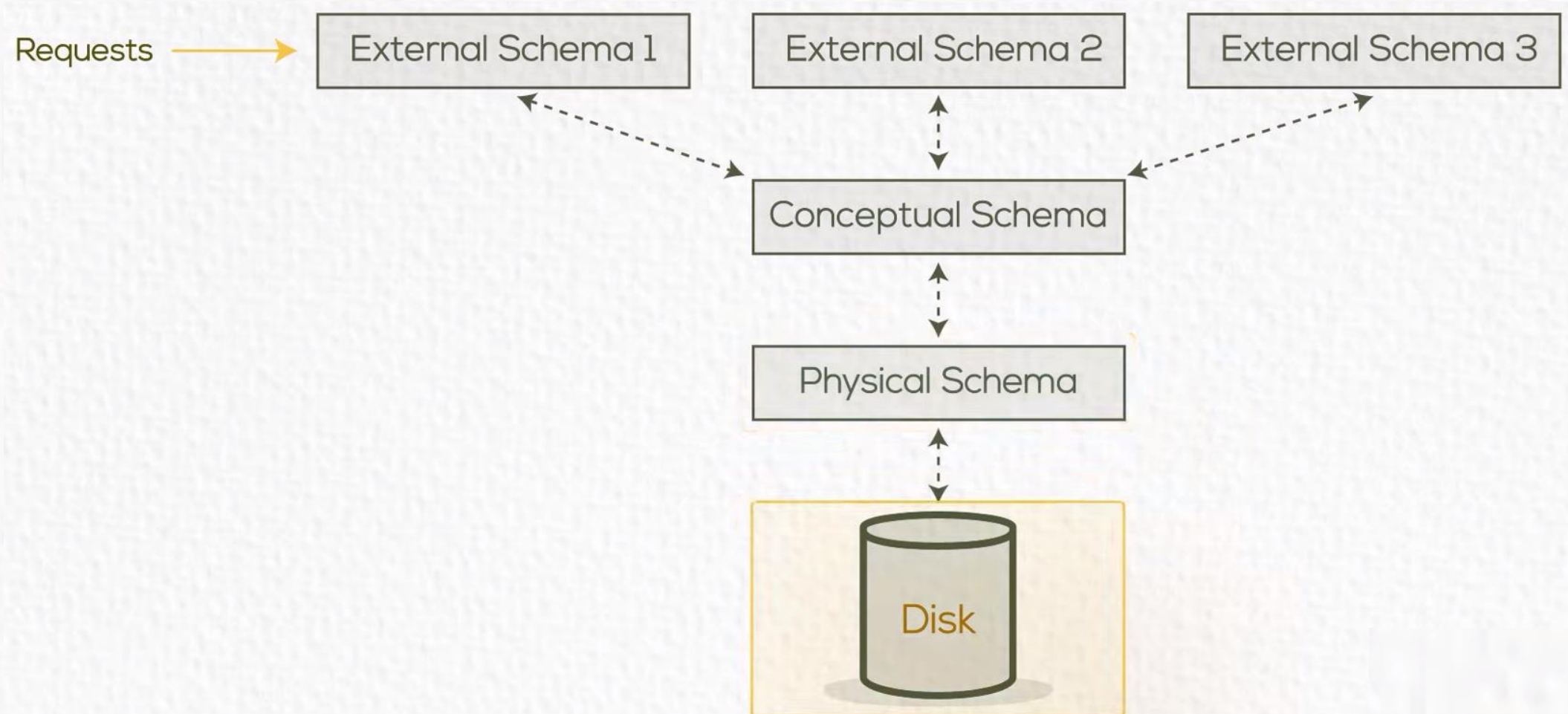
Mappings



Mappings



Mappings



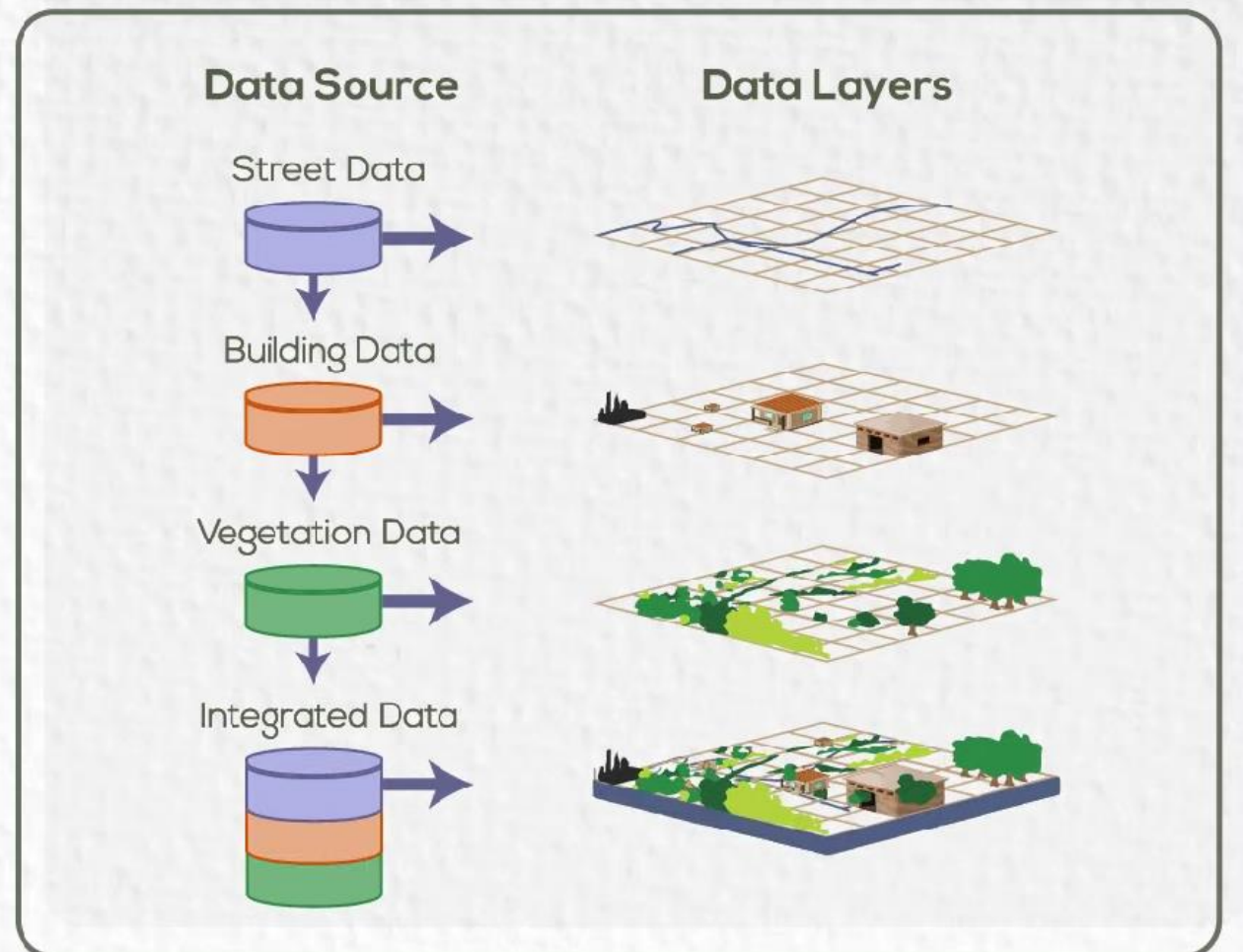
DBMS Other Functions



- Text/Number/Image/Audio/ Video
