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IBM Classic Connect : Standard SQL access to IMS and VSAM

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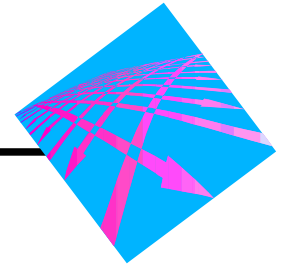
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The Problem/The Solution



■ **Problem:**

- Need for seamless access of IMS and VSAM data and other relational and non-relational data from same applications/tools used to access relational data

■ **Solution:**

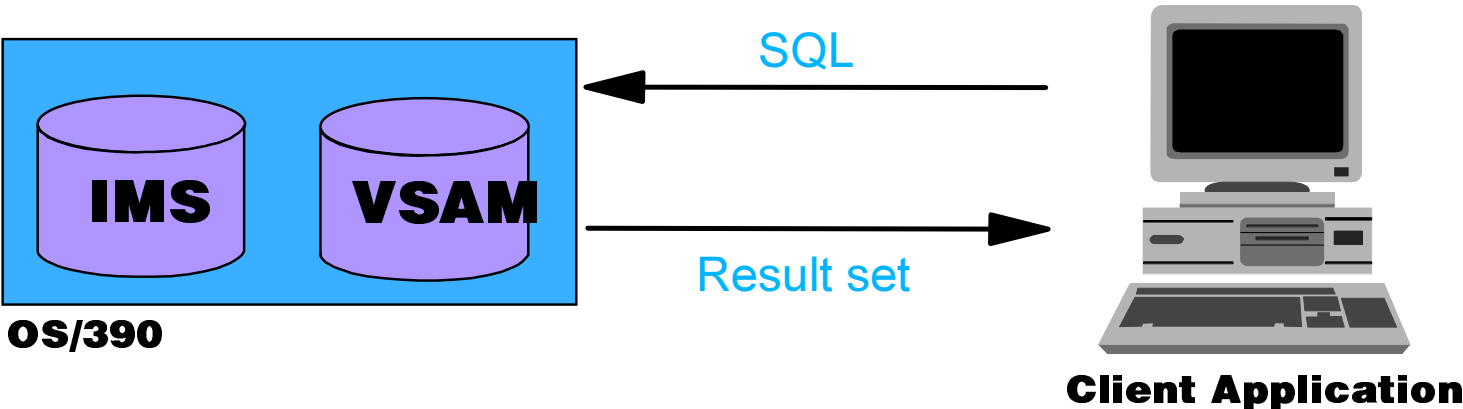
- IBM Classic Connect

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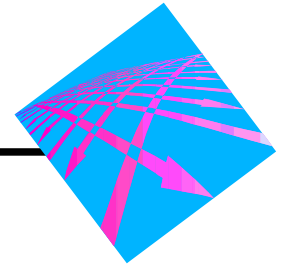
Classic Connect - What is it?



Classic Connect provides relational access via standard SQL to non-relational data stored in IMS and/or VSAM.



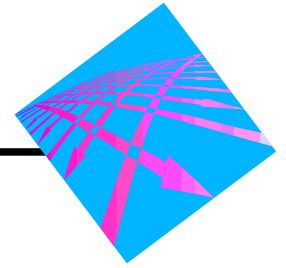
Classic Connect



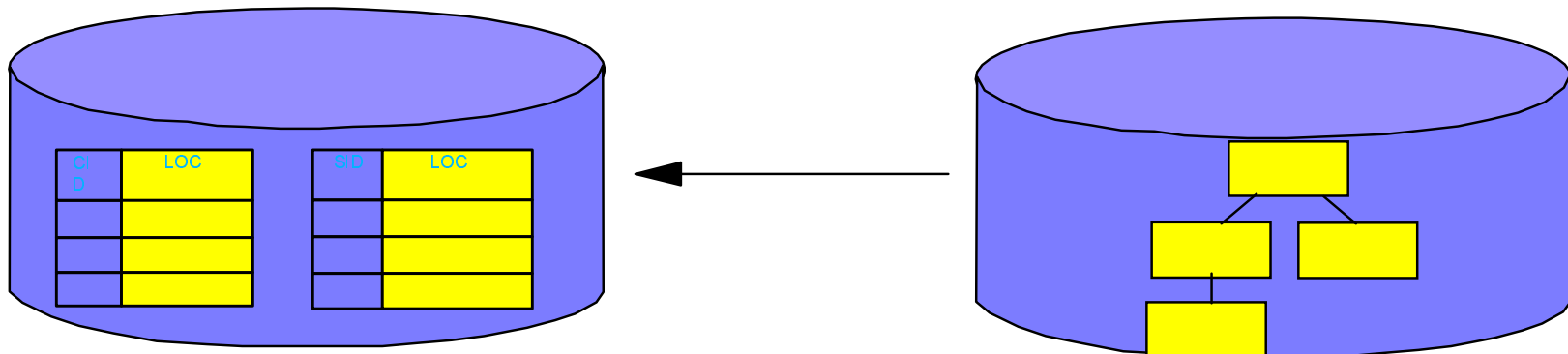
- **Classic Connect is DataJoiner's gateway to IMS and VSAM data on OS/390.**
- **Installs on OS/390**
- **Maps IMS and VSAM data into a relational structure**
- **Translates SQL queries into IMS and VSAM requests; provides read-only access**
- **Not a stand-alone product; must be used through DataJoiner on UNIX or Windows NT**

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Classic Connect - What can I do with it?



