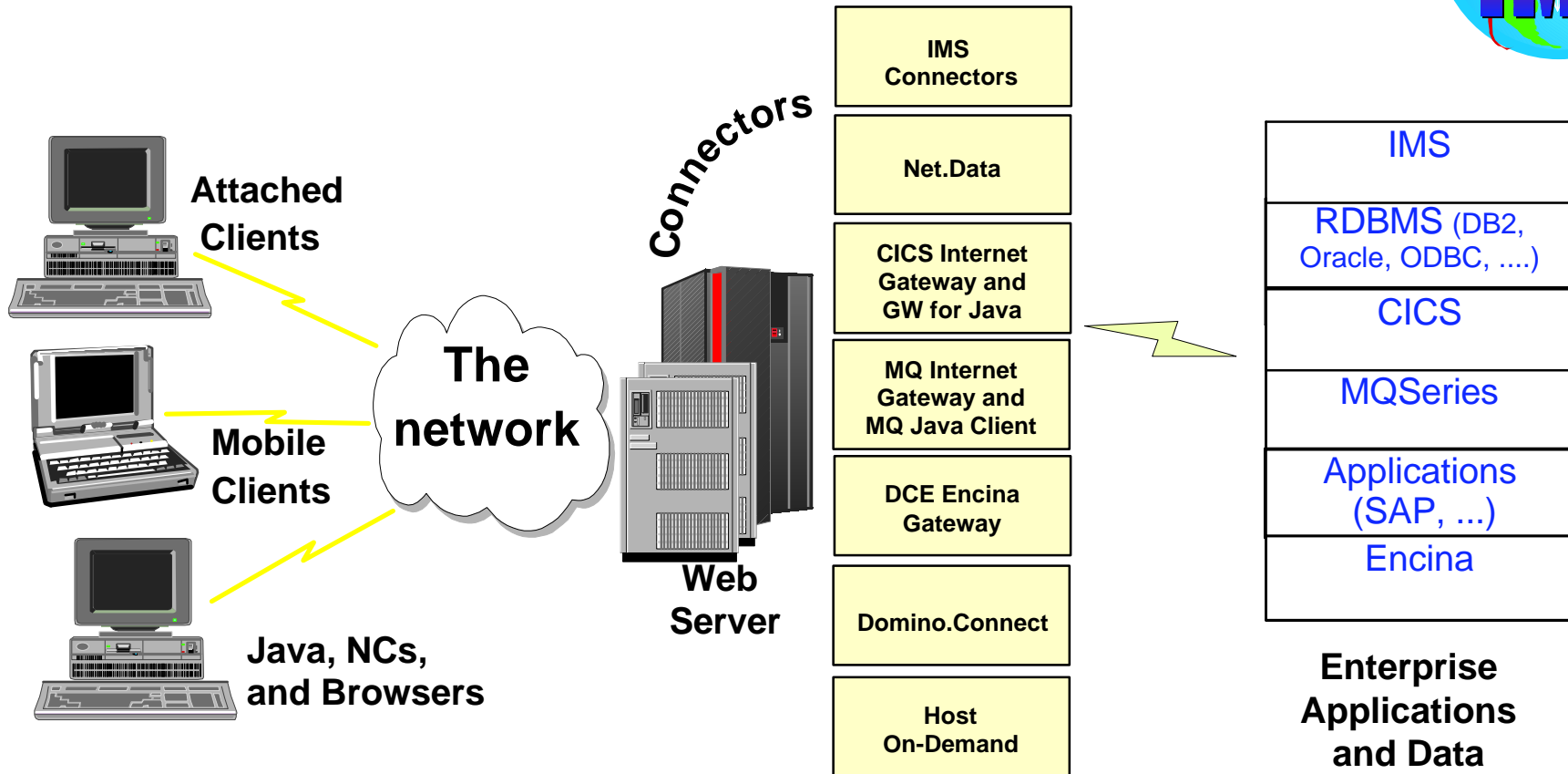




Extending the Enterprise with IMS ebusiness Solutions

IBM Software

Accessing Enterprise Applications and Data



- Provides universal (web) access to existing applications, data, transactions
- Provides increased productivity and quicker time-to-market
- Leverages existing backend systems and databases
- Allows for the delivery of high performance, interactive web sites based on a secure, scalable, and reliable architecture
- Enables cost effective and manageable application serving

IBM Software

Domino Go Webserver



- **An industry standard Web server**

- Also integrated into Domino Mail and full Domino
- Easy to add mail extensions

- **Consistent admin, config, and execution across a wide range of platforms**

- AIX/6000, Windows NT, OS/390, Sun Solaris, HP-UX, OS/400, OS/2 Warp, Win95

- **Enhanced Java support**

- JDK 1.1
- Server-side includes and Servlet support
- Java IIOP Enabler (JIE)

- **Support for the latest standards**

- Communications (HTTP 1.1), Java (JDK 1.1)
- Security (SSL V3, x.509V3 certificates, PICS)

- **Built-in support for searching local content**

- **Site visitor reporting and monitoring**

- **Proxy support with caching**

- **"Pro" version includes tools for creating and maintaining web sites**

- NetObjects' Fusion
- Lotus BeanMachine

Go Webserver

Secure and Complete Web Publishing for Business



"IBM has proved itself as the most powerful solution for Web platforms"- July 7, InfoWorld

IBM Software

The IBM Connectors



Gateways for Go and others

IMS Connectors:

(IMS applications and databases)

IMS WWW Templates

(C++ CGI/ICAPI Appc templates)

IMS TCP/IP OTMA Connection

(TCP/IP access)

IMS Web

(C++ CGI TCP/IP mapping tool)

IMS Client for Java

(Java application/Applet TCP/IP template)

IMS Object Connector

(C++ OO access to IMS data)

Net.Data

(links IMS, relational databases, JDBC, native DB2, ODBC)

Host On-Demand

(emulation access Java applet, 3270, 5250, VTxxx)

CICS Internet Gateway

CICS Gateway for Java

(CICS transaction-based servers and applications)

MQSeries Internet Gateway

MQSeries Gateway for Java

(guaranteed message delivery, most system interfaces)

DCE Encina Lightweight Gateway

(transaction-based DCE/Encina applications)

Gateways for Domino

Domino.Connect

(links Domino to all popular systems)

NotesPump

(database access)