- Spatial Data
- Time Series
- Data mining

DBMS Other Functions

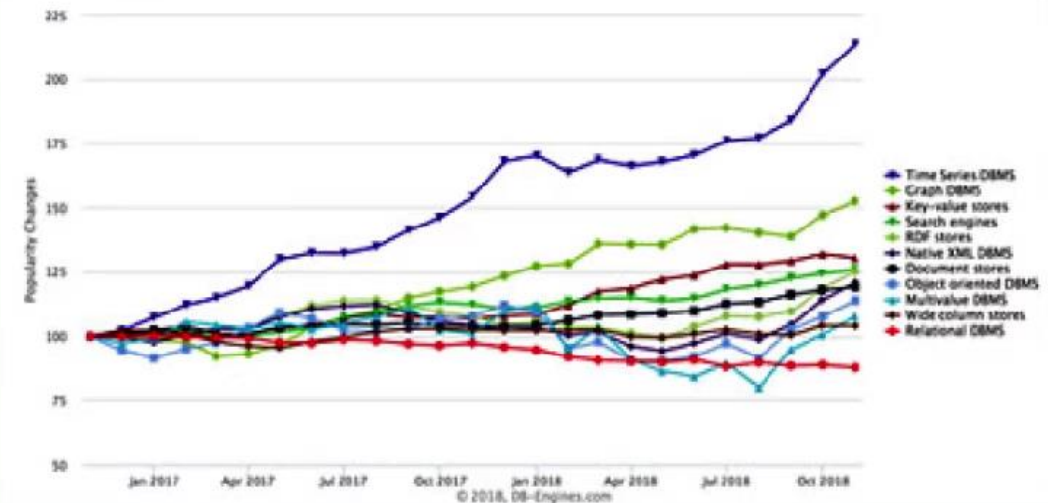
- Multimedia Function
- Spatial Data
- Time Series
- Data mining



DBMS Other Functions

- Multimedia Function
- Spatial Data
- Time Series
- Data mining

Trend of the last 24 months



DBMS Other Functions

- Multimedia Function
- Spatial Data
- Time Series
- Data mining

Clustering

Classification

Association Rules

Example



E- commerce



Super Market

Database Environment

Centralized Database Environment

- ① **Mainframe environment.**
- ② **Client/Server environment.**
- ③ **Internet Computing environment.**

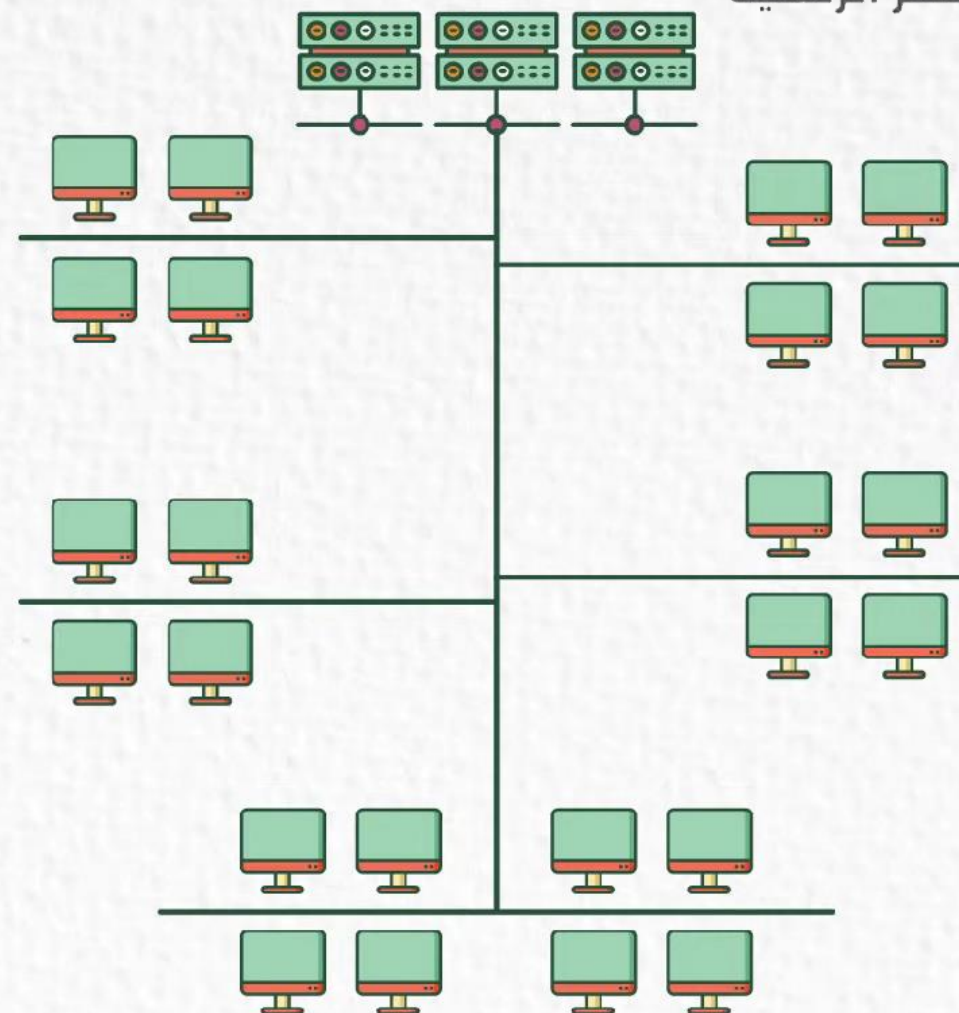
Centralized Database Environment

① Mainframe environment.



Problems with this environment

- The processing depends on one server.
- The performance is very slow.
- Database and application layer has Single Point of failure.



Centralized Database Environment



② Client/Server environment.

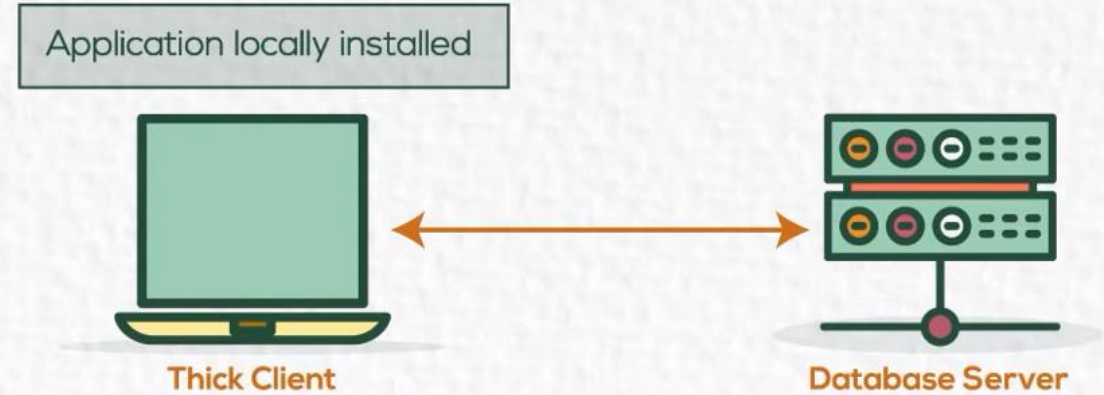


Problems with this environment

- Database is a single point of failure.
- High cost For support.

Advantages

- Application layer **isn't** a single Point of failure.



Centralized Database Environment

③ Internet Computing environment (Three-tier architecture).

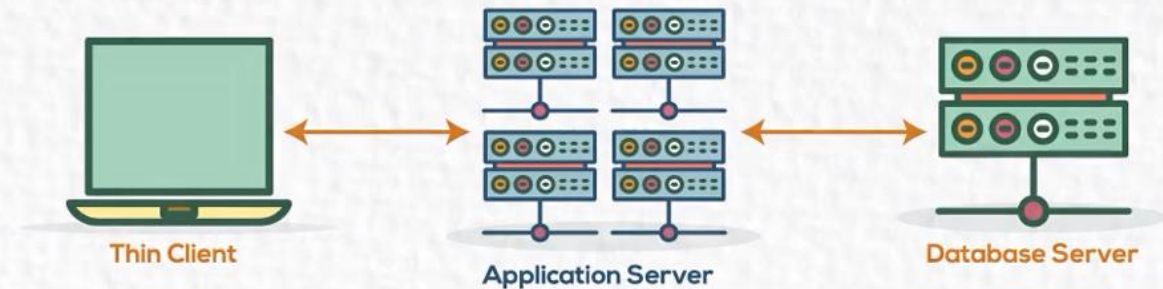


Problems with this environment

- Application server is a single point of failure.
- Database is a single point of failure.

Advantages

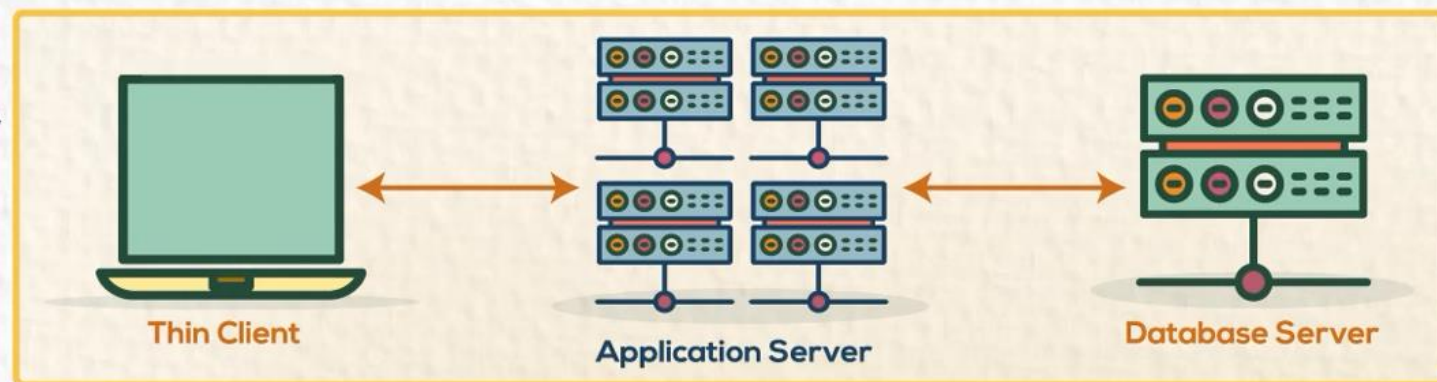
- Lower cost for support and maintenance.



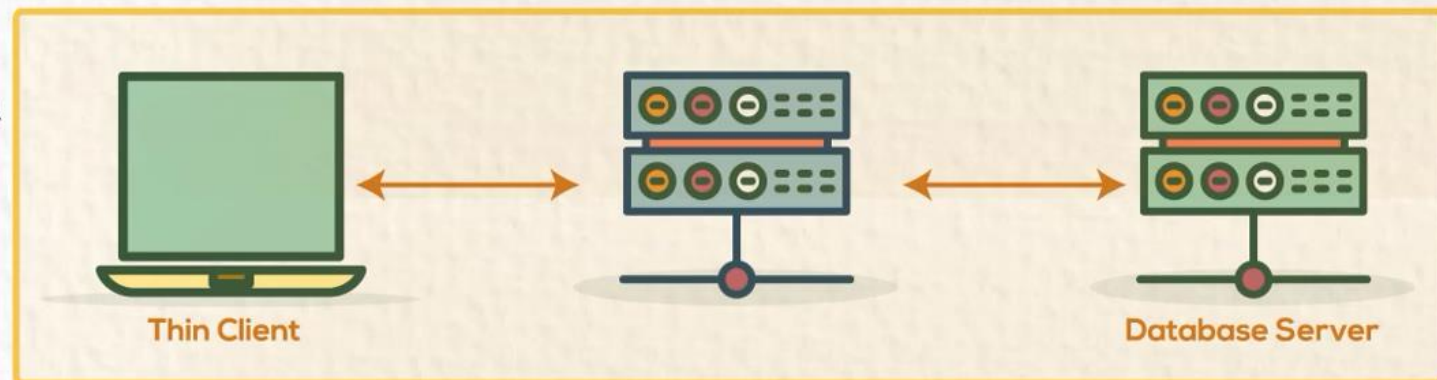
Centralized Database Environment

③ Internet Computing environment (Three-tier architecture).

N-tier
architecture



Three tier
architecture



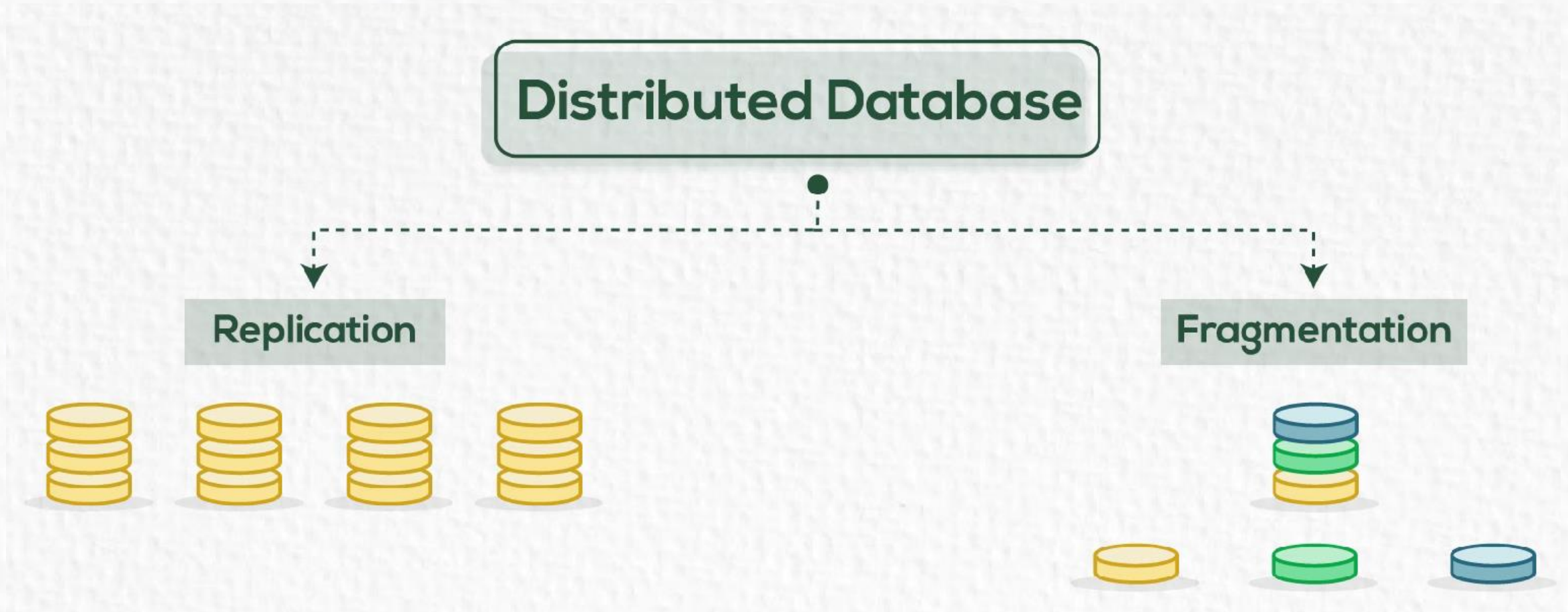
Database Environment

Distributed Database

Replication

Fragmentation

Database Environment



Database Environment

Distributed Database

Support high availability of Database

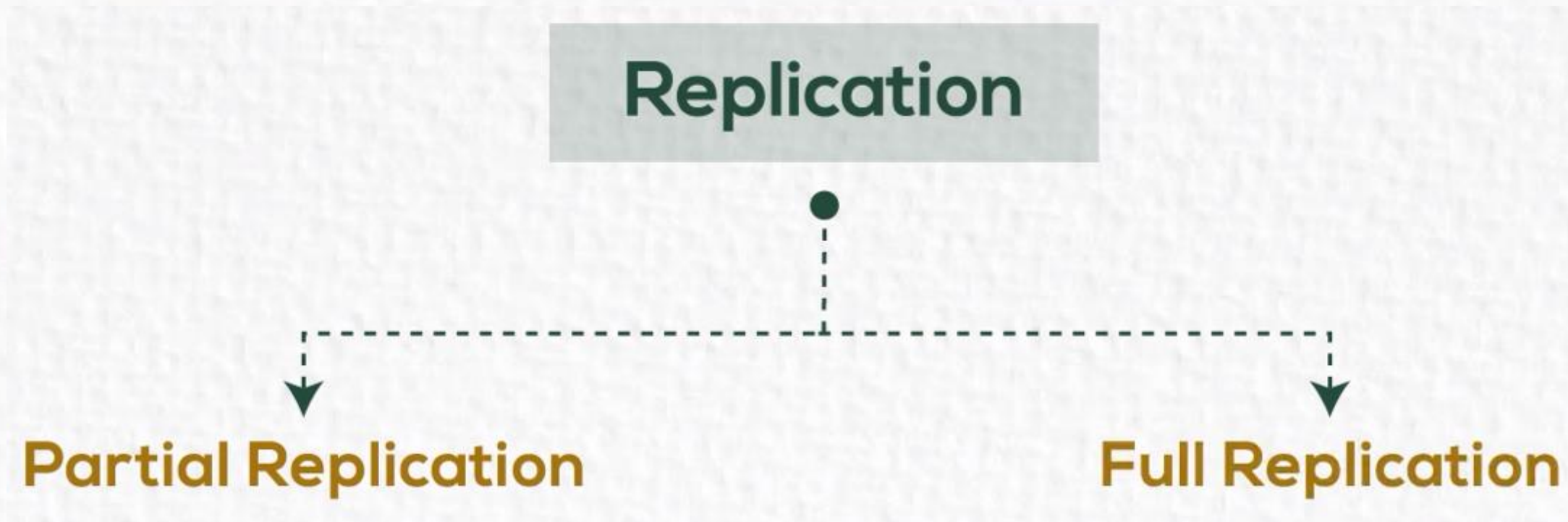
Replication



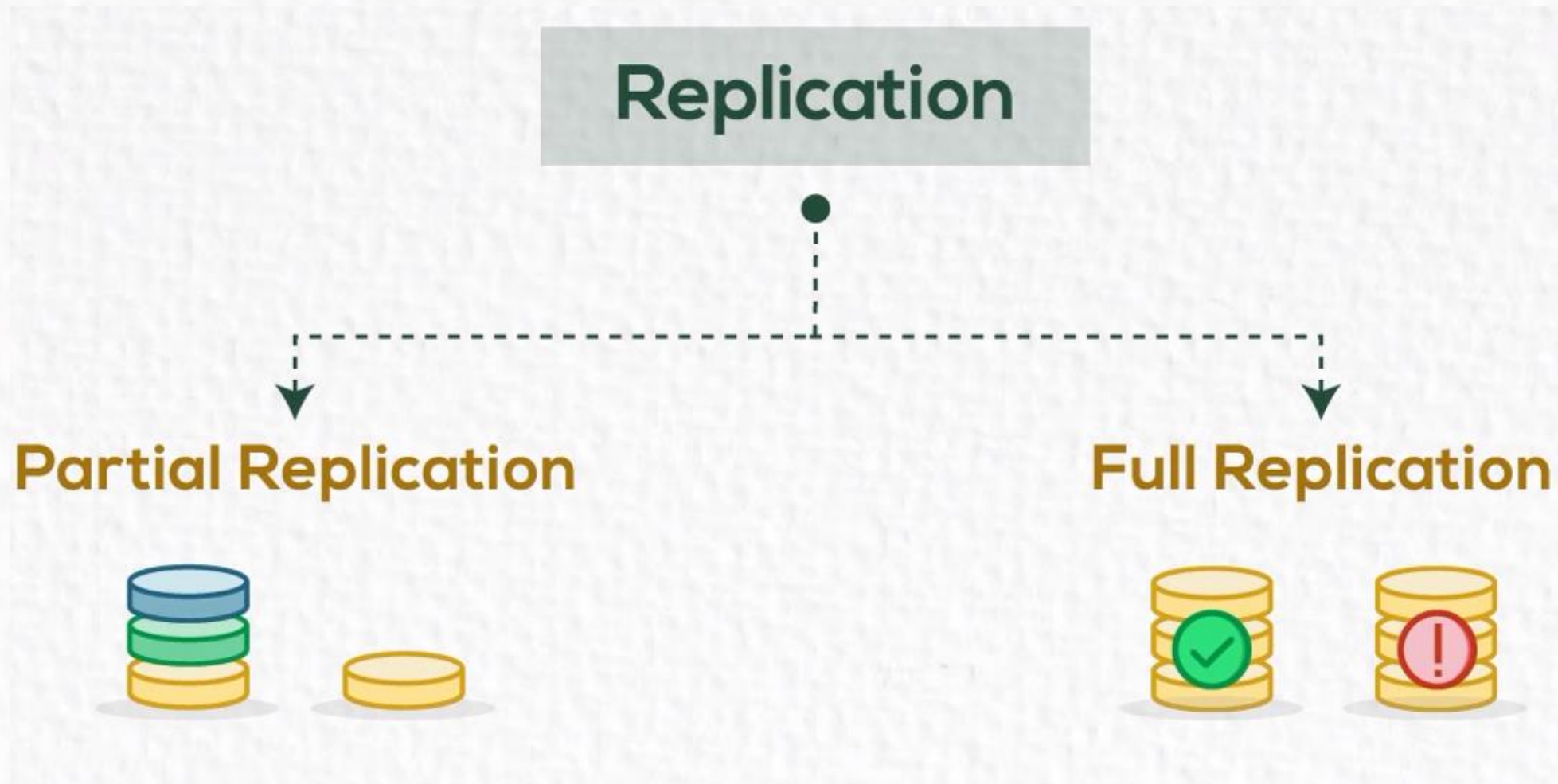
Fragmentation



Distributed Database



Distributed Database



Distributed Database

Fragmentation



Horizontal



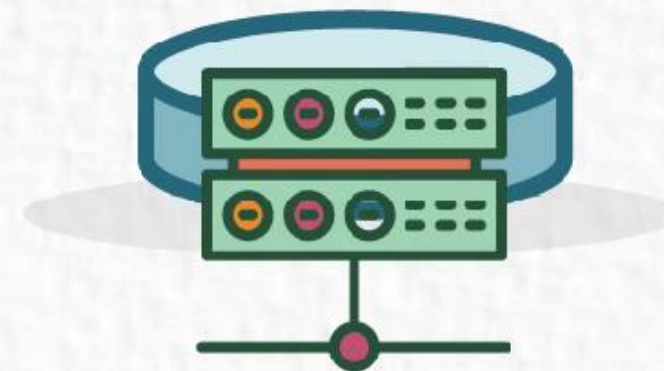
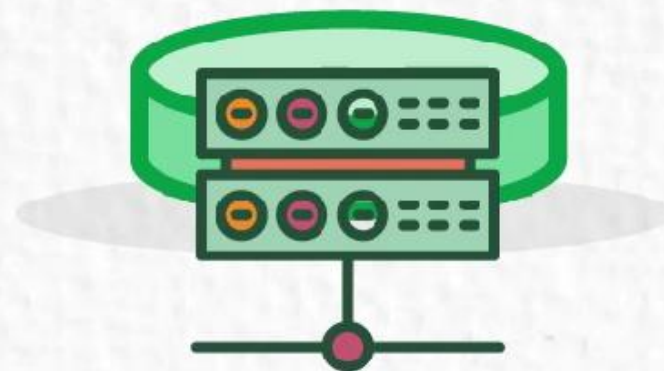
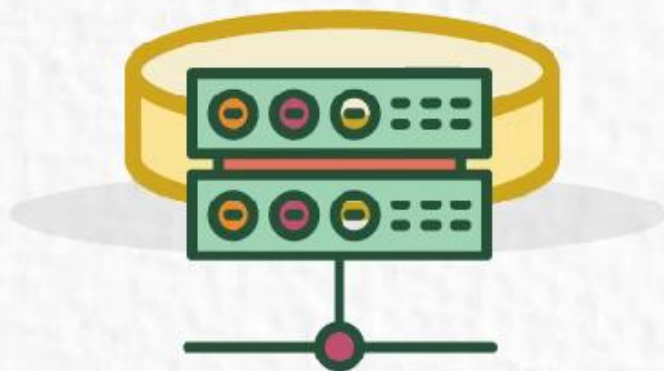
Vertical



Hybrid

Distributed Database

Fragmentation



Distributed Database

Fragmentation



Advantages

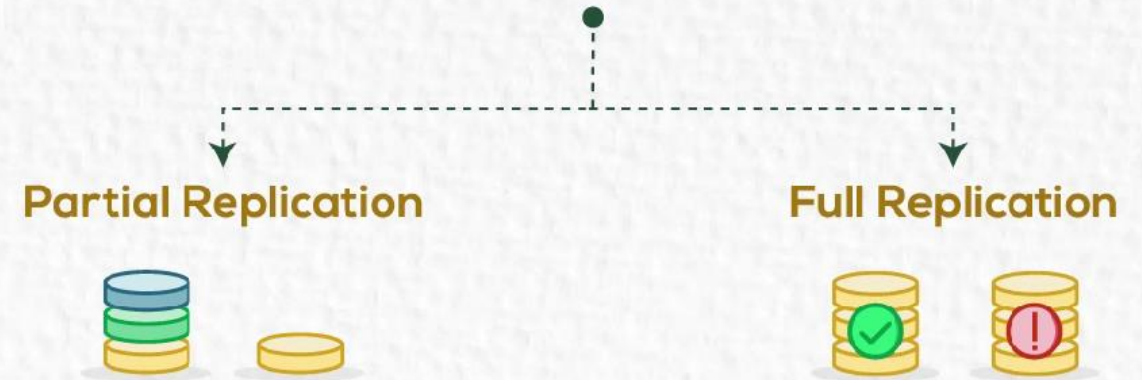
- Database is NOT a single point of failure.

Distributed Database

Fragmentation



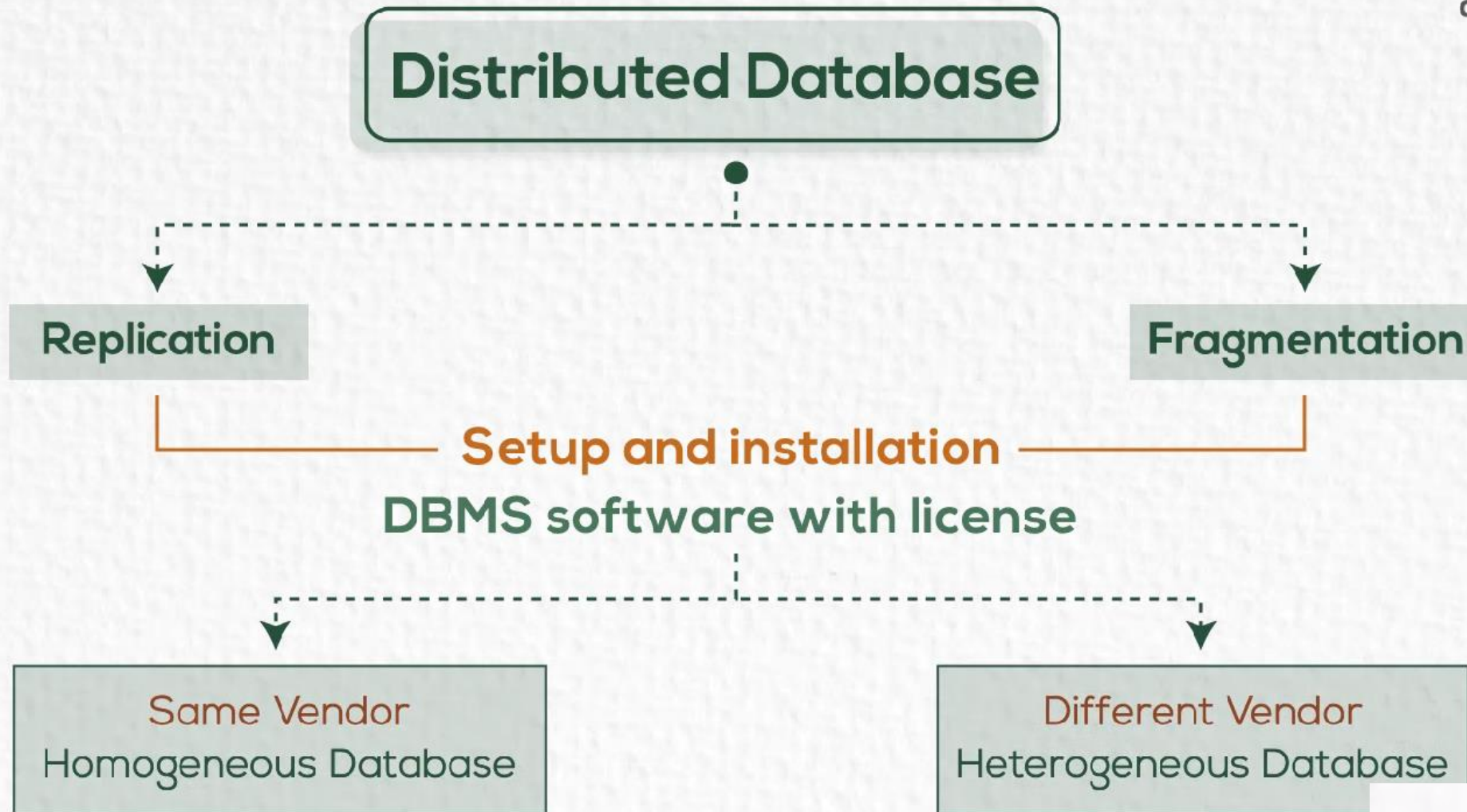
Replication



Advantages

- Database is NOT a single point of failure.

Distributed Database



Distributed Database