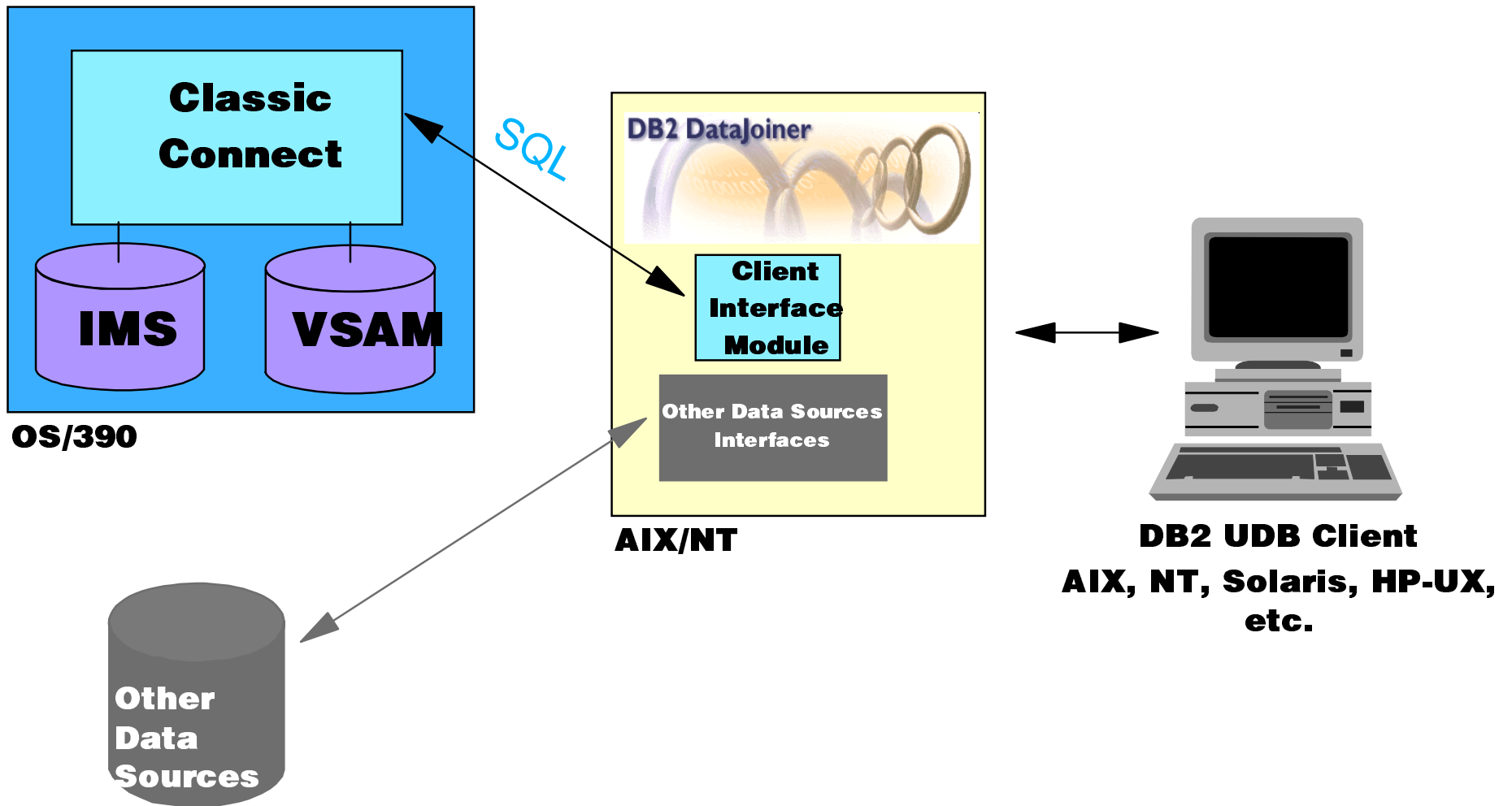
- **Gain additional value from data stored in IMS and/or VSAM**
 - IMS and VSAM data available to relational tools
 - easily move legacy data to DB2 mart/warehouse via SQL
 - integrate operational data with the Internet
 - deliver OS/390 data to desktop data analysis tools
 - Simulates DB2 catalogs and functions



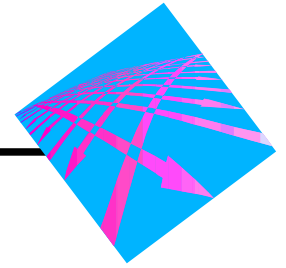
Classic Connect - DataJoiner Usage



Allows DataJoiner clients SQL access to IMS and VSAM data sources and IMS/VSAM data to be joined with other relational data.



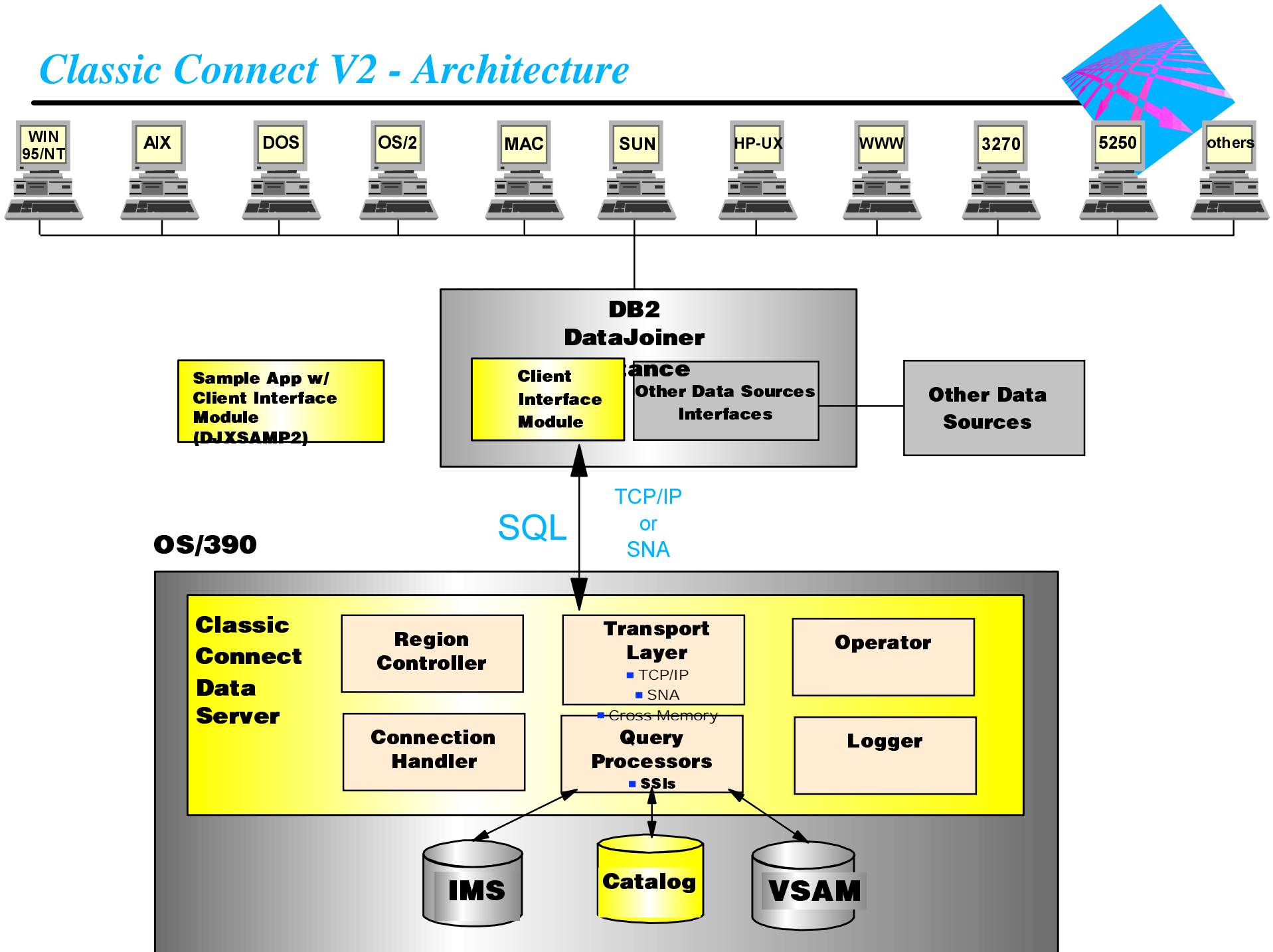
Classic Connect - Installable Components



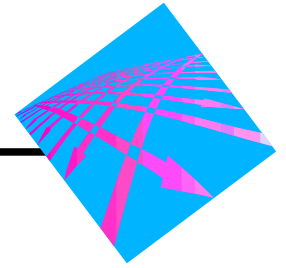
- **Client Interface**
- **Data Server**
- **Enterprise Server**
- **Data Mapper**

