Leveraging Information: l'offerta Business Intelligence di IBM

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What is Leveraging Information?

To gain competitive advantage customers need to:

- **Capture data from the transactions and processes of their business**
- **Search & Retrieve structured and unstructured data from all enterprise processes to transform it into meaningful information**
- **Analyze that information to gain deeper understanding of the market, customer needs and internal processes and to turn that understanding into strategic advantage**
- **Provide easy and integrated access, as well as workflow, to that strategic information across the enterprise to share with partners, suppliers and customers**

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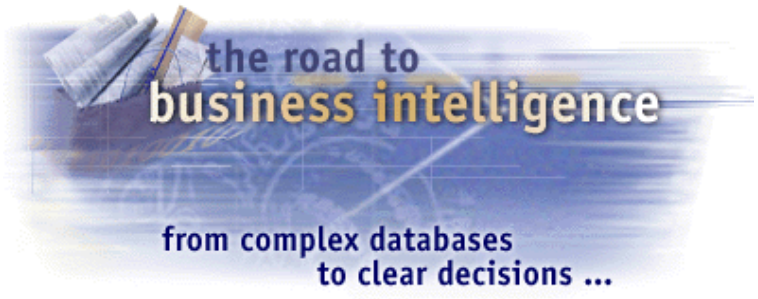
Leveraging Information

Solutions that leverage and manage all forms of information for competitive advantage :

- ***TRANSACTION PROCESSING (OLTP)***
- **BUSINESS INTELLIGENCE**
- ***CONTENT MANAGEMENT***



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Evolution of Business Information Systems

- **First Generation: Query & Reporting**
  - Host-based system used only by "information providers"
  - Too difficult to use by "information consumers"
- **Second Generation: Data Warehousing**
  - Information is clean and consistent and understandable by business users
  - New user interfaces and more powerful tools
- **Third Generation: Business Intelligence**
  - Focus on access and delivery of business information
  - Information catalog for managing information
  - Support for access to all business information, not only data warehouse
  - Prepackaged application solutions

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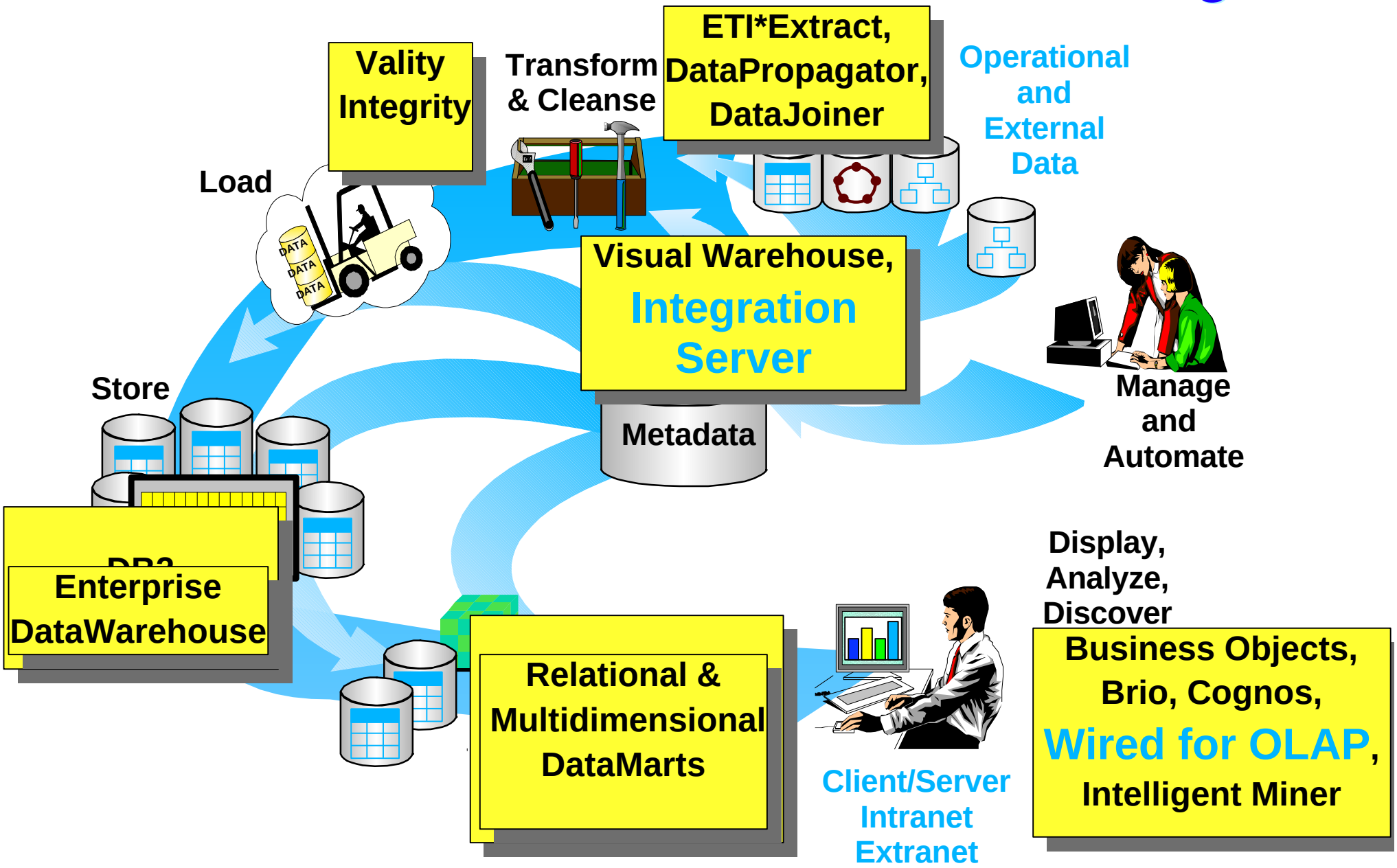
IBM Software for Business Intelligence