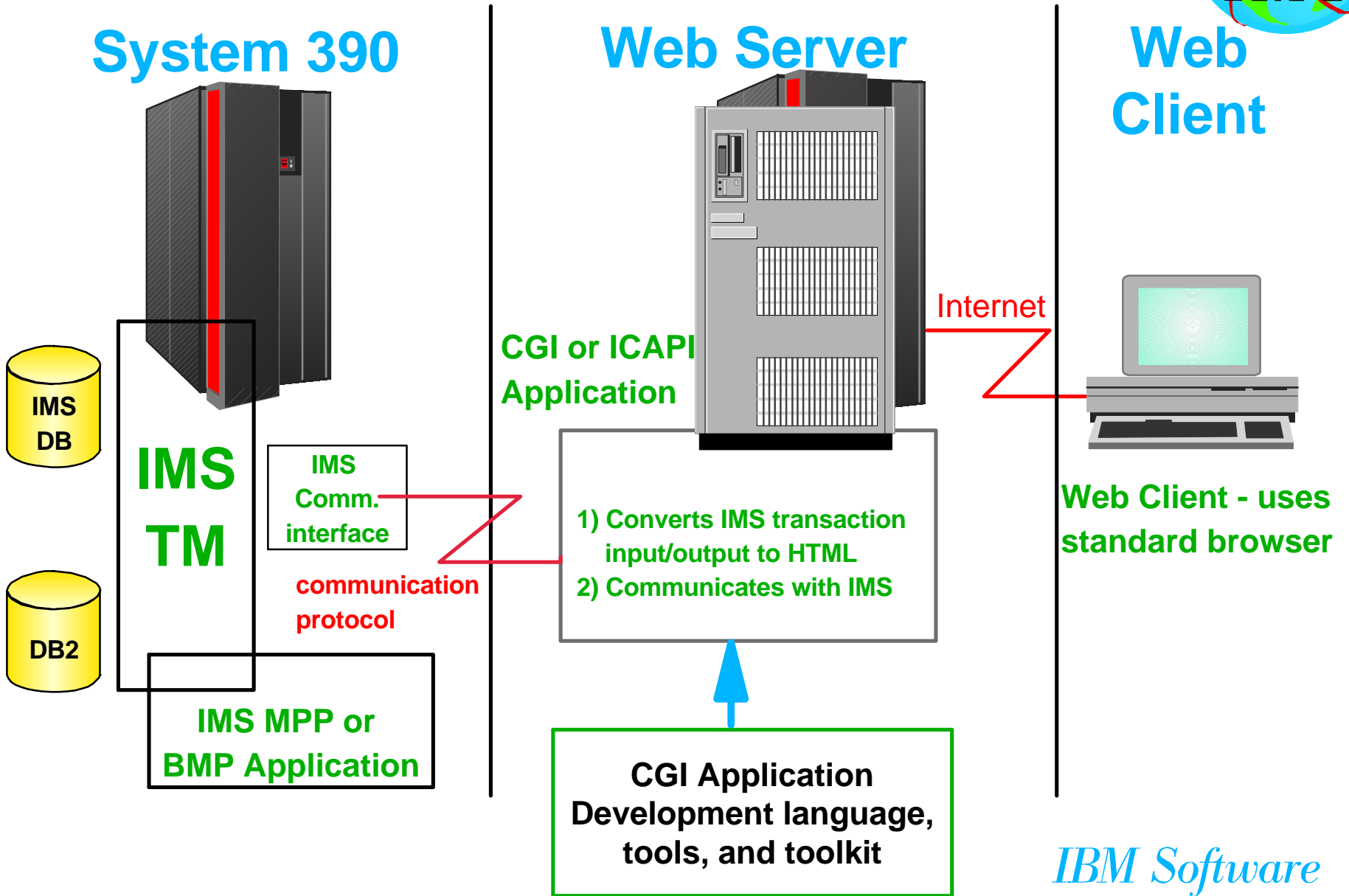
MQSeries LSX

(transactional/application access)



