Data Warehousing on the MPE Platform

Presentation #272

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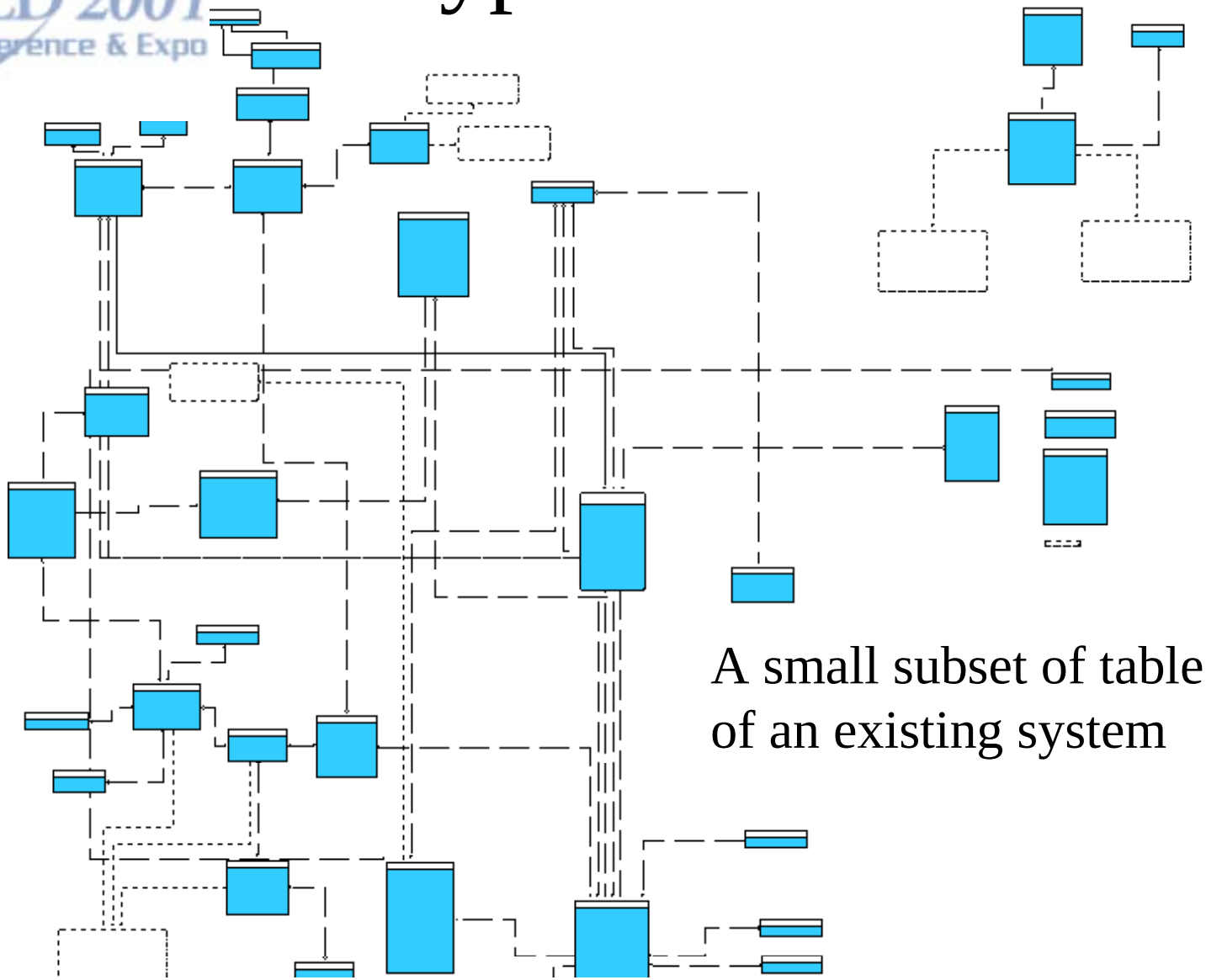
Abstract

- Company Data spread over multiple systems
  - Operations, Human Resources, Customers, Sales etc..
- ‘Fixed’ reports, change is difficult
- Ad-Hoc questions may not be possible or difficult
- Merging Disparate reports data time consuming
- Most system tuned to getting data in, not getting data out

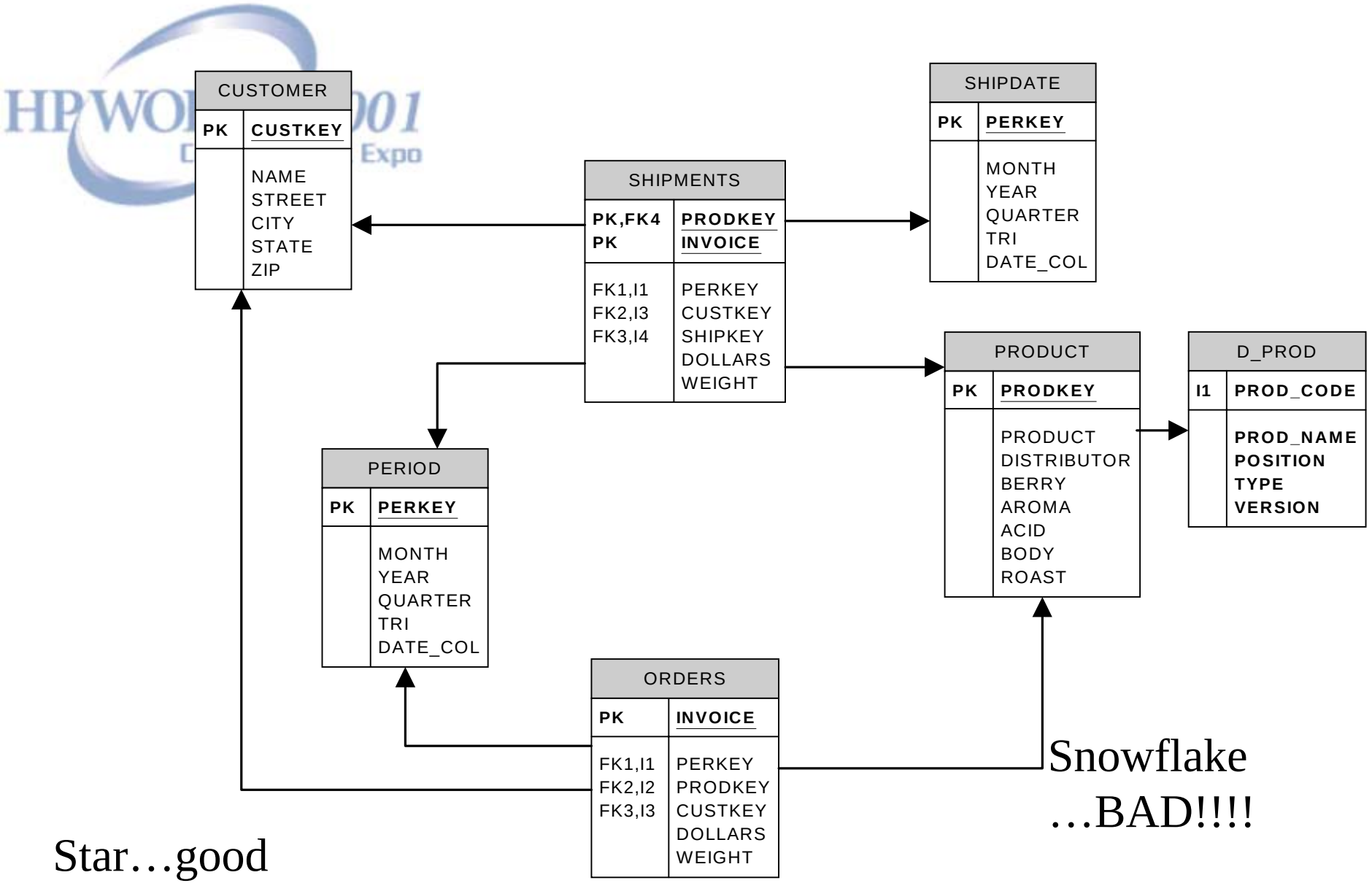
Client Concerns

- Complex entity relation data models are difficult for Client's to understand.
- Ad-hoc queries comprising of millions of rows may not return any result sets in a timely manner if at all.
- Running queries against huge tables may ‘disrupt’ DBA relationships

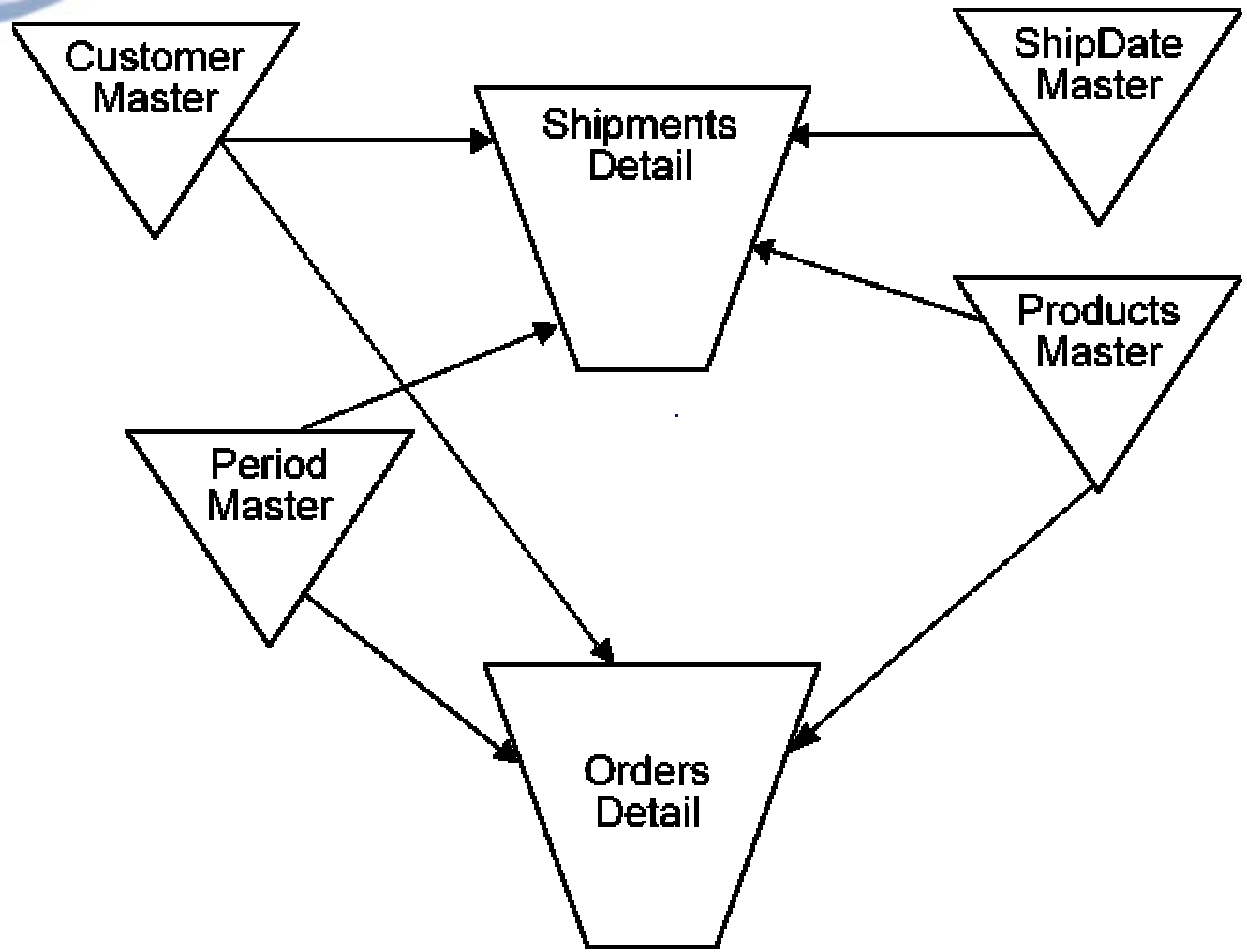
Typical ERD's



A small subset of tables of an existing system


CUSTOMER
PK CUSTKEY
NAME
STREET
CITY
STATE
ZIP
SHIPMENTS
PK,FK4 PRODKEY
PK INVOICE
FK1,I1 PERKEY
FK2,I3 CUSTKEY
FK3,I4 SHIPKEY
DOLLARS
WEIGHT
SHIPDATE
PK PERKEY
MONTH
YEAR
QUARTER
TRI
DATE_COL
PRODUCT
PK PRODKEY
PRODUCT
DISTRIBUTOR
BERRY
AROMA
ACID
BODY
ROAST
D_PROD
I1 PROD_CODE
PROD_NAME
POSITION
TYPE
VERSION
PERIOD
PK PERKEY
MONTH
YEAR
QUARTER
TRI
DATE_COL
ORDERS
PK INVOICE
FK1,I1 PERKEY
FK2,I2 PRODKEY
FK3,I3 CUSTKEY
DOLLARS
WEIGHT
Snowflake
…BAD!!!!
Star…good

"When I wish upon a Star"



Data Warehouse System

- Data
- Connection(s) Layer
- ETL
- Query Tools
- Analysis Tools
- Presentation Interface
- **Quality Assurance procedures**
- *Politics*

Design Process

- Choose a business process to model
- Choose the grain of the business process
- Choose the dimensions
- Choose the measured facts

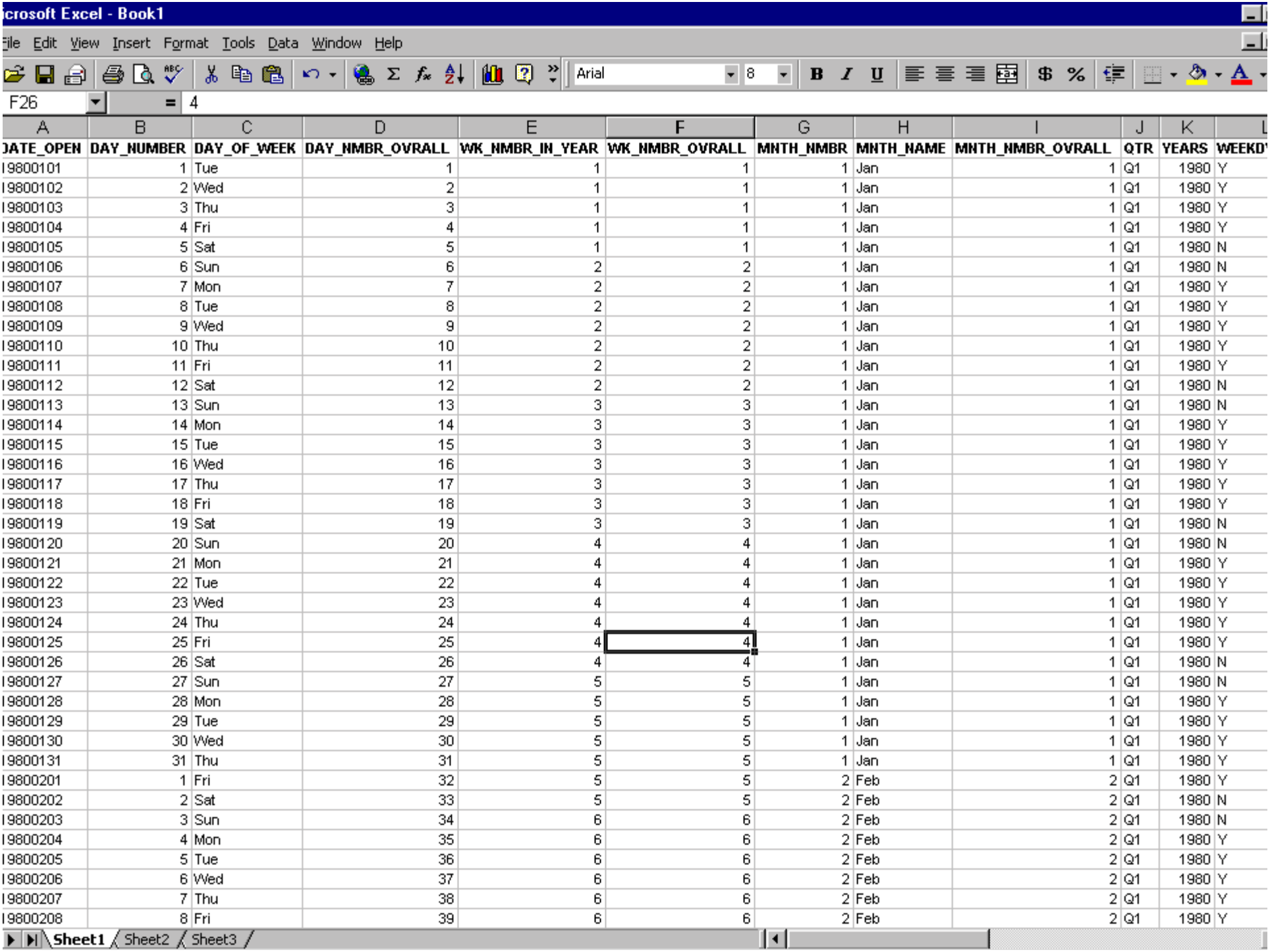
Consolidation of Disparate Data Sources

- Excel Spreadsheets
- Access database
- Other Image data sources
- A plethora of other RDBMSs

Most of your work will be in the ETL, data staging area. This will make or break your project!

Get the data

- Examine existing reports, where does the data come from?
- How is the data extracted?
- Which data types are not supported?
- Period Table



DATE_OPEN	DAY_NUMBER	DAY_OF_WEEK	DAY_NMBR_OVRALL	WK_NMBR_IN_YEAR	WK_NMBR_OVRALL	MNTH_NMBR	MNTH_NAME	MNTH_NMBR_OVRALL	QTR	YEARS	WEEKD
19800101	1	Tue	1	1	1	1	Jan	1	Q1	1980	Y
19800102	2	Wed	2	1	1	1	Jan	1	Q1	1980	Y
19800103	3	Thu	3	1	1	1	Jan	1	Q1	1980	Y
19800104	4	Fri	4	1	1	1	Jan	1	Q1	1980	Y
19800105	5	Sat	5	1	1	1	Jan	1	Q1	1980	N
19800106	6	Sun	6	2	2	1	Jan	1	Q1	1980	N
19800107	7	Mon	7	2	2	1	Jan	1	Q1	1980	Y
19800108	8	Tue	8	2	2	1	Jan	1	Q1	1980	Y
19800109	9	Wed	9	2	2	1	Jan	1	Q1	1980	Y
19800110	10	Thu	10	2	2	1	Jan	1	Q1	1980	Y
19800111	11	Fri	11	2	2	1	Jan	1	Q1	1980	Y
19800112	12	Sat	12	2	2	1	Jan	1	Q1	1980	N
19800113	13	Sun	13	3	3	1	Jan	1	Q1	1980	N
19800114	14	Mon	14	3	3	1	Jan	1	Q1	1980	Y
19800115	15	Tue	15	3	3	1	Jan	1	Q1	1980	Y
19800116	16	Wed	16	3	3	1	Jan	1	Q1	1980	Y
19800117	17	Thu	17	3	3	1	Jan	1	Q1	1980	Y
19800118	18	Fri	18	3	3	1	Jan	1	Q1	1980	Y
19800119	19	Sat	19	3	3	1	Jan	1	Q1	1980	N
19800120	20	Sun	20	4	4	1	Jan	1	Q1	1980	N
19800121	21	Mon	21	4	4	1	Jan	1	Q1	1980	Y
19800122	22	Tue	22	4	4	1	Jan	1	Q1	1980	Y
19800123	23	Wed	23	4	4	1	Jan	1	Q1	1980	Y
19800124	24	Thu	24	4	4	1	Jan	1	Q1	1980	Y
19800125	25	Fri	25	4	4	1	Jan	1	Q1	1980	Y
19800126	26	Sat	26	4	4	1	Jan	1	Q1	1980	N
19800127	27	Sun	27	5	5	1	Jan	1	Q1	1980	N
19800128	28	Mon	28	5	5	1	Jan	1	Q1	1980	Y
19800129	29	Tue	29	5	5	1	Jan	1	Q1	1980	Y
19800130	30	Wed	30	5	5	1	Jan	1	Q1	1980	Y
19800131	31	Thu	31	5	5	1	Jan	1	Q1	1980	Y
19800201	1	Fri	32	5	5	2	Feb	2	Q1	1980	Y
19800202	2	Sat	33	5	5	2	Feb	2	Q1	1980	N
19800203	3	Sun	34	6	6	2	Feb	2	Q1	1980	N
19800204	4	Mon	35	6	6	2	Feb	2	Q1	1980	Y
19800205	5	Tue	36	6	6	2	Feb	2	Q1	1980	Y
19800206	6	Wed	37	6	6	2	Feb	2	Q1	1980	Y
19800207	7	Thu	38	6	6	2	Feb	2	Q1	1980	Y
19800208	8	Fri	39	6	6	2	Feb	2	Q1	1980	Y

Start Small

- Project Management
- Select a few metrics/indicators
- Prototype on MS Access
  - Test, experiment, hack
  - SIMPLICITY, SIMPLICITY, SIMPLICITY
  - Sign-off on Prototype

Awareness

Project Management

- Keep communication open at all times
- Make sure to ‘pad’ task timelines
- Benchmarks, benchmarks and finally, sign-off of benchmarks

Core Pieces

- Select Reporting Tool
  - Must be simple yet robust for Clients
  - Performance, server/client work load
  - Security, server/client layers
- Select ETL method
  - Use what you know best
  - Ease of maintenance

Clean the data

- How many spelling variations can ‘San Francisco’ have?
- Transformations will take care of Dimension (master) tables

Ship the data

- Load the presentation server
- Verify the data
  - The data warehouse is only as good as it's data
  - Any doubt will kill the project

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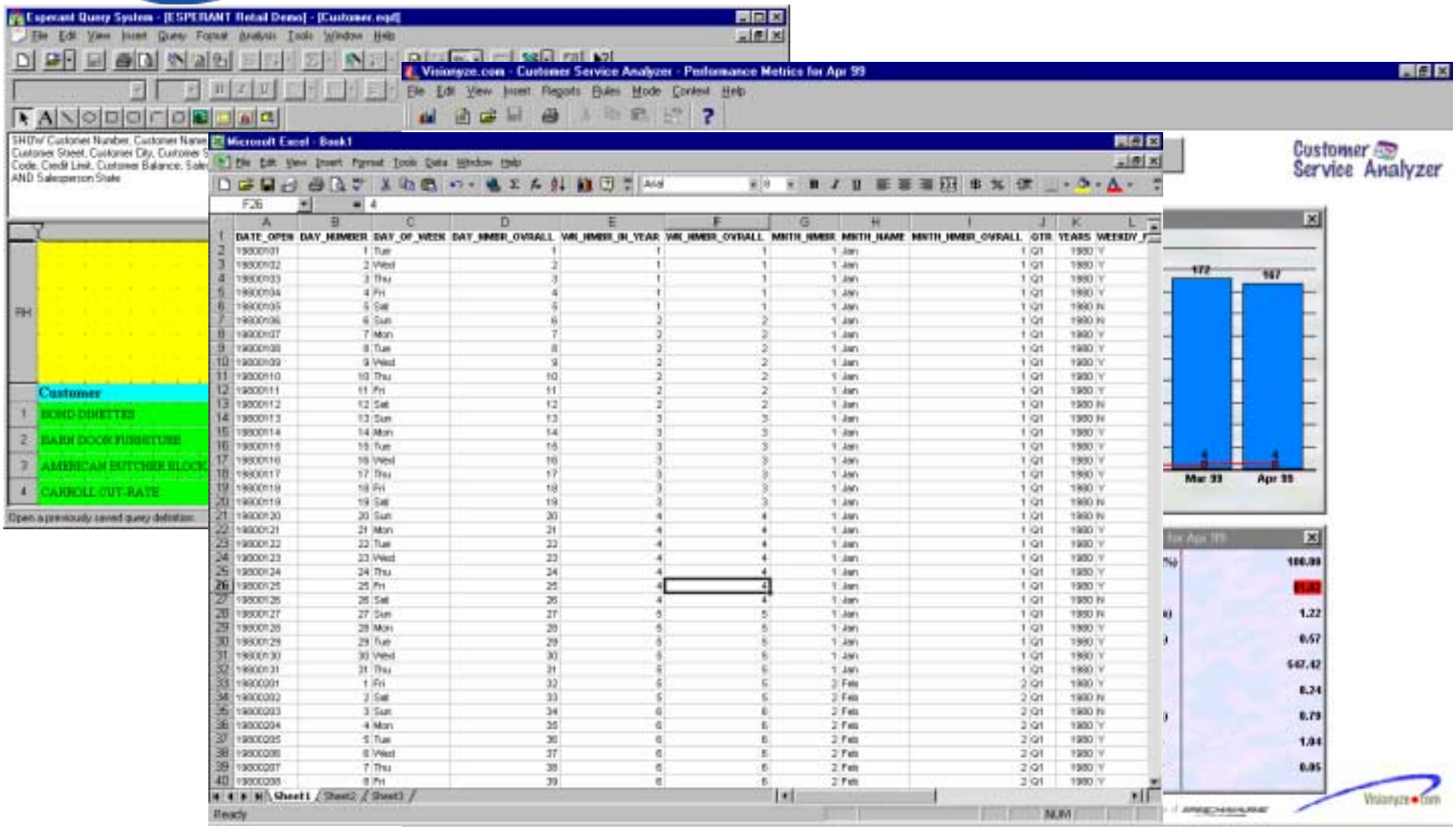
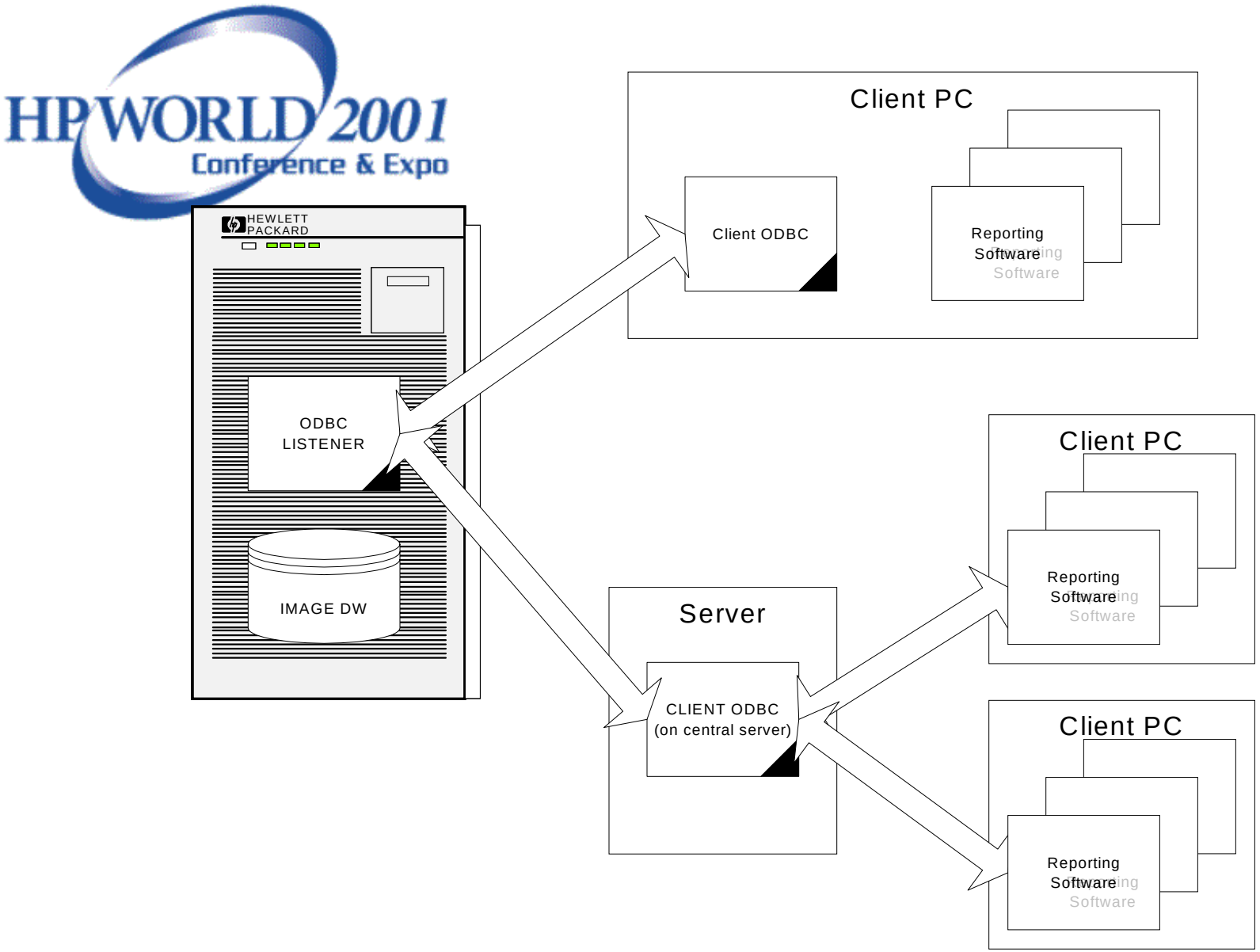
View the data



Open Database Connectivity ODBC

- Plenty of documentation exists (sarcasm)
- May already exist in your system
- User groups and forums


HEWLETT
PACKARD
ODBC
LISTENER
IMAGE DW
Client PC
Client ODBC
Reporting
Software
Server
CLIENT ODBC
(on central server)
Client PC
Reporting
Software
Client PC
Reporting
Software

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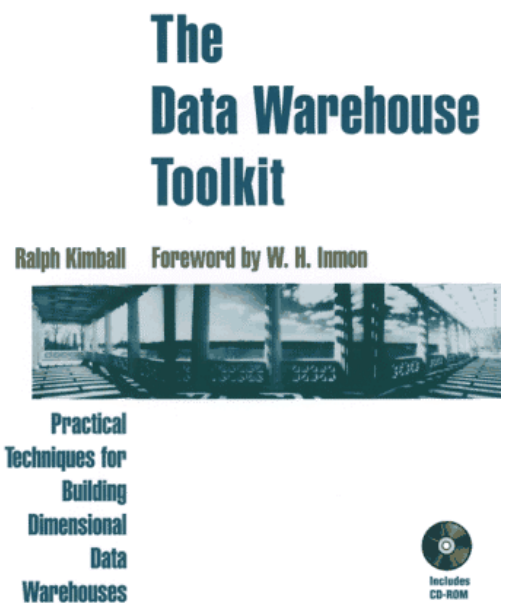
Suggested Readings



The Data Warehouse Toolkit
Practical Techniques for Building Dimensional Data Warehouses
by Ralph Kimball

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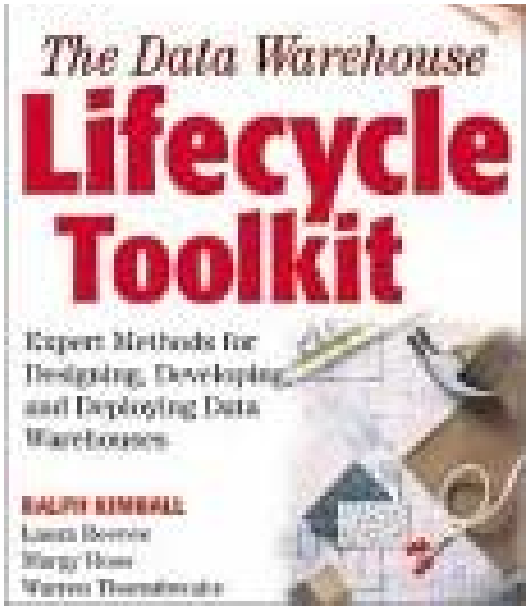

The Data Warehouse Lifecycle Toolkit : Expert Methods for Designing, Developing, and Deploying Data Warehouses
by Ralph Kimball, Laura Reeves, Margy Ross, Warren Thornthwaite