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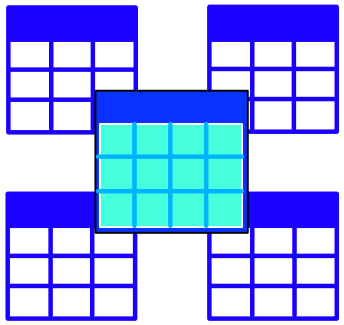
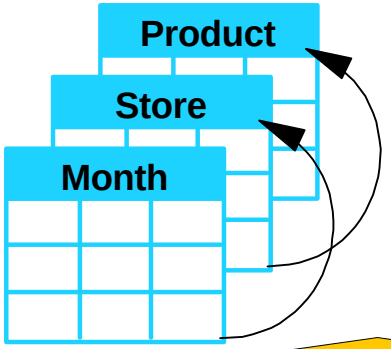
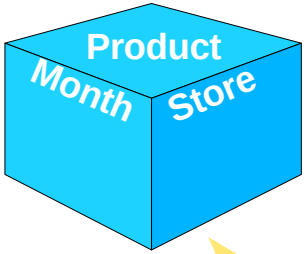
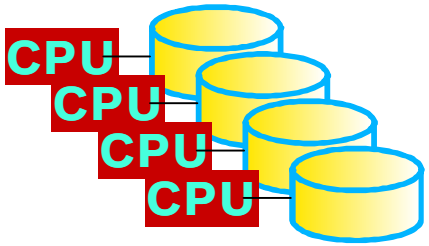
DB2 Business Intelligence Features

- *Star Join*
- *ROLLUP*
- *CUBE*
- *Parallel Query*

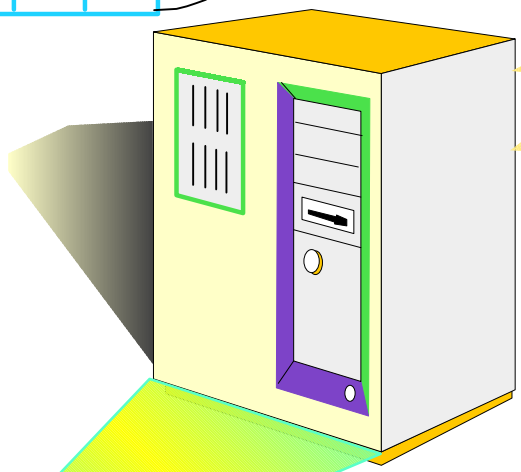








From Laptops
To RISC/6000 SPs



Optimized SQL

GUI-Generated "Ugly" SQL

- *Advanced Cost-Based Optimizer (Starburst)*
- *Query Re-write*
- *Dynamic Bit-map Index ANDing*
- *Automatic Summary Tables*
- *Replicated Tables*
- *Improved indexing*

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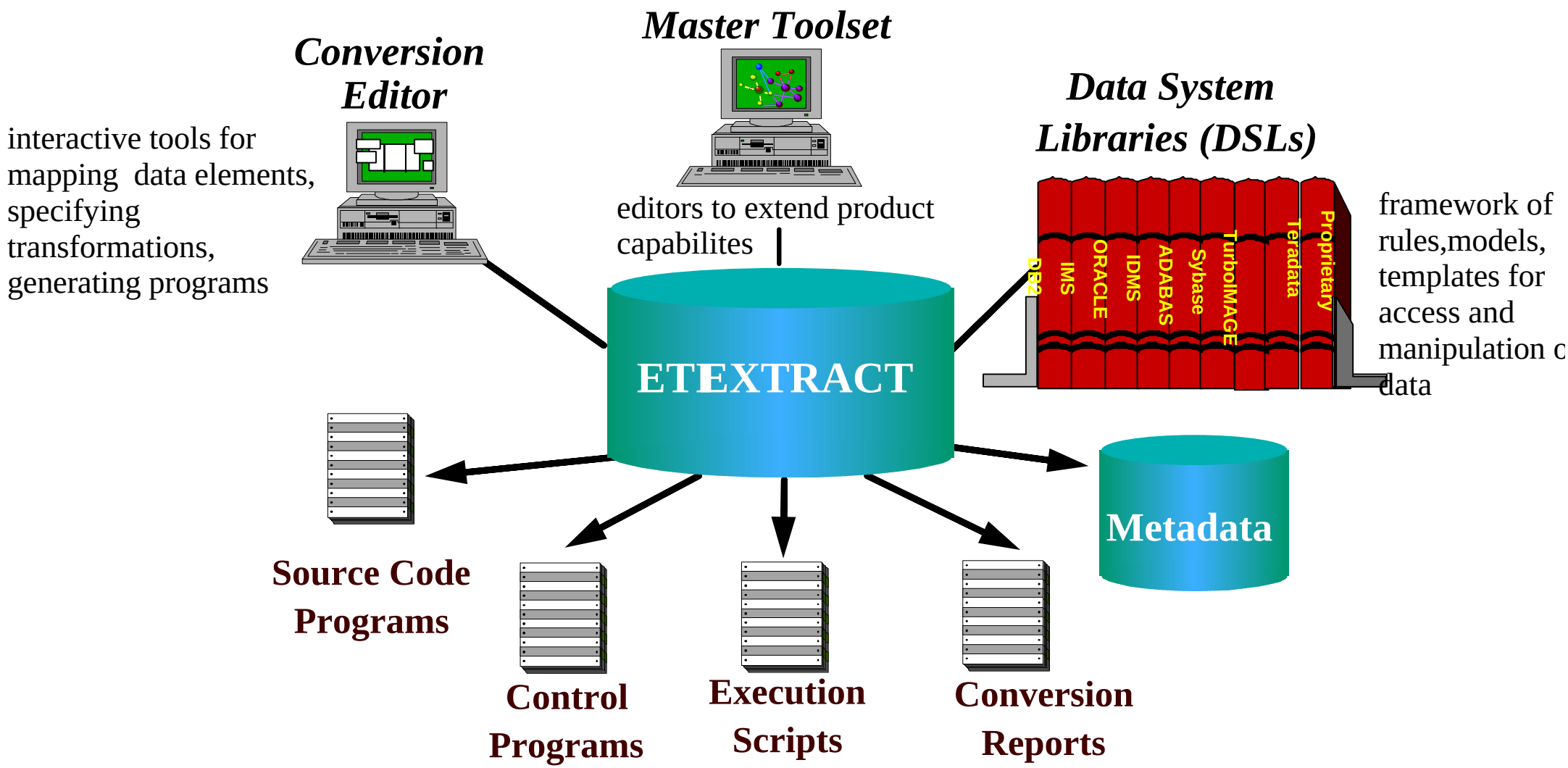
ETEXTRACT Overview



✓ **ETI•EXTRACT automates the writing of programs that retrieve the data needed from any system, transform it, and load it into any other system while capturing the history of that process.**

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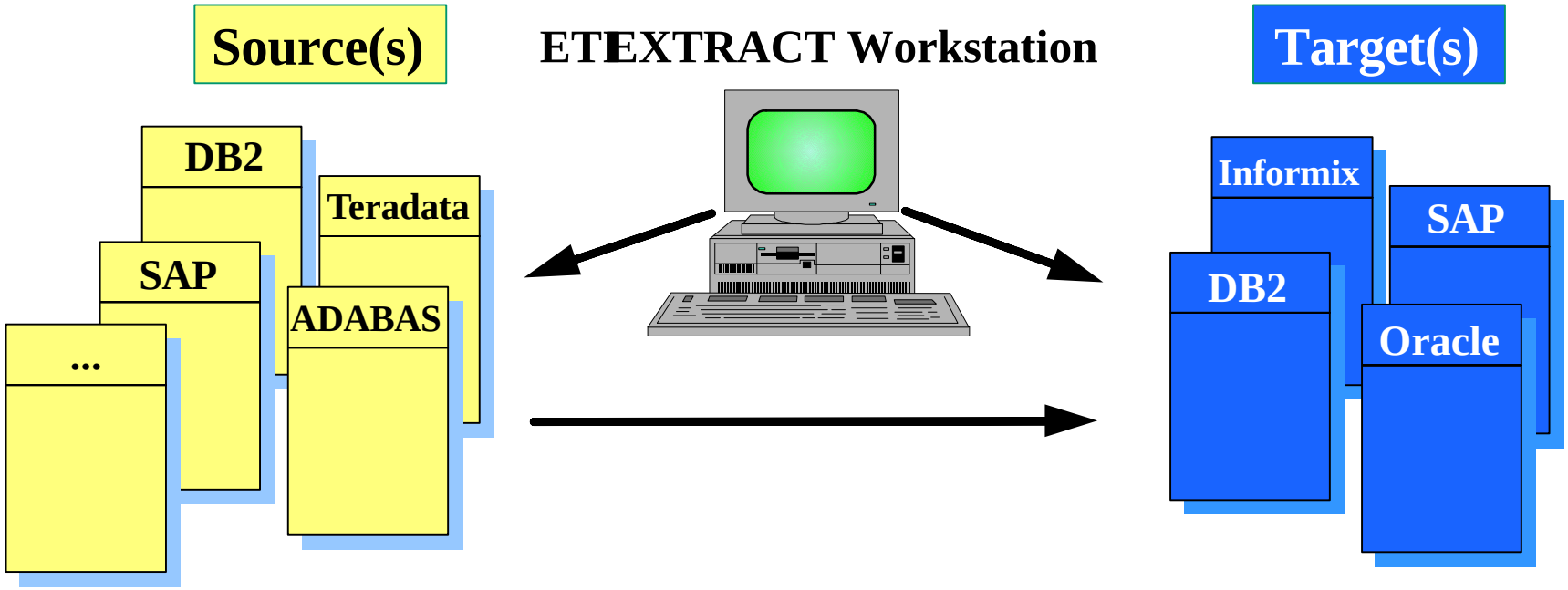
ETEXTRACT Overview



- *Programs generate on ETEXTRACT workstation*
- *Executive transfers programs to source and target platforms*
- *Programs run on source and target systems*
- *Data moves directly between source and target systems*
- *Captures metadata automatically*

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Vality Integrity

- **Provides Data Re-engineering solutions to organisations requiring high data quality levels**
- **Solve Typical Data Quality problems**
  - Lack of legacy standards
    - Mark Di Lorenzo vs Dilorenzo, Mark
  - Data surprises in individual fields
    - Title in Name field, Fax in Telephone field
  - Legacy myopia
    - Same customer with different spelling
  - Legacy information buried in free form fields
    - Customer information in 3rd line of address
- **Use lexical analysis, pattern processing and statistical matching.**

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Vality Integrity: Data Re-engineering

External Files

Legacy Applications

Historical Extracts

1. Data Investigation & Metadata Mining
2. Data Conditioning & Standardization
3. Data Integration
4. Data Survivorship & Formatting

- Data Warehouse
- Data Mining
- Migrations HUON / SAP
- Customer Relationship Management
- Others

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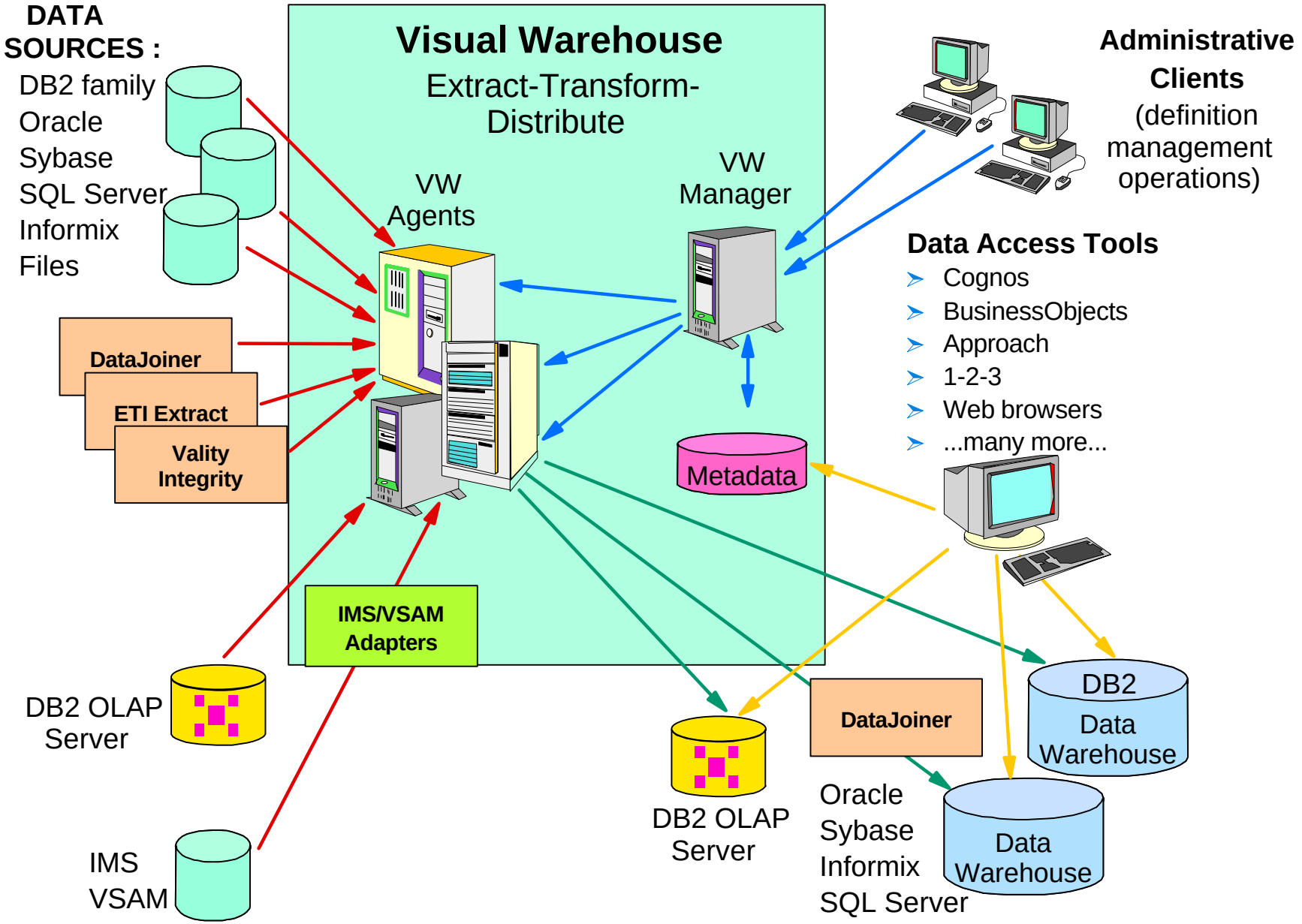
Visual Warehouse



Warehouse Management

- **Define workflow**
  - Scheduled, cascading, program-triggered execution
- **Manage data movement and transformation processes**
  - Visual Warehouse agents (insert or ftp/load), Essbase load processes, ETI generated programs, Vality programs, DataPropagator subscriptions, user-defined programs
- **Synchronize metadata**
- **Monitor execution status**
  - Completed, in-progress, scheduled business views
- **Gather and report warehouse statistics**
  - Automatic statistics collection standard database
  - Summarize data

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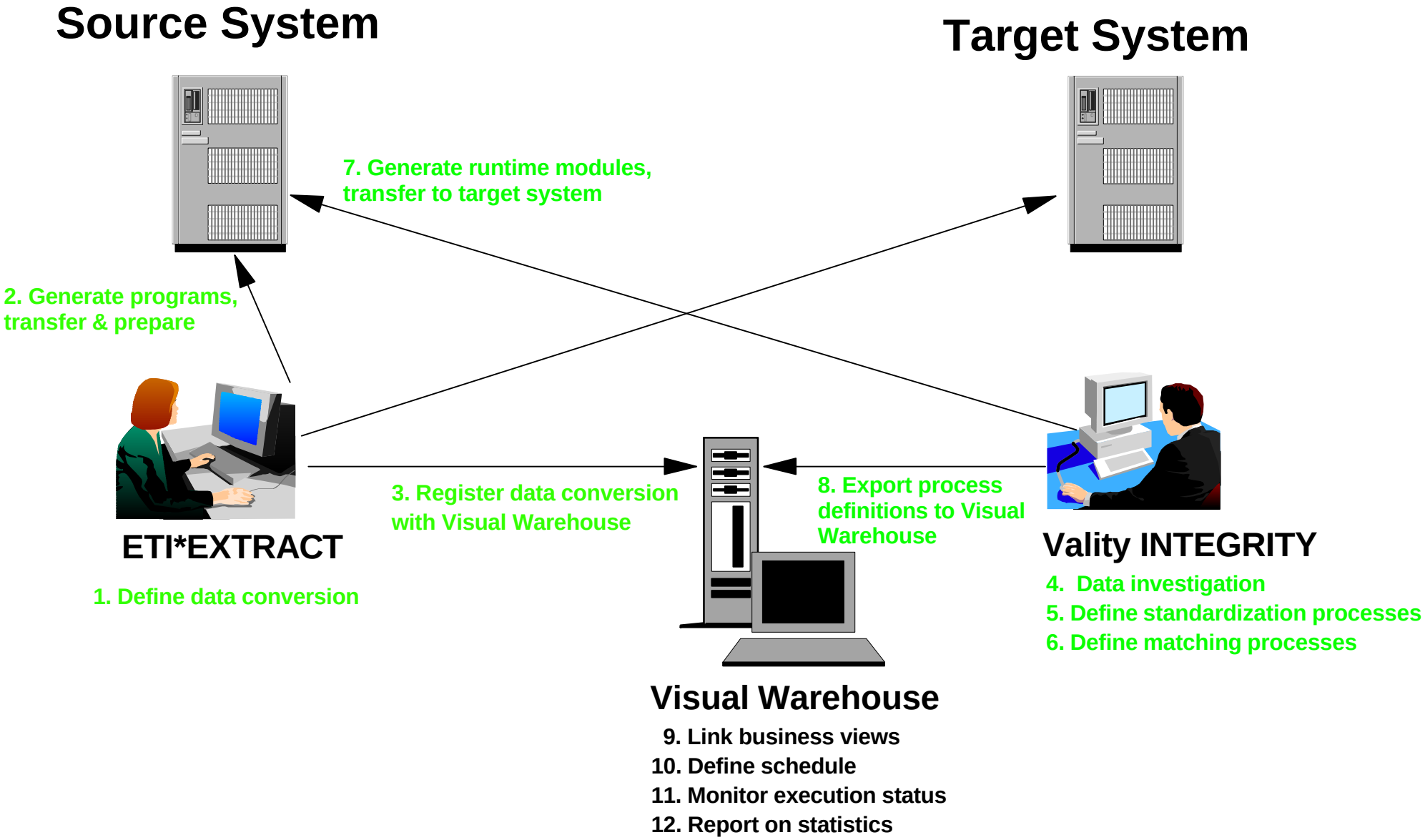
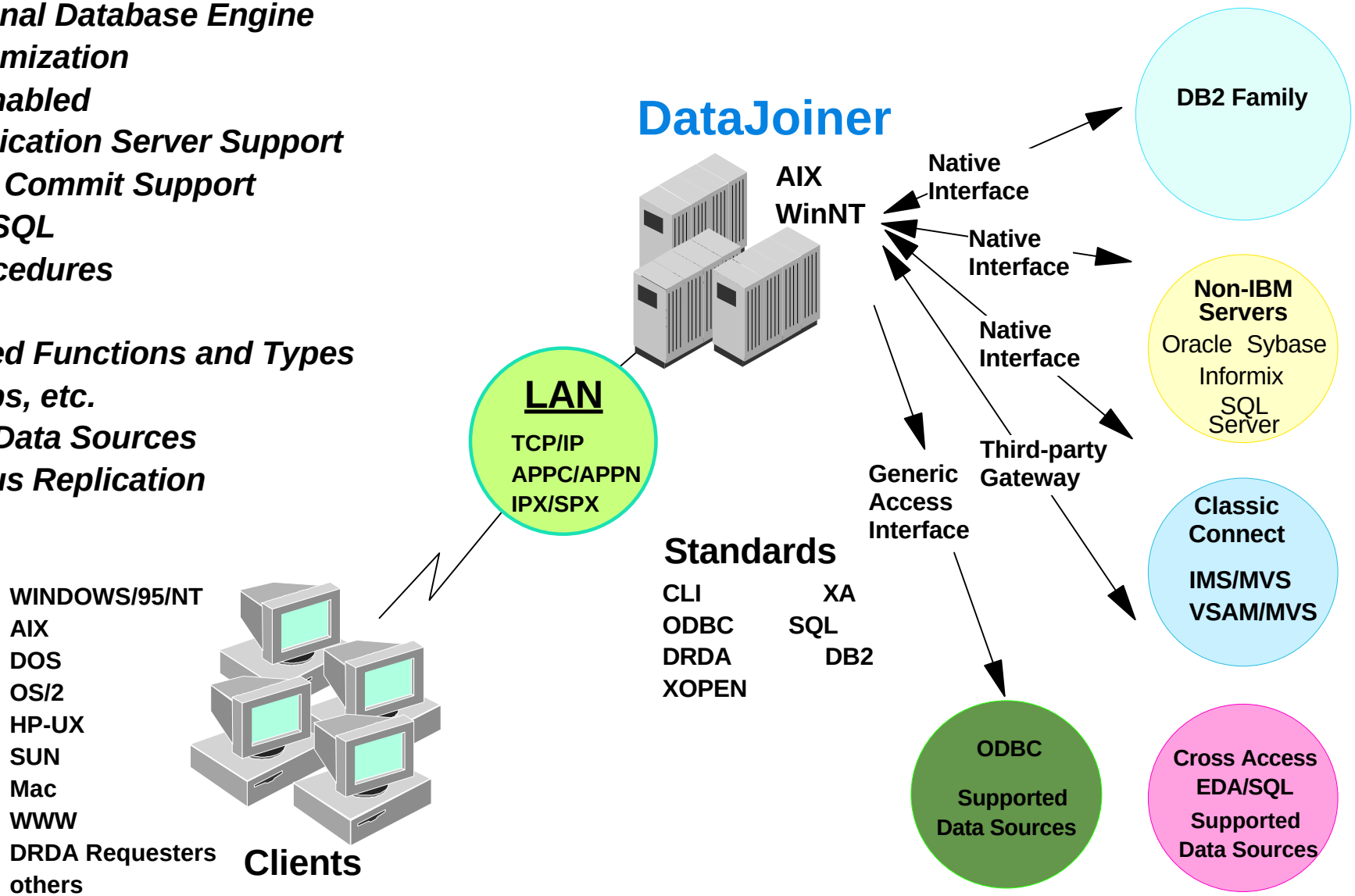
Integration with Visual Warehouse

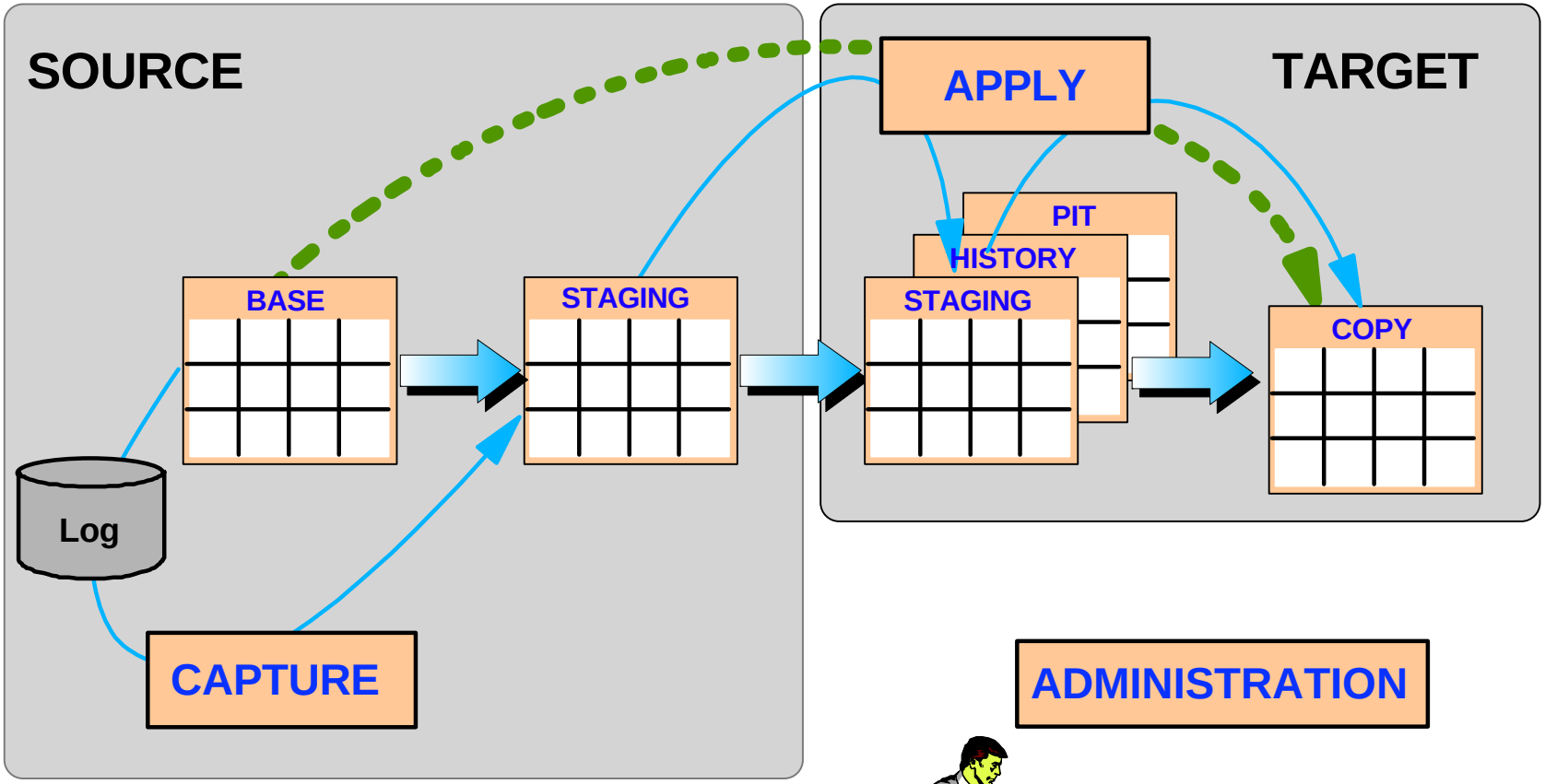


DataJoiner

- *Easy Access/Join Heterogeneous Data*
- *Transparent SQL Read/Write Access to Enterprise Data*
- *Full Relational Database Engine*
- *Global Optimization*
- *Net.Data Enabled*
- *DRDA Application Server Support*
- *Two-Phase Commit Support*
- *Recursive SQL*
- *Stored Procedures*
- *Triggers*
- *User Defined Functions and Types*
- *Blobs, Clobs, etc.*
- *Additional Data Sources*
- *Hetrogenous Replication*



IBM Data Replication - Overview



ADMINISTRATION

DB2 UDB Control Center

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IBM Data Replication strenghts

- Homogeneous solution for host and distributed environments
  - investment protection
- DB2 Log based: no impact on performance of operational applications
- replicated data can be manipulated
  - join
  - expressions
  - aggregations
- Condensed or not condensed replication
- Pull or Push configuration
- Bidirectional replication with conflict detection
- Time driven or event driven replication

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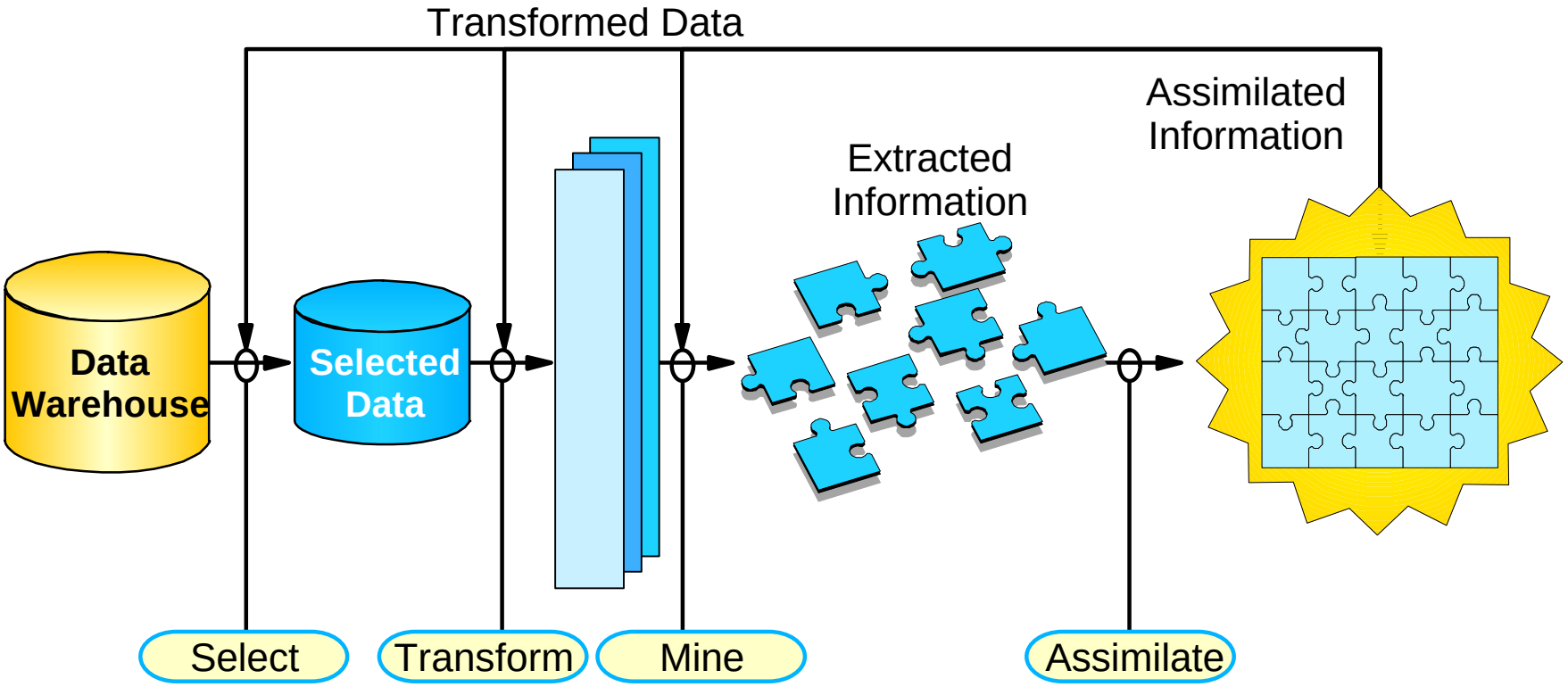
Data Mining is ...



. . . . the process of extracting ***previously unknown***, ***comprehensible***, and ***actionable*** information from large databases and using it to make crucial business decisions.

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Data Mining Techniques

- **Clustering**
  - Demographic and Neural
    - group a set of individuals based on demographics
- **Predictive Modelling**
  - Classification - Tree Induction and Neural Induction
    - Based on current customers find rules (decision tree), that allow to easily classify a new customer (e.g. credit risk is high, medium or low)
  - Value Prediction - Radial-Basis Functions and Neural Networks
    - Predict likelihood of fraud for a credit card
- **Association Discovery**
  - find items that imply the presence of other items in the same transactions
    - of the shoppers who purchased milk, 55% also purchased some other type of dairy product, and 42% also purchase bread

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Data Mining Techniques ...

- **Sequential Pattern Discovery**
  - sequence of set of items in the time
    - 42% of new checking account customers who apply for an ATM card in the same transaction, will also apply for our charge account within 90 days
- **Similar Time Sequence Discovery**
  - sequences similar to a given sequence in a database of time-series data
    - given "NorthSouth Airlines" daily closing price for 1995, find all other stocks with similar behavior

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Data Mining : IM for relationship marketing

Customer Attrition

Builds a predictive model on the probability a current customer will leave.
Profitability analysis
Gain charts for profitability cutoff

New Customer Acquisition

Builds a predictive model of positive respondents to a marketing campaign.
Profitability is included in the model

Customer Winback

Uses above to build a model of former customers to winback. Uses data to avoid winning back unprofitable customers, and target favorable customers.

Cross Selling

Uses association rules for each segment to identify opportunities to sell multiple lines in retail, banks and insurance.

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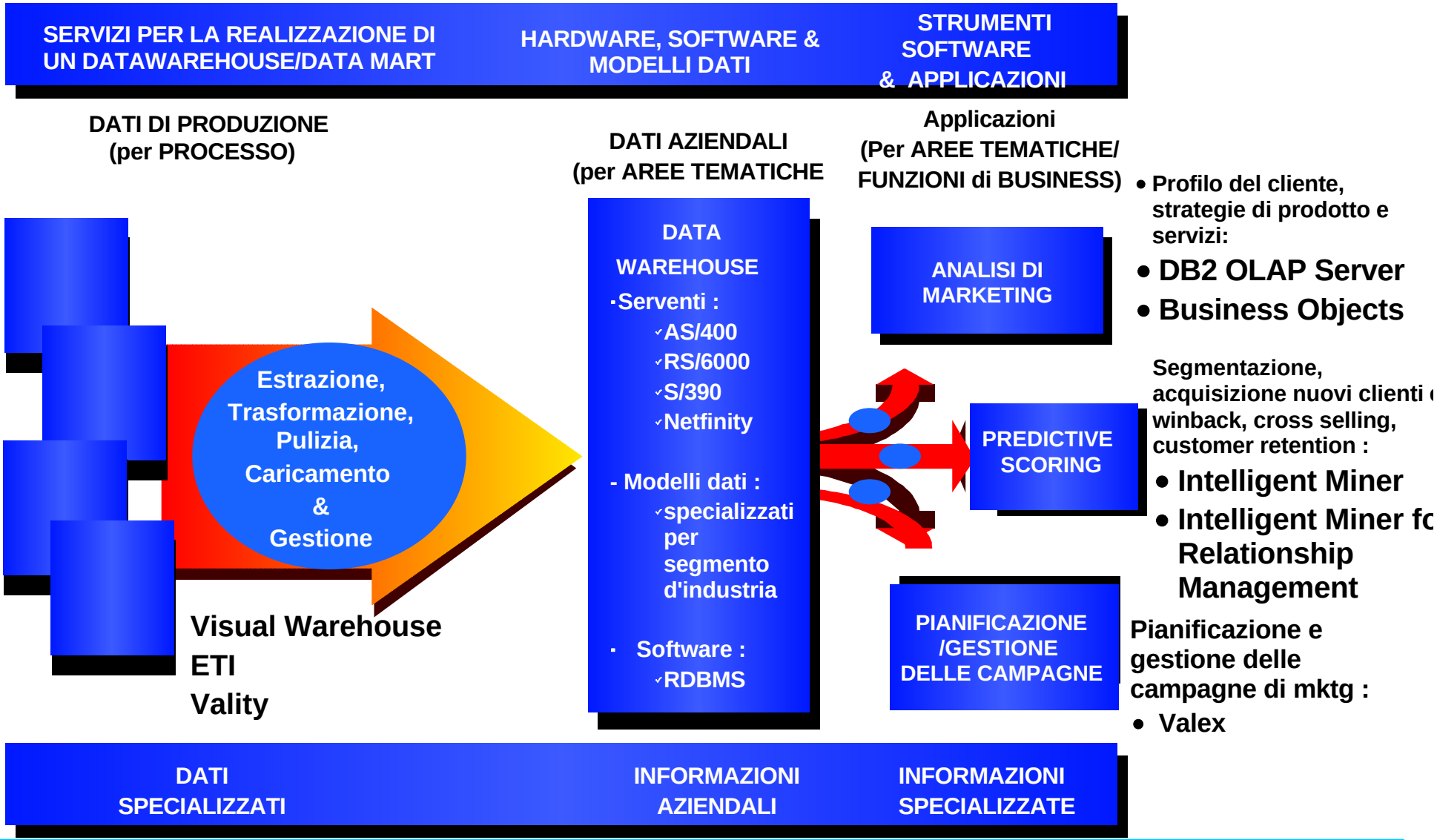
Relationship Marketing Architecture : Decision Edge for Relationship Marketing



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