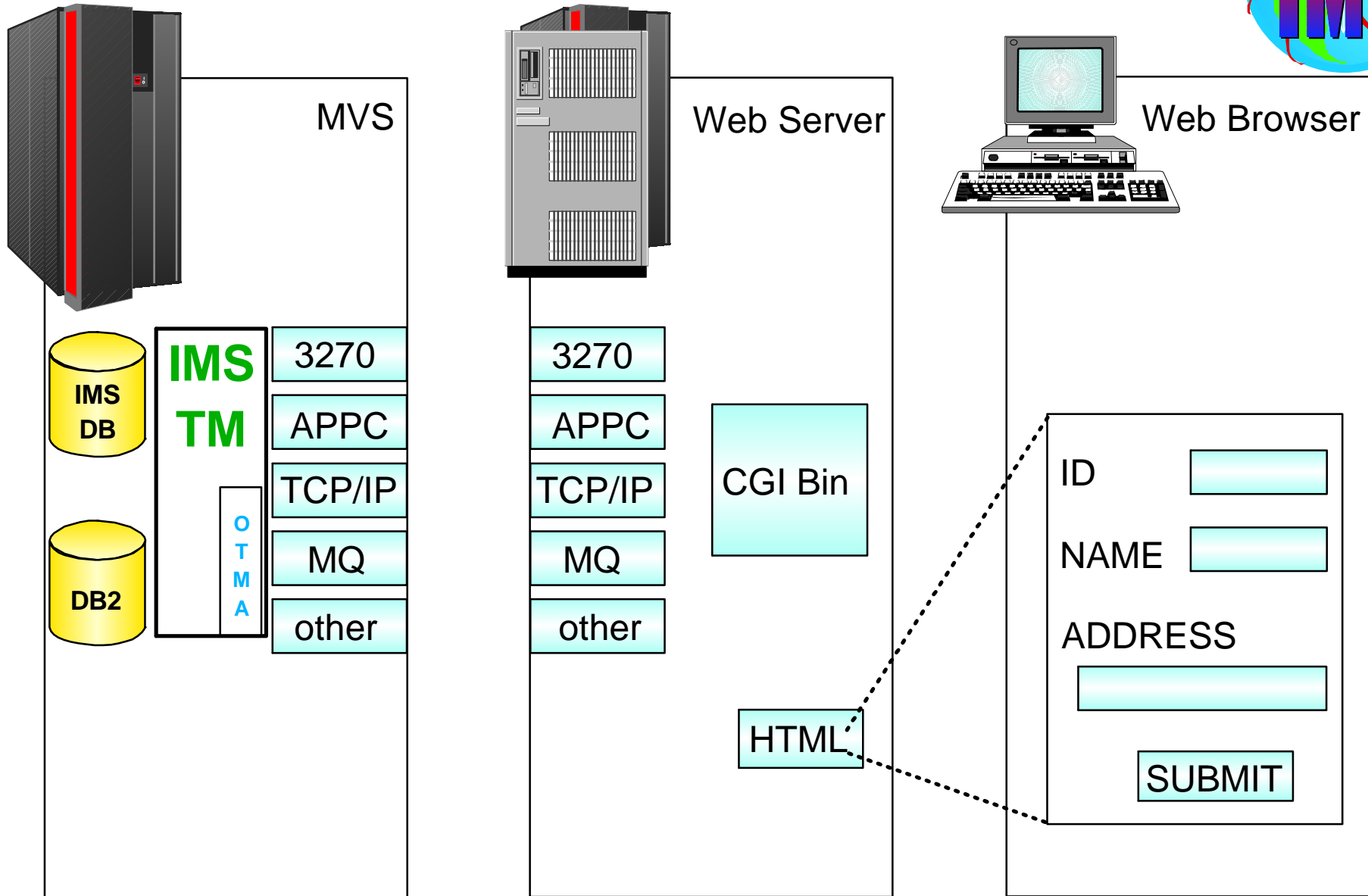
IBM Software

IMS Internet Access



IBM Software

Web Application Development

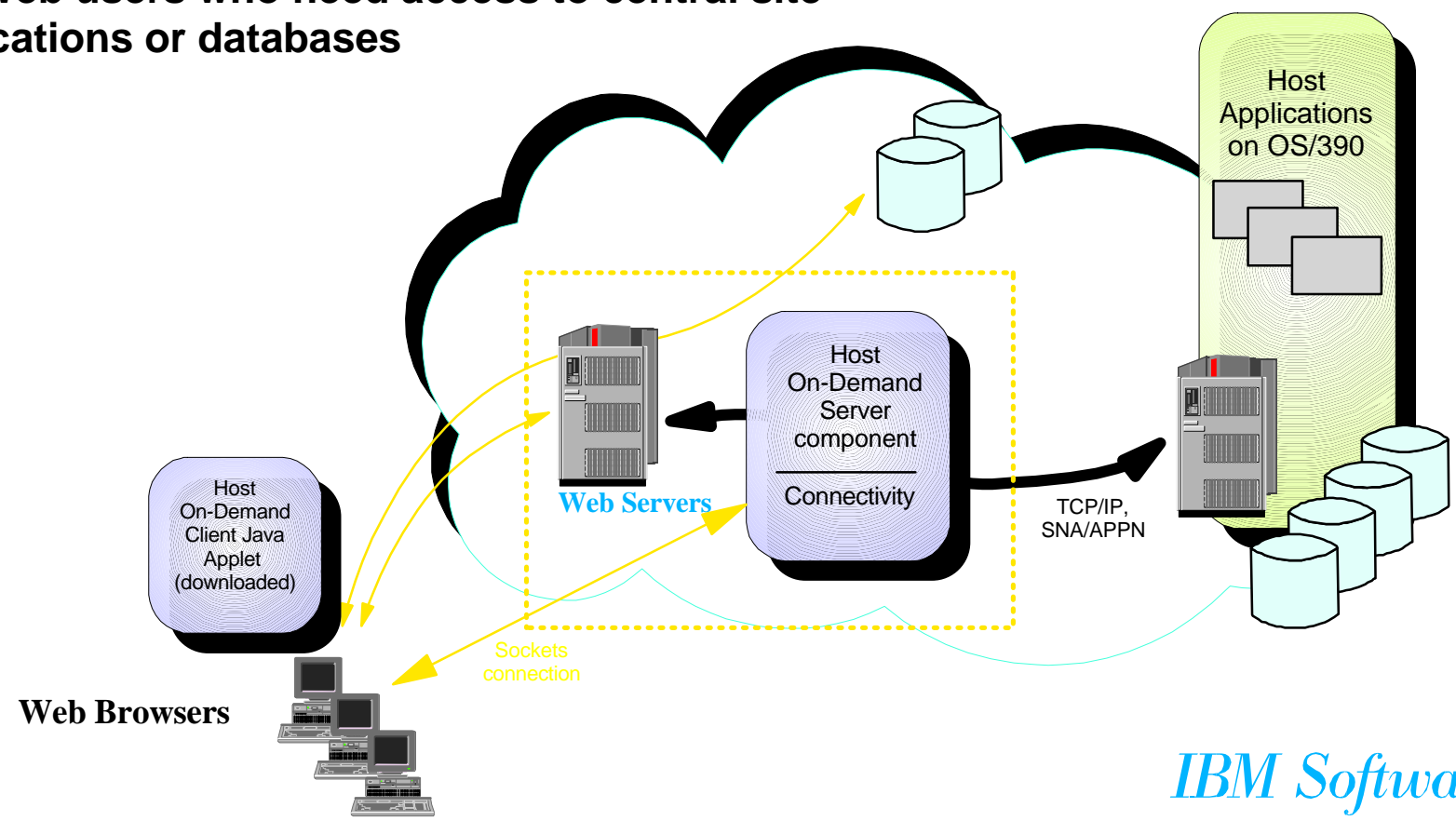


IBM Software

eNetwork Host On-Demand



- Host On-Demand provides fast and easy access to host 3270/SNA/5250/VT1xx/VT2xx applications
- Java-based solution that uses telnet protocols
- Customized windows; multiple sessions
- Provides high-performance, low-cost solution for intranet and Web users who need access to central site applications or databases