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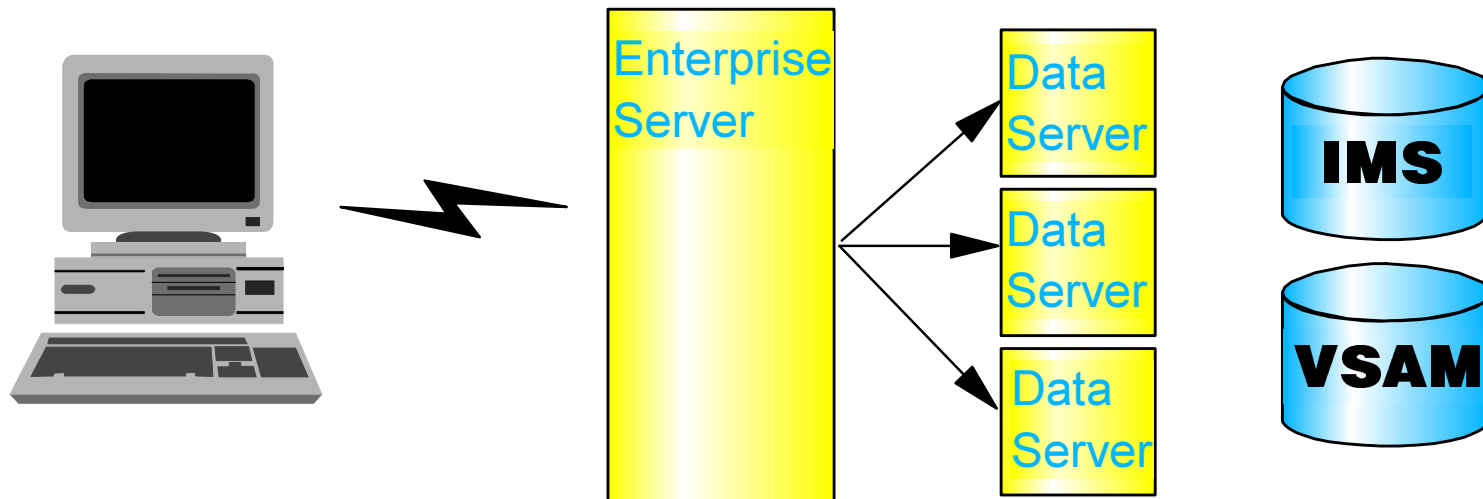
Classic Connect V2 - Architecture

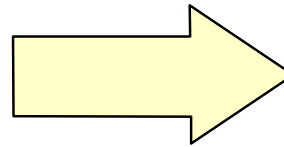
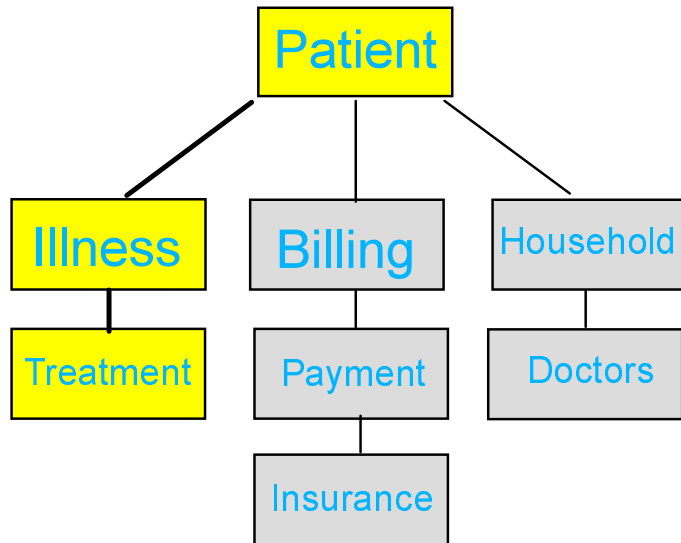
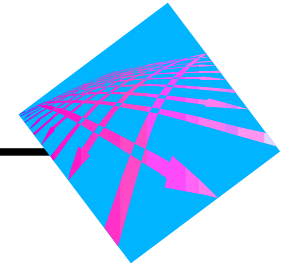


Classic Connect Data Server / Enterprise Server



- **Data Server**
 - SQL Query Processor for IMS and VSAM data
 - Supports complex non-relational structures
 - recurring data, secondary index/key, logical DBDs
- **Enterprise Server**
 - Brokers requests to multiple Data Servers
 - Scalability





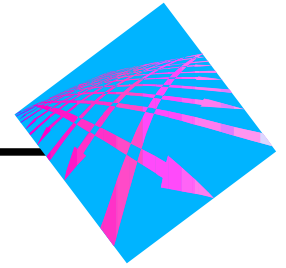
Select * from PIT_TABLE;

Patient	Illness	Treatment
Bill	Hair Loss	Retirement
Chelsea	Cat bite	Antispetic
Hillary	Heartache	TBD
Monica	Stress	Book deal
Socks	Furball	Petromalt

Classic Connect Data Mapper:

- Generates logical tables from physical definitions
- Easy to use point & click interface
- Customize user views as needed

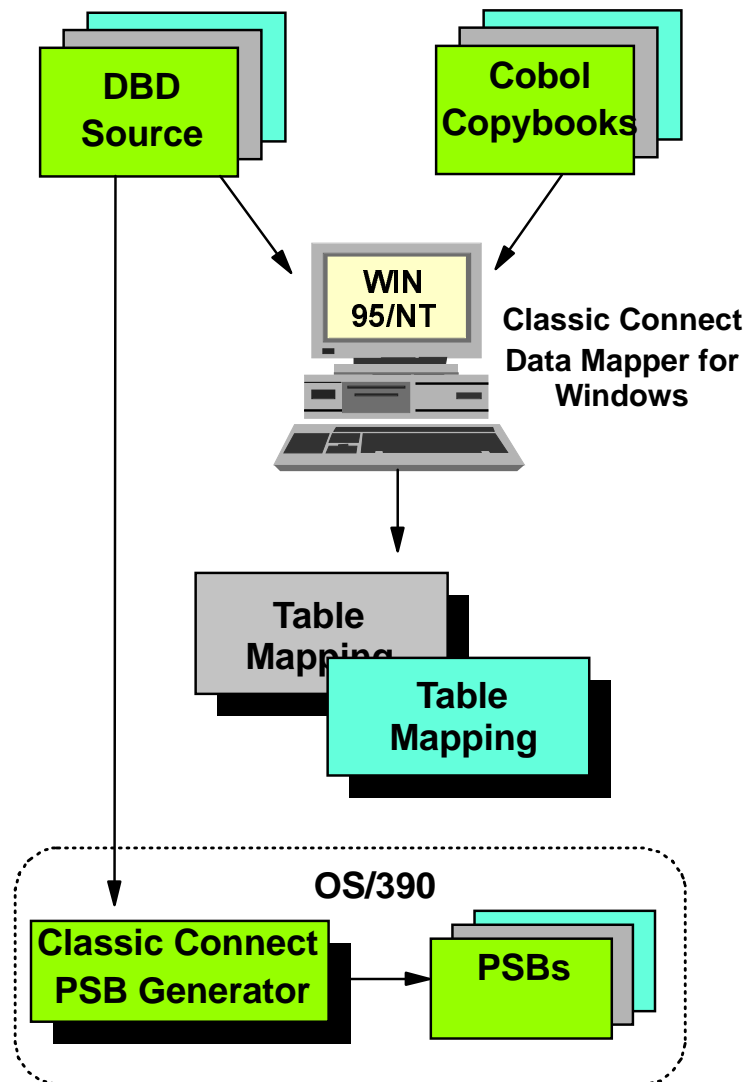
Basic Steps to Using Classic Connect



- **Map nonrelational structures to table definitions**
- **Build virtual relational database on OS/390**
- **Create nicknames for the table definitions**
- **Issue queries using these nicknames**

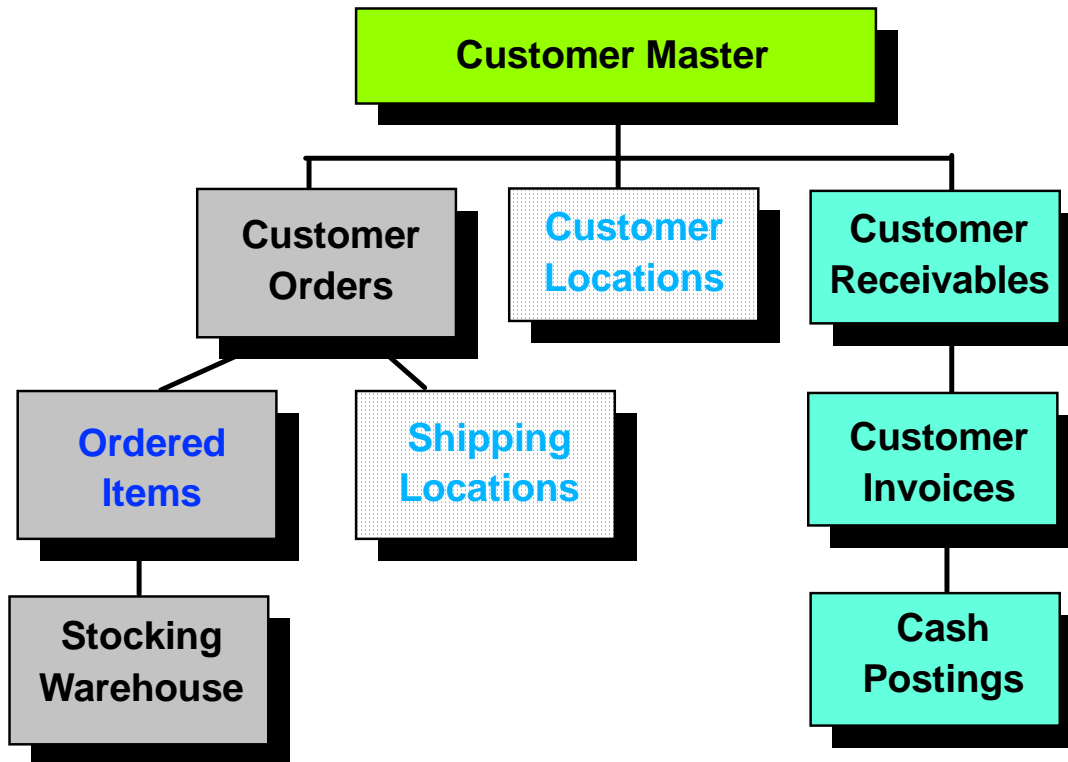
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Two Tools to Simplify the Task



- **Data mapper inputs are:**
 - **IMS DBDs**
 - **IMS segment copybooks**
- **User builds table mappings by selecting fields, data types, etc, through a point-and-click environment.**
- **PSB Generator inputs are:**
 - **IMS DBDs**
 - **Classic Connect EXTRACT PSB statements**
- **The tool builds PSBs and PCBs for use with the table mappings.**

Mapping IMS Data



Each table covers:

- One or more segments
- Single leg only
- Any combination of fields

Each table is given a DB2 two-part name.

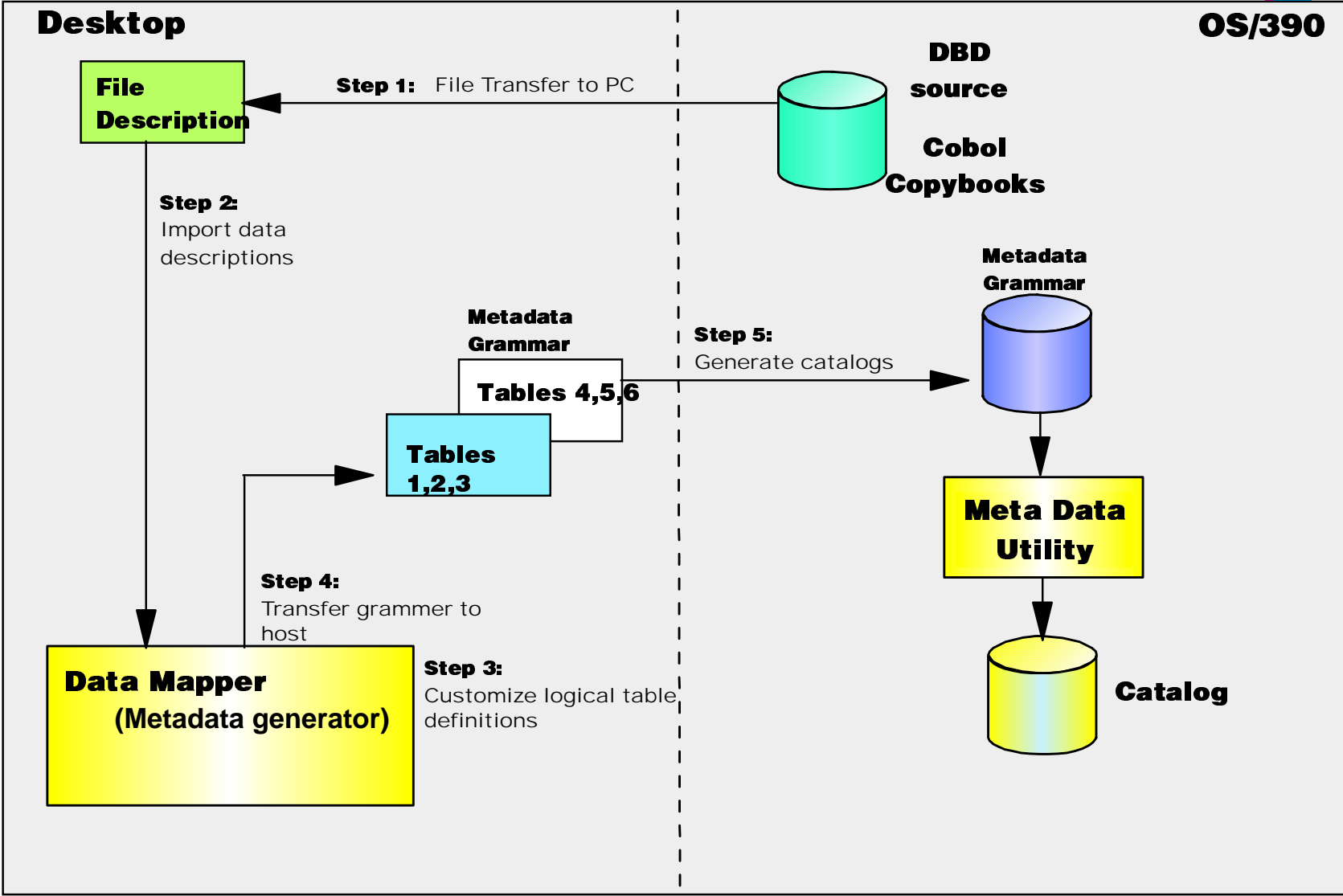
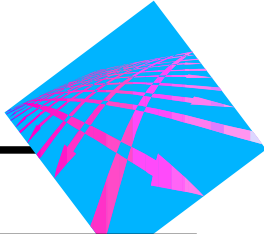
Each column in table defined:

- As offset into a segment
- For a given length
- With a DB2 data type

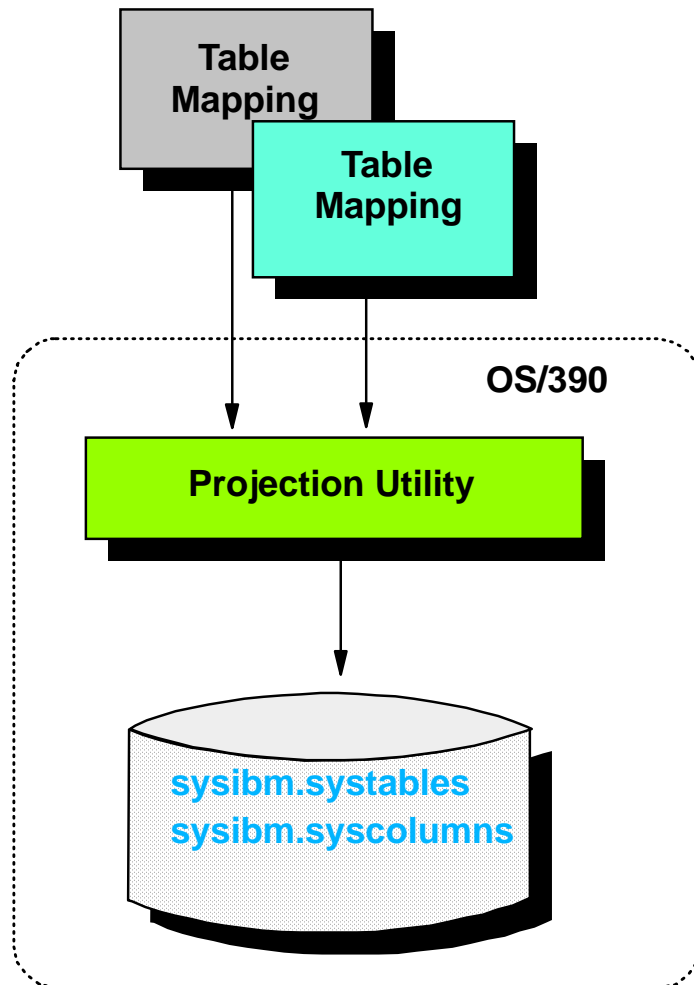
Table.Mapping1:
 Customer Master. Name
 Customer Master. Address
 Customer Orders. Order-Date
 Customer Orders. Order-Amount
 Customer Orders. Order-Number
 Ordered Items. Item-Number
 Ordered Items. Item-Description

Table.Mapping2:
 Customer Master.Name
 Customer Master.Phone
 Customer Receivables.Amount-Due
 Customer Receivables.Outstanding
 Customer Invoices.Invoice-Number
 Customer Invoices.Invoice-Date
 Customer Invoices.Order-Number

Steps to create Classic Connect Views



Building the Virtual Relational Database

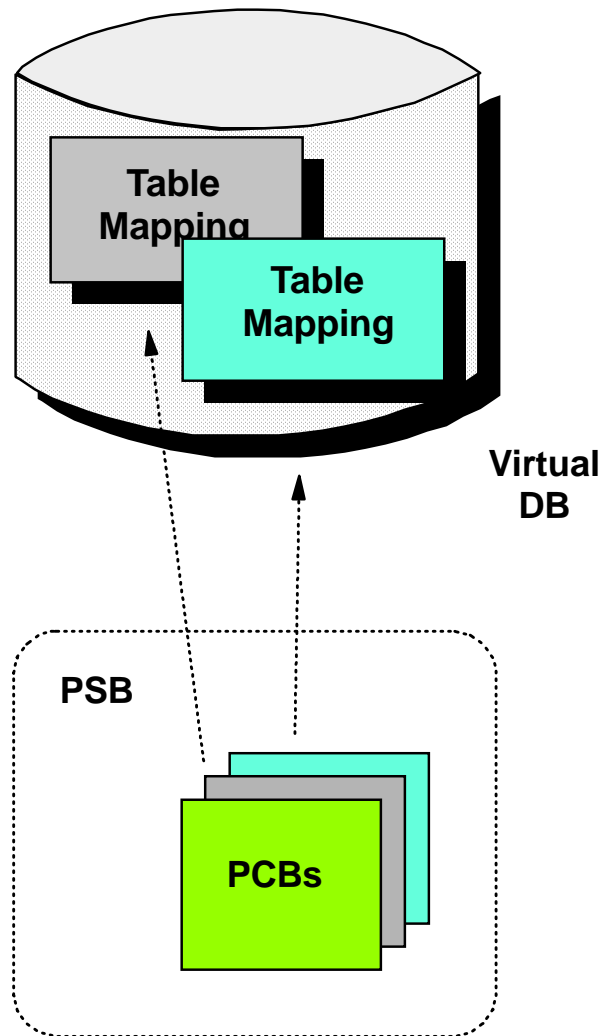


- **Tables mappings for a given virtual database are moved to the host.**

- **The mappings are processed by the Classic Connect Projection Utility**

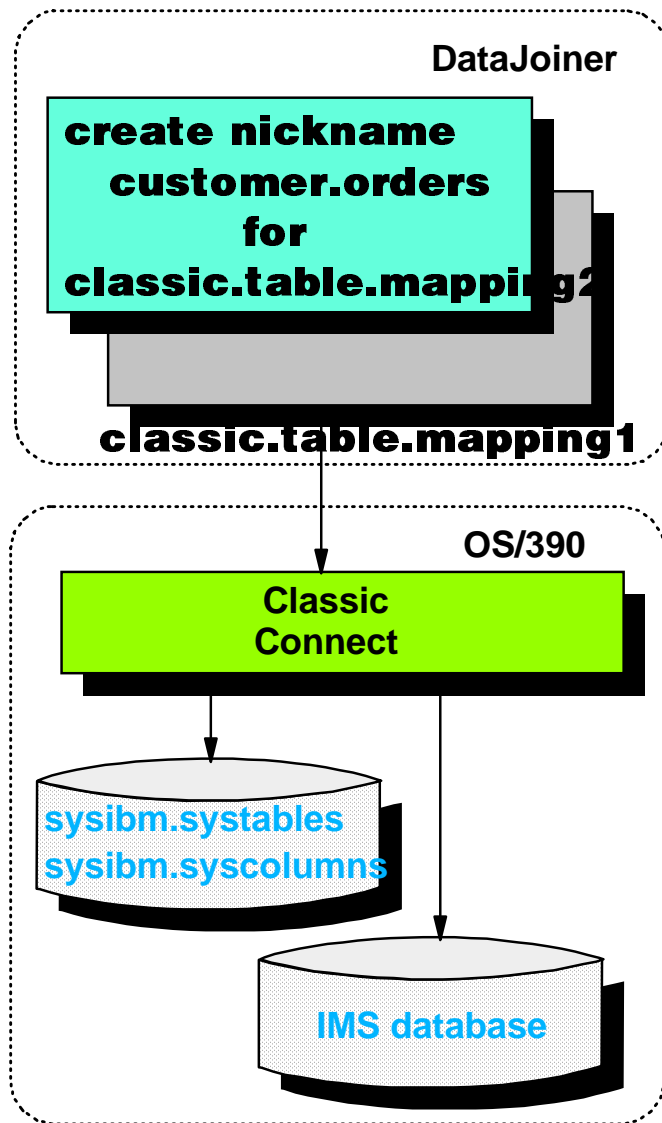
- **The result is a DB2-like database, complete with catalog tables, that can be accessed from DataJoiner.**

Many Factors to Consider



- **Multiple tables can be defined for each virtual database**
- **Each table must be associated with:**
 - **One DBD**
 - **The lowest level segment in the single leg for this table**
- **Secondary indexes only used if XDFLD defined as a column in the mapping**
 - **Must build one PSB per virtual DB**
 - **Each PSB can contain many PCBs**
 - **A default PCB can be defined for each table**

Creating Nicknames and Issuing Queries



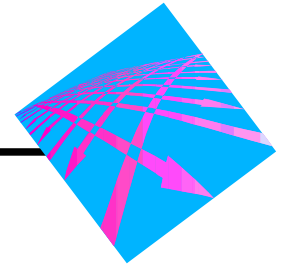
Nicknames:

- **Must be created before IMS data can be accessed.**
- **Make the Classic Connect table mappings look like local DataJoiner tables**
- **Are used in queries instead of the table mapping name:**

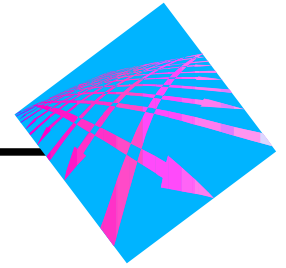
▶ **select * from customer.orders**

When a query is issued:

- **DataJoiner pushes a query down to Classic Connect**
- **Classic Connect looks in its database for mapping information**
- **Uses the mapping to retrieve data from IMS**



- **DataJoiner is a multi-database server**
- **Provides users and applications access to data -- IBM and non-IBM, relational and non-relational, local and remote -- as though it were a single relational database**



■ **Additional Power and Flexibility**

■ **Data Access**

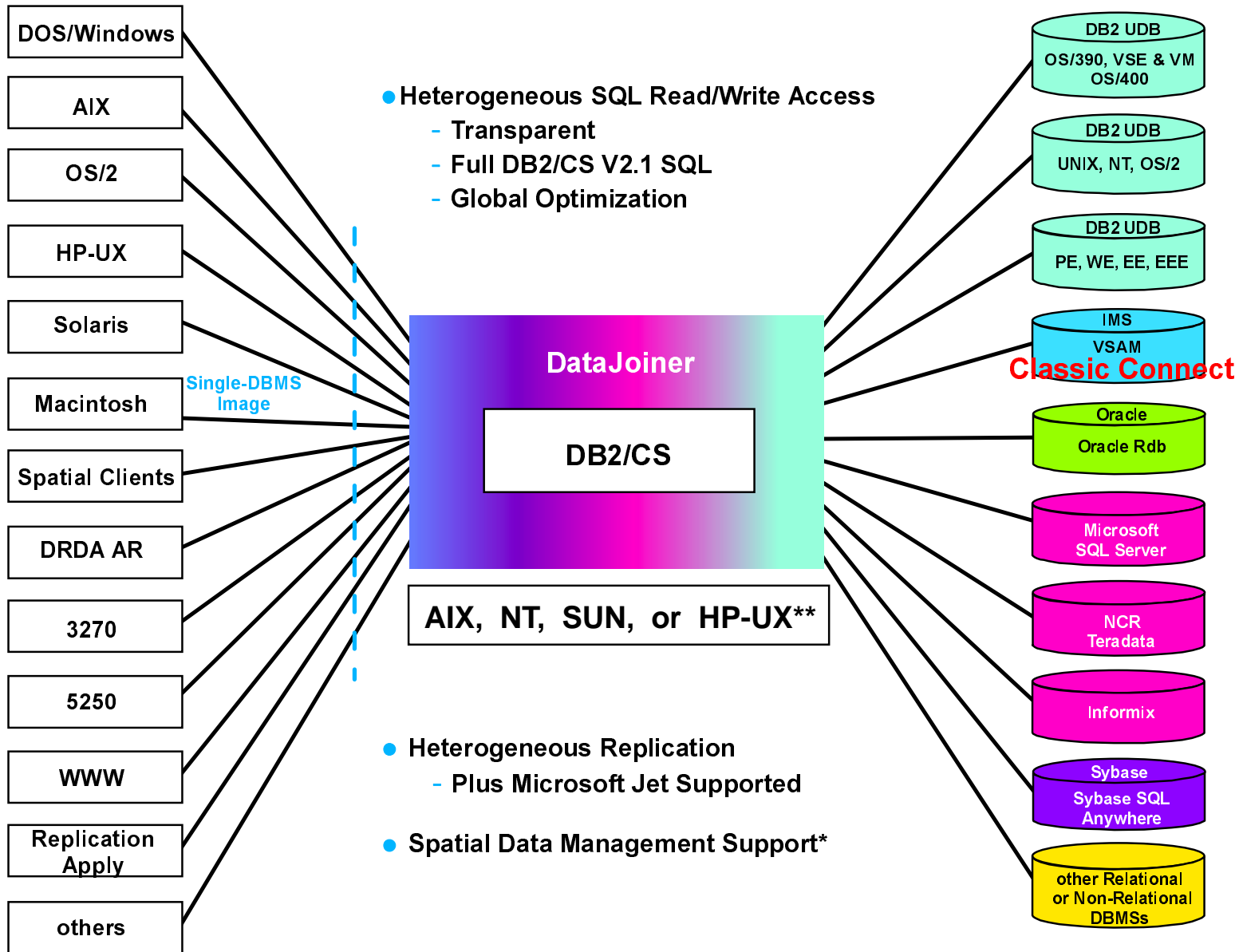
- ADHOC SQL access to non-relational data
- SQL JOIN between non-relational and relational data

■ **Data Movement**

- Via SQL (insert from subselect)
- Via EXPORT utility

DataJoiner Version 2.1.1

Overview

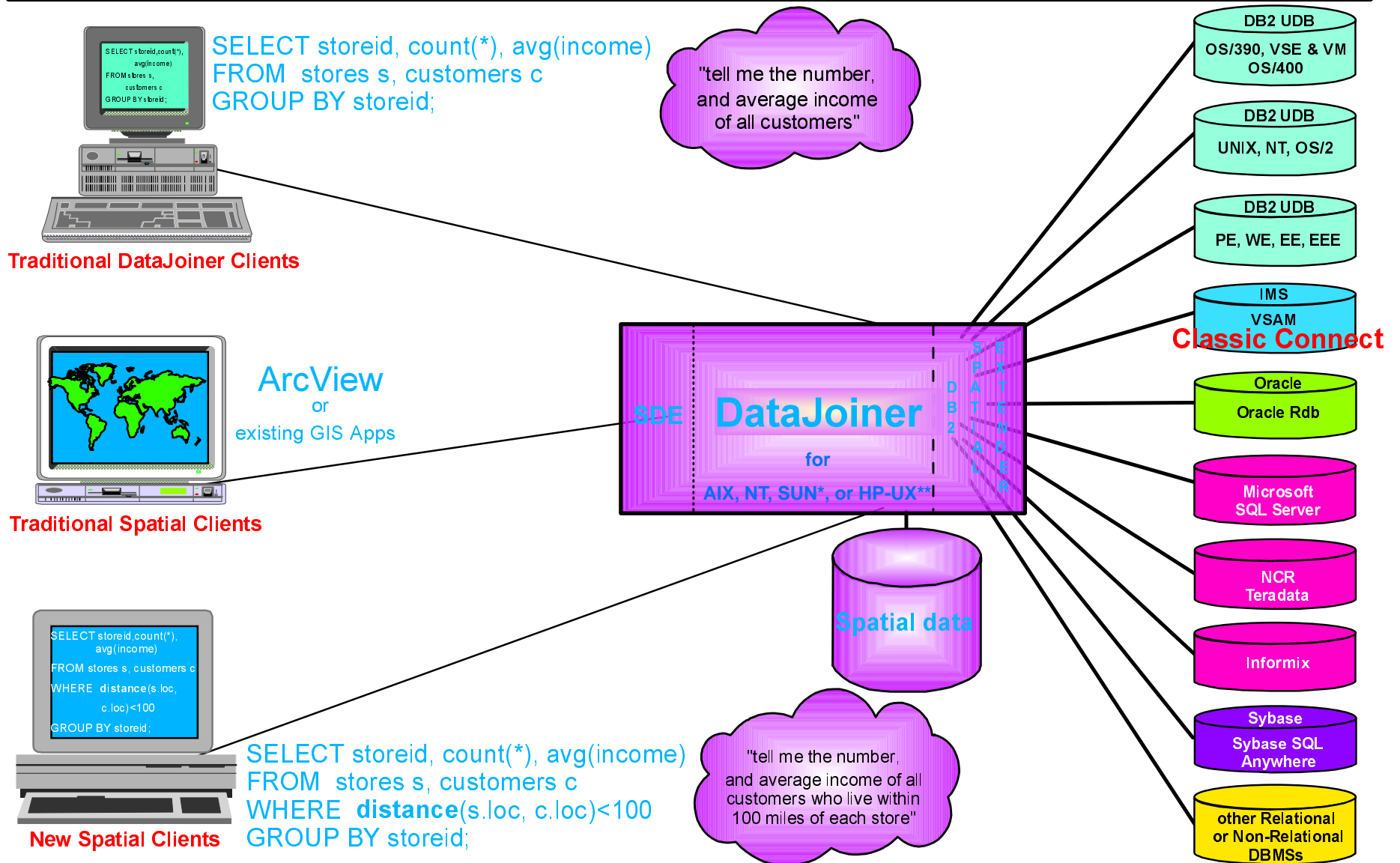


* Available on AIX and NT Only
 ** Available on DataJoiner V1.1 Base Only

Spatiotemporal Data Warehouse

TIME and SPACE will become the corner stones of the 21st Century Data Warehouses. The time dimension is well in hand with the great leaps and bounds made in the last few years with OLAP and multidimensional analysis tools. The next great frontier is adding the space dimension to the data warehouse to allow customers to exploit and discover the spatial intelligence of their data warehouses. One of the basic elements stored in **virtually every single database on the planet Earth is customer address information.** By adding the spatial dimension to the decision support arena customers will be able to make **better decisions** based on the **finer level of granularity** achieved **through spatial analysis.** For example, today an insurance relies on ZIP code information to make risk management decisions (i.e. how close is a ZIP code area to an earthquake fault or flood zone). This is the only level of granularity in traditional database systems. This also involves an additional step in the process, correlating these ZIP codes to these risk zones. Using **spatial technology** insurance companies can now ask the question **"How many customers who have a homeowners insurance policy with us in the Bay Area live within a 0.5 mile of the San Andreas fault". Now that's value!!!** This gives the insurance company the ability to make more refined risk management decisions adding to their bottom line.

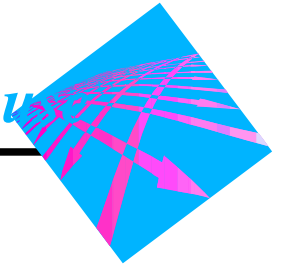
DB2 DataJoiner V2.1.1 - DB2 Spatial Extender



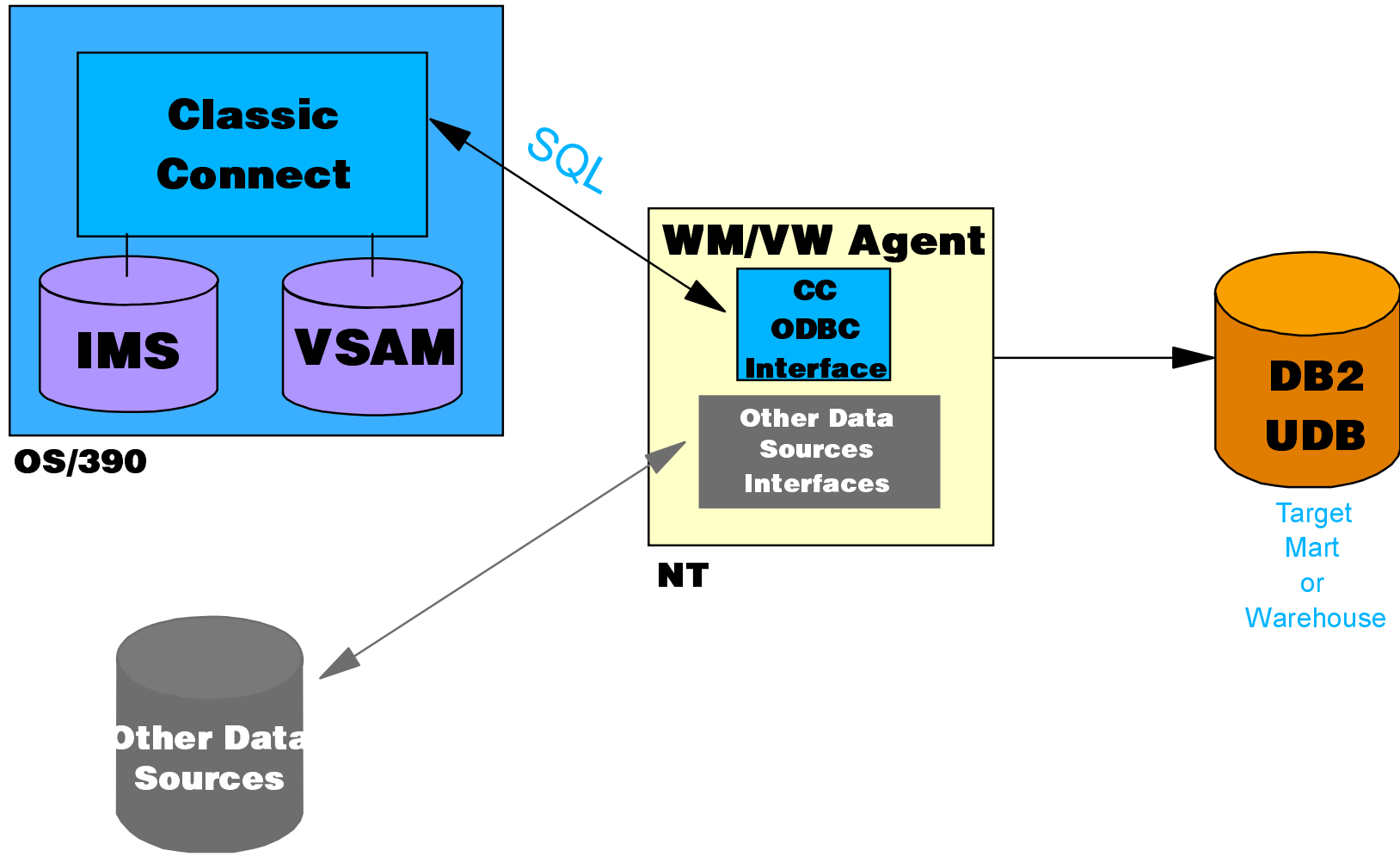
* DB2 Spatial Extender Now Available
 ** Available on DataJoiner V1.1 Base Only

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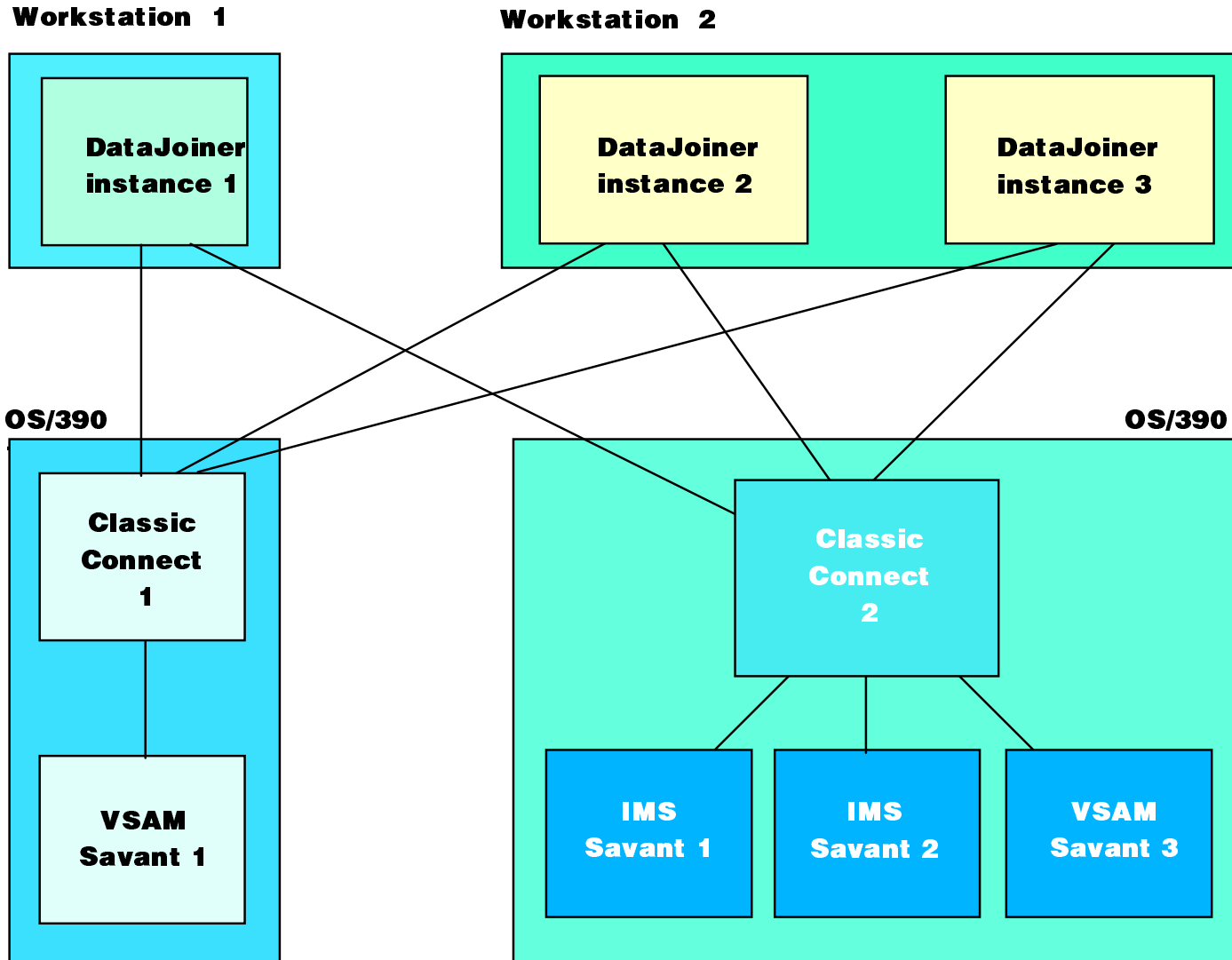
Classic Connect - DB2 Warehouse Manager/Visual Warehouse



Allows WM/VW to schedule extracts from IMS and VSAM data sources, and populate DB2 marts and/or warehouses



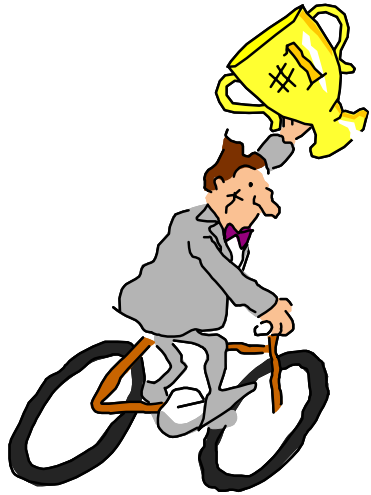
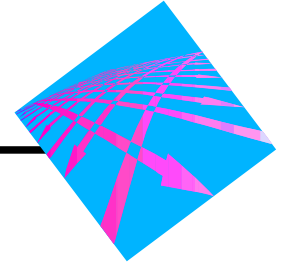
Classic Connect Network



Classic Connect Vital Statistics

- **Current version is 2.1.1**
- **Can be accessed from DataJoiner 1.2 or higher**
- **Communication between DataJoiner and Classic Connect:**
 - ▶ **APPC/LU 6.2/SNA**
 - ▶ **TCP/IP**
- **Works with IMS 3.1 or higher:**
 - ▶ **Full-function databases only; HIDAM, HDAM**
 - ▶ **MSDB, DEDB, & GSAM not supported**

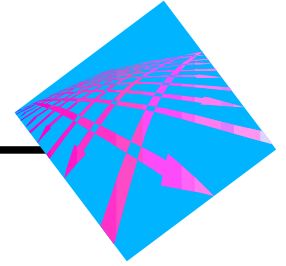
Classic Connect V2 Performance



SQL access to VSAM → 70% better!

SQL access to IMS → 93% better!

Classic Connect - Contacts



■ **Mike De Santis**

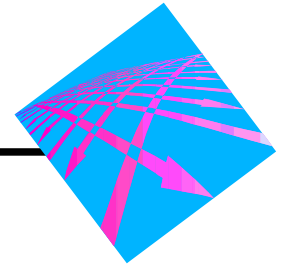
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Classic Connect - Trends and Directions



■ Retraction

- No current plans for future releases of Classic Connect
- No plans for a follow-on product
- PRPQ withdrawn