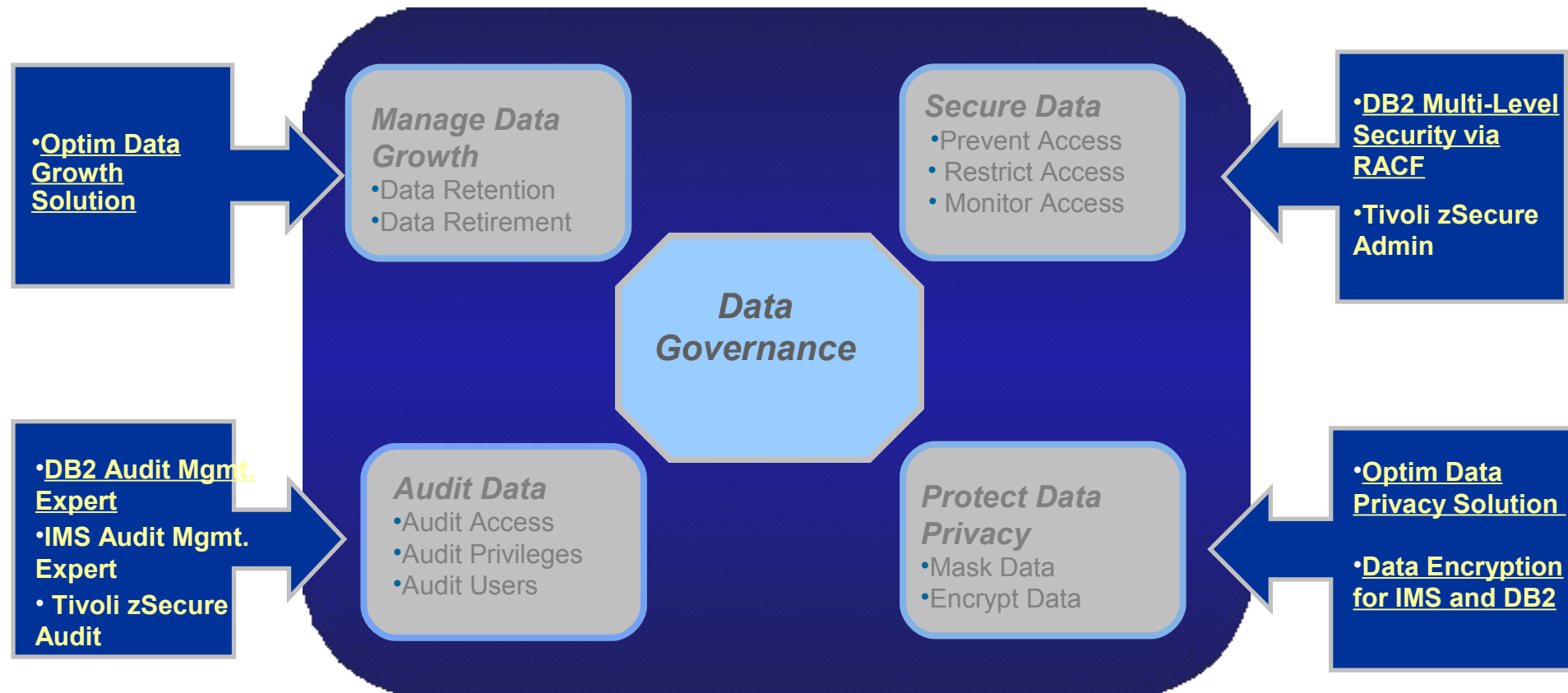


# ***Data Governance – Compliance OPTIM for z/OS***



## IBM Data Governance Software for System z



- **Database archiving**
  - Segregate historical data to secure archive
  - Align performance to service level targets
  - Reclaim underutilized capacity
- **Test data management - TDM**
  - Subset, edit, compare test data
  - Speed testing and deployment
- **Data Privacy - DP**
  - De-identify data for privacy protection
- **Enterprise Features**
  - Federated database capabilities
  - One solution for multi-db, multi-platform apps



# Value Proposition



## Enterprise Data Management

Production Databases	Test and Development Databases
----------------------	--------------------------------

<p><b>Manage Application Data Growth</b></p>	<p><b>Enable Portfolio Optimization</b></p>	<p><b>Ensure Data Privacy</b></p>	<p><b>Speed Application Deployment</b></p>
--	---	---	--

- Segregate Data & Move to Archive
- Deploy Tiered Storage Strategies
- Retain Data According to Value
- Simplify Infrastructure
- CPU benefit

- Decommission Redundant or Obsolete Apps
- Gain Control of Application Portfolio
- Retain Access to Legacy Data
- **Retire** Apps and Repurpose IT Assets
- Migrate Apps from High to Low Cost Platforms
- Preserve Historical Data

- Protect PII Data \*
- Apply Single Data Masking Solution
- Use Range of Masking Techniques
- Maintain Referential Integrity
- Maintain Contextual Look and Feel

- Right size Test Apps
- Repeatable Process
- Quickly Deploy New Apps
- Future proof Apps

\* PII =personal Identifiable Information





# *Information On Demand featuring IBM™ Optim*

## Optim z/OS

TDM/DP DB2 / Legacy (VSAM, QSAM, IMS)





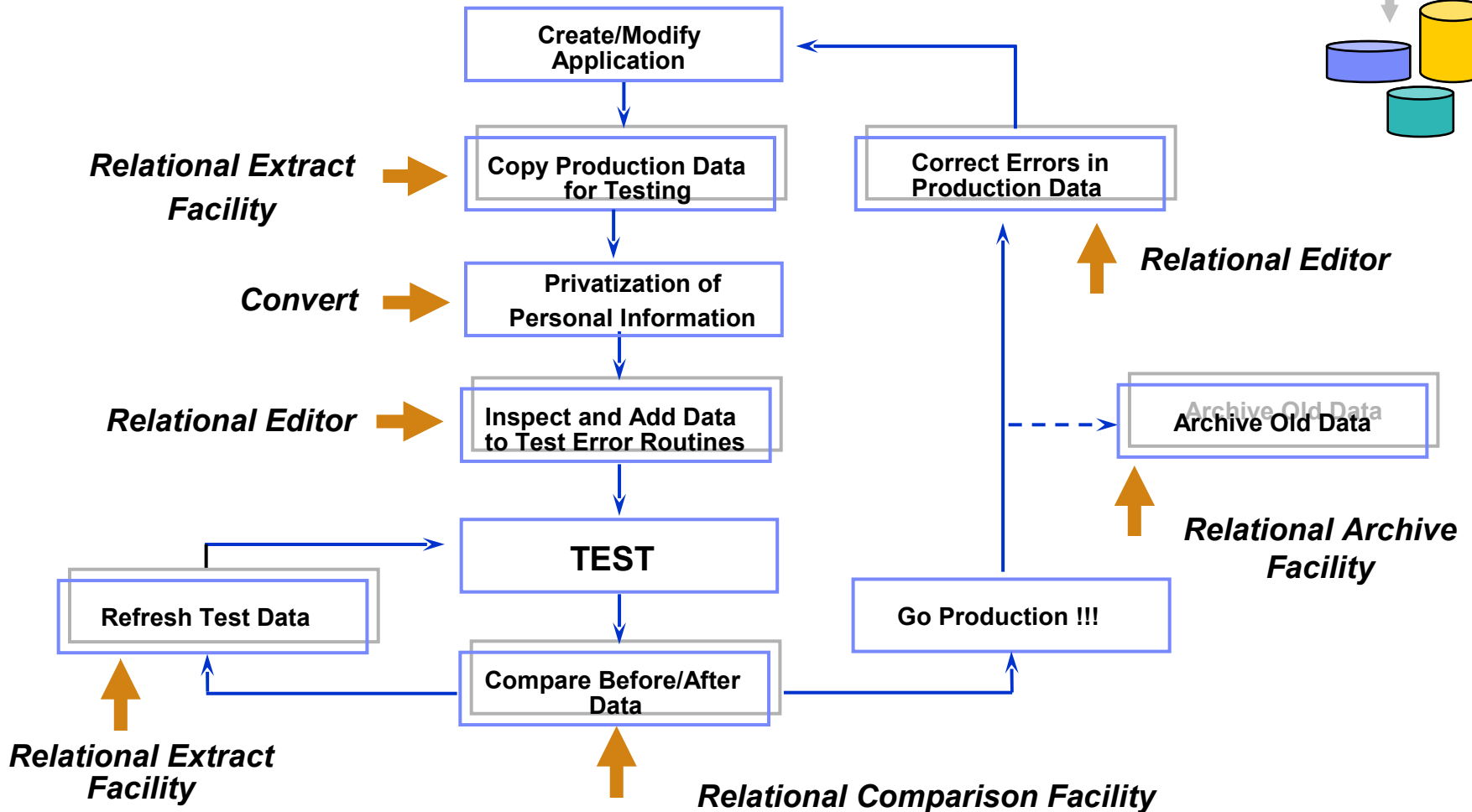
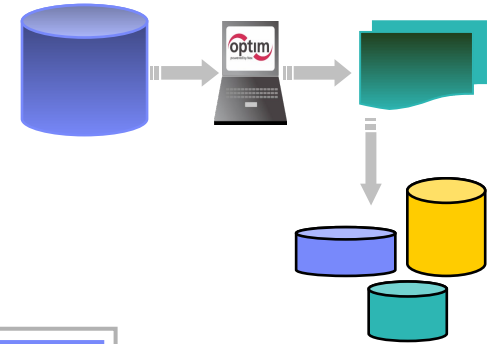
# Optim z/OS TDM/DP

## Product Overview

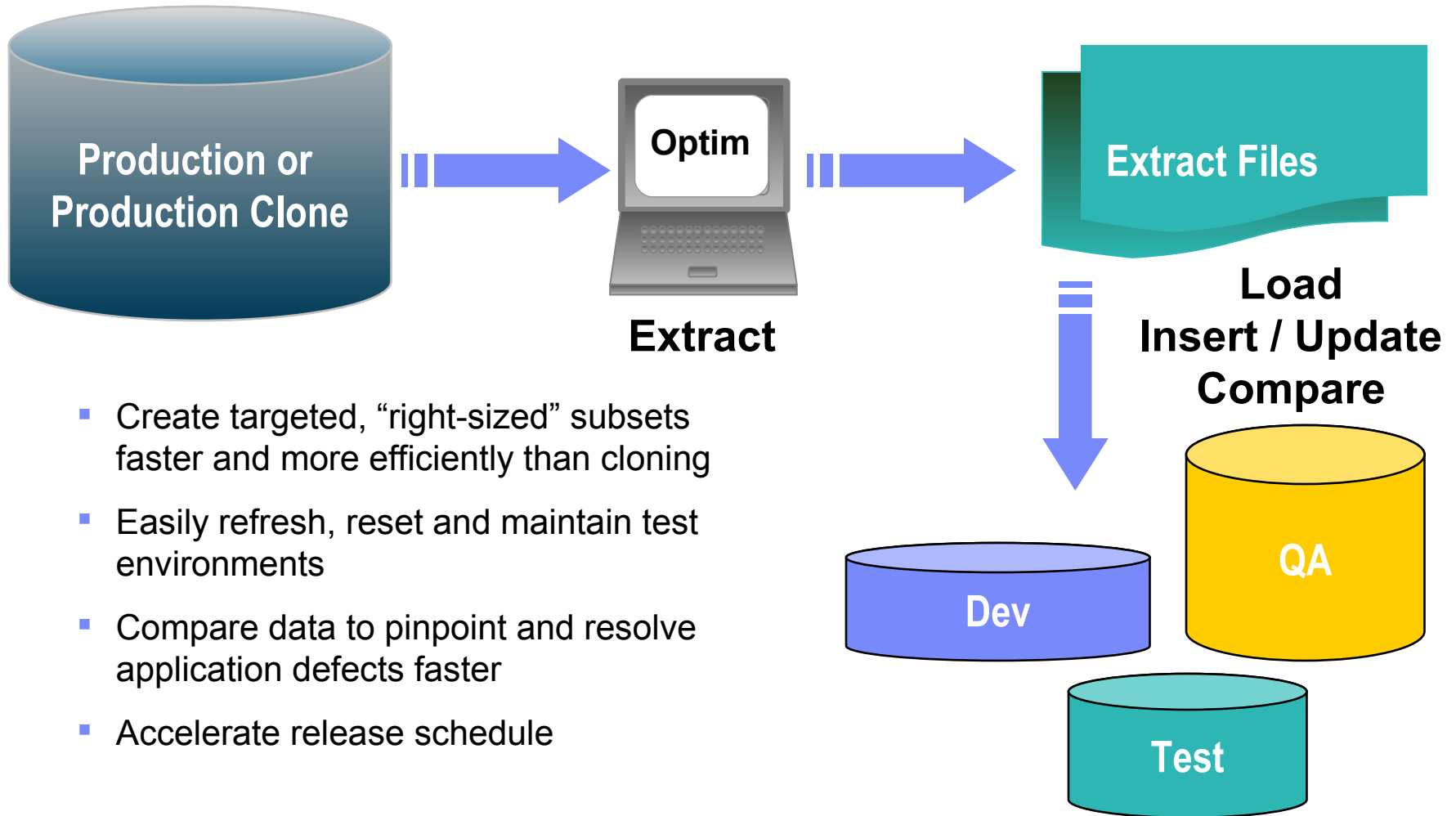


# Managing Relational Data - Optim

## Optim Test Data Management Solution



# Optim™ Test Data Management Solution

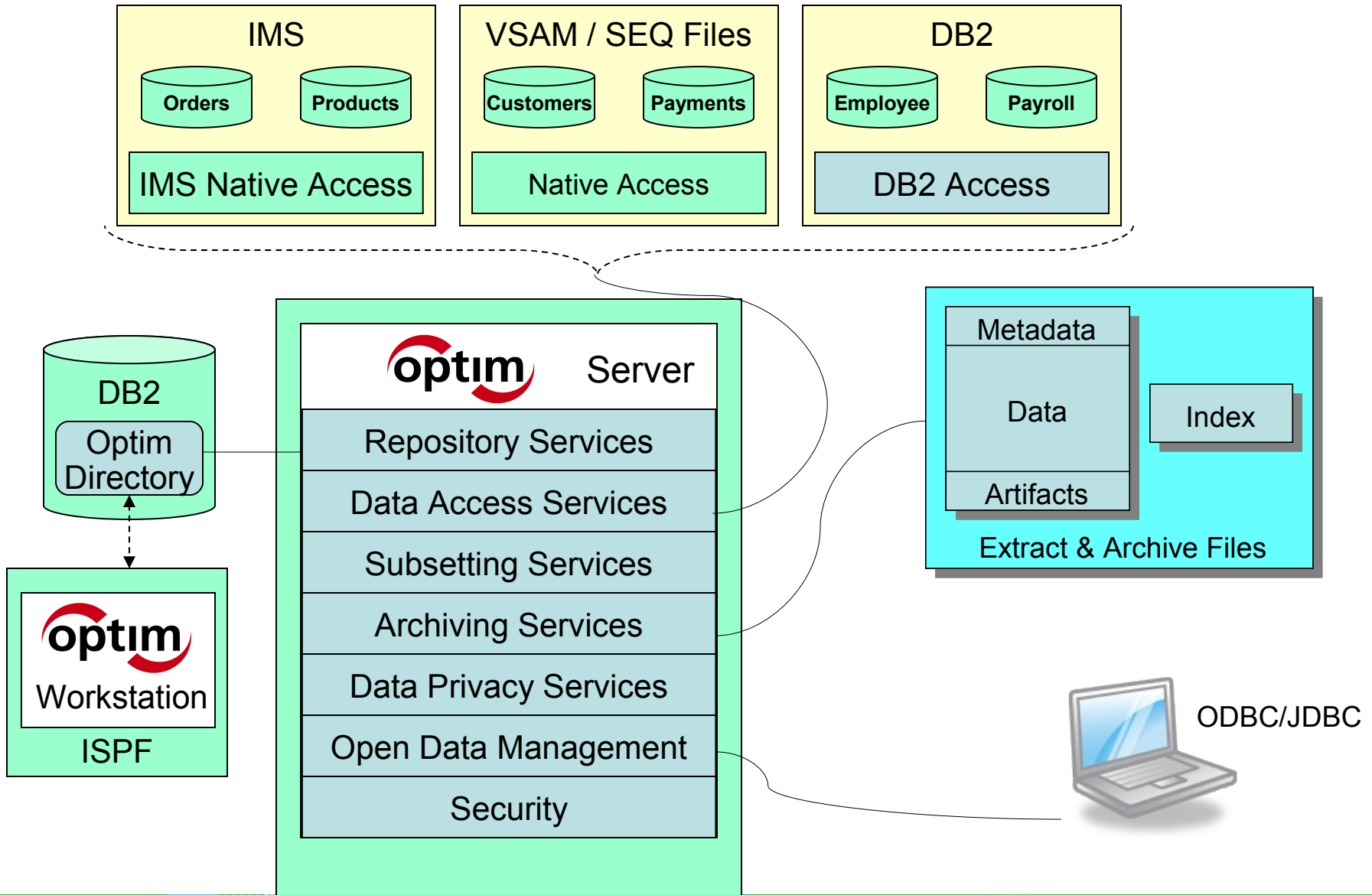


- Create targeted, “right-sized” subsets faster and more efficiently than cloning
- Easily refresh, reset and maintain test environments
- Compare data to pinpoint and resolve application defects faster
- Accelerate release schedule