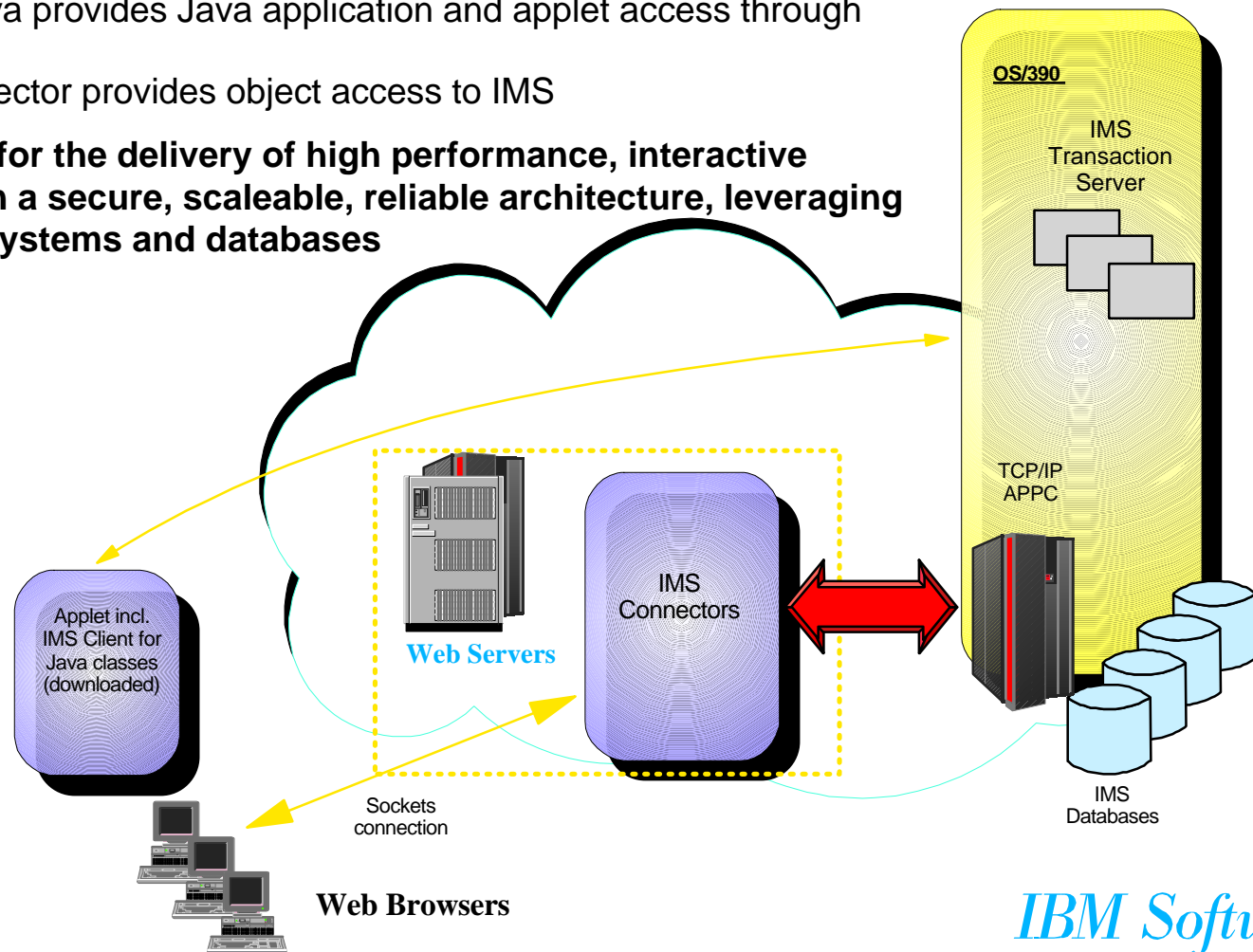


IBM Software

IMS Connectors - IMS Application and Data Access

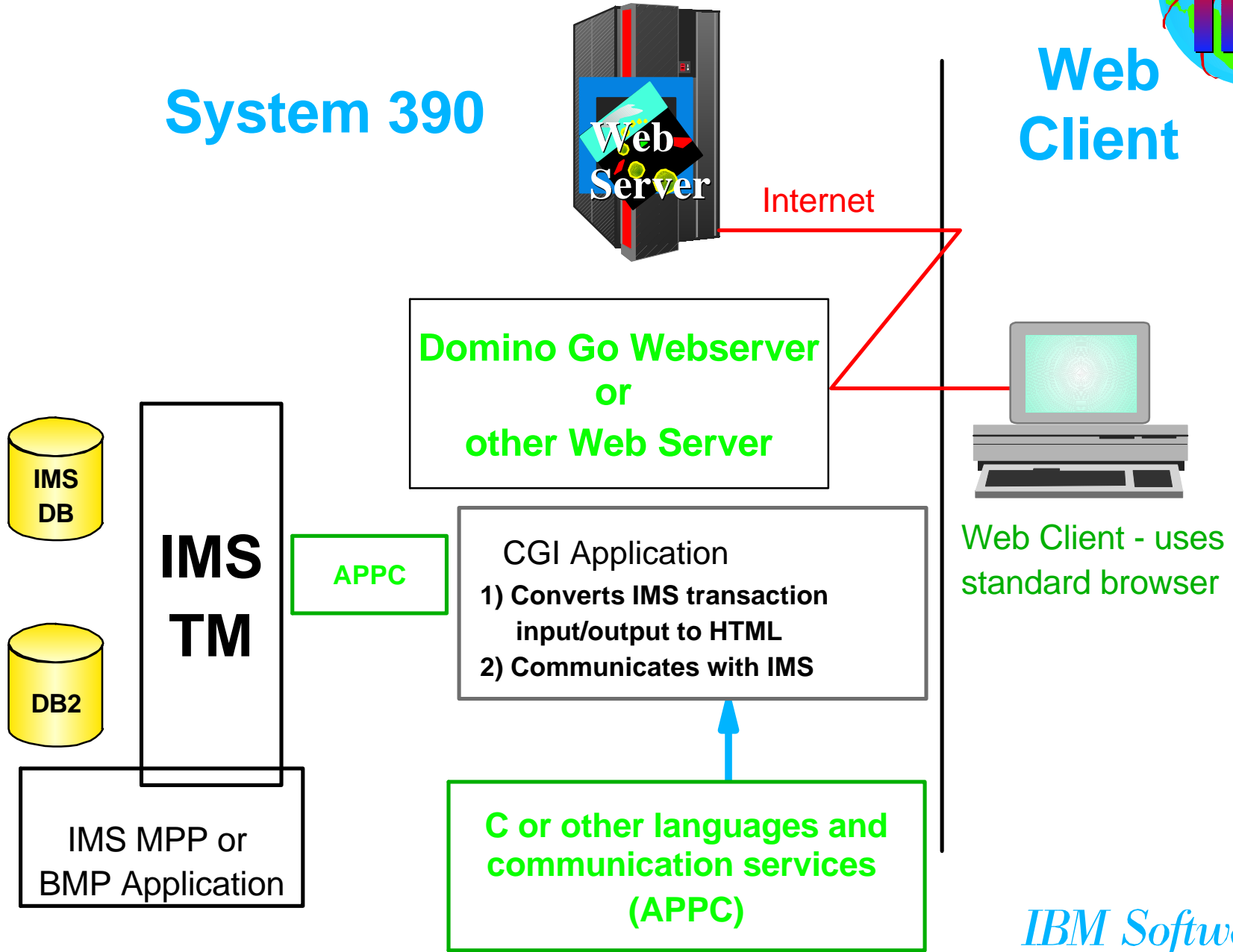


- **IMS Connectors provide cross-platform, cross-network protocol access to existing IMS Transactions from workstation or S/390 servers**
 - IMS WWW Templates provide mapping aids and access through APPC
 - IMS TCP/IP OTMA Connection provides improved access through TCP/IP and IMS V5 OTMA
 - IMS Web provides a mapping prep tool and access through TCP/IP
 - IMS Client for Java provides Java application and applet access through TCP/IP
 - IMS Object Connector provides object access to IMS
- **Connectors allow for the delivery of high performance, interactive web-sites based on a secure, scalable, reliable architecture, leveraging existing backend systems and databases**



