Data Warehouse & Business Intelligence Fundamentals

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Data Warehouse & Business Intelligence Fundamentals

Course Scope

- DW Concept
- DW Architecture
- DW Data Modeling
- Data Integration
- Gathering and Analyzing Requirements
- Business Intelligence
- Deployment, Support and Maintenance

Data Warehouse Architecture Part I

- Enterprise Architecture Domains
- Simplified DW Architecture by Oracle
- Top-Down DW Architecture by Inmon
- Bottom-Up DW Architecture by Kimball
- Enterprise DW Bus Architecture by Kimball
- Hybrid DW Architecture Inmon - Kimball
- Terminology

Enterprise Architecture Domains

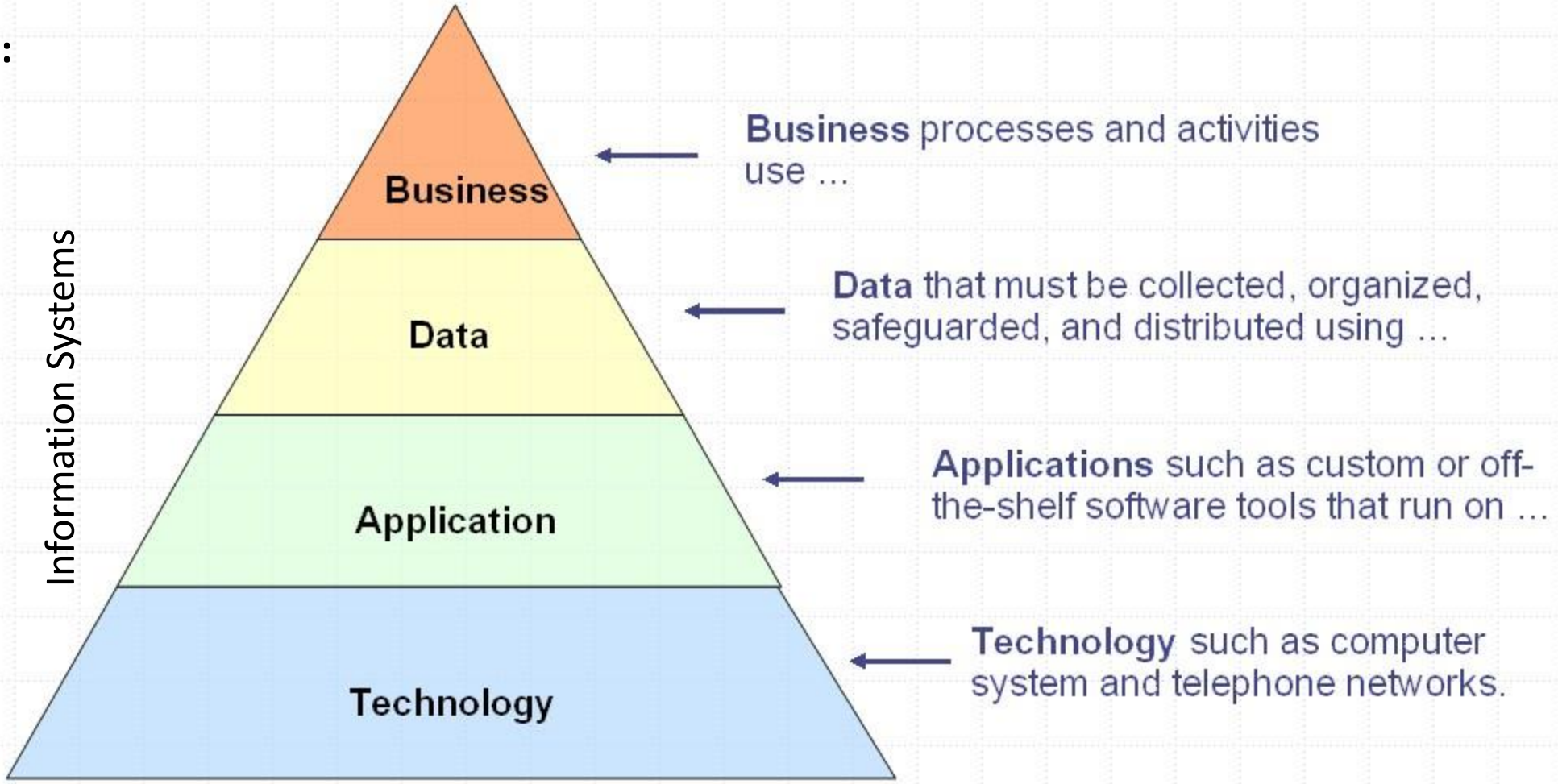
Also known as:

Functional

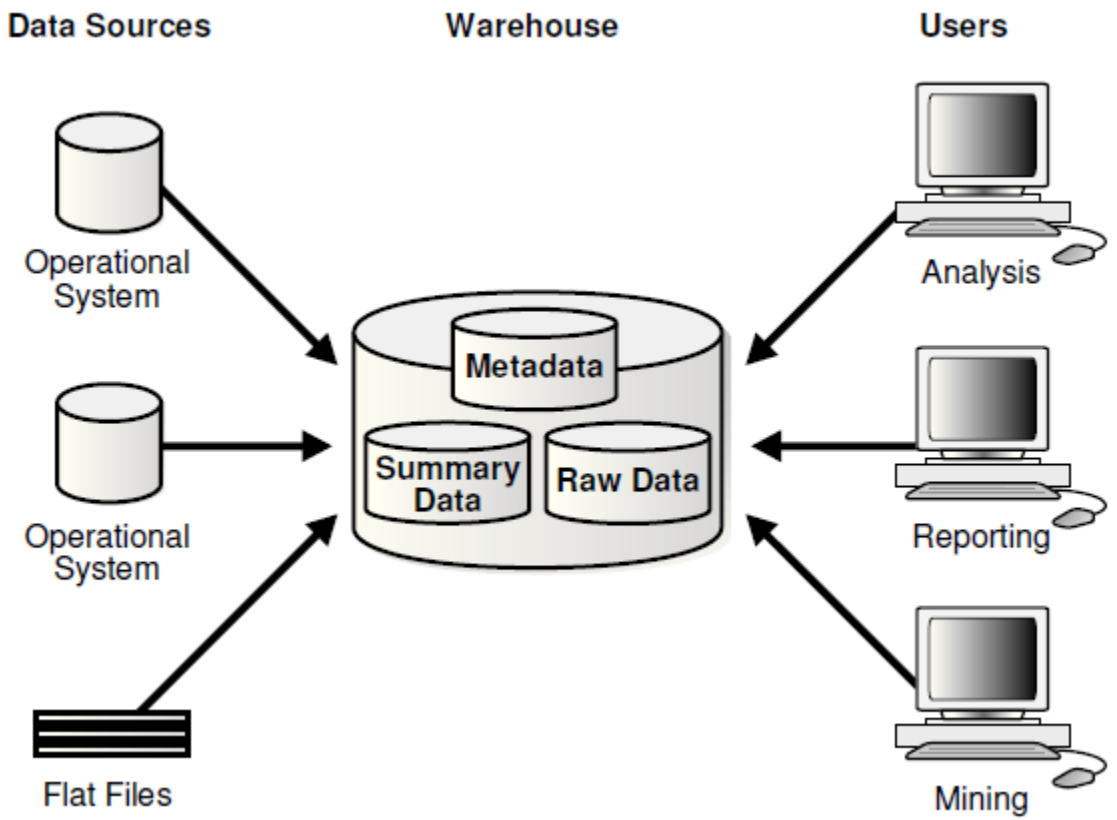
Information

Applications

Infrastructure,
Technical

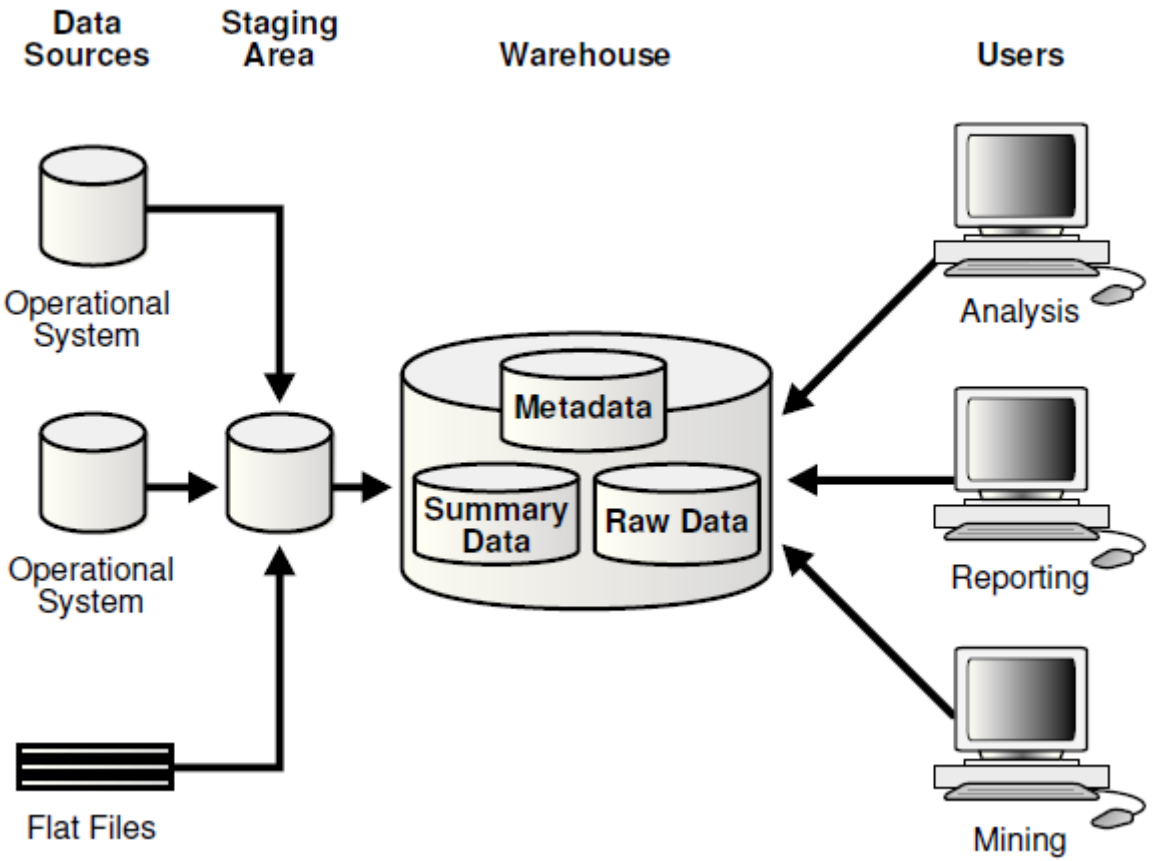


Simplified DW Architectures by Oracle



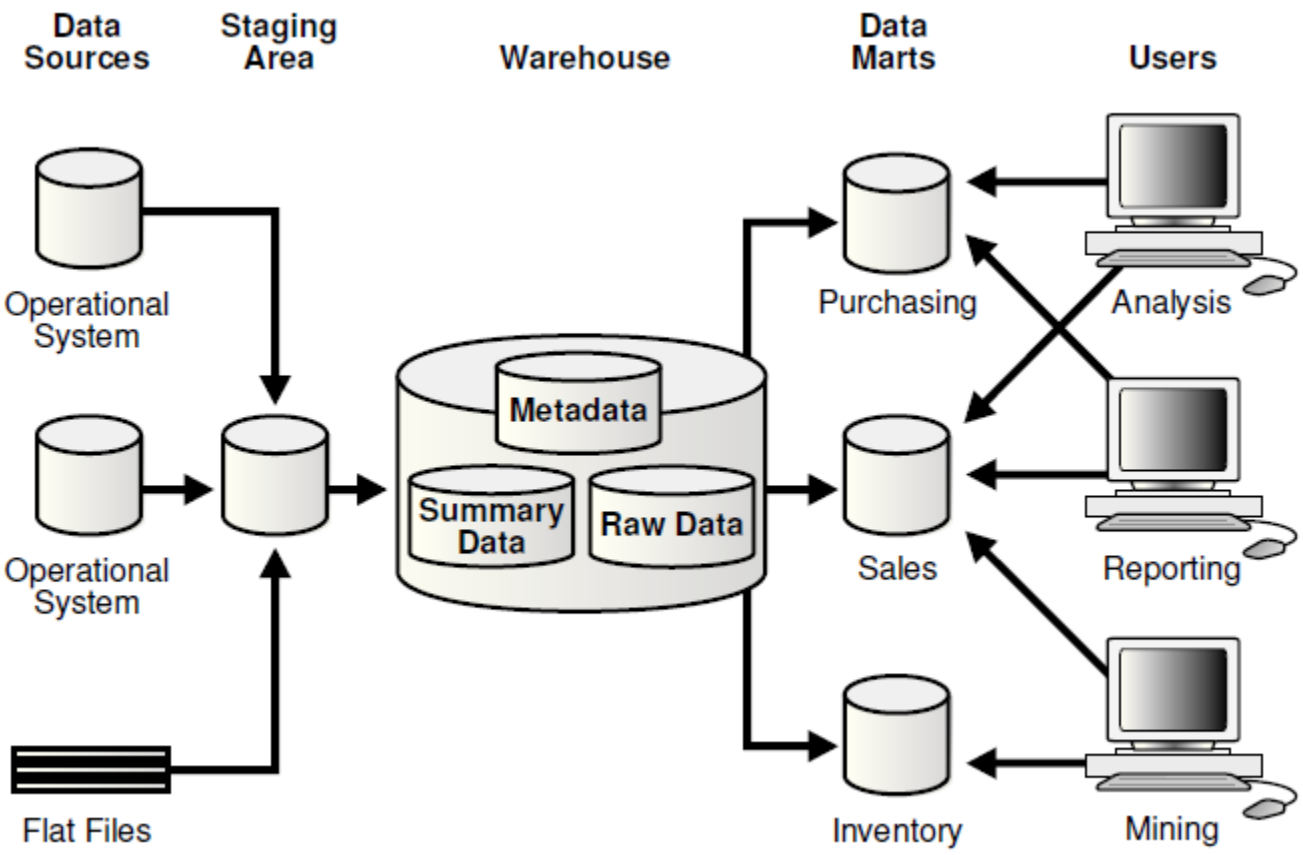
Basic DW Architecture

Simplified DW Architectures by Oracle



DW Architecture with Staging Area

Simplified DW Architectures by Oracle

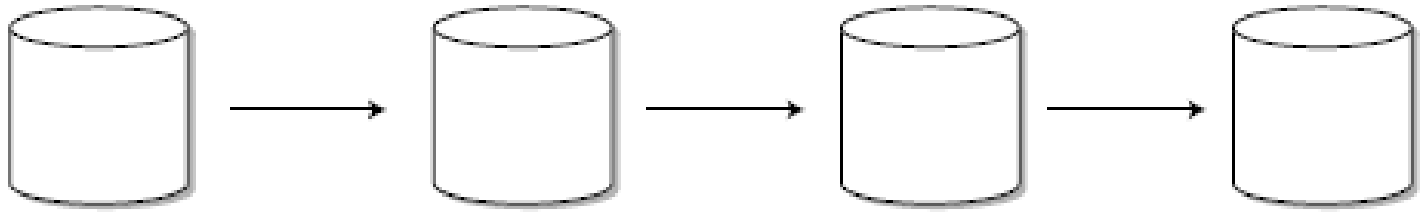


DW Architecture with Staging Area and Data Marts

Top-down DW Architecture by Bill Inmon

"Look at the whole and then work down to the particular. The details are important only when viewed in a broader content."

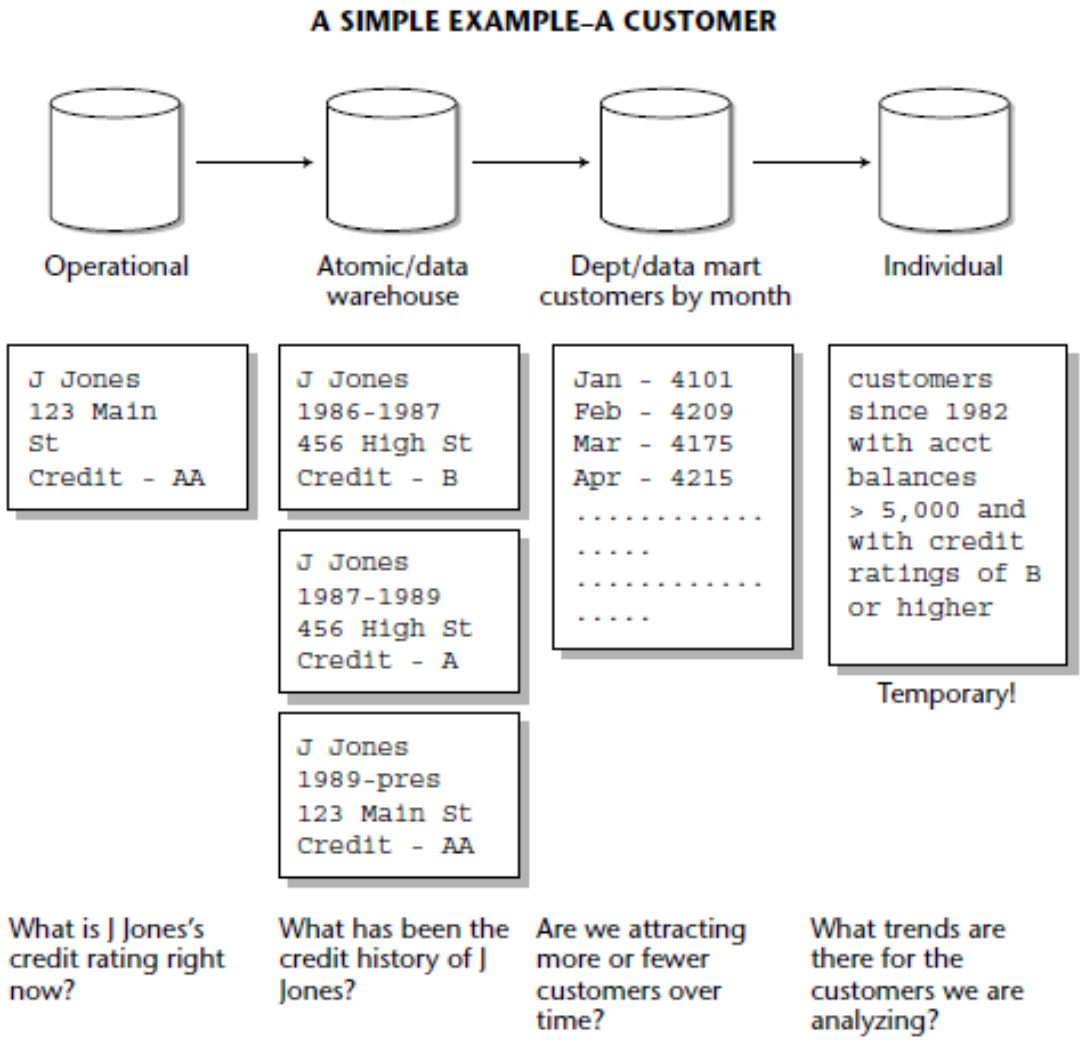
LEVELS OF THE ARCHITECTURE



Operational	Atomic/data warehouse	Departmental	Individual

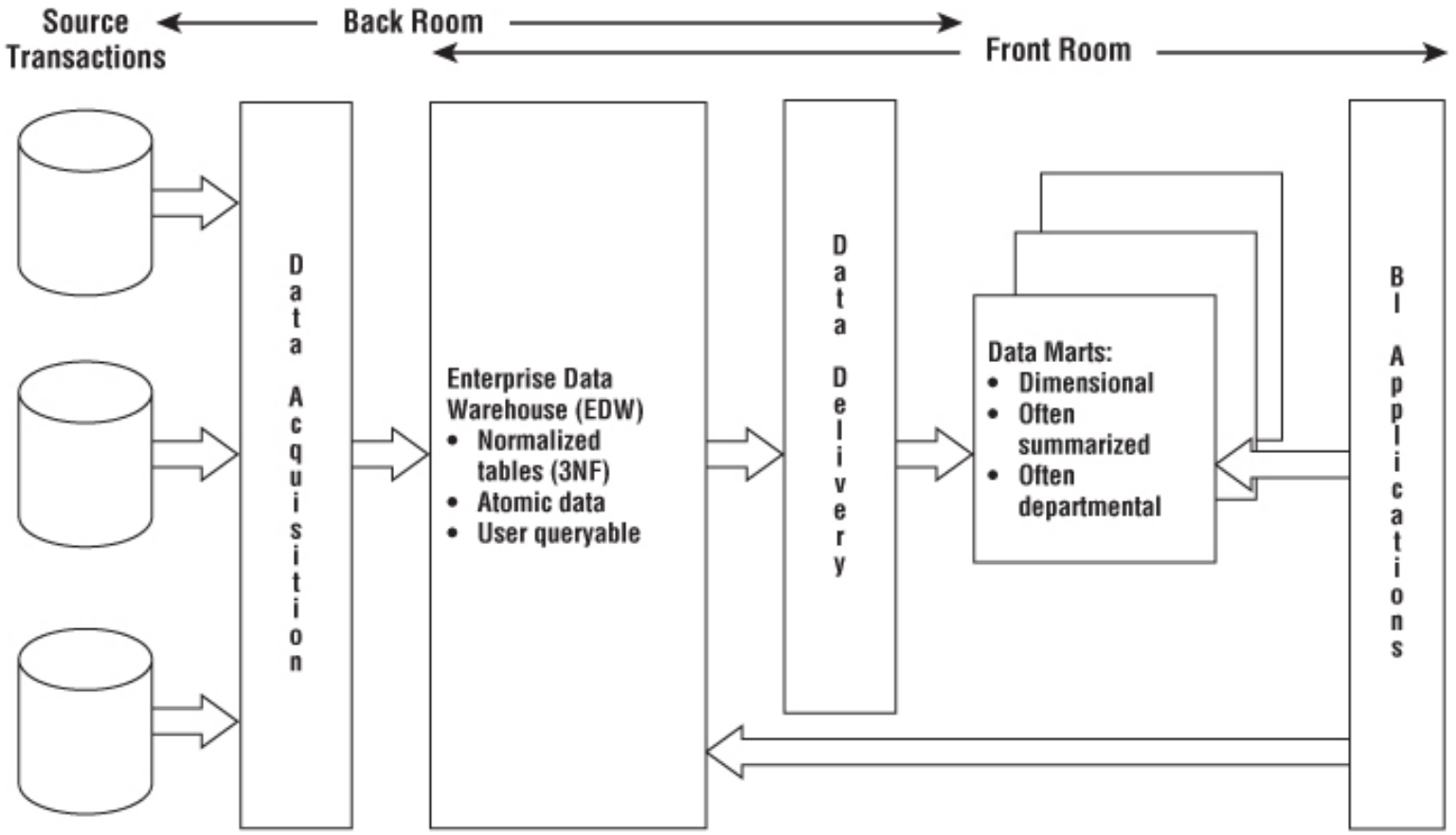
• Detailed
• Day to day
• Current valued
• High probability of access
• Application-oriented
	• Most granular
	• Time variant
	• integrated
	• Subject-oriented
	• some summary
		• Parochial
		• Some derived; some primitive
		• Typical departments
		  • Accounts
		  • Marketing
		  • Engineering
		  • Actuarial
		  • Manufacturing
			• Temporary
			• Ad hoc
			• Heuristic
			• Non-repetitive
			• PC, work-station based

Top-down DW Architecture by Bill Inmon

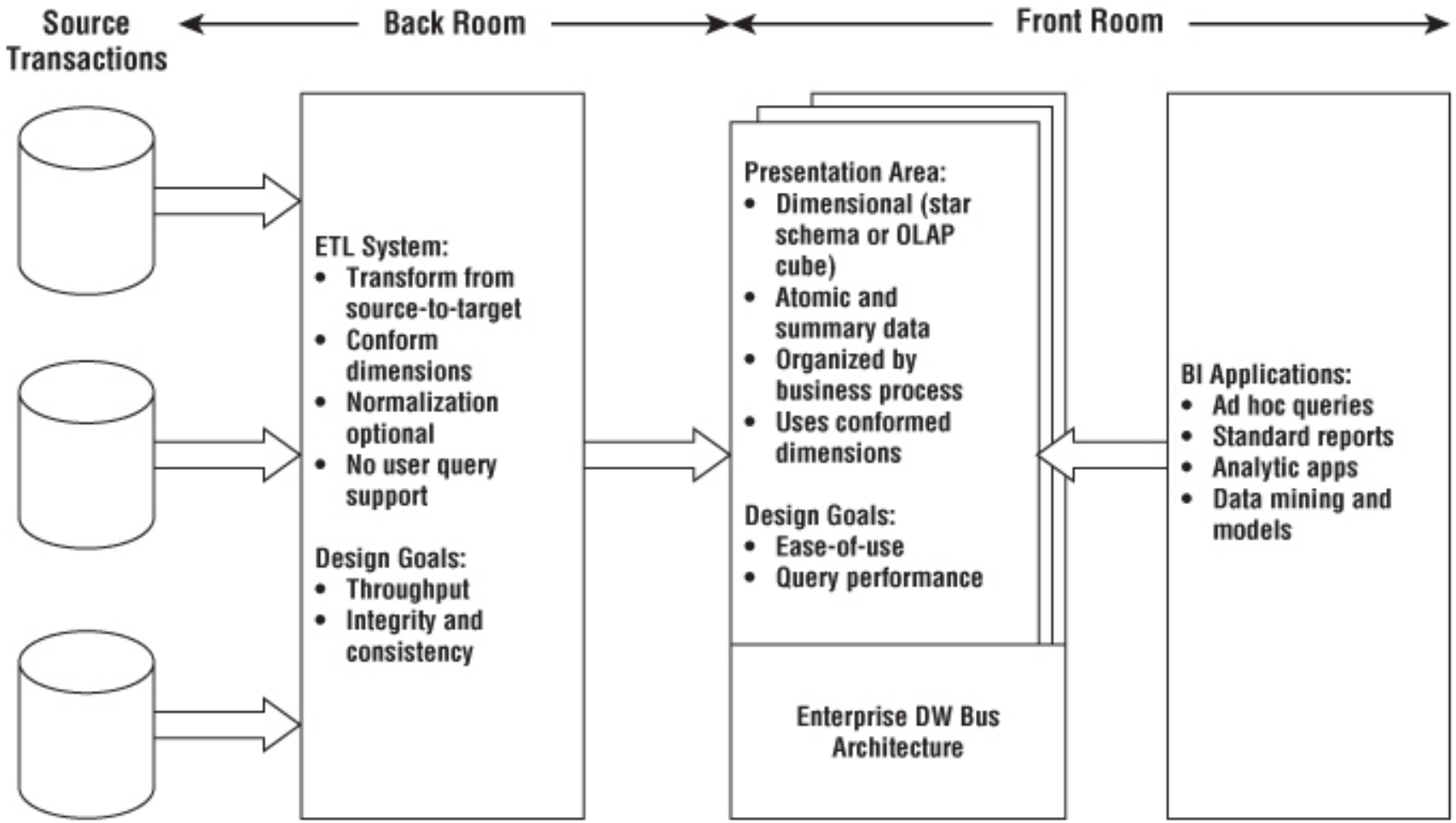


Top-down DW Architecture by Bill Inmon

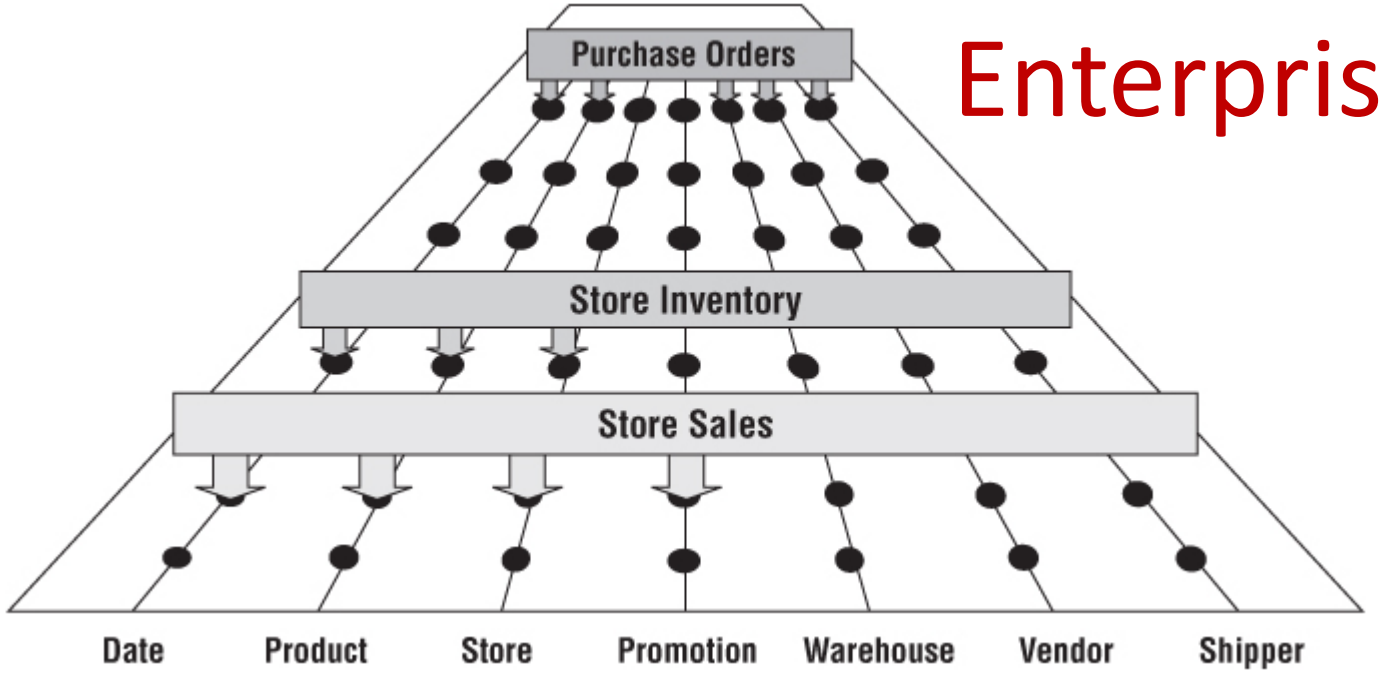
As presented by Ralph Kimball



Bottom-Up DW Architecture by Ralph Kimball



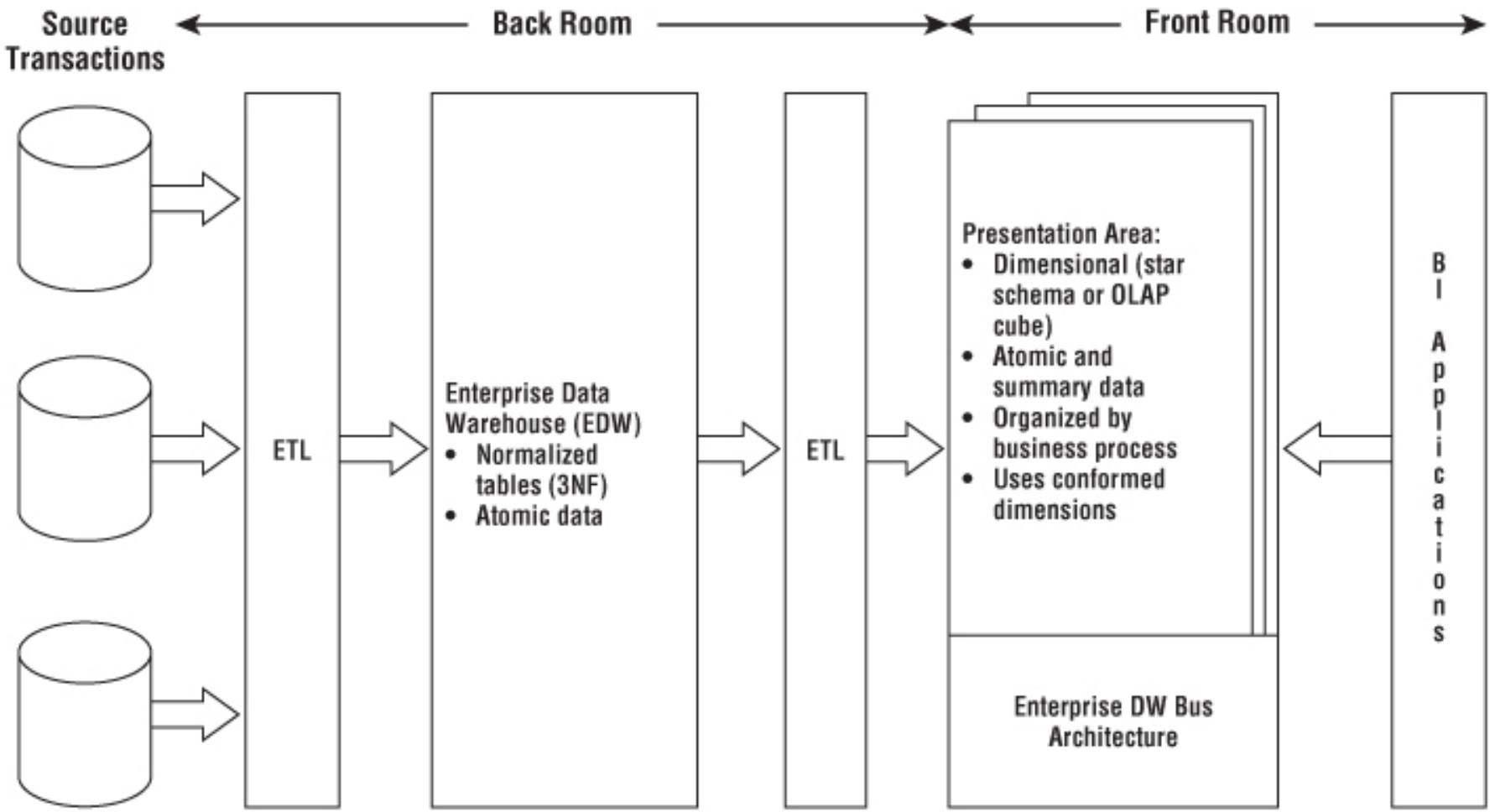
Enterprise DW Bus Architecture by Ralph Kimball



Bus Matrix

BUSINESS PROCESSES	COMMON DIMENSIONS						
	Date	Product	Warehouse	Store	Promotion	Customer	Employee
Issue Purchase Orders	X	X	X				
Receive Warehouse Deliveries	X	X	X				X
Warehouse Inventory	X	X	X				
Receive Store Deliveries	X	X	X	X			X
Store Inventory	X	X		X			
Retail Sales	X	X		X	X	X	X
Retail Sales Forecast	X	X		X			
Retail Promotion Tracking	X	X		X	X		
Customer Returns	X	X		X	X	X	X
Returns to Vendor	X	X		X			X
Frequent Shopper Sign-Ups	X			X		X	X

Hybrid DW Architecture Inmon - Kimball



Terminology

- (Enterprise) Data Warehouse (EDW, DW, DWH, EDWH)
- Staging Area (SA)
- Data Marts (DMs)
- ETL, ELT
- Back Room / Front Room
- DW Bus Matrix
- 3NF, OLTP, OLAP