An Overview of Data Warehousing and OLAP Technology

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- Data Warehousing and OLAP
- Architecture of DW
- Backend Tools and Utilities
- Conceptual Model and Front End Operations
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- Metadata and Warehouse Management

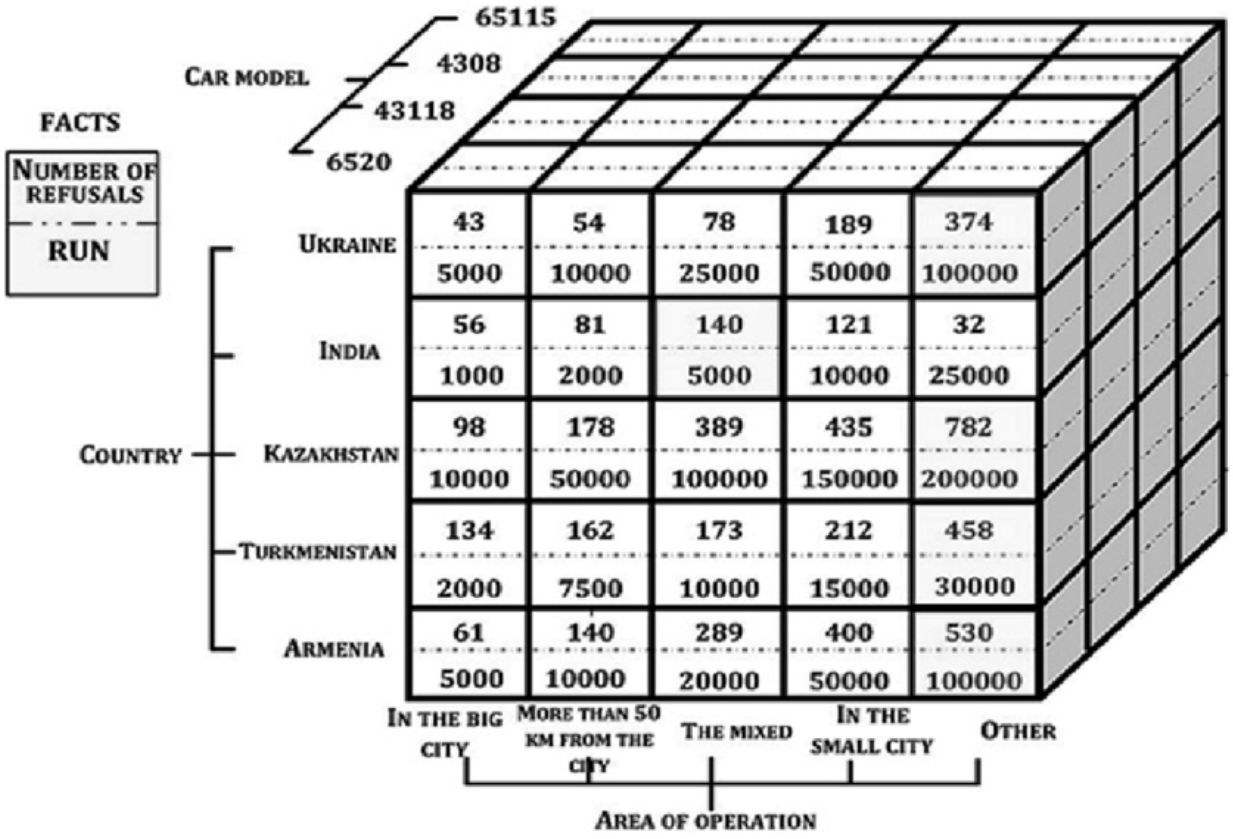
Data Warehouse

- Integrate Data
- Multiple Heterogeneous Sources
- Support Analytical Reporting
- Decision Making

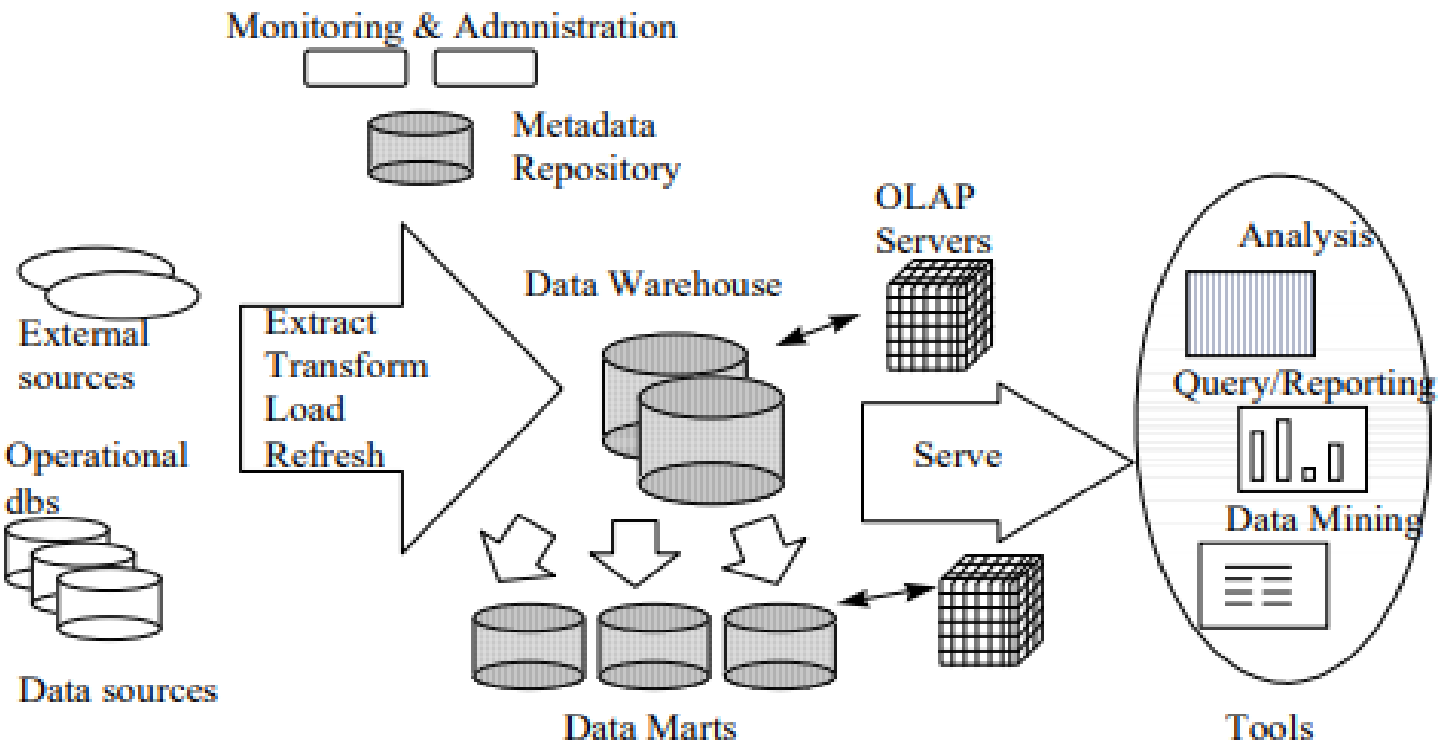
OLAP

- On-line Analytical Processing
- Use DW data to analyze information
- Data divided into cubes
- Numeric Facts – Measures
- Categorized by Dimensions

OLAP Cube


FACTS
NUMBER OF REFUSALS
RUN
CAR MODEL
65115
4308
43118
6520
COUNTRY
UKRAINE
INDIA
KAZAKHSTAN
TURKMENISTAN
ARMENIA
43 5000
54 10000
78 25000
189 50000
374 100000
56 1000
81 2000
140 5000
121 10000
32 25000
98 10000
178 50000
389 100000
435 150000
782 200000
134 2000
162 7500
173 10000
212 15000
458 30000
61 5000
140 10000
289 20000
400 50000
530 100000
IN THE BIG CITY
MORE THAN 50 KM FROM THE CITY
THE MIXED
IN THE SMALL CITY
OTHER
AREA OF OPERATION

Architecture of DW

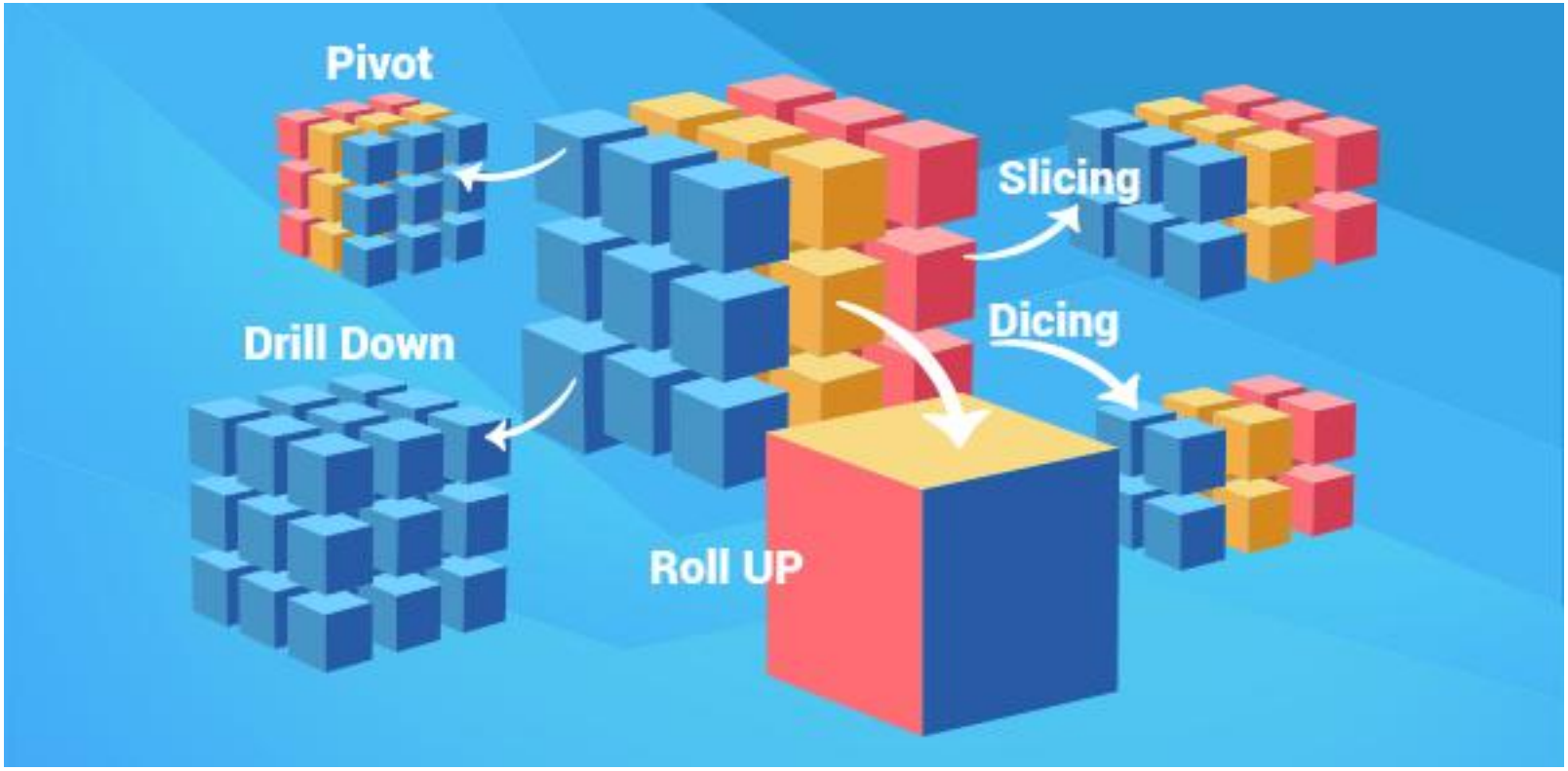


Backend Tools and Utilities

- Data Cleaning/Transforming
- Loading – Full and Incremental Load
- Refreshing – Updates in Source Data

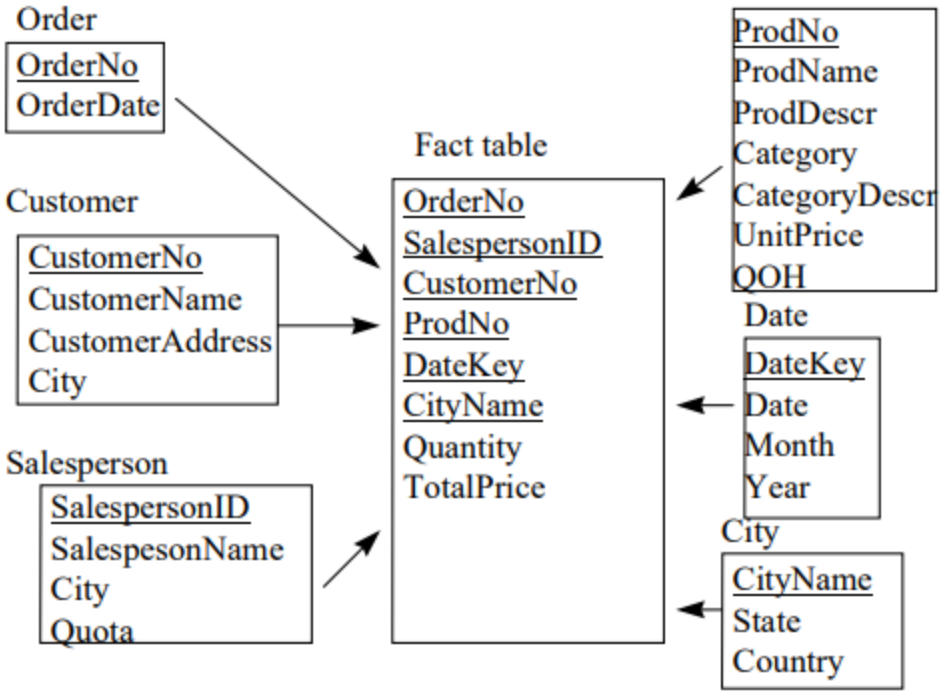
Conceptual Model and Front End Operations

- Multidimensional data model (Cube)
- Pivoting
- Rollup
- Drill Down
- Slice and Dice

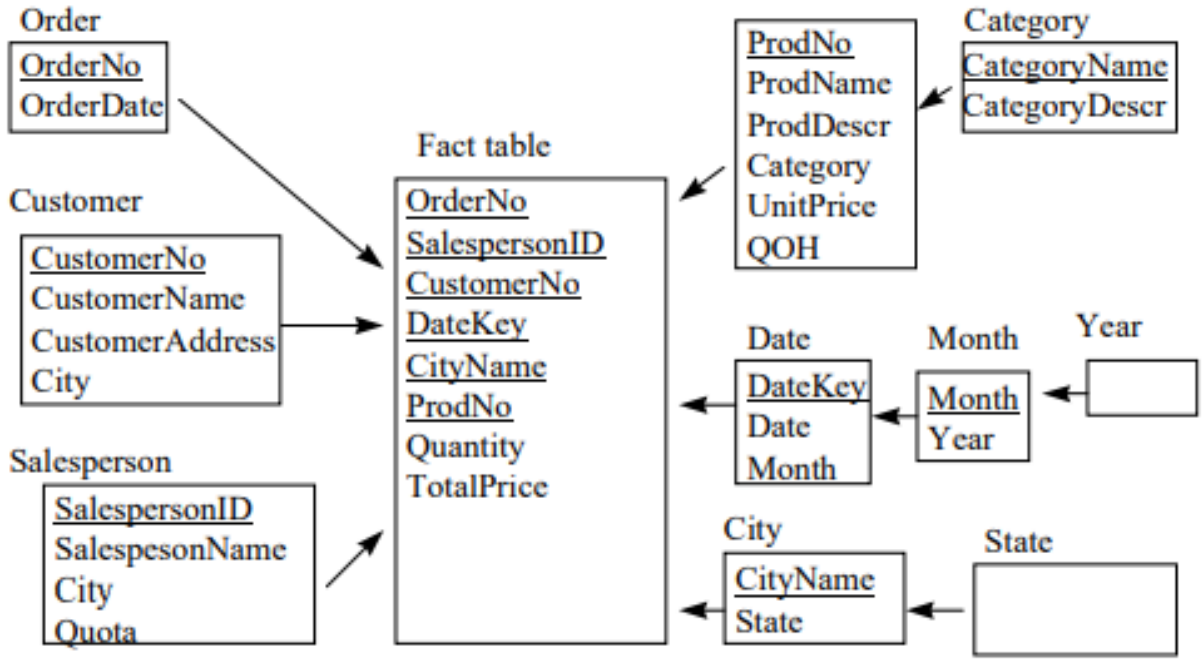

Pivot
Slicing
Drill Down
Dicing
Roll UP

Database Design Methodology

- Star Schema – Single Fact Table and Single Table for each dimension



- Snowflake Schema – Refinement of Star, dimension tables are normalized.



Warehouse Servers

Basis for comparison	ROLAP	MOLAP
Storage & Fetched	Data stored and fetched from main data warehouse.	Data stored and fetched from the MDDBs.
Data Form	Relational tables.	Large multidimensional array made of data cubes.
Data volumes	Large data volumes.	Limited summaries data is kept in MDDBs.
View	Creates a multidimensional view of data dynamically.	Already stores the static multidimensional view of data in MDDBs.
Access	Slow access.	Faster access.

Metadata and Warehouse Management

- Types of Metadata:
  - Administrative Metadata
  - Business Metadata
  - Operational Metadata
- Metadata Repository
  - Store and Manage
  - Share among tools

Thank You!