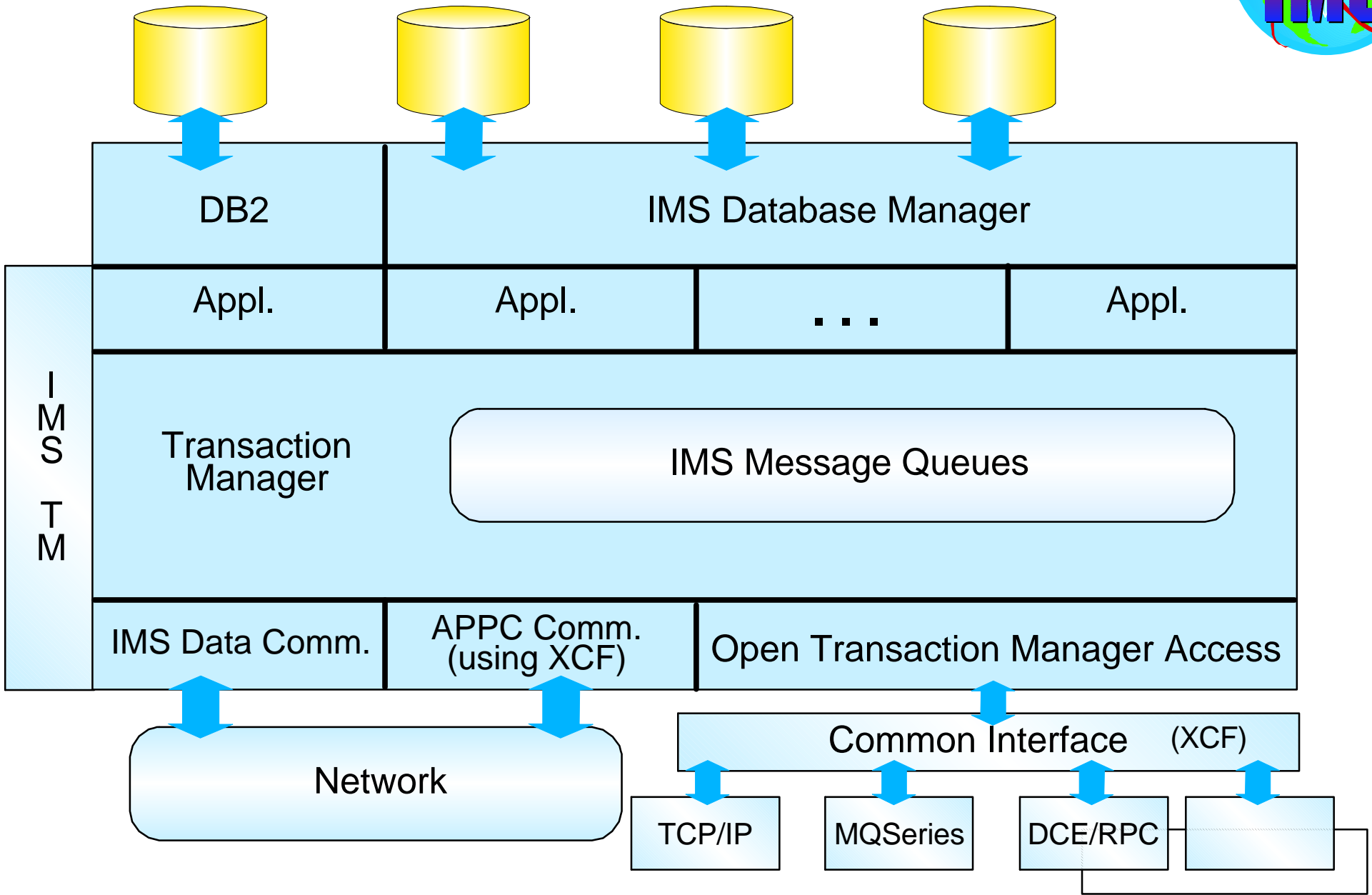
IBM Software

IMS WWW Templates



IBM Software

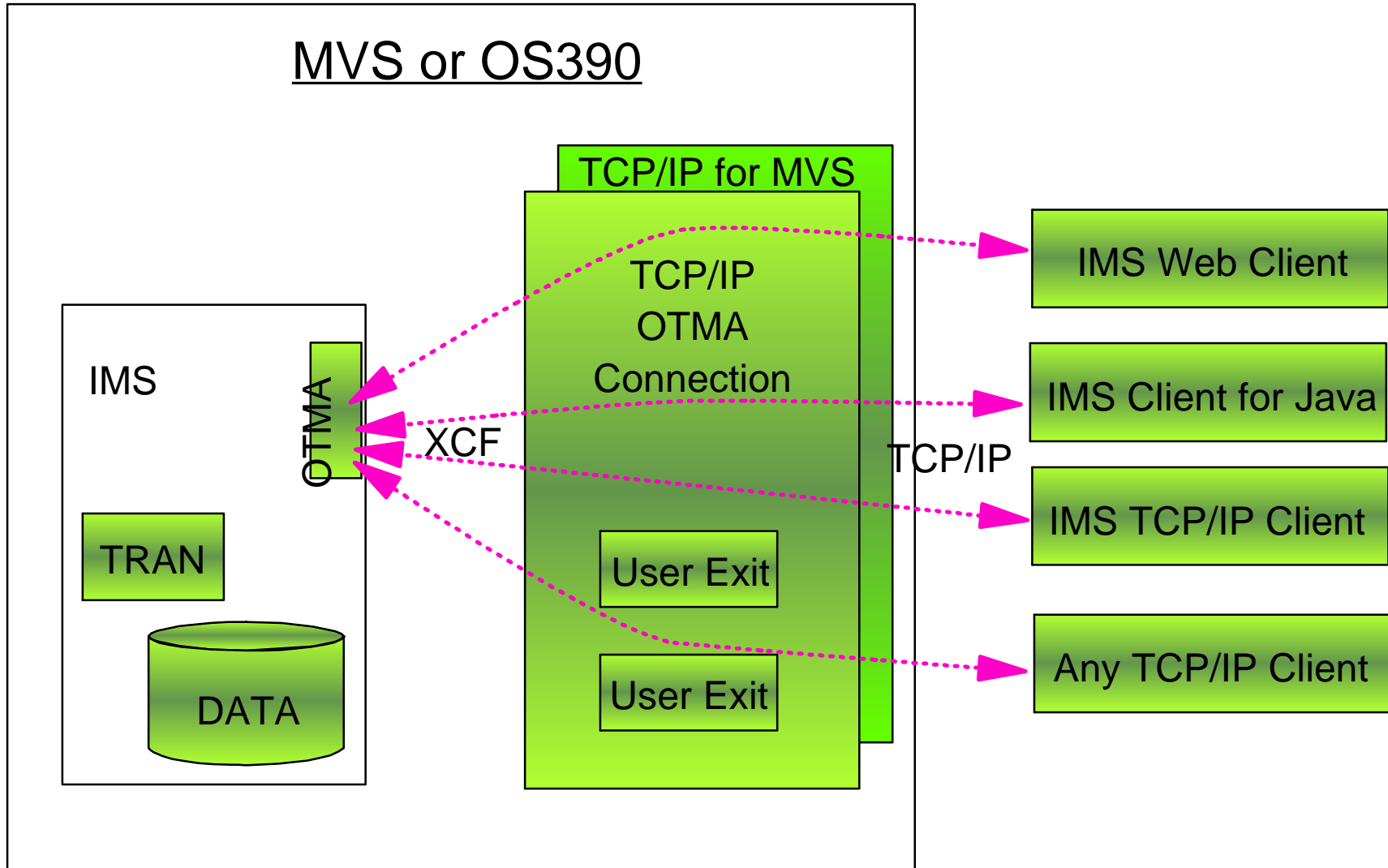
Middleware Subsystem Access



TCP/IP OTMA Connection



S/390

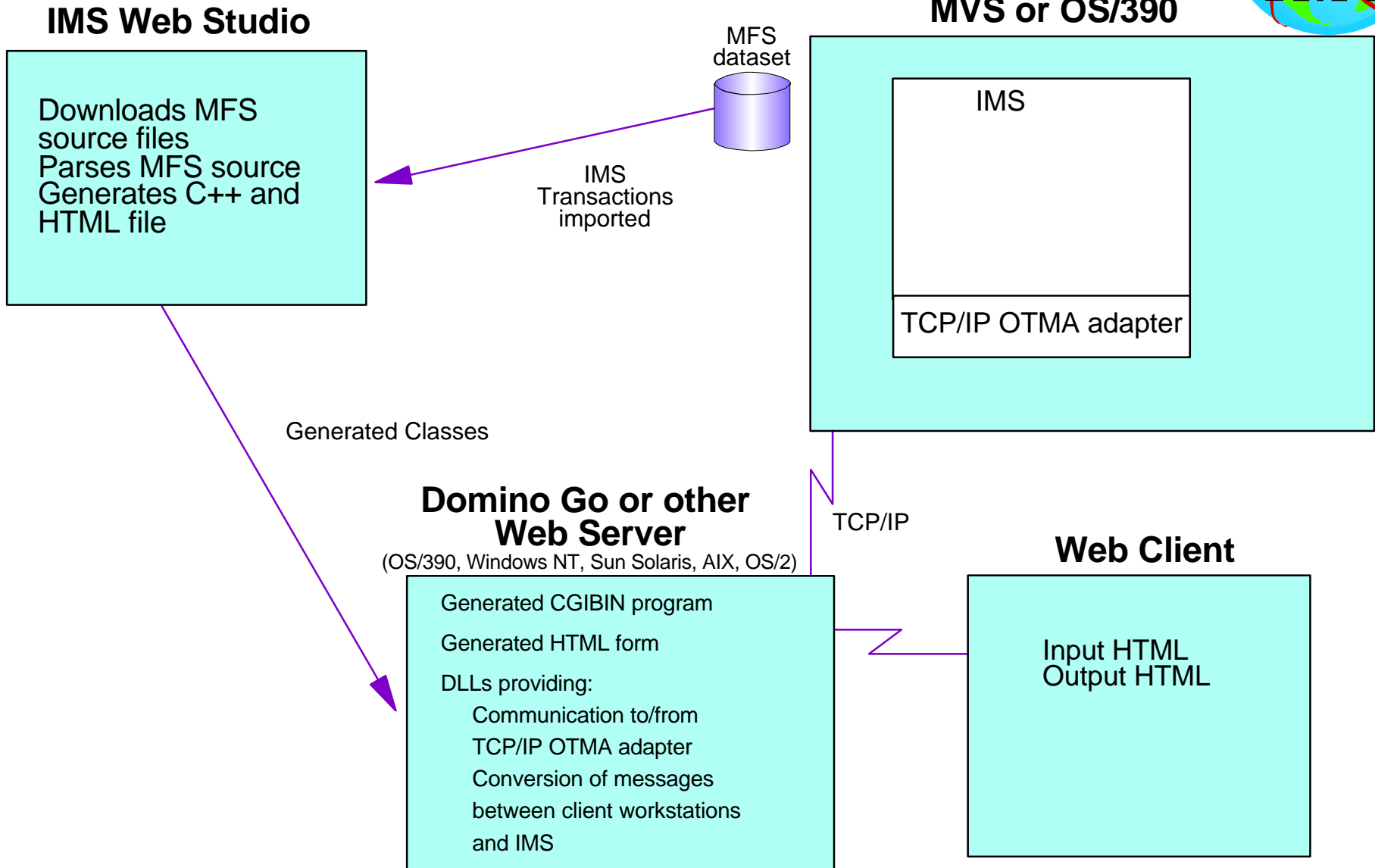


IBM Software



- **IMS provides host components that enable remote workstations to exchange messages with the IMS OTMA Connection. These components are as follows:**
 - Host Web Service (HWS): An MVS application program that provides the following services:
 - TCP/IP communications to TCP/IP clients or Web browsers
 - IMS OTMA communications to IMS
 - Base Primitive Environment (BPE): A system-service component that runs under the HWS

IMS Web Overview



IBM Software



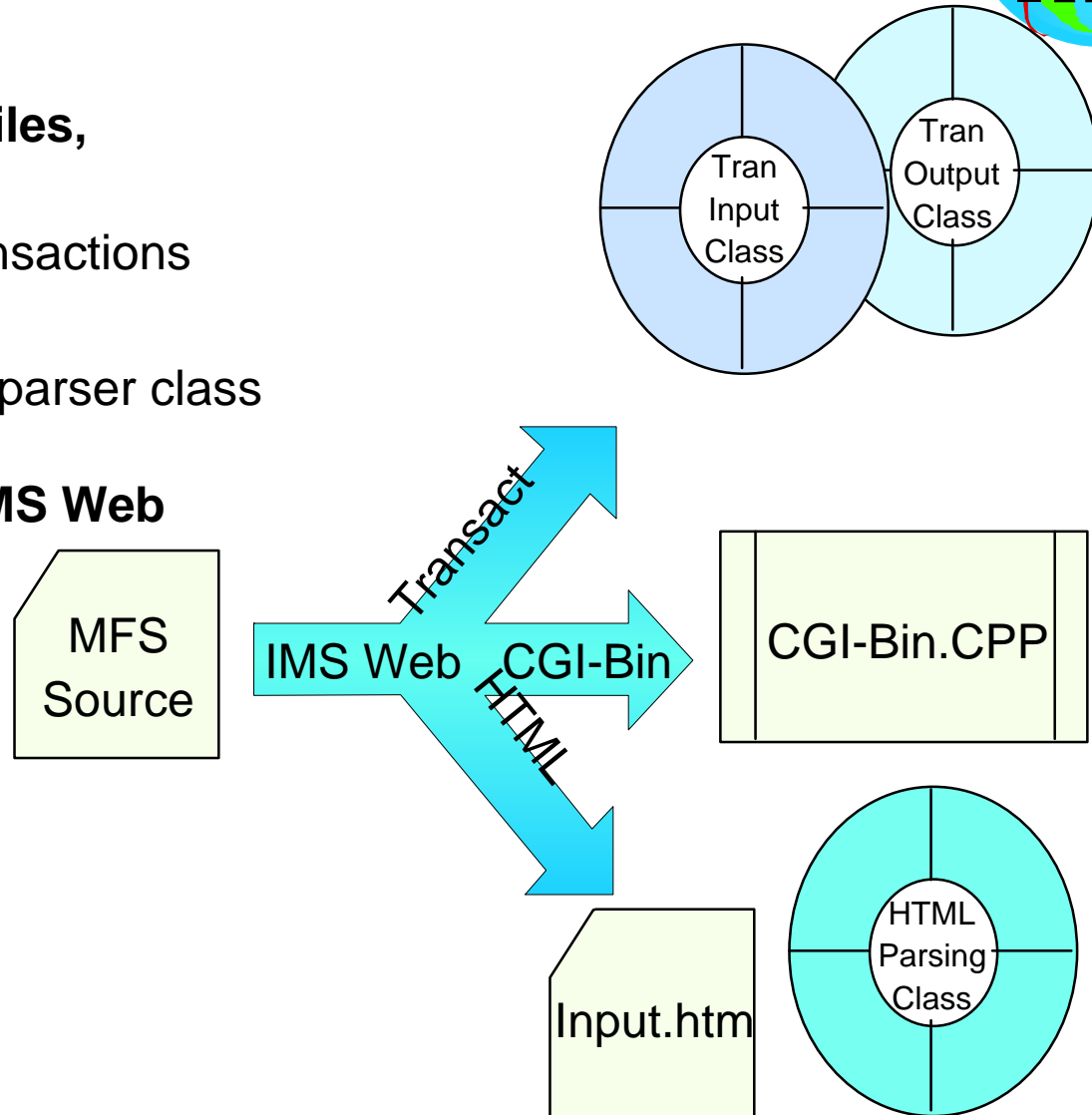
■ IMS Web consists of the following components:

- IMS Web Studio
 - A GUI based development tool which allows users to download MFS source files, parses the MFS files, and generates program source files
- IMS Web Server DLLs
 - A set of C++ classes packaged as DLLs which provide communication to host, message formatting, and data conversion services for the generated code
- TCP/IP OTMA Connection
 - A TCP/IP Listener program that accepts requests from server and routes the messages to OTMA

Generated Code



- **From a set of MFS source files, following are generated**
 - C++ classes for an IMS transactions
 - CGI executable code
 - input HTML form and input parser class
- **Generated code uses the IMS Web Server DLLs for**
 - communication
 - message formatting
 - message conversion



IBM Software

Benefits of IMS Web



- **Reuse of existing IMS transactions in the World Wide Web environment**
- **Providing a complete end-to-end solution including;**
 - generated input HTML form, generated CGI-Bin source
 - generated C++ classes for running IMS transactions on a workstation
 - host and server runtime functions for message processing and communication
- **Allows fast deployment of IMS transactions on the WWW**
 - without modifying the IMS transaction
 - without heavy workstation development effort
 - can also be used in a non WWW environment