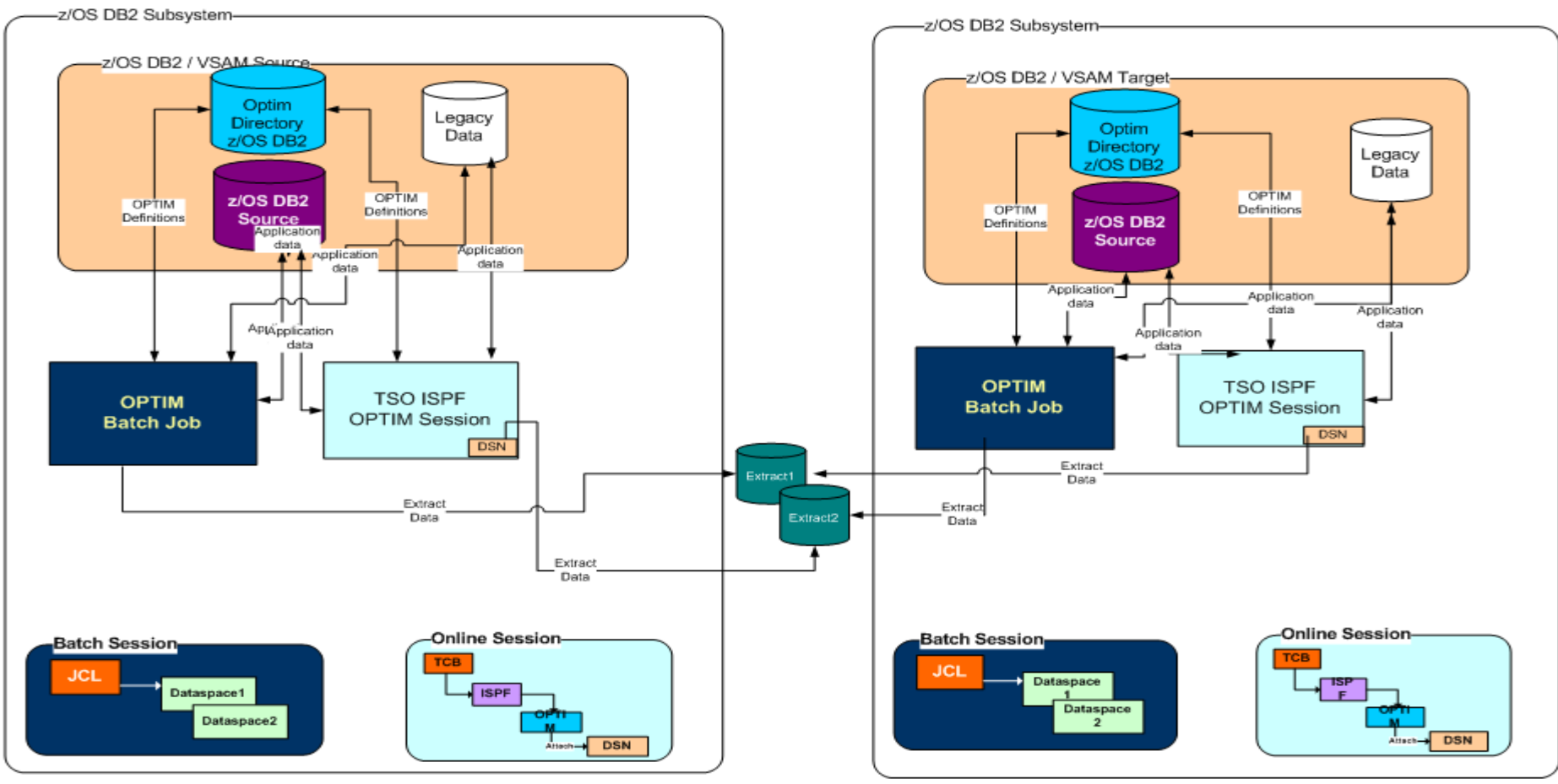


### Optim z/OS TDM/DP

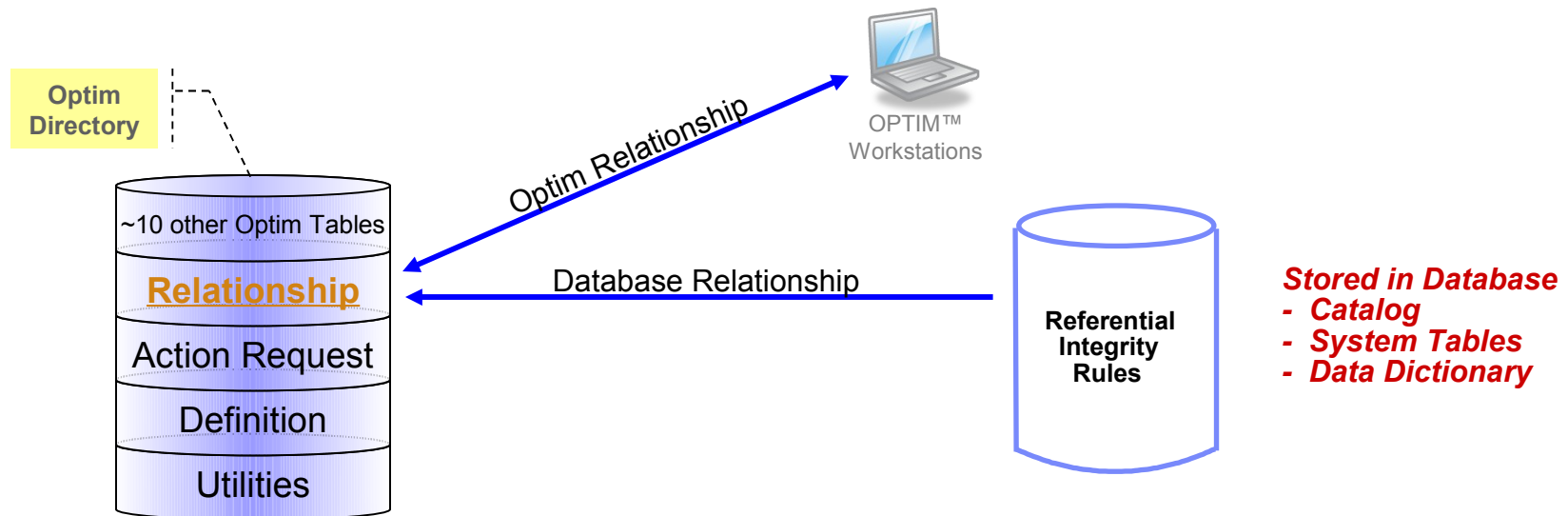


### Sample OPTIM z/OS TDM

#### Z/OS



## OPTIM Relationships



- Database Relationship
  - Database defined Referential Integrity rules
  - Dynamically read DB catalog at run time
- Optim Relationship
  - Import DDL from data modeling tools or Define manually
  - Can be a Data Driven Relationship
  - Does not require primary-key
  - Cross Database relationship

# Questions



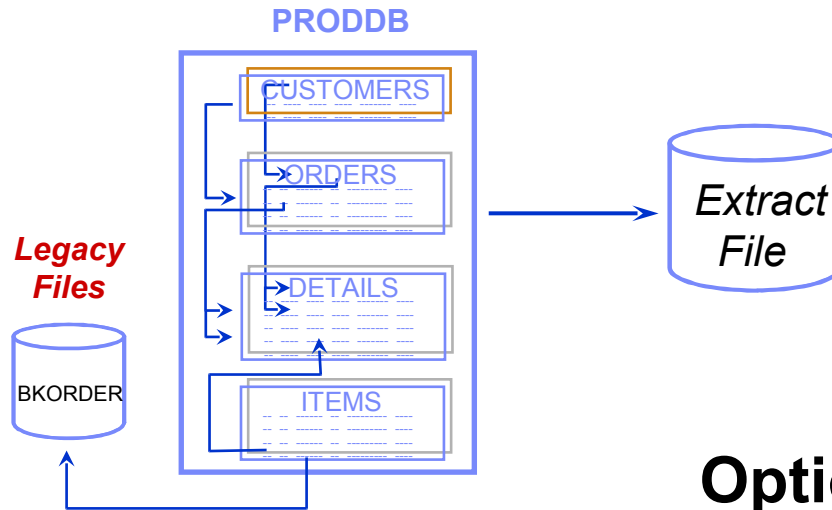
# The Relational Extract Facility

DB2 / Legacy





# Defining the Extract process



Required:

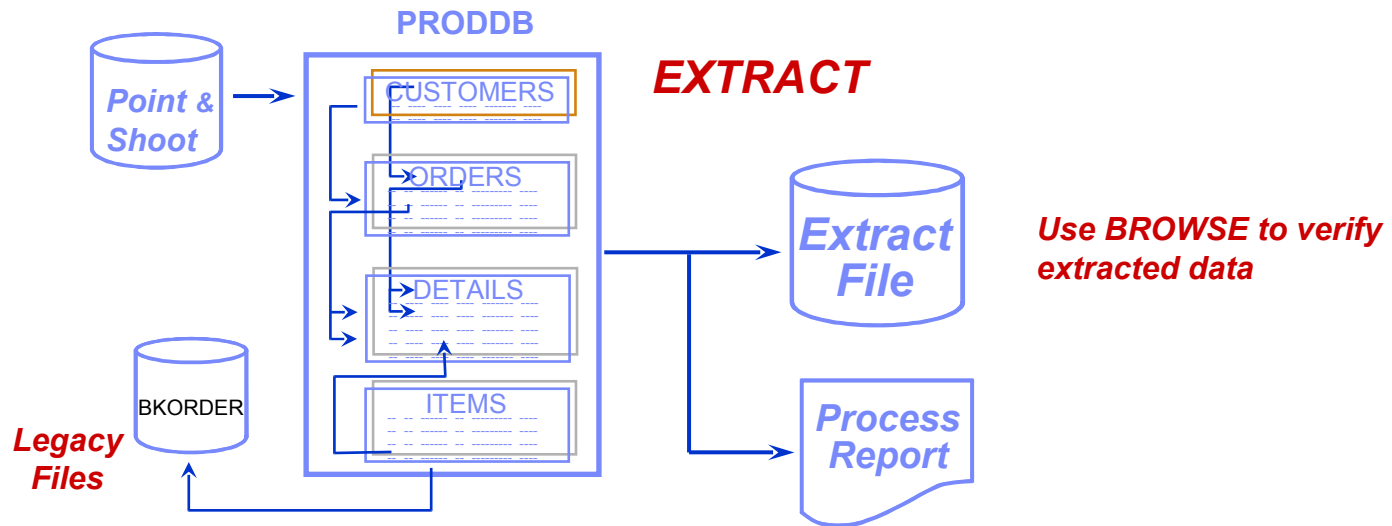
- List of tables
- Start Table

Optional:

- Selection criteria
- Random selection factor
- Point and Shoot
- Relationship

# Extract Process

## Extract Parameters

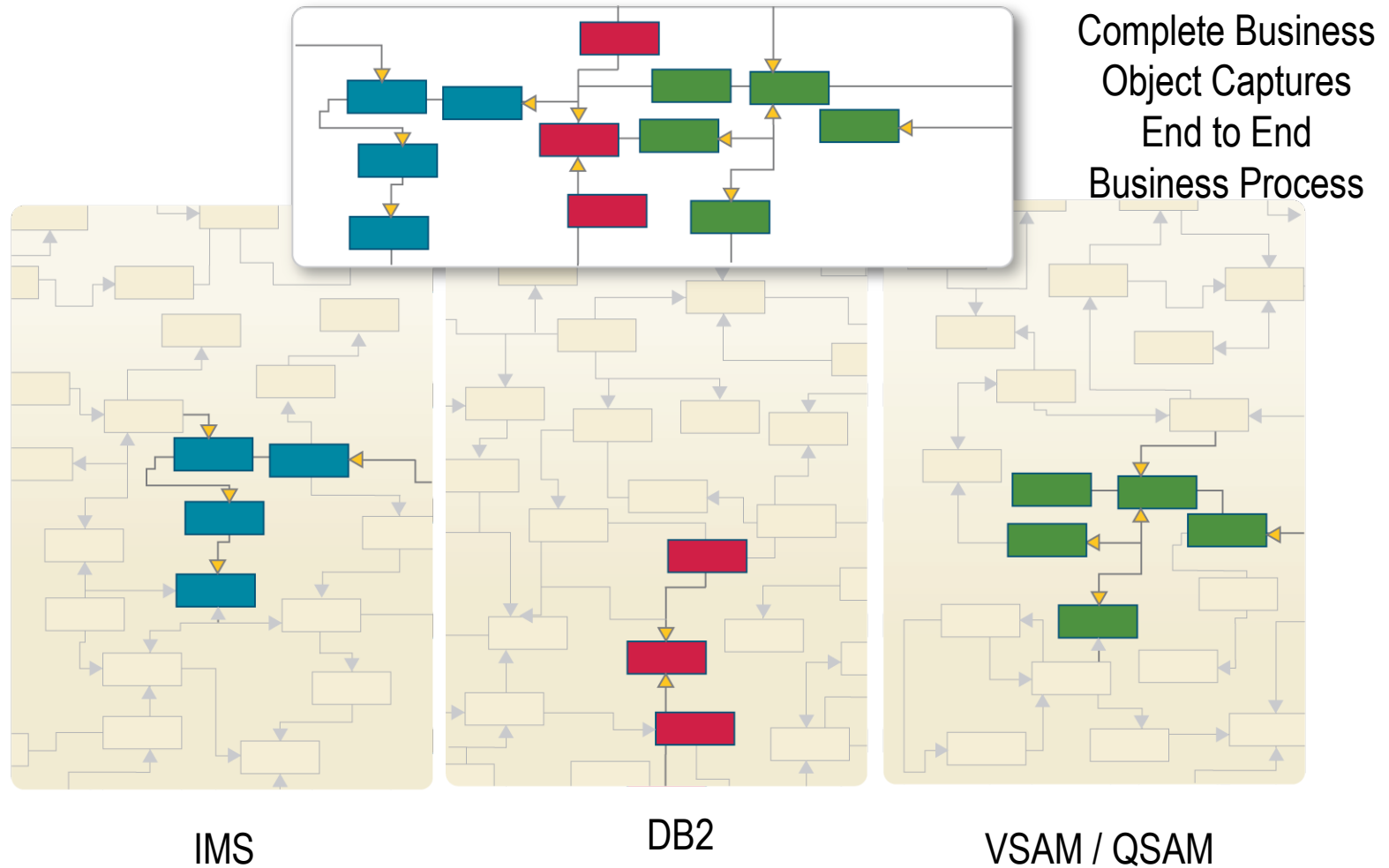


- Extract from source tables using DB2 or image copy using UNLOAD / HPU
- Extract data and/or object definitions
- Execute Online or Batch

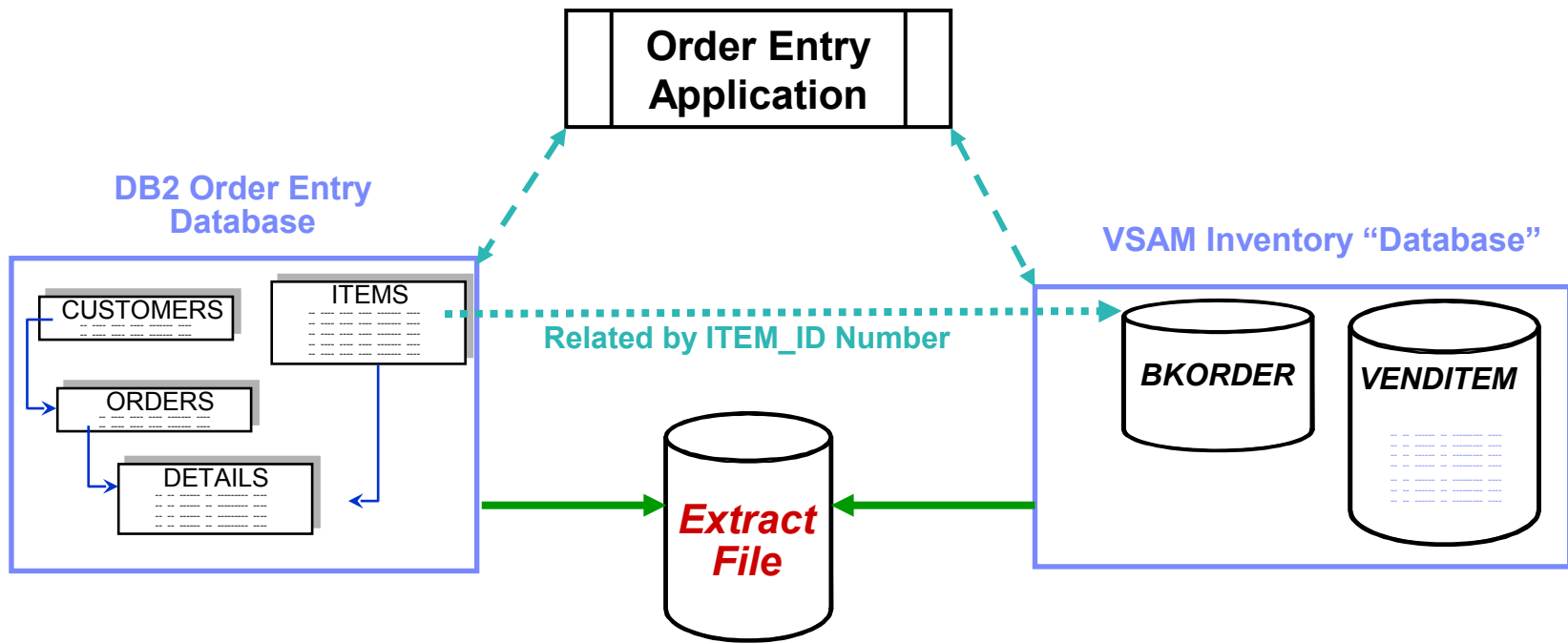




## ***Extract - Federated Data Support***



# Federated Extract

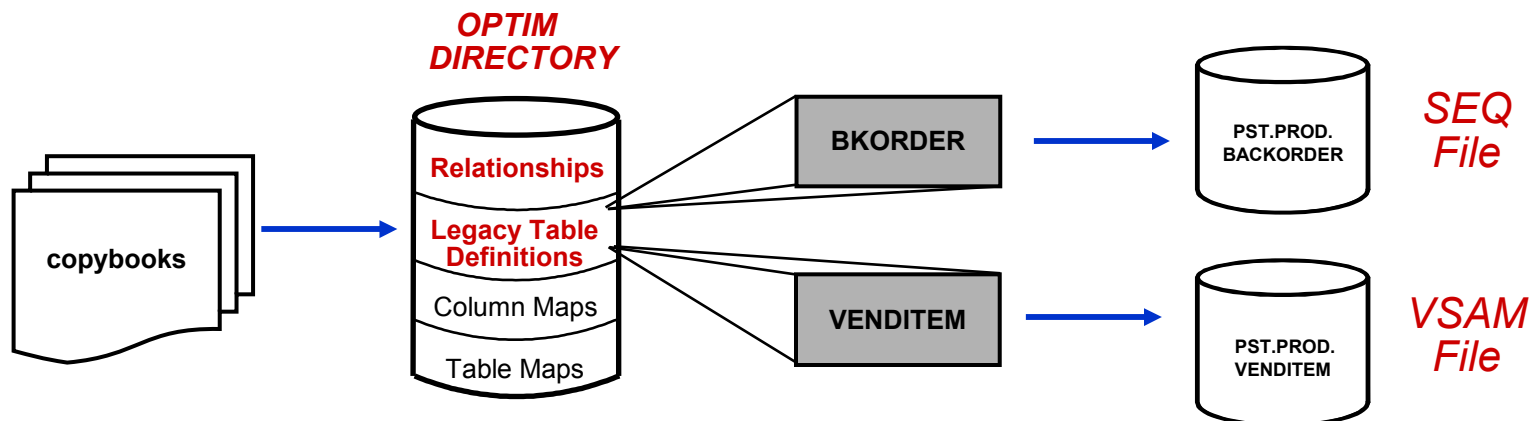


## Combining DB2 and Legacy Data

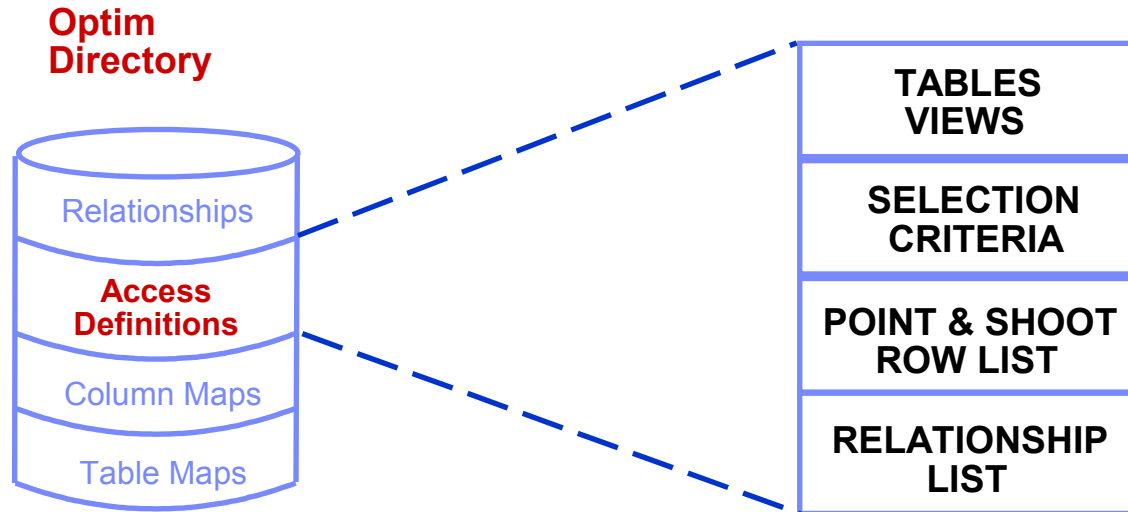


## What is an Optim Legacy Table Definition?

- Defines physical layout of legacy data
- Created from COBOL or PL/1 copybook (or manually)
  - Associated with Sequential or VSAM dataset
  - Definition stored in the OPTIM Directory
- Relate via Optim Relationship to other legacy and/or DB2 tables
- File treated as virtual DB2 table by any Optim process



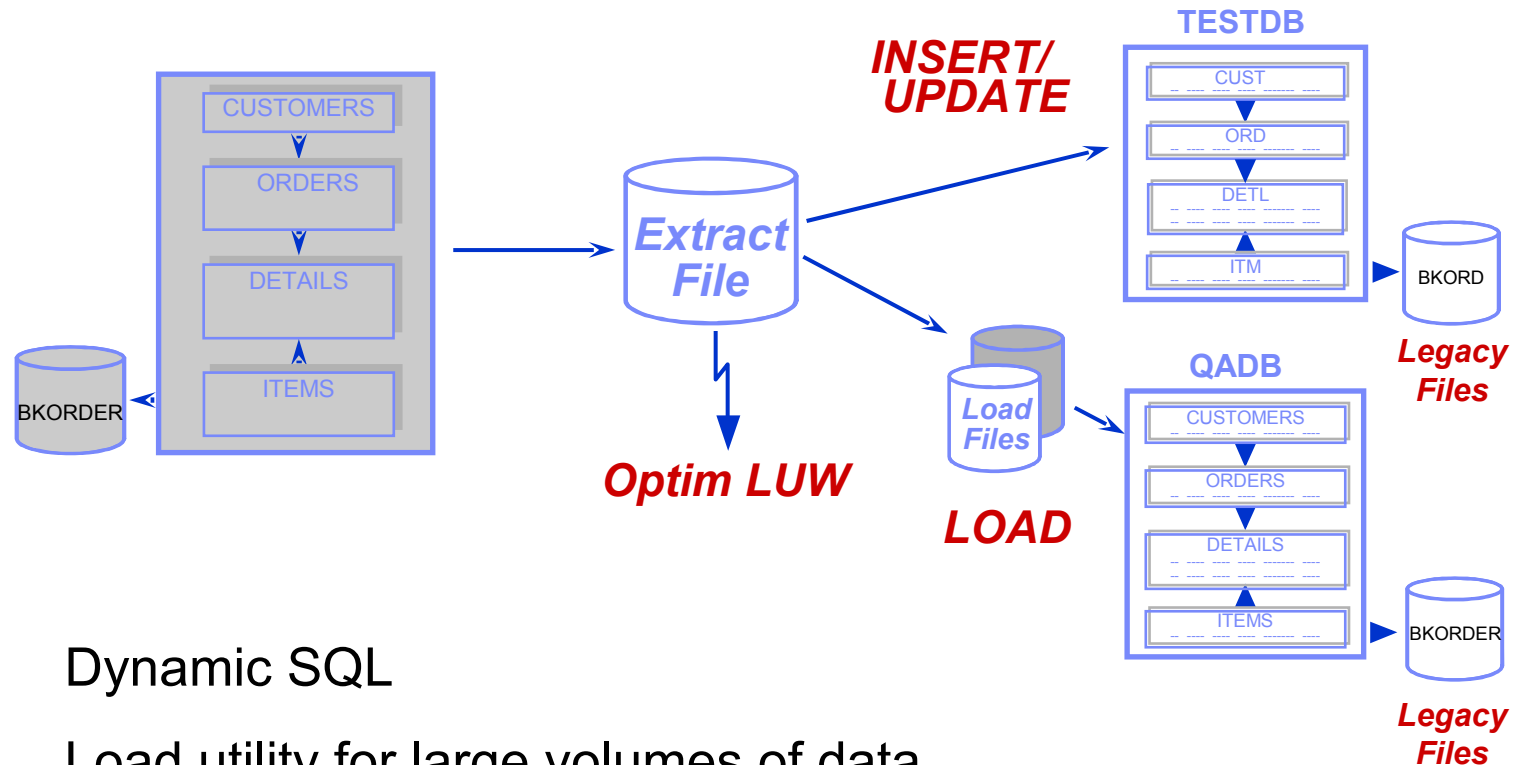
# Save Optim Objects/Processes



- Created dynamically during extract definition then saved or discarded
- Created explicitly prior to extract



## Populate Destination Tables



- Dynamic SQL
- Load utility for large volumes of data
- Download to Client/Server RDBMS from MVS

# Populate Destination Tables

## Table Map

```

Command ==>                               Scroll ==> PAGE

Available Commands: APPLY, SAVE, LIST, MAP, POPULATE, END when Complete

Src CID: PSTDEMO      Dest CID ==> PSTDEMO2      Column
Map ID ==> PST

Extract Tables      Destination Table Name  Type  Column Map or "LOCAL"
-----
***** TOP *****
CUSTOMERS          CUSTOMERS                TABLE
DETAILS            DETAILS                  TABLE
ITEMS              PSTTEST.ITEMS            UNKNOWN
ORDERS             ORDERS                   TABLE  DEMOMAP
PARTS              UNUSED
BKORDER           BKORDER                  LEGACY
***** BOTTOM *****

```

- Table names need not match
- Change qualifier and/or table name
- Can be saved in PST Directory



# Populate Destination Tables

## Column Map

**Literals**

**Special Registers**

**Expressions**

**Default Values**

**User exits**

```

Command ==>>>                               Scroll ==>> PAGE

-----PSTDemo0.ORDERS-----   -----PSTDemo02.ORDERS-----
Cmd   Source Column      Data Type   Num Destination Column Data Type   Status
-----
*** ***** TOP *****
___ ORDER_ID              DEC(5,0)    1 ORDER_ID      DEC(5,0)    EQUAL
___ CUST_ID                CH(5)       2 CUST_ID       CH(5)      EQUAL
___ CURRENT_DATE          3 ORDER_DATE   DATE          SPC_REG
___                      4 ORDER_TIME   TIME          NOTUSED
___ RAND(0,20)             5 FREIGHT_CHARGES DEC(4,2)    EXPR
___ 'A' || CUST_ID(1,1)    6 ORDER_SALESMAN CH(6)      EXPR
___ CURRENT_TIMESTAMP      7 ORDER_POSTED_DATE TIMESTAMP   SPC_REG
___ ORDER_SHIP_DATE       CH(8)       8 ORDER_SHIP_DATE CH(8)      EQUAL
*** ***** BOTTOM *****
    
```

- Map unlike column names
- Transform/mask sensitive data
- Datatype conversions
- Column-level date aging



# Populate Destination Tables

## Creating New Tables

**Missing  
destination  
object(s)**

```
Command ==>>                                Scroll ==>> PAGE
```

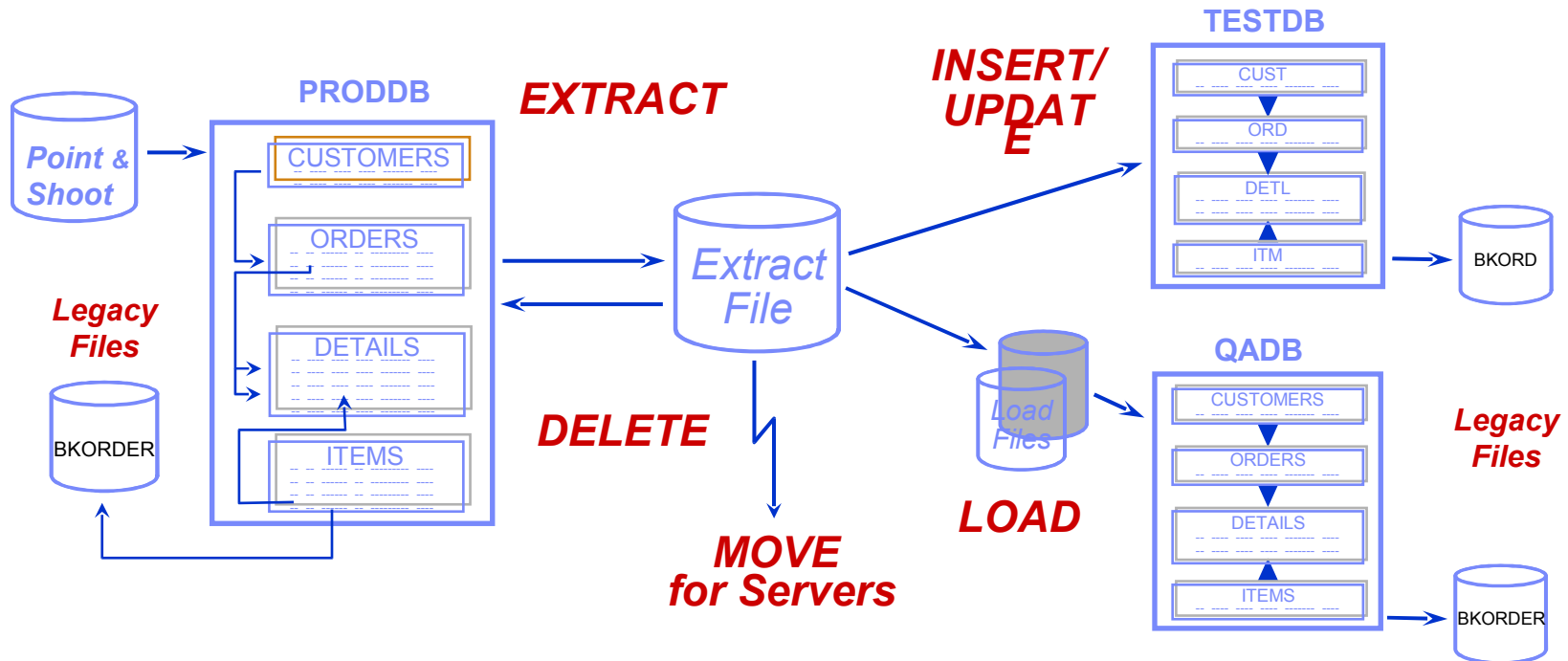
Cmd	Status	Type	Object Name	Database	Tablespace
---	EXISTS	TABLE	PSTDemo2.CUSTOMERS	DSOFTECH	SSOFTECH
---	EXISTS	INDEX	PSTDemo2.XCUSTPK		
---	EXISTS	PK(DB2)			
---	EXISTS	TABLE	PSTDemo2.DETAILS	DSOFTECH	SSOFTECH
---	EXISTS	INDEX	PSTDemo2.XORDETPK		
---	EXISTS	PK(DB2)			
---	EXISTS	FK(DB2)	ROD		
---	SELECT	TABLE	PSTTEST.ITEMS	DSOFTECH	SSOFTECH
---	SELECT	INDEX	PSTTEST.XITEMPK		
---	SELECT	PK(DB2)			
---	SELECT	VIEW	PSTTEST.V_ITEMS		
---	SELECT	LEGACY	PSTDemo2.BKORDER		
---	SELECT	DATASET	PST.ADB2.BKORDERS		

- Select destination object(s) to be created from source table definitions
- Functions include DROP, key conversion, and display of SQL



# The Relational Extract Facility

## Summary



- Creating and maintaining test data bases
- Subsetting corporate data for test access
- Populating decision support data bases

# Questions





# Batch Processing



## *Batch Utilities Overview*

### ■ **Types of utilities**

#### – **Processing Utilities**

- **Automate processing**
  - Archive
  - Search, and Restore
  - Extract
  - Load / Insert
  - Compare
  - Restore / Selective Restore
  - Convert

#### – **Maintenance Utilities**

- Retrieve information from PST Directory
- Maintain PST objects in the Directory
- Manage Archive File entries and files
- Migrate PST objects
- Archive File Entries and Files Maintenance Control Statements



## ***Batch Overrides***

Examples:

```
//PSDFOVRD DD *
```

\* Limit selection to customers in New Jersey among other things

```
SQL PSTDEM02.CUSTOMERS where state = 'NJ'
```

```
SEL PSTDEM02.ORDERS order_salesman = 'Mister Ed'
```

```
/*
```

*Or*

```
//PSDFOVRD DD DSN=PST.SAMPLE.OVRD, DISP=SHR
```



## ***Batch Overrides***

Example:

```
//PSDFOVRD DD *  
*Example Override Statements for Extracts  
DEFCID PSTDEMO2  
SEL CUSTOMERS STATE='NJ'  
SQL CUSTOMERS ZIP=08540 OR ZIP=08530  
GROUP STATE VALUES=10 ROWS=20  
UNKNOWN ALLOW
```

```
/*
```

## Batch Overrides

**Example** Use the following statement to create an Extract File named PSTUSER.EXTRACT.CUST, using the Access Definition PSTUSER.AD.CUSTOMERS. This example also uses selection criteria and executes the UNLOAD PLUS utility.

```
EXTRACT  
ACCESS_DEFINITION PSTUSER.AD.CUSTOMERS  
EXTRACT_FILE (DSNAME PSTUSER.EXTRACT.CUST)  
SELECT (PSTUSER.CUSTOMERS, AND, AGE, GR, 21, AREA,  
EQ, 'WEST')  
UNLOAD_UTILITY BMC
```

## Batch Overrides

**Example** The following is an example of INSERT batch statement usage.

To insert the contents of the Extract File PSTUSER.DISC, use INSERT ONLY processing, and delete all rows from the tables before inserting the new rows, specify:

```
INSERT EXTRACT_NAME PSTUSER.DISC  
CONTROL_FILE (DSNAME PSTUSER.INSCTRL)  
TABLE_MAP PSTUSER.MAP9  
PROCESS_MODE INS  
DELETE_BEFORE_INSERT TABLE
```



# Questions

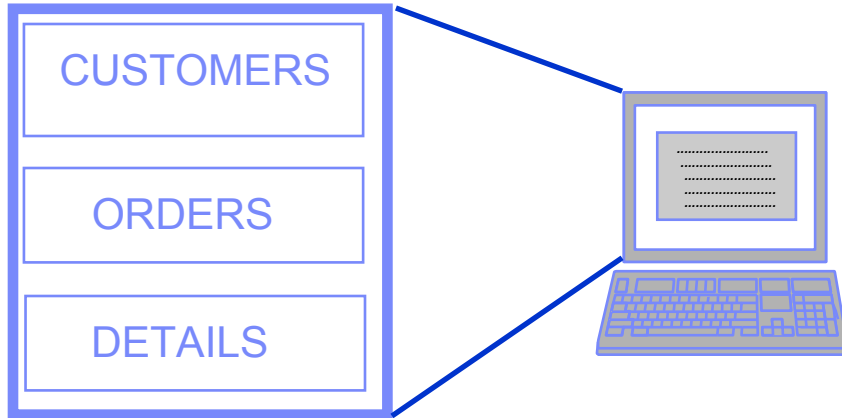


# The Relational Editor

**ACCESS for DB2**  
**EDIT for Servers**



# Optim's Relational Editor



- **Uses DBMS or Optim Relationships**
- **Examine and understand related data from multiple tables and databases**
- **Edit, Delete or Insert data to test application logic**
  - **Correct bad data**
  - **User Authority in each DBMS manages authorities**
  - **Audit trail optional by site or by user**



## ***Access for DB2 - The Solution***

- Dynamic join to related tables and views
- Simultaneous browse, update, insert, and delete of related data from multiple tables
- ISPF-like editing commands
- Extended backout capabilities
- Comprehensive reporting facility
- Edit/browse interface to Catalog



**Browse/Edit a Table**

```

Command ==>>                               Scroll ==>> PAGE

Cmd F == Table: PSTDEMO.CUSTOMERS(T1) ===== 1 OF 704 === MORE>>
  CUST_ID      CUSTNAME                ADDRESS                CITY                STATE
-----
*** ***** TOP *****
--- 22232  Movie Mania                572 Front St         Twig                MN
--- 00051  Rick's Flicks                 823 Chestnut St     Lookout            CA
--- 00049  Pick-a-Flick                 120 Central Avenue  Blue Jay           CA
--- 00094  Popcorn Videos             Aramingo Place      Scotty's Castle    CA
--- 00041  Prime Time Video           64 Newberg Avenue   Bonny Doon         CA
--- 10051  Take Home Movies           Box 357              Coyote              CA
--- 01150  Rick's Flicks                 823 Chestnut St     Forked River       NJ
--- 00203  Movies-R-Us                 1772 Bridge St     Brigantine          NJ
--- 00191  Popcorn                     15 Crystal Park     Green Pond          NJ
--- 00260  Five Star Videos           123 Howe Lane       Hope                NJ
--- 00189  Showtime                   322 Rt 28 ;         Little Ferry        NJ
--- 00160  Reely Great Videos         590 Frontage Rd     Pelletstown        NJ
--- 00156  Prime Tyme                   982 Upper State St  Hackensack          NJ
--- 00015  Director's Chair           347 Miners Row      Happy Camp          CA
--- 00141  Showcase II                 57 Rock Hollow      Brick                NJ

```

- — SORT, HEX, sidelabel/columnar format
- All DB2 access authority enforced



## Joining to Another Table

### JOIN [table]

```

Command ==>>                                Scroll ==>> PAGE

Cmd F == Table: PSTDEMO.CUSTOMERS(T1) ===== 1 OF 36 == MORE>>
CUST_ID      CUSTNAME                ADDRESS                CITY                STATE
-----
___  00068  Audio-Video World    593 West 37th Street  Angels Camp        CA

Cmd F == Table: PSTDEMO.ORDERS(T2) ===== 1 OF 4 == MORE>>
ORDER_ID  CUST_ID  ORDER_DATE  ORDER_TIME  FREIGHT_CHARGES  ORDER_SALESMAN
-----
*** ***** TOP *****
___      23    00068    12/02/1997    08.16.09         14.80           WE005
___      222   00068    12/31/1997    14.22.31         19.05           WE005
___      278   00068    02/02/1998    11.51.47         21.97           WE005
___     30013   00068    01/12/1998    15.23.04         33.85           WE005
*** ***** BOTTOM *****

```

- Simultaneous edit/browse of data
- Scroll of higher-level table automatically synchronizes all lower-joined tables



## Audit Trail of Updates

```

Command ==>                               Scroll ==> PAGE
-----
Cmd F ===== Table: SYSPST.ADB2AUDIT(T1) ===== 185 OF 238 ===== MORE>>
TYPE ACTION      TIMESTAMP      USERID      TBNAME      IMAGE
-----
___ HDR   UPD   2000-07-22-12.38.08.  SPECHTR  TESTSQL_3  PLANNO EXPR_2___ T
___ BEF   UPD   2000-07-22-12.38.08.  SPECHTR  TESTSQL_3          99          297 1
___ AFT   UPD   2000-07-22-12.38.08.  SPECHTR  TESTSQL_3          55          297 1
___ HDR   UPD   2000-07-22-14.23.58.  COHEND   CUSTOMERS  CUST_ID CUSTNAME___
___ BEF   UPD   2000-07-22-14.23.58.  COHEND   CUSTOMERS  00051   Rick's Flick
___ AFT   UPD   2000-07-22-14.23.58.  COHEND   CUSTOMERS  00051   Rick's Flick
___ HDR   UPD   2000-07-22-17.19.45.  BYXBEEES ORDERS     ORDER_ID CUST_ID ORD
___ BEF   UPD   2000 07-22-17.19.45.  BYXBEEES ORDERS          10 00023  12/
___ AFT   UPD   2000-07-22-17.19.45.  BYXBEEES ORDERS          10 00023  12/
___ HDR   INS   2000-07-22-17.22.55.  KEBLERD  ITEMS     ITEM_ID  ITEM_DESCR
___ AFT   INS   2000-07-22-17.22.55.  KEBLERD  ITEMS     HR075   Psycho

```

- Audit facility can be activated as SITE or USER option
- Table ADB2AUDIT can be browsed using *Access for DB2*

## *Interface to Embedded SQL*

- Special ISPF edit commands to manipulate SQL embedded in a program
- **ADB2EXPL** executes DB2 EXPLAIN
- **ADB2PREP** executes DB2 PREPARE
- **ADB2EXEC** executes DB2 EXECUTE
  - SELECT automatically invokes Access
  - Prompt screen displayed for host variables
  - END returns to ISPF edit





**Access for DB2**  
*The Programmer's Solution*

*Access for DB2 helps you to:*

- Understand the data for your application
- Create data values to test program logic
- Inspect/correct data that is causing problems
- Verify execution results



# Questions



# The Relational Comparison Facility

**COMPARE for DB2**  
**COMPARE for Servers**



# ***Compare for DB2***

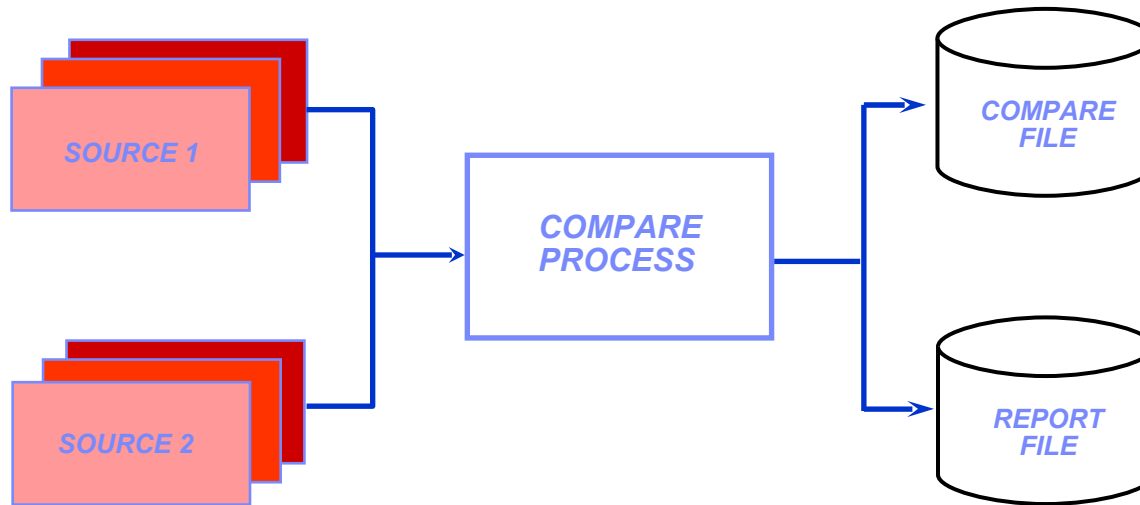
## ***The Relational Comparison Facility***

- Compare the "before" and "after" data from an application test
- Compare results after running modified application during regression testing
- Identify differences between separate databases
- Audit changes to a database



# ***Compare for DB2***

## ***The Relational Comparison Facility***

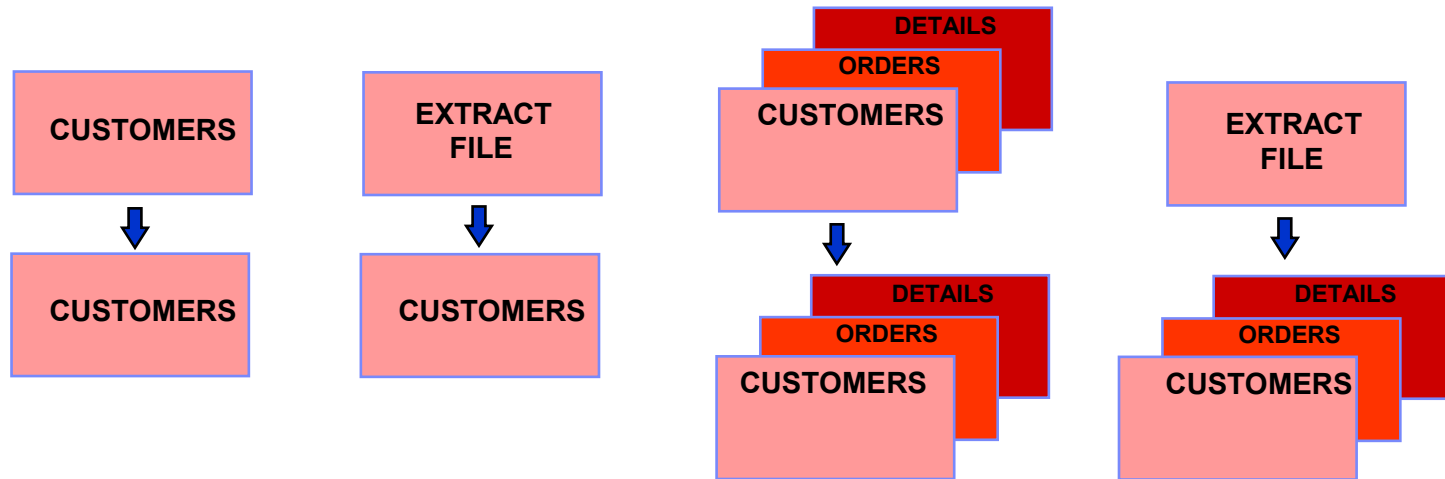


- Single-table or multi-table compare
- Creates compare file of results
- Displays results on screen, in a report, or both



# Compare for DB2

## Compare Input Sources



- Single tables
- Sets of related DB2 tables
  - Selection criteria can be applied to DB2 tables
- Extract Files



# Compare Sources

## *Finding the Matching Rows*

*The Match Key is the set of columns used to match rows between sources*

- Uses the DB2 or PST primary key (if defined)
- Otherwise, prompts to define a list of columns
- Definition is 'local' to this compare
- Column name(s) used for match are highlighted when browsing Compare File



# What if the Table Names Are Different?

## The Table Map

```

Command ==>                               Scroll ==> PAGE
Src 1 CID: PSTPROD   Src 2 CID ==> PSTTEST   Column
Map ID ==>
Source 1 Table Name   Source 2 Table Name   Type   Column Map or "LOCAL"
-----
***** TOP *****
CUSTOMERS             CUSTOMERS             TABLE
DETAILS               DETAILS               TABLE
ITEMS                 PSTQA.ITEMS           TABLE
ORDERS                ORDERS                TABLE   DEMOMAP
***** BOTTOM *****

```

- Allows mapping of different table names or creator-IDs
- Can be 'local' to this compare or saved in the PST Directory for future use





# What if the Column Names Are Different?

## The Column Map

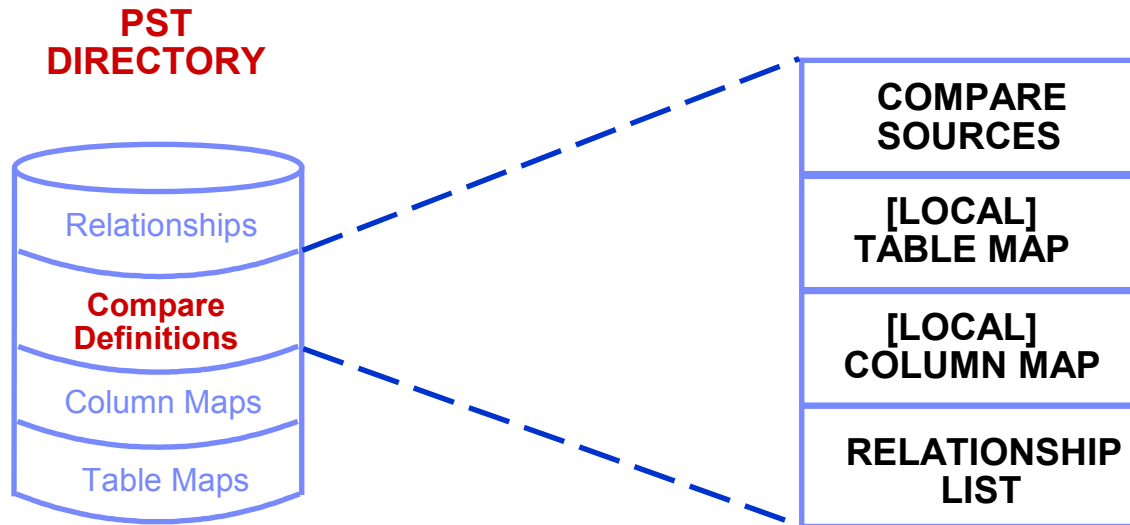
```

Command ==>                               Scroll ==> PAGE
-----PSTPROD.ORDERS-----
Cmd   Source 1 Column  Data Type  Num  Source 2 Column  Data Type  Status
-----
*** ***** TOP *****
___  ORDER_ID          DEC(5,0)   1  ORDER_ID          DEC(5,0)   EQUAL
___  CUST_ID           CH(5)      2  CUST_ID           CH(5)      EQUAL
___                                     3  ORDER_DATE        DATE        NOTUSED
___                                     4  ORDER_TIME        TIME        NOTUSED
___  FREIGHT_CHARGES    DEC(4,2)   5  FREIGHT_CHARGES   DEC(4,2)   EQUAL
___  ORDER_SALESMAN     CH(6)      6  ORDER_SALESMAN    CH(6)      EQUAL
___                                     7  ORDER_POSTED_DATE  TIMESTAMP   NOTUSED
*** ***** BOTTOM *****
    
```

- Correlates columns with unlike names
- Eliminates columns from the compare
- Can be 'local' to this compare or saved in the PST Directory for future use



# The Compare Definition



- Created dynamically during compare definition then saved or discarded
- Created explicitly prior to compare





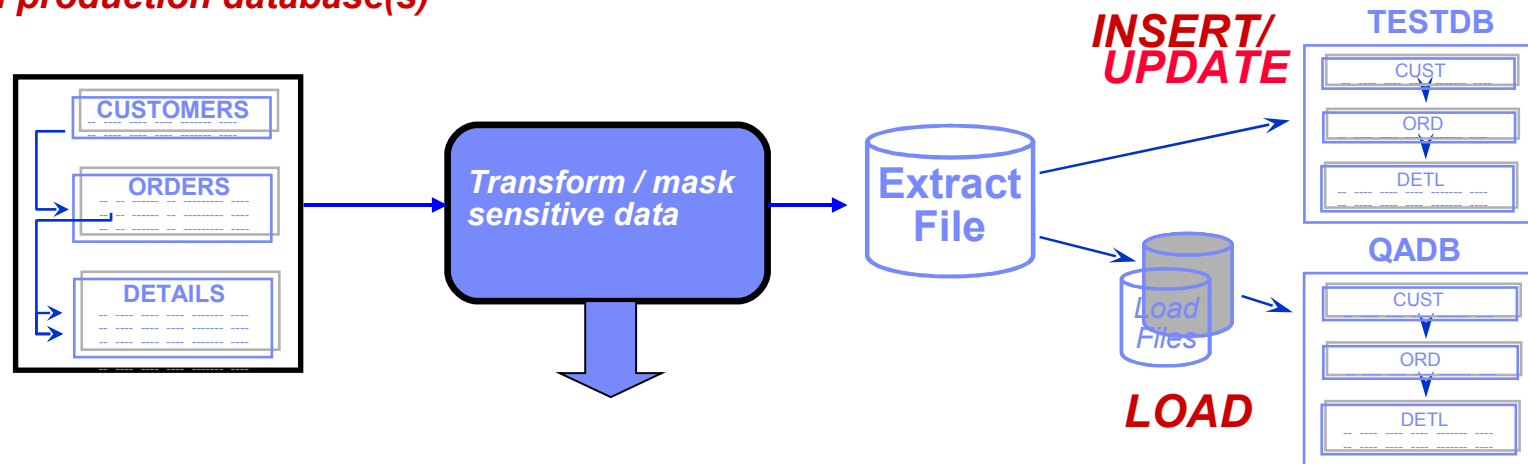


# IBM Optim Data Privacy



# Data Privacy in Application Testing

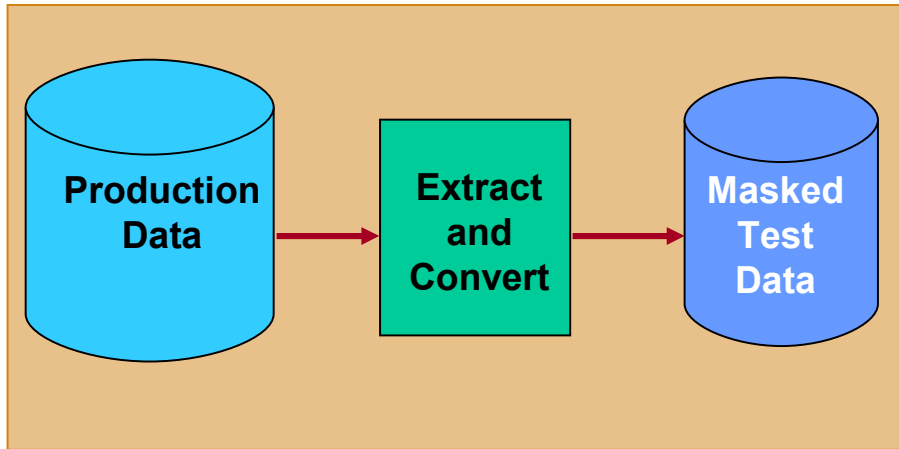
**Extract a relationally intact subset  
from production database(s)**



**Data transformation functions:**

- ✓ Hard-code literals,
- ✓ special registers such as date, time
- ✓ Arithmetic calculations
- ✓ Sequential number generation
- ✓ Random number generation
- ✓ Substring and/or concatenation of values
- ✓ Lookup Table Functions Random, Specific or HASH
- ✓ Intelligent TRANSformation Library – SSN, CCN, email,...
- ✓ Access to client-defined exit routines to apply complex algorithms, encryption, ...
- ✓ Propagation of masked primary keys to dependent foreign keys

## ***De-Identify test data***



***During Extract Process***

**Or**

***Standalone Convert Process***

**Or**

***During Insert/Load Process***

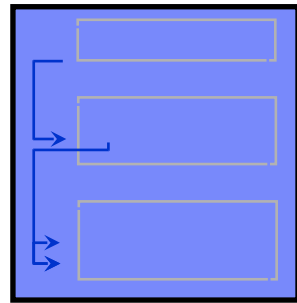
Transform or Replace sensitive data using

- Standard mapping rules: Literals, Special Registers, Expressions, Default Values, Look-up tables
- Complex mapping rules: User exits

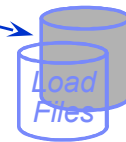
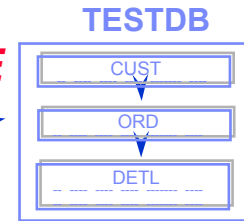
# Data Privacy in Application Testing

## Only Users authorized to see Private data

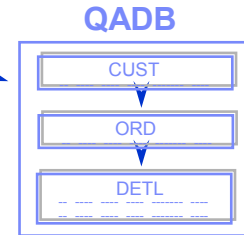
*Extract a relationally intact subset from production database(s)*



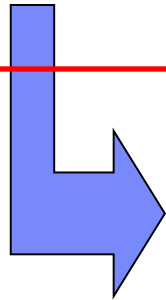
**INSERT/  
UPDATE**



**LOAD**



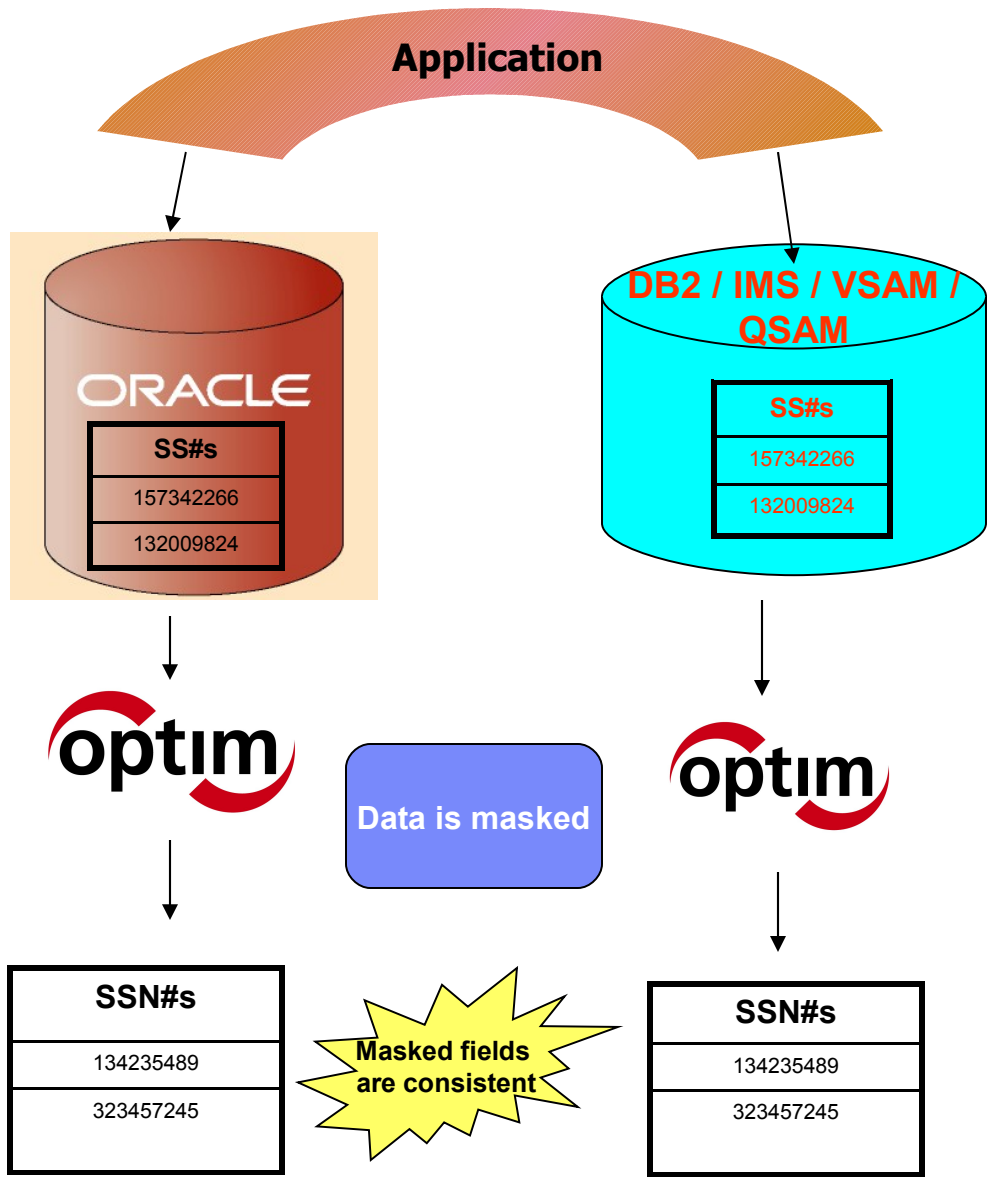
**Sanitized Data**



- Most Secure Approach
  - Extract data only
  - Convert during extract
- Extract file already contains masked data
- Can be shared with testers to reuse

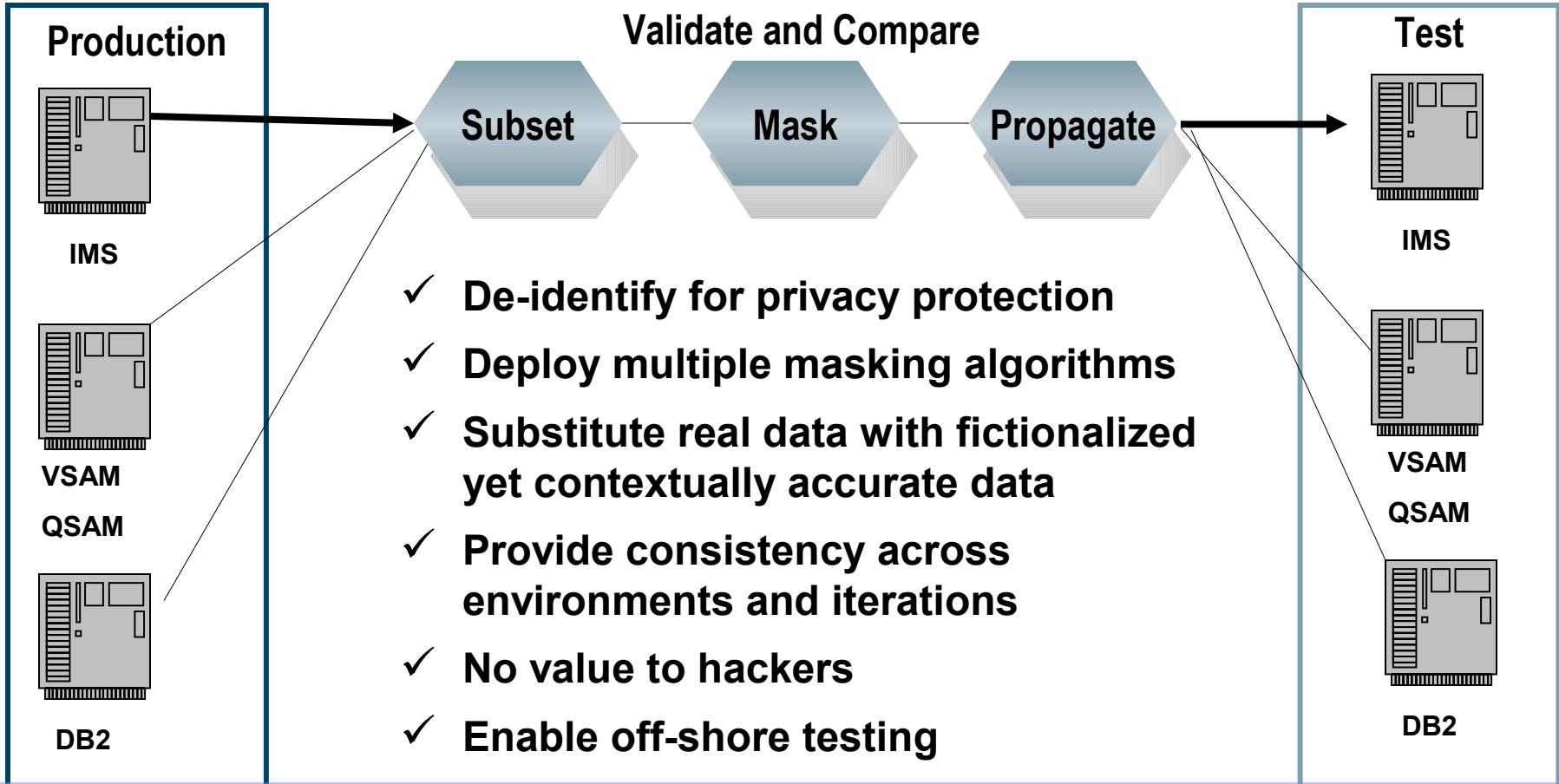


# Consistent Masking across the Enterprise





# Data Privacy



***Ensure Data Privacy Across Non-Production Environments!***

## *Optim Data Privacy*

- An Optim Convert is:
  - A transformation of data in either Extract or Archive files
  - May (optionally) produce comma separated data, CSV, format files
  - A process for masking, transforming, converting, and privatizing data for testing or security purposes



## Optim Data Privacy

Optim Convert can *consistently* transform production data for use in QA and testing environments while *retaining its referential integrity* and at the same time *protecting the original* data from uses for which it was not intended.



## *What are the capabilities?*

- Can occur as a standalone file or automatically after Extract
- Can be used prior to Insert/Update/Load of Data
- Implemented via Table Maps and Column Maps
- Transforms data at the column level
- Generates new values
- Semantic transformations
- Lookups
- Customer extensions
- Propagation
- Note: Move for Legacy also available for IMS/VSAM/Sequential



## *What are the techniques?*

- Expressions:
  - Literals
  - Alphanumeric
  - Numeric
  - Random or sequential numbers
  - Character substrings
  - Map special registers
  - Generate random or sequential numbers
- Lookups:
  - Prepackaged
  - Random
  - Hash
  - Multi-column



## *Techniques (continued)*

- Functions:
  - Aging
  - Automatic data conversion
  - Concatenation
  - Sequential string function
  - Character substrings
  - Create an expression
  - Create substrings from Char/Varchar
  - Currency
  - Identity or serial function
  - Exits
  - Propagation



# Questions





# ***Information On Demand featuring IBM™ Optim***

## **Optim z/OS**

### **Data Growth - ODM**





## Why Archive?

### *Potential Impact of a Growing Production Database*

- Performance
  - Degradation of online response times
- Ever-increasing DASD requirements
- System availability
  - Inability to complete batch work in allotted window
  - Increase in time required for database maintenance
  - Disaster Recovery window



## *Optim Data Growth Management*

- Typical Client Concerns:
  - Inactive/stale data in production data base degrades application performance
  - Users reporting problems with performance of batch and on-line queries
  - High data maintenance and storage costs
  
- Solution: IBM Optim Data Growth Solution
  - Segregates “inactive” historical data from current data to relieve the live database from heavy volumes of data
  - Retains knowledge of meta data to support rapid and flexible data access
  - Trusted Policy Mgmt for Data Retention
  
- Value Proposition:
  - Improve Application Performance, availability and performance service levels
  - Reduce Infrastructure Costs, via tiered storage strategies
  - Repeatable, reusable consistent approach using a single scalable solution
  - Improve Compliance

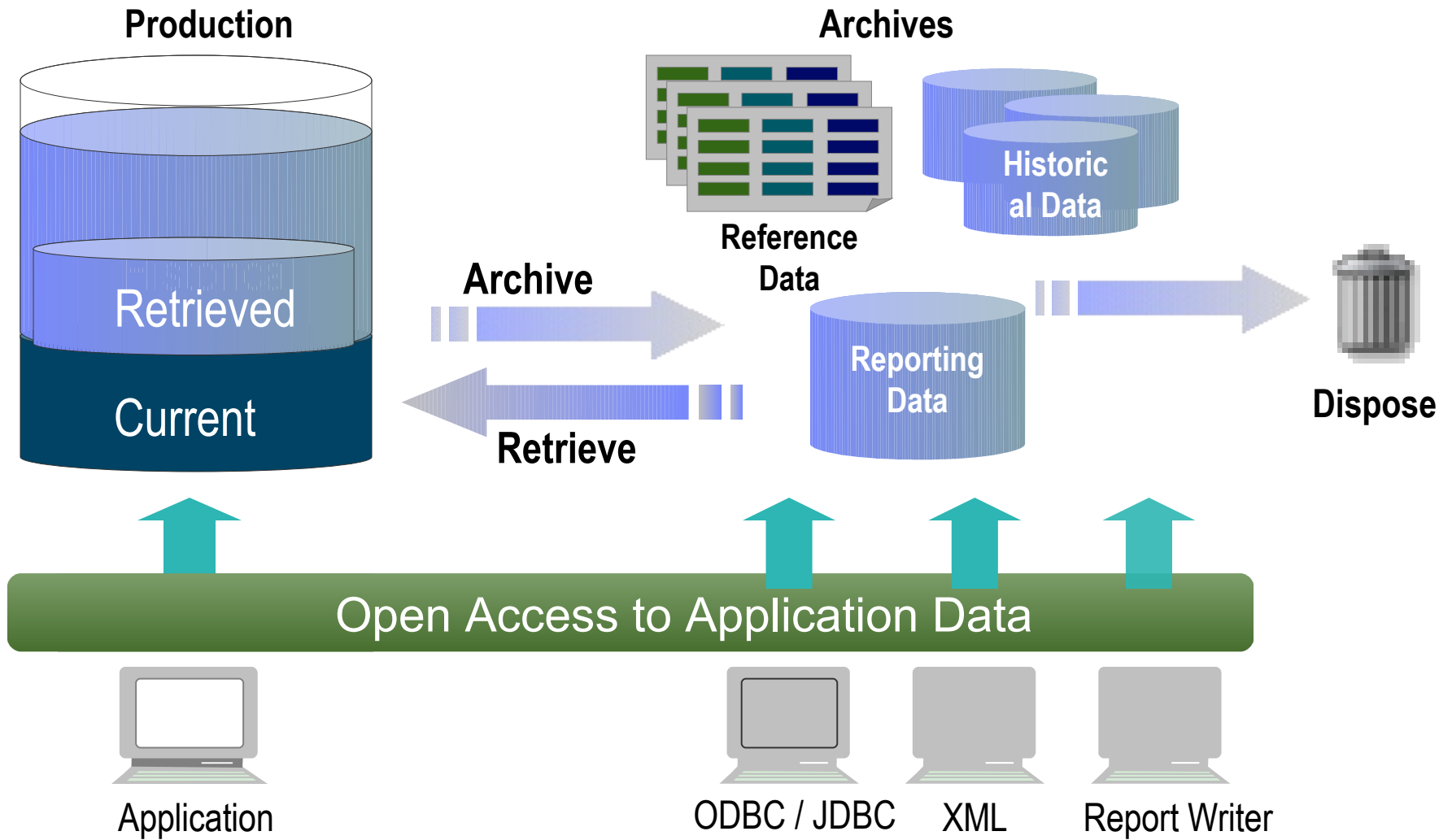


## *Two distinct choices for Optim deployment*

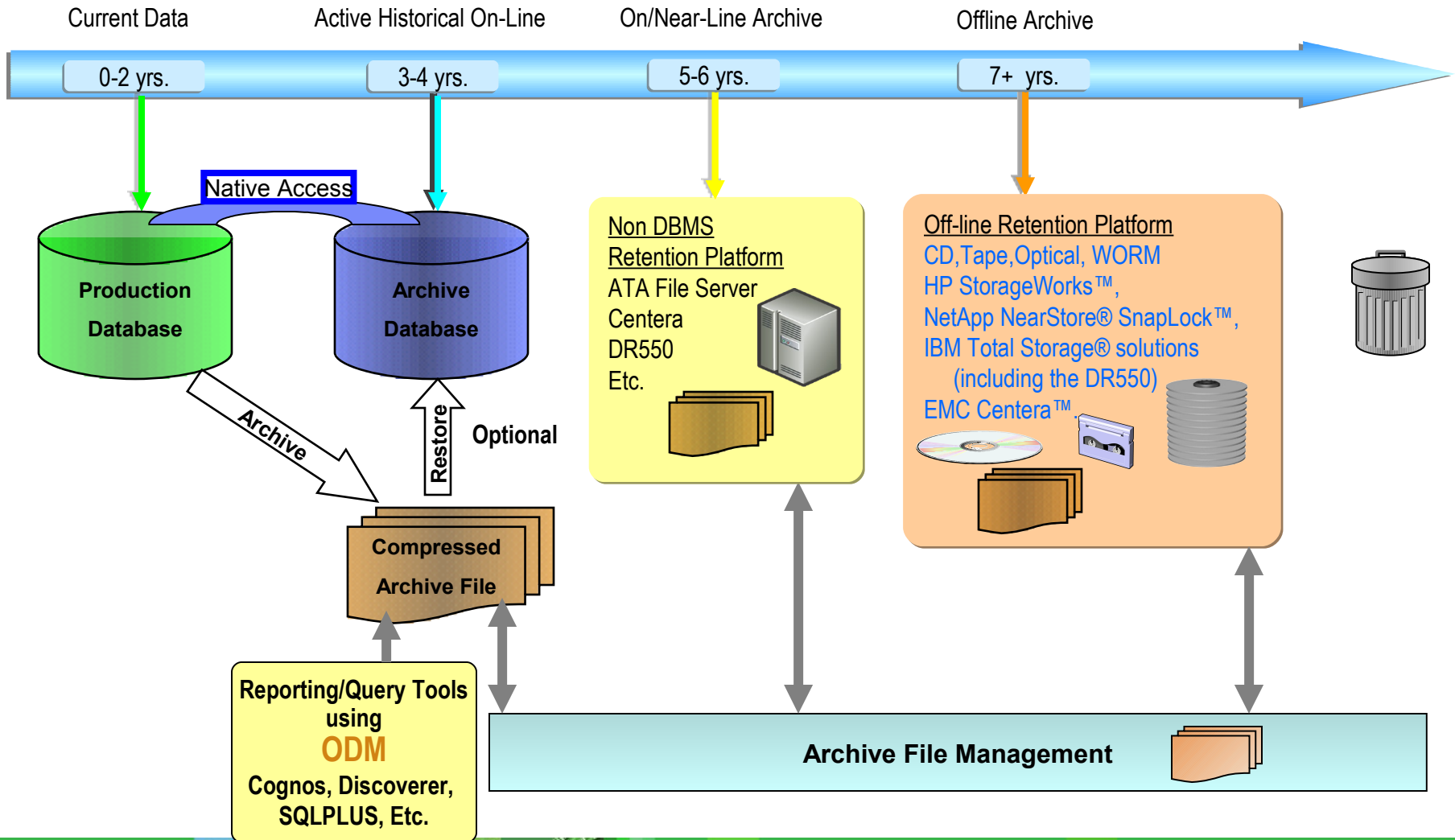
- **Industry Standard Archive File**
  - DBMS not required
  - Complete business object
  - Compress, Indexed
  - Secured
  - Any storage device
  - Access via any SQL Based tool
  - Does not *require* application
  - Frozen in time
    - Immutable
    - Snapshot of historical events
- **Archive DBMS**
  - Requires DBMS of choice
  - Application Transparency
  - Faster access times
  - May be updated
  - Requires subsequent archive process
  - Synchronize with production changes (patches, upgrades)
  - Growth tables only



# How does Archiving Work?



# Information Lifecycle

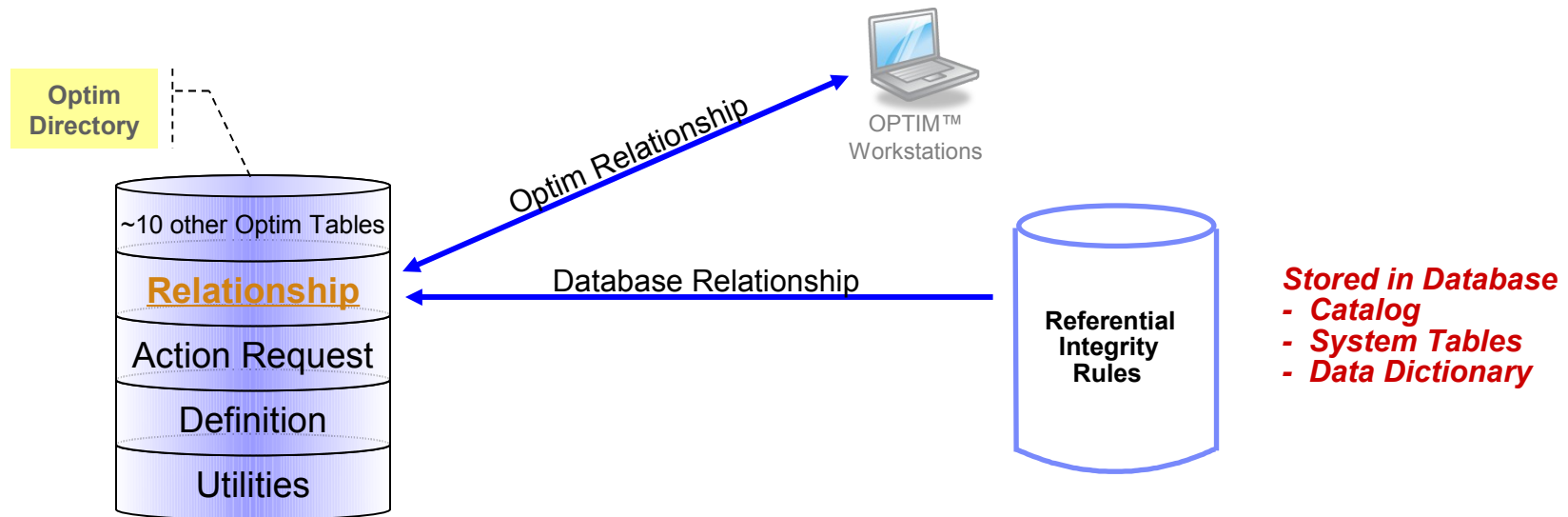


## ***Extract, Store and Restore***

- ***Extract***: Identify and extract business objects across multiple related applications, databases and platforms
- ***Store***: Store immutable business objects independent of infrastructure – any hardware device or platform
- ***Restore***: Migrate or restore business objects seamlessly from any database, application or version to any other database, application or version.



## OPTIM Relationships



- Database Relationship
  - Database defined Referential Integrity rules
  - Dynamically read DB catalog at run time
- Optim Relationship
  - Import DDL from data modeling tools or Define manually
  - Can be a Data Driven Relationship
  - Does not require primary-key
  - Cross Database relationship

## *Steps for Archiving Data*

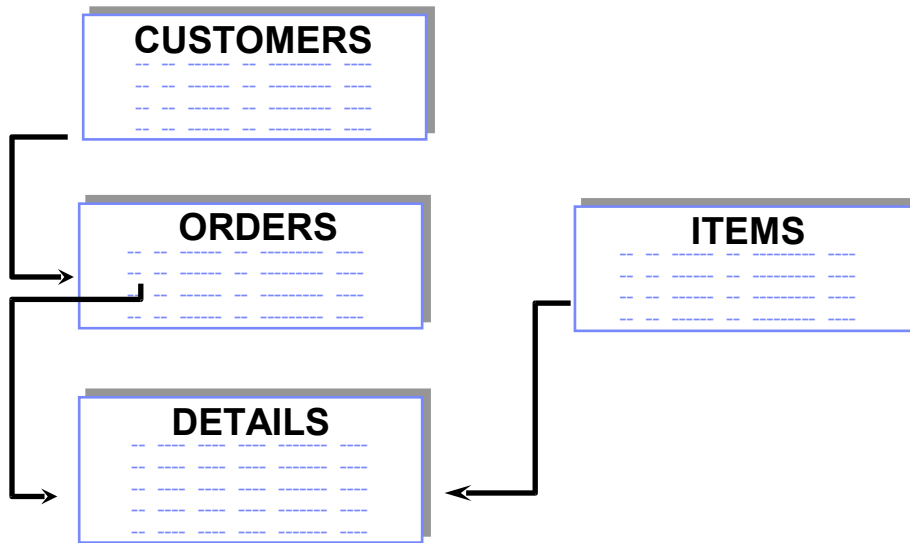
- **Identify the data to be archived**
- **Define the data to be deleted**
- **Create the archive**
- **Review the validity of the archive**
- **Delete the data**
- **Find Data in the Archives**
- **Browse, Report or Restore**





# *Identify the data to be archived*

## **Access Definition** Defines a subset of of relational data

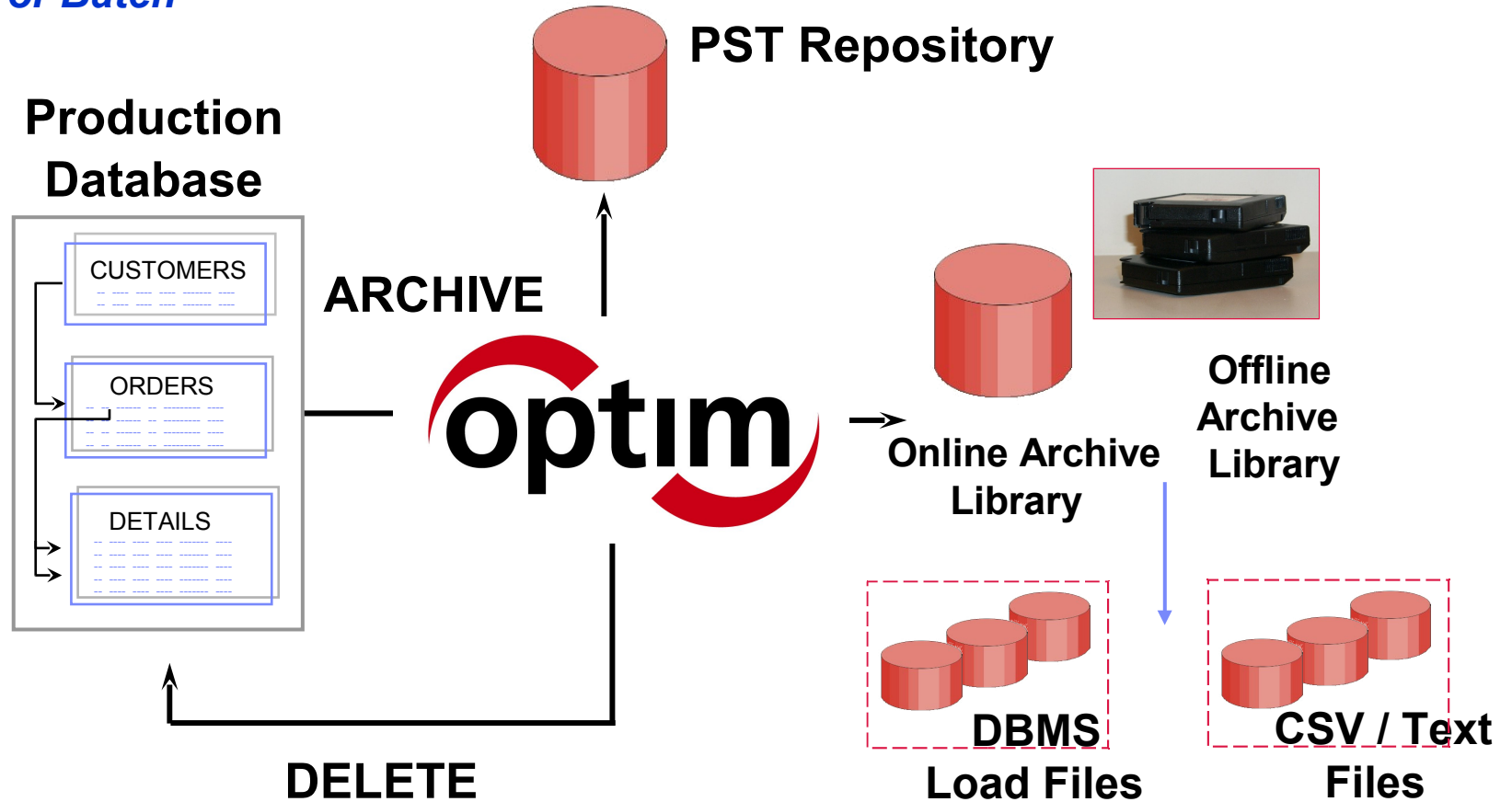


- Start table
- Associated data
- Relationships
- Extraction rules
- Index specifications
- Archive Actions
- Attachments



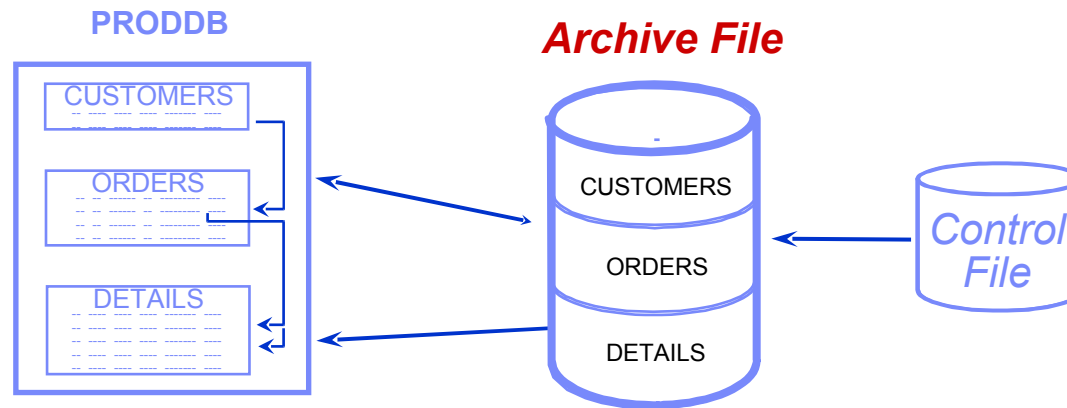
# Run the Archive Request

Online or Batch



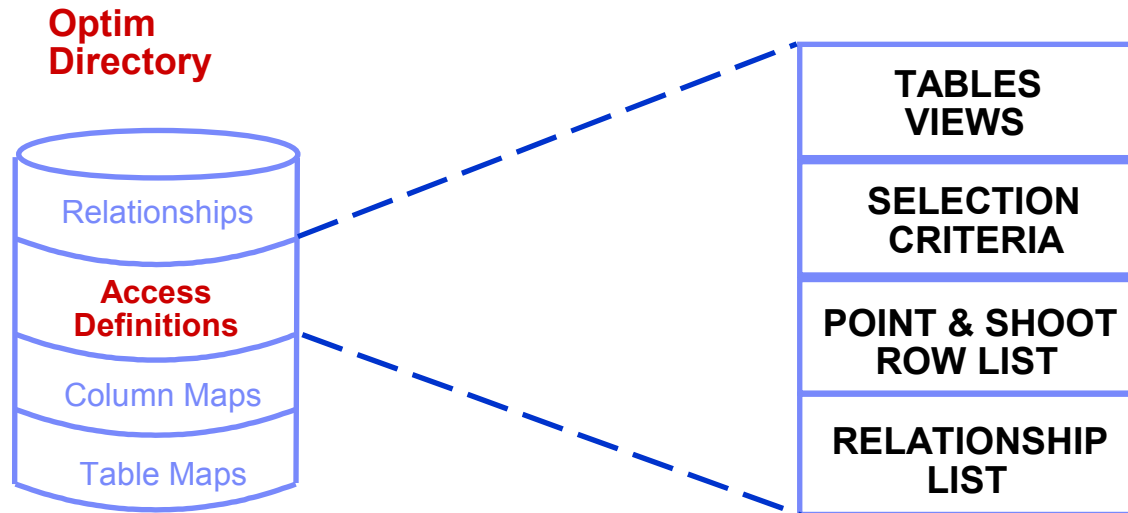
## Archive Process

### Delete the Archived Data



- Delete is automatic after successful archive OR can be deferred post-verification
- Delete specifications define which data to delete
- Archived rows compared to database rows (optional)
- Control File enables Retry/Restart of delete

# Save Optim Objects/Processes



- Created dynamically during extract definition then saved or discarded
- Created explicitly prior to extract



## ***Optim Repository - Managed Archiving***



- **Maintain a record of all archive activities**
- **Actively manage archives**
- **Optimize access to archives**
- **Manage metadata**



## ***Researching the Archives***



**Restore archived data  
only when you need to**

### **Direct access to archived data:**

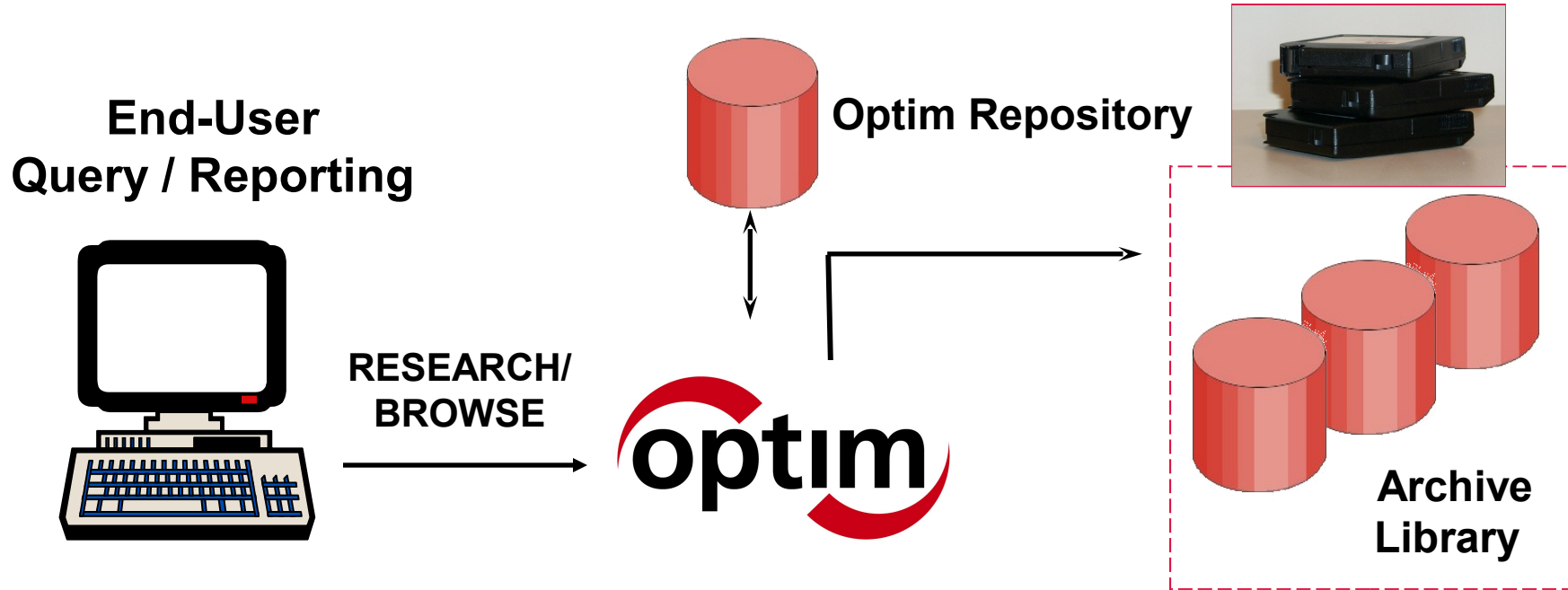
- User maintainable indexes
- Global searches
- Simple or complex criteria
- Intelligent browse

### **Restore Archived data**

- Selective Restore
- Full Restore



## Browsing the Archive Files – Optim Browse

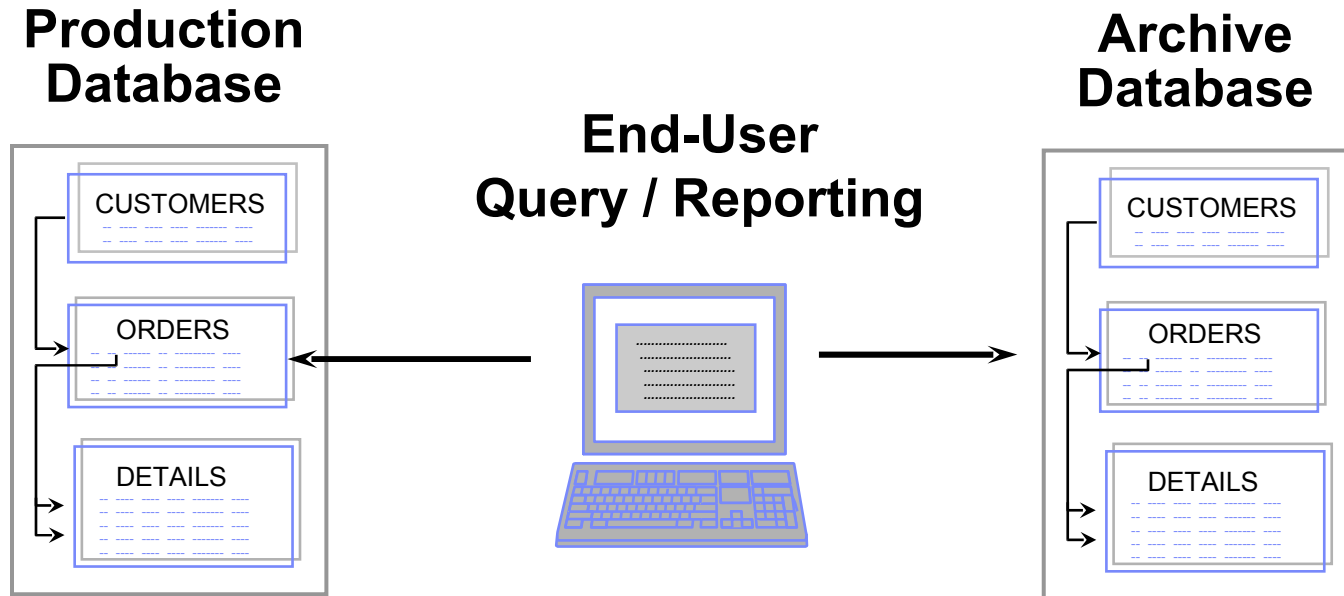


### Option 1: Use Optim™ Relational Browse

- Full table or apply Find criteria
- JOIN to view related archive data
- Create hardcopy reports



## Browsing the Archive Database – Optim Browse

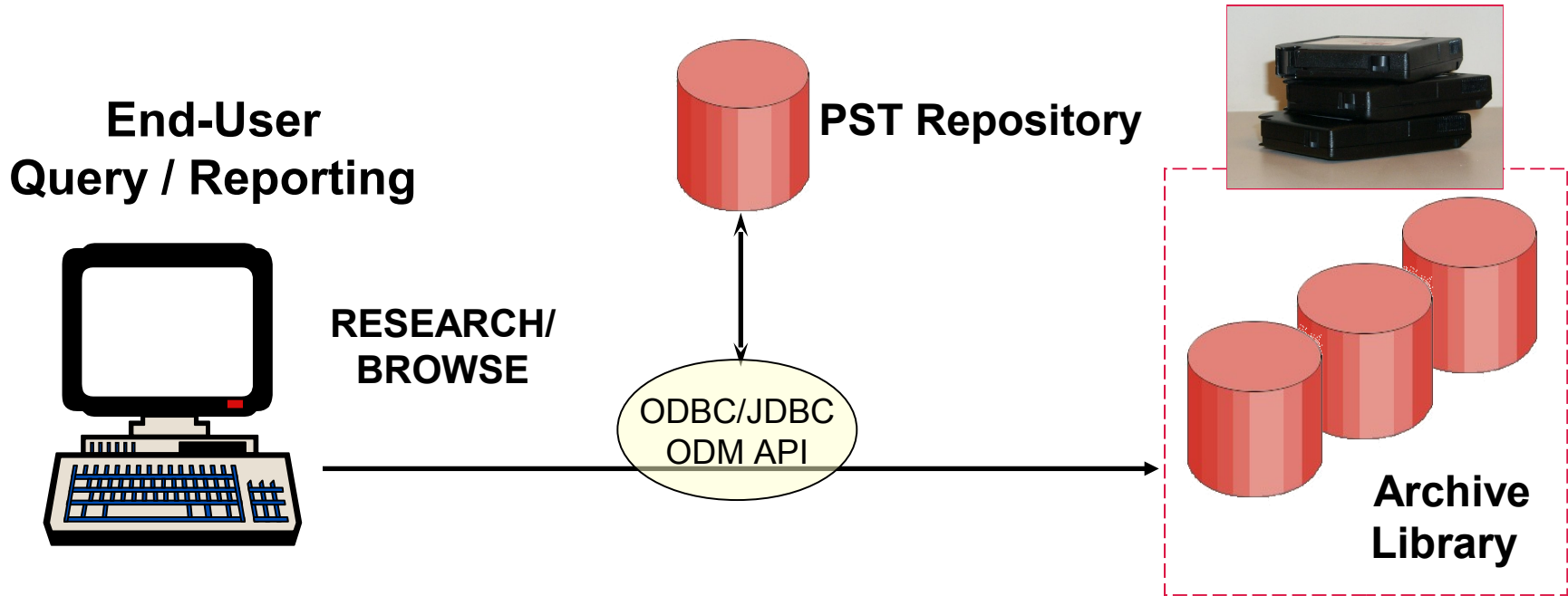


- Minor or no changes to Application Code
- Browse data from Archive File





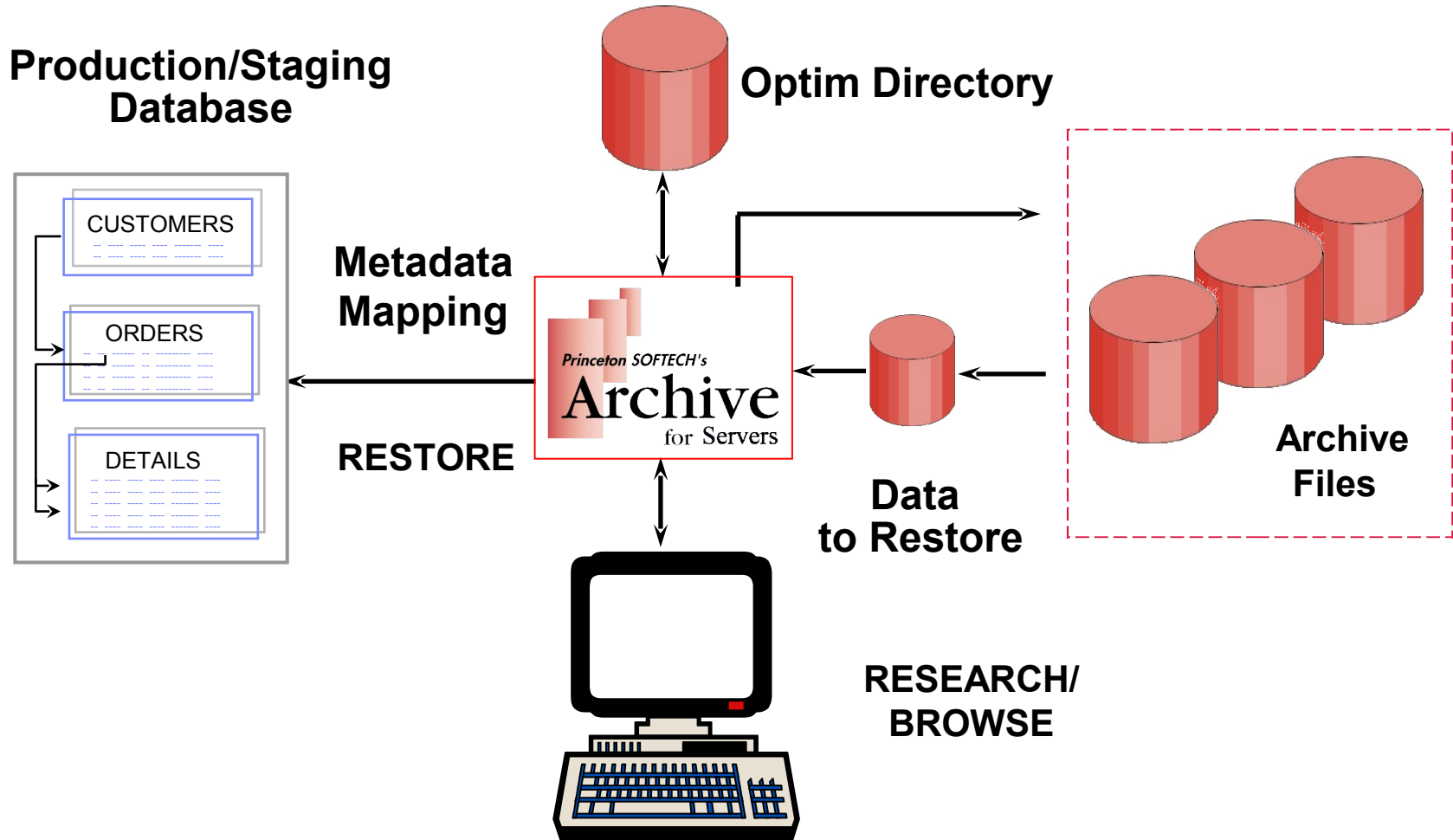
## Browsing the Archive Files – Optim Open Data Manager



Option 2: Use the Optim™ ODBC Driver for Direct Access within Your Application



# Selectively Restoring Archived Data





# *Optim Archive*

## Open Data Manager (ODM)



## ***Technical Features and Benefits of ODM***

- ODM features and benefits include:
  - Access archived data, with the ability to join tables, group data, perform unions, etc. under full SQL 92 via ODBC/JDBC
  - Output data in archive files as XML
  - Retain archive security for archive files and rows/columns.
  - Leverage ODM to access archived DB2 data—converts Optim z/OS archive files to Optim (open system) archive files.
  - Perform queries and reports that confederate production and archived data as though data was never relocated (supports connectors to a data source other than the archive file).
  - Use standard reporting and query tools like Excel, Crystal reports and SQL utilities against archived data.



## ***Open Data Manager (ODM)***

What does ODM do?

- ODM API (LE370)
- Provides ODBC/JDBC access to the archived data
  - Supports ANSI SQL-92 to allow seamless integration and reuse of a common skill set.
    - Optim Archive Collection:
      - May query a single archive file or a collection of archive files
      - Archive files may automatically be associated with a collection at creation time
      - Archive files may be related to multiple collections
      - Data within collections is “unioned” across archives
- Provides Federated access
  - DB2 Federation
  - Oracle HSODBC
  - Attunity Data Sources



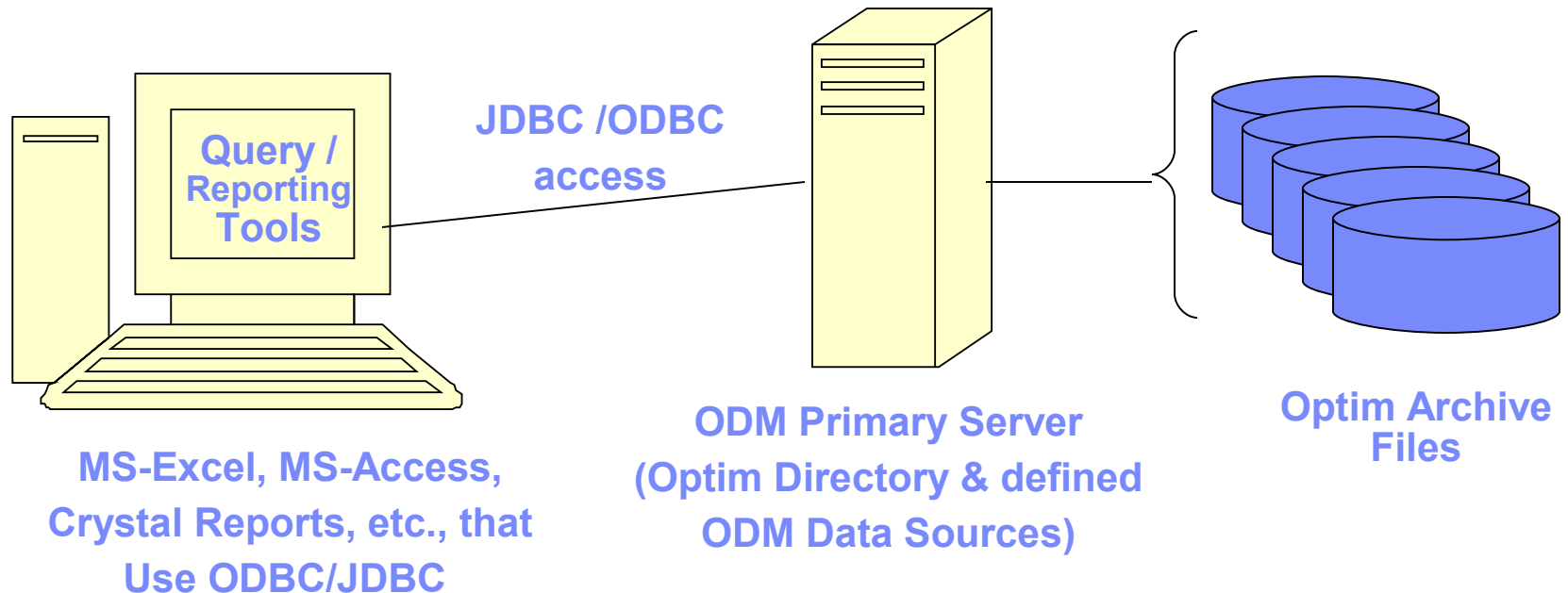
## ***ODM Value***

- Continued Availability
  - Archived data is still accessible and able to deliver business value through reporting and/or restoration as needed.
  
- Lower Costs
  - Archived data is stored on less expensive disk with lower operational overhead.
  
- Reduced Business Risk
  - Archived data immediately participates in larger ILM strategy, which contributes to other disciplines including compliance and audit.



## ***Access to Archived data Open Data Manager (ODM)***

- **Provides access to data in Archive Files / Archive Collections for applications that use ODBC and JDBC APIs**



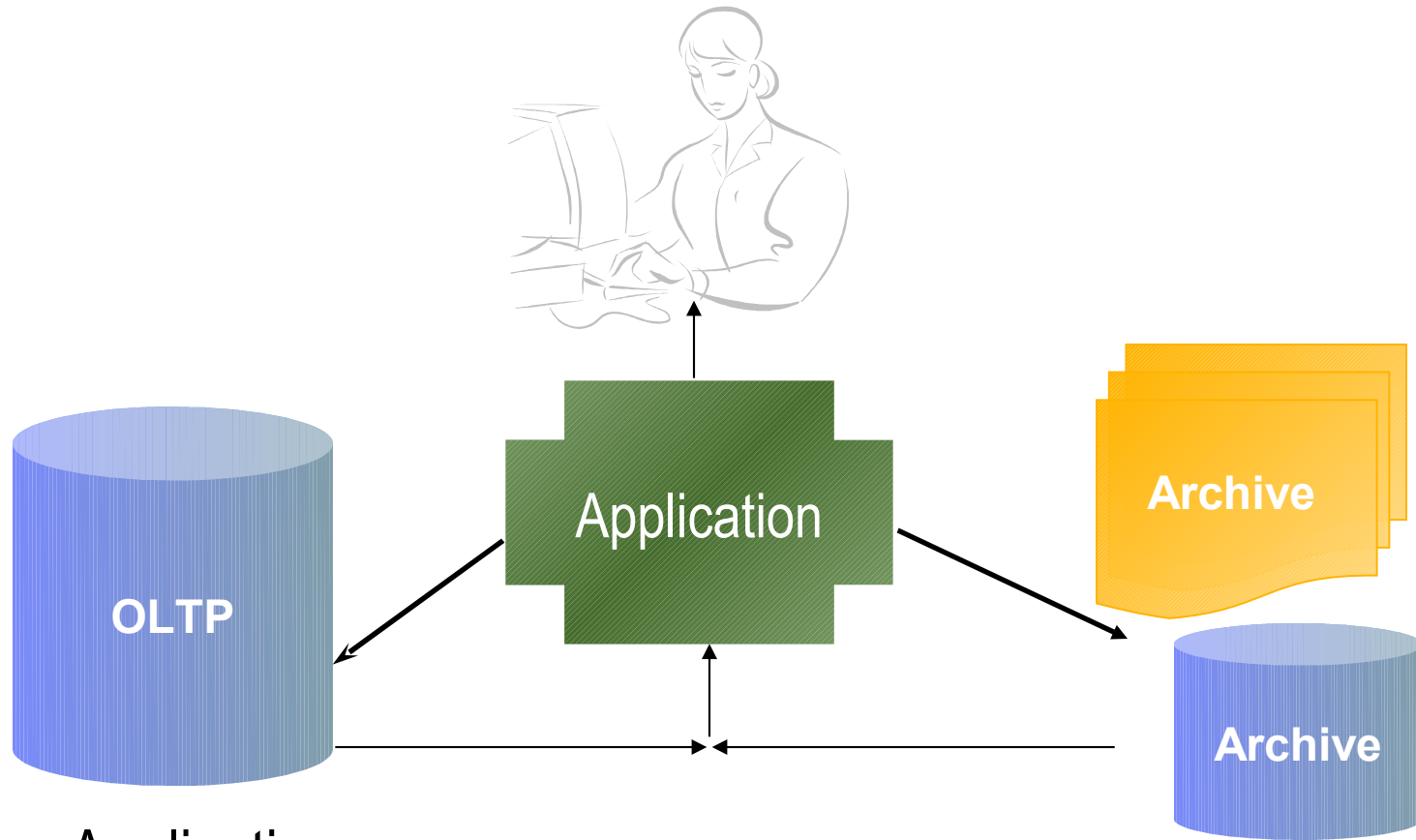
## ***Archive File Collections***

- An Archive Collection is a list of Archive Files that can be logically unioned together as a single data source for Open Data Manager (ODM) access.
- The Archive File Collection Editor is used to create an Archive File Collection
- Tables with matching creator IDs and names in separate Archive Files will be unioned





## Application-Based Access to Archives



- Application access
  - User requests data with application function
- Consolidated view



# Self- Help Access to Archives



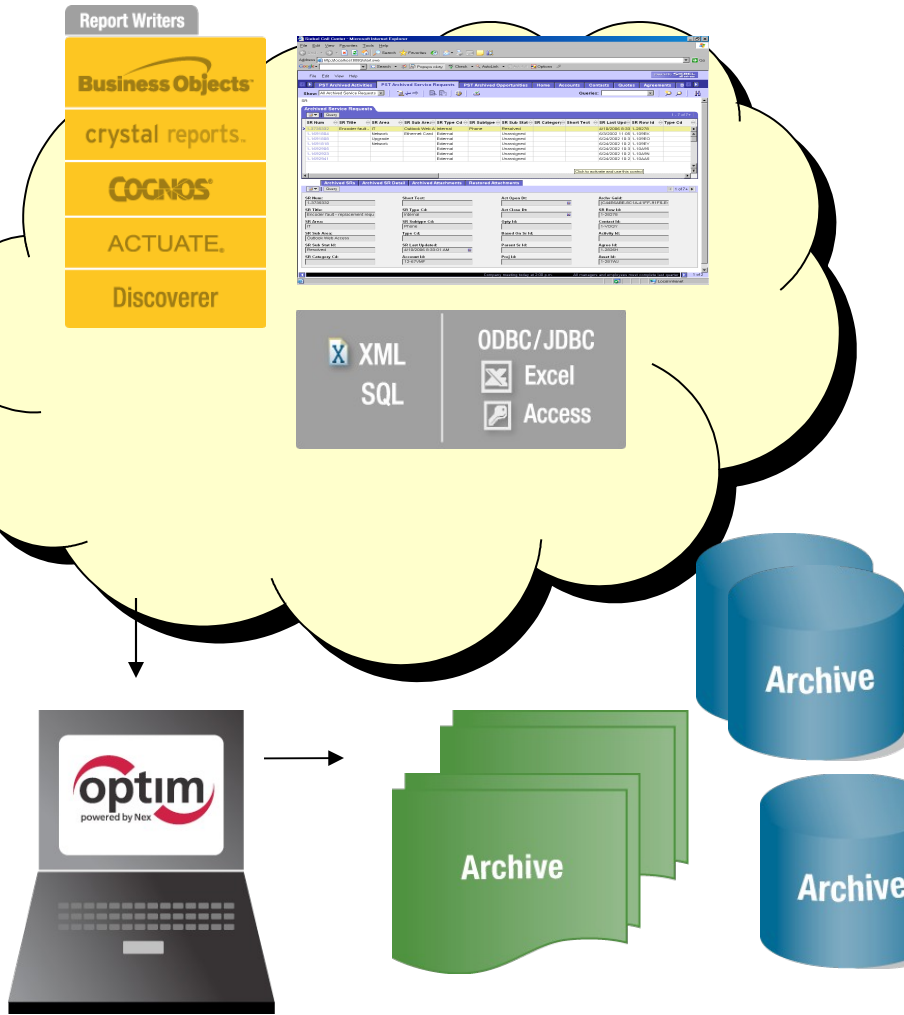
- **Excel**
- **Access**
- **Report Writers –**
  - Cognos,
  - Business Objects,
  - Discoverer
- **Any SQL-based tool set**
- **Browser**
- **Java Application**



- Open & independent
- No training of end users or audit staff
- Leverage existing tools and skills
- OLTP not required



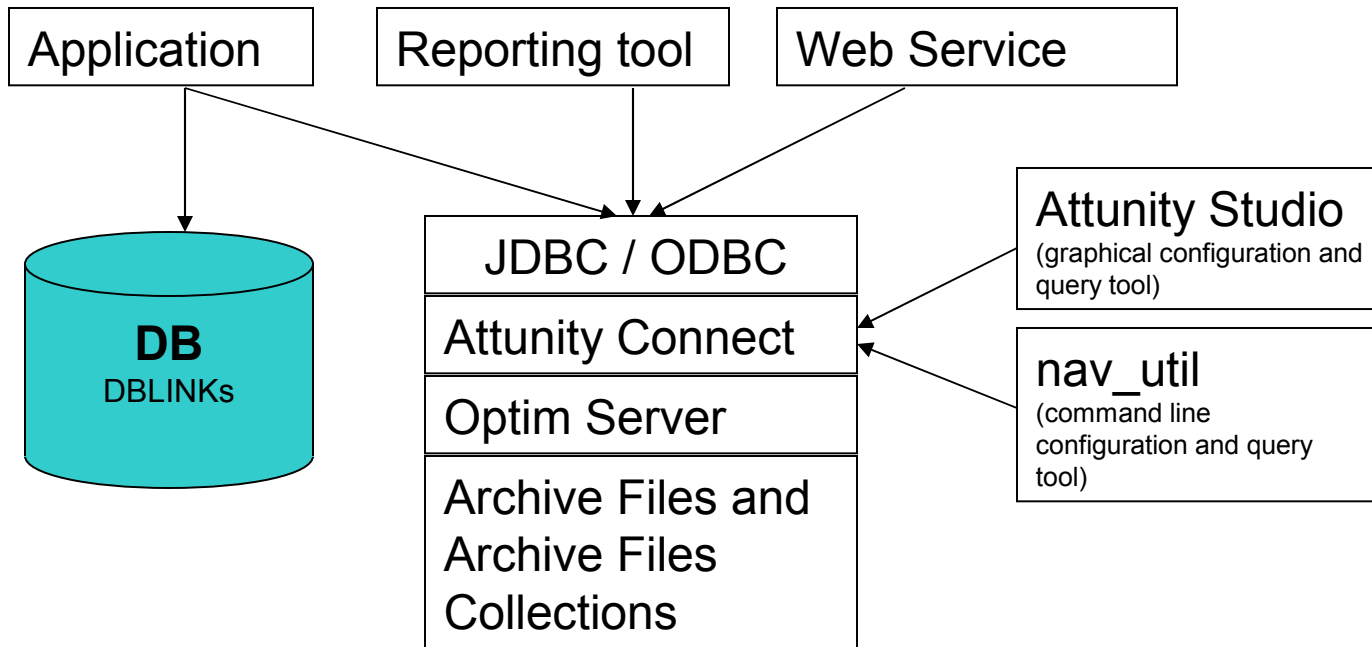
## Universal Access to Archived Data



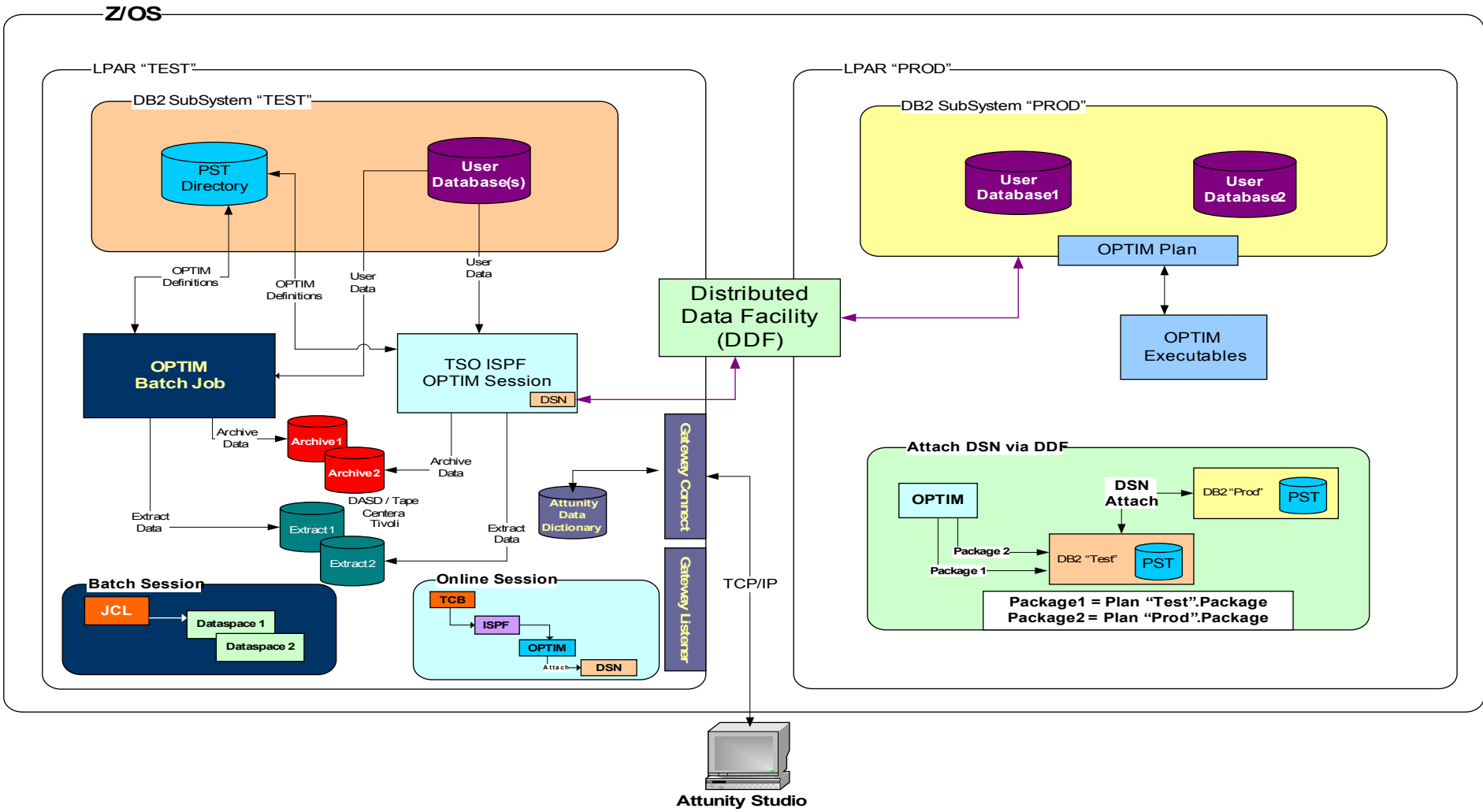
### Optim Open Data Manager (ODM)

- Native application access
  - Familiar screens and processes
- Application independent access
  - Industry standard methods: SQL, ODBC/JDBC, XML
  - Federated access
  - Report writers: Crystal Reports, Cognos, Business Objects, Discoverer, Actuate
  - Desktop formats: Excel, CSV, MS Access
  - Database formats

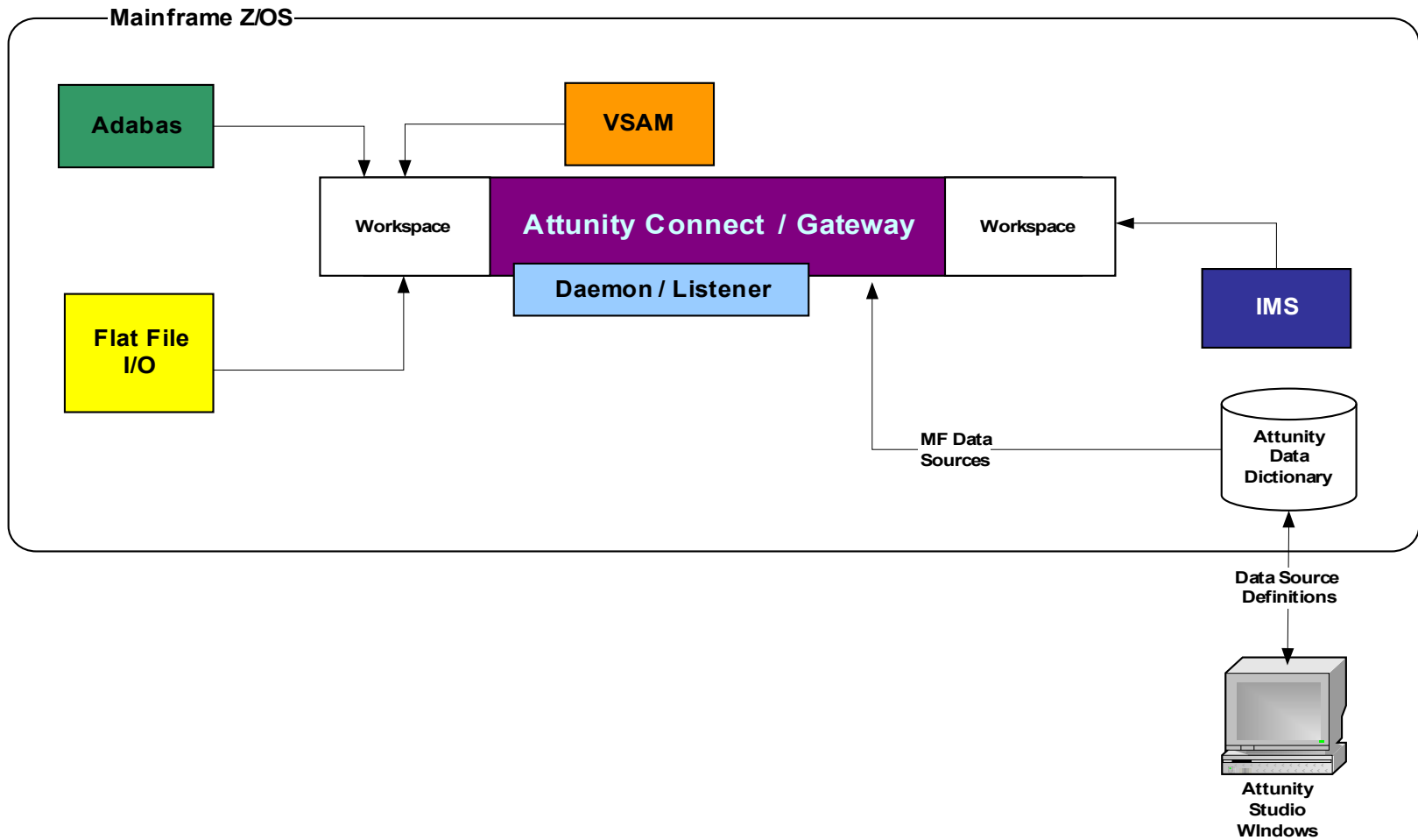
## Attunity Connect and Optim Relationship



# Optim z/OS Configuration



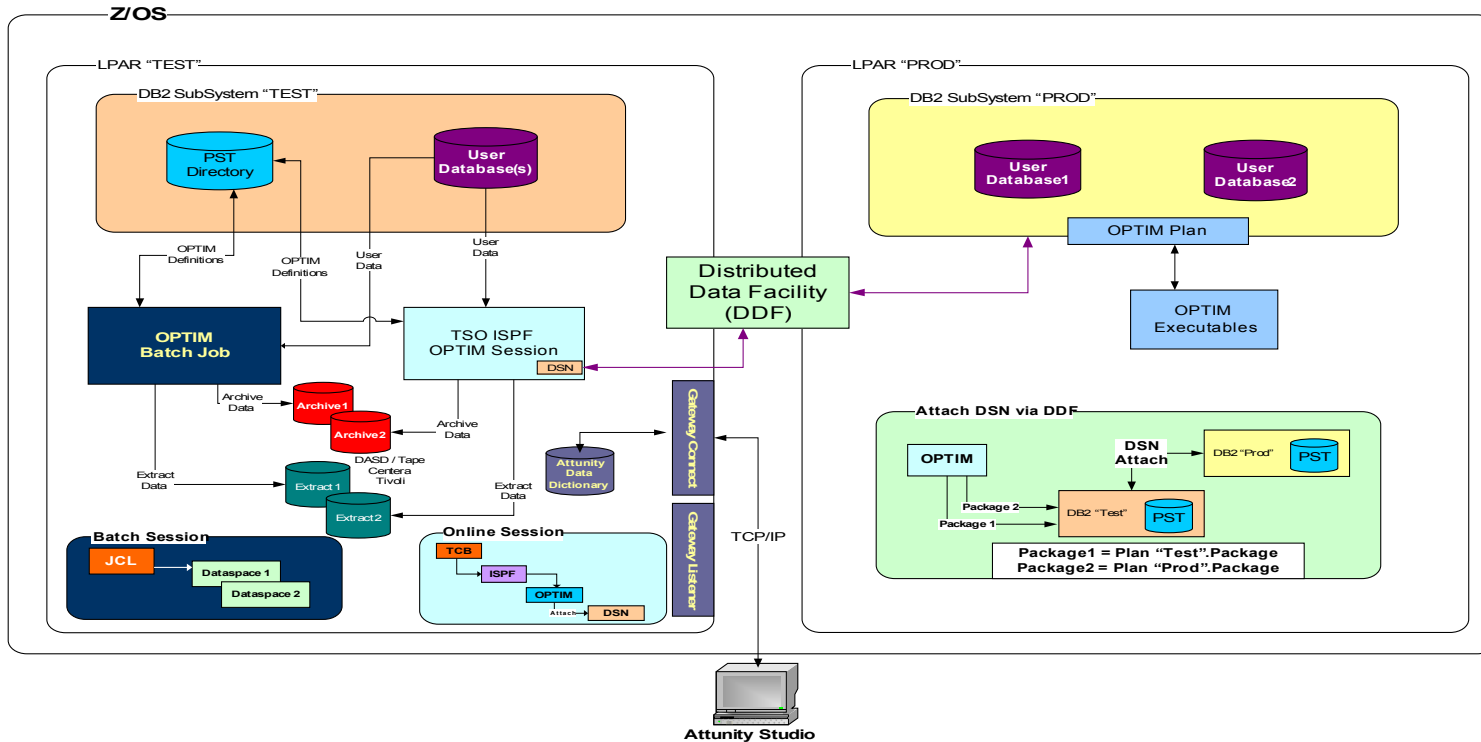
# Closer Look at One Node



# Questions

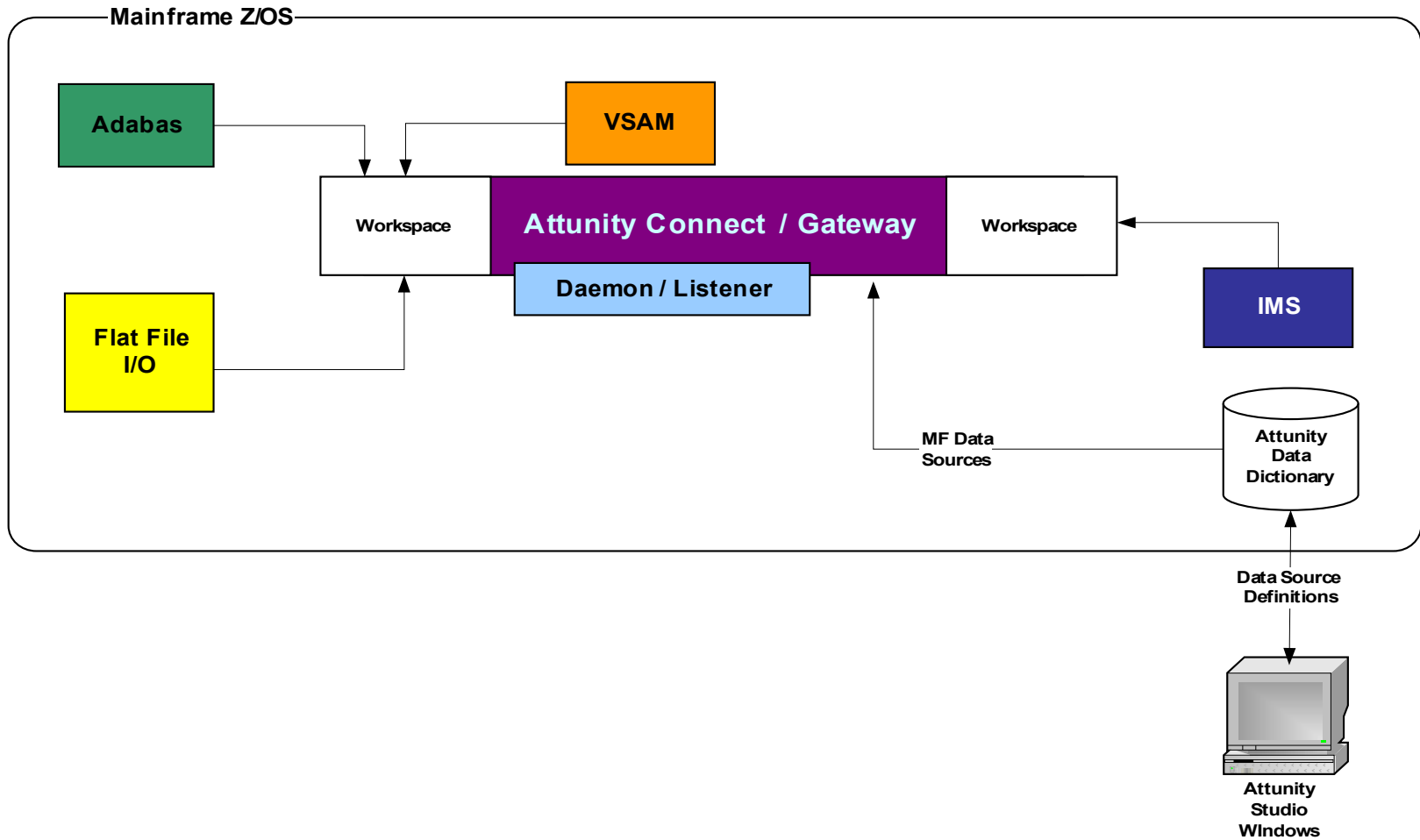


# Optim z/OS Configuration

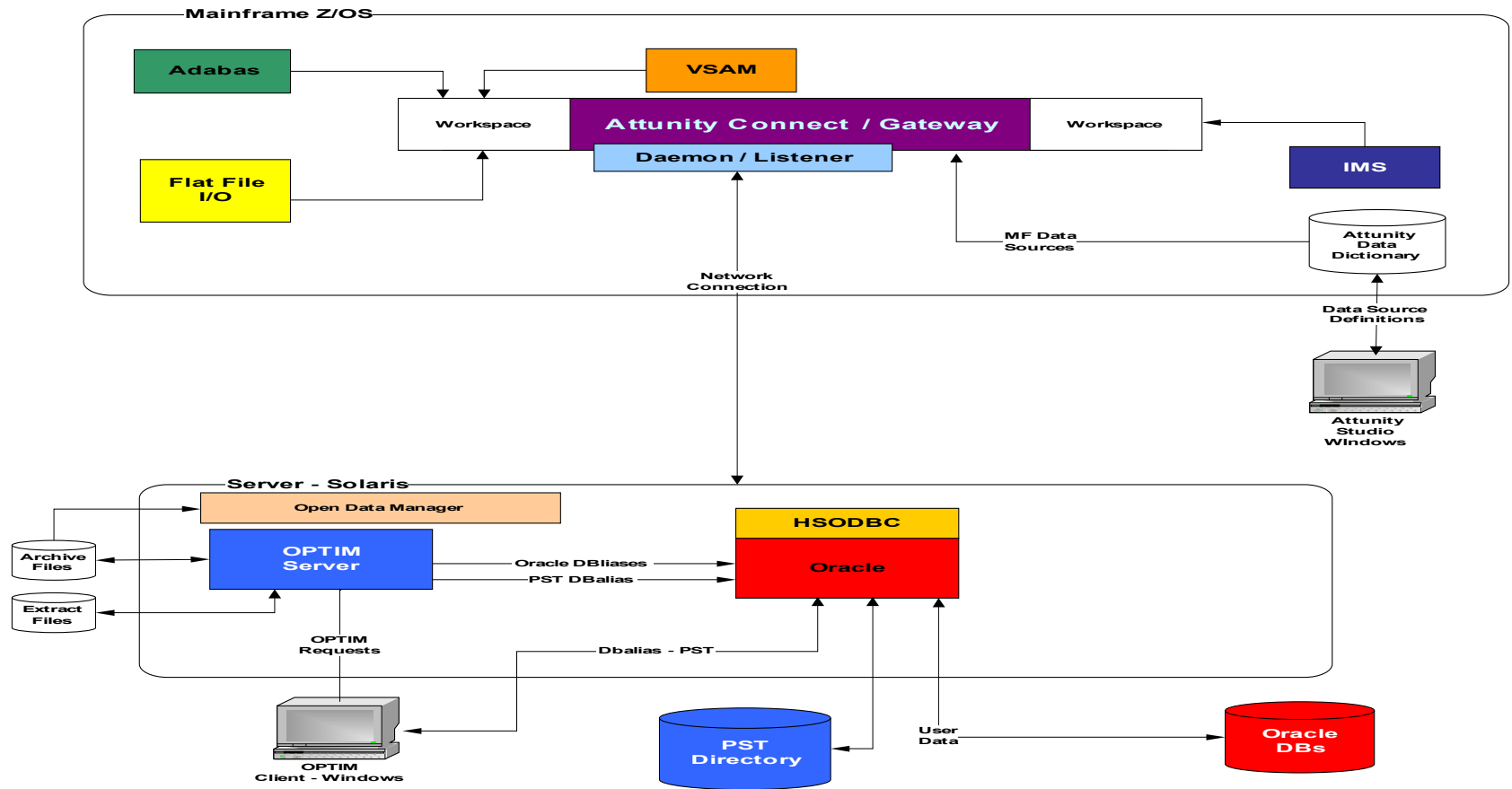




# Closer Look at One Node



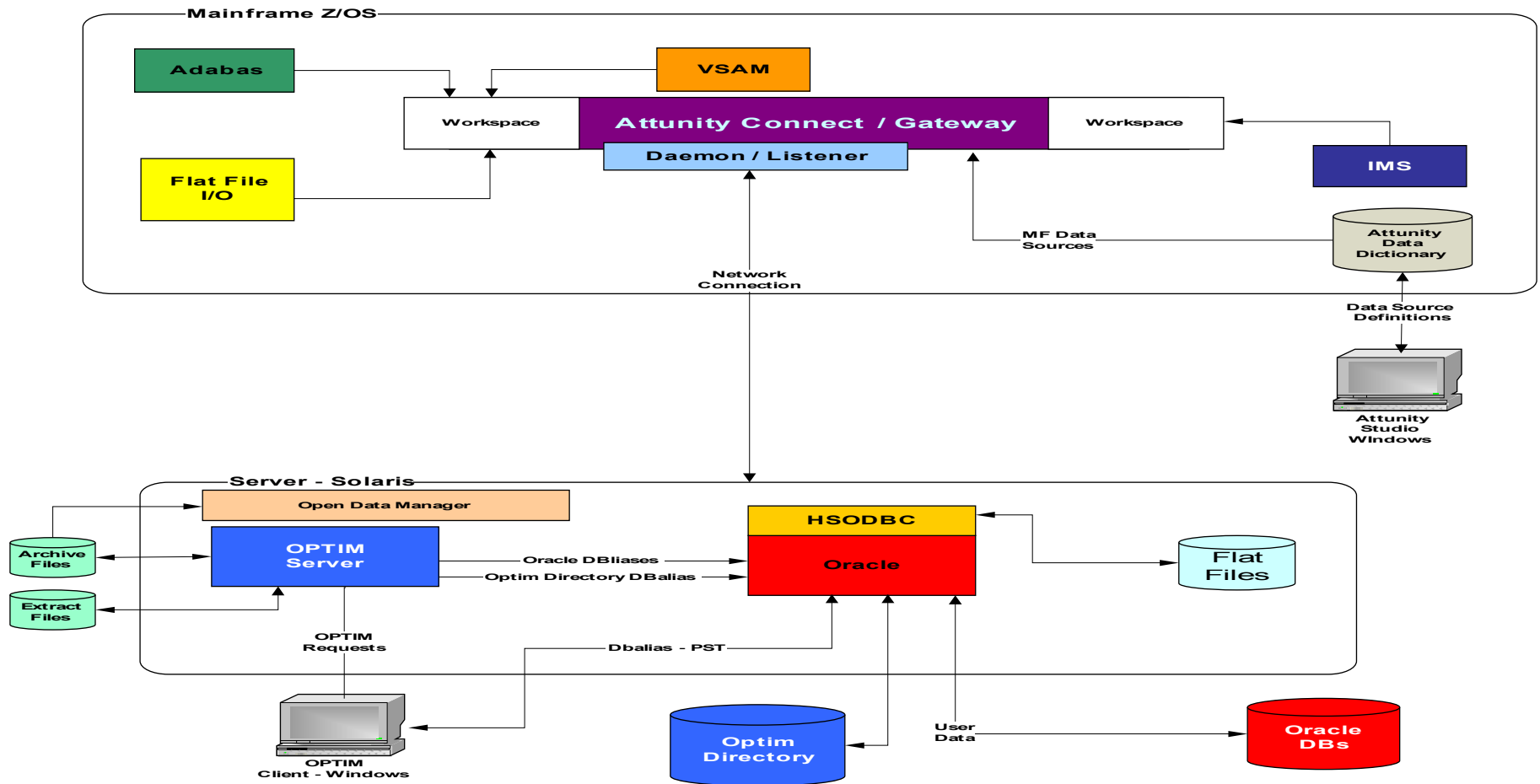
# Optim Gateway Configuration



Please Note: **OPTIM Client - Windows** and **Attunity Studio - Windows** may reside in a single workstation

# Client/Server Architecture with Attunity Gateway (LUW & z/OS)

## Sample OPTIM with Gateway Configuration

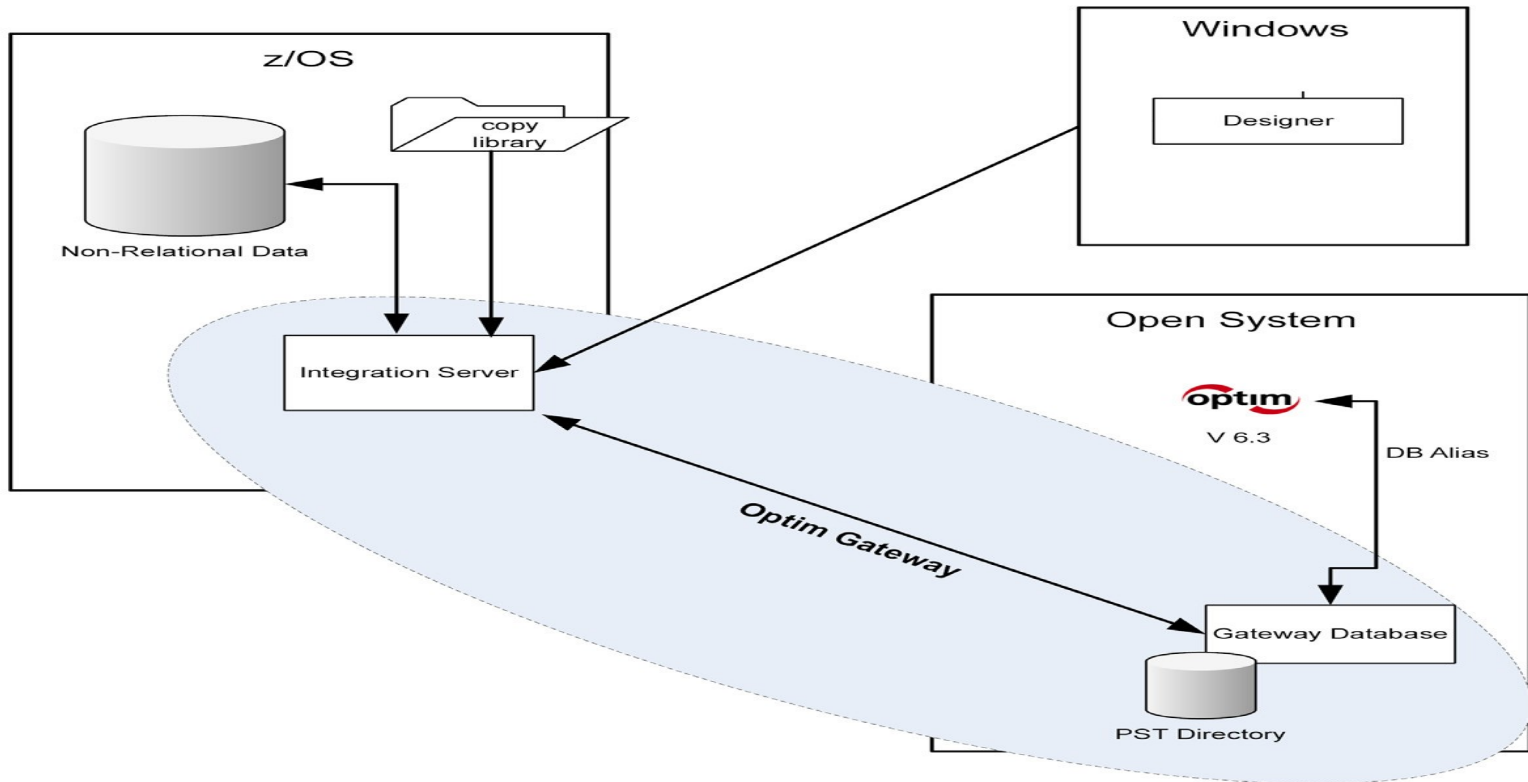


Please Note: **OPTIM Client - Windows** and **Attunity Studio - Windows** may reside in a single workstation

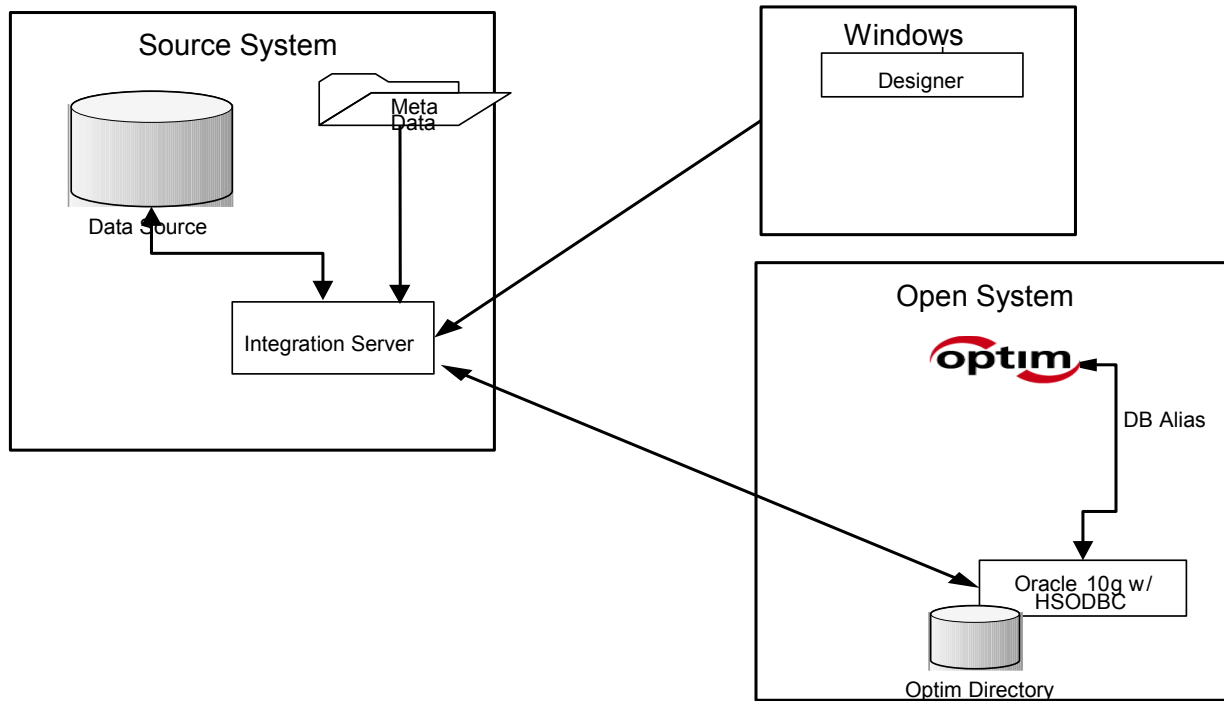


# Current Gateway Method

## Optim Gateway for non-Relational Data on z/OS



# Accessing Source Systems



Thank  
YOU



# Questions