Net.Data - Relational Database Access

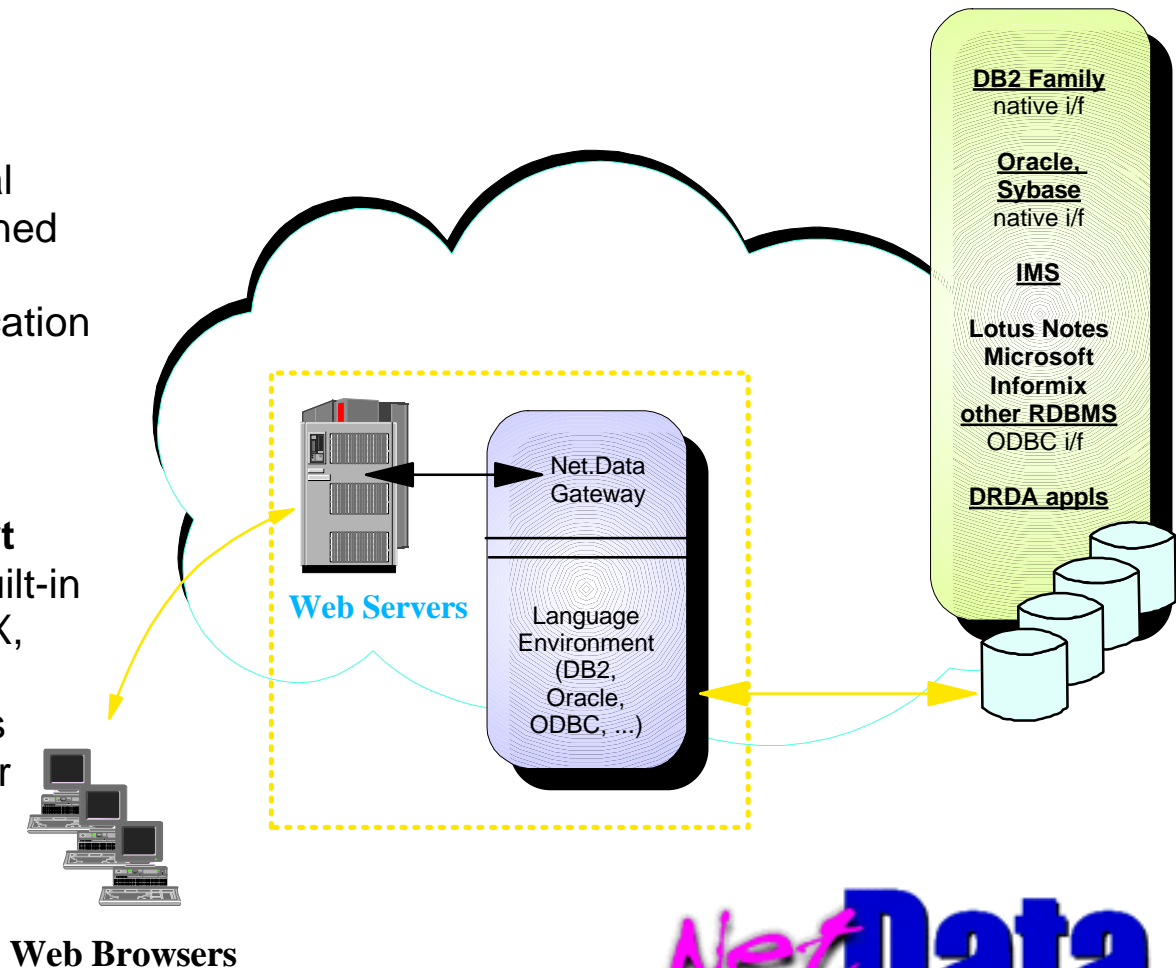


Dynamic access to the data in your business

- Native access to DB2, Oracle and Sybase
- Support for flat file data
- ODBC access to additional data sources
- Support for DB2 object-relational data (image, video, audio, scanned text)
- Access to DRDA-enabled application sources
- Connection management for databases

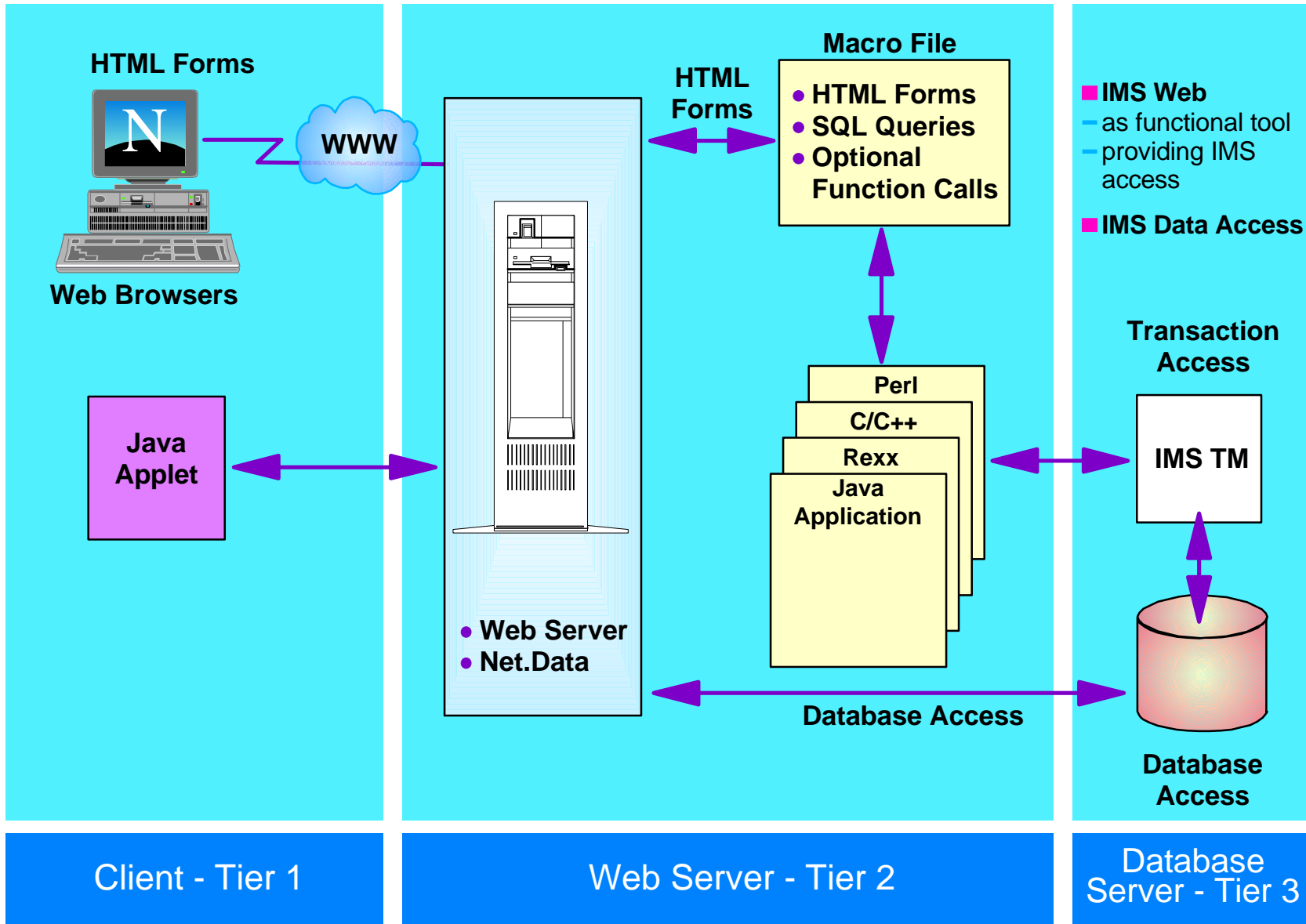
Application development support

- High-level scripting language Built-in libraries; support for Java, REXX, Perl, C/C++
- Integration with web server APIs
- Java applets and JavaScripts for client-side processing
- Connection management for databases



Net.Data

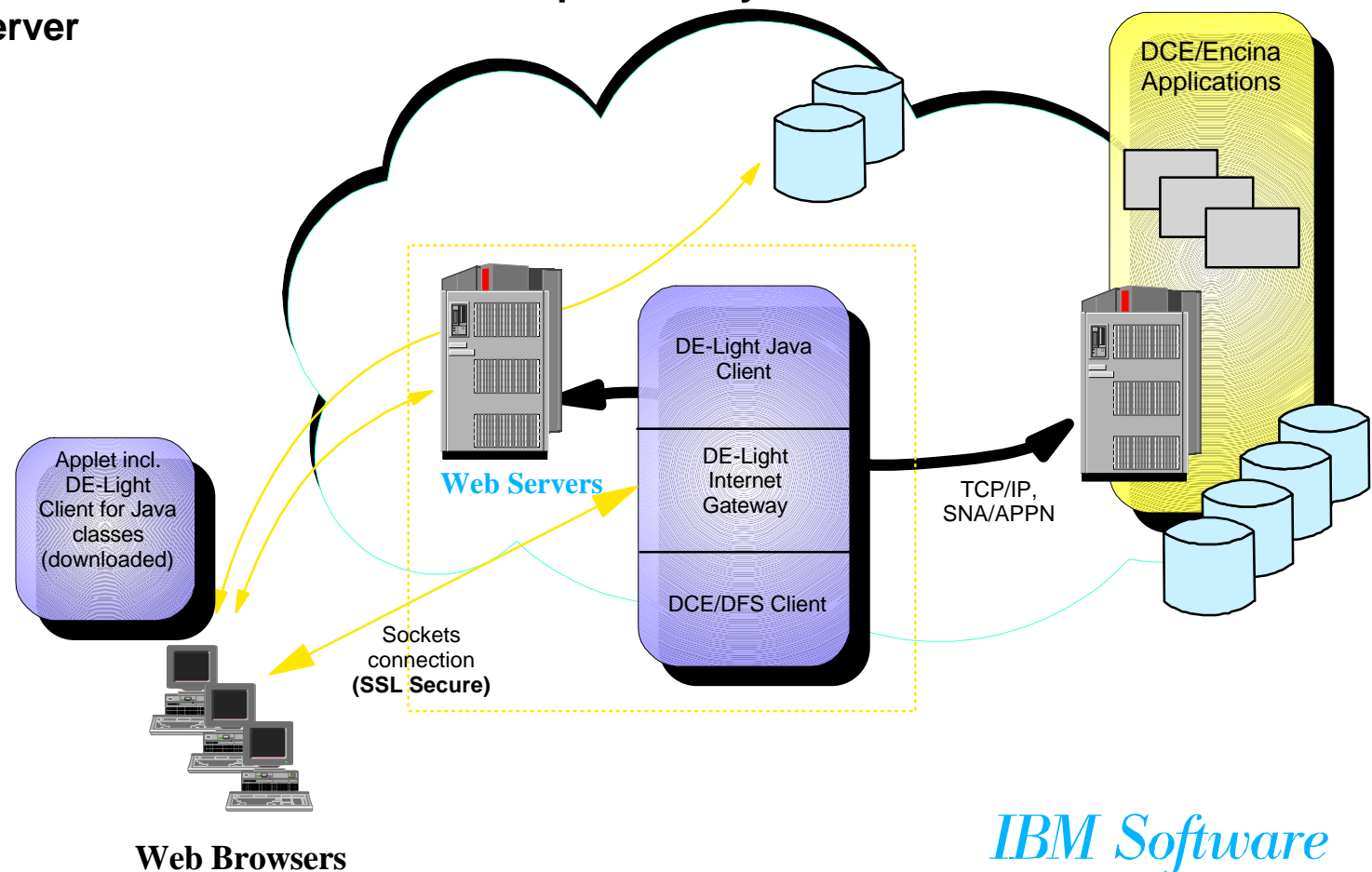
Net.Data with any Application



DE-Light Gateway - DCE/Encina Application Access

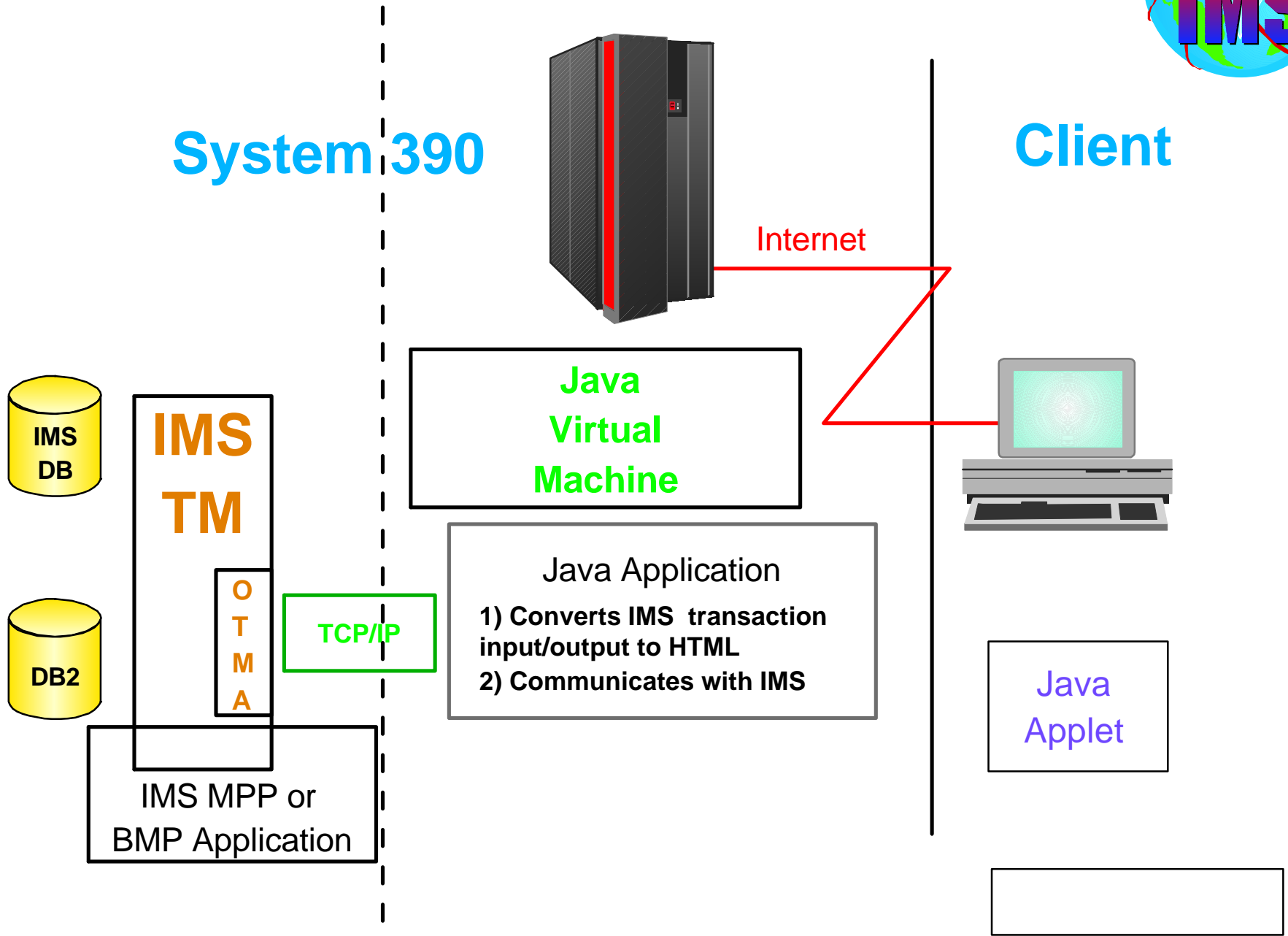


- DCE/Encina Lightweight Gateway for transactional access to distributed Encina/system applications
- Utilizes Java applet for sockets-based connections
- Secure, SSL-based access to DCE and Encina services
- Can access either Encina TP monitor or Encina personality of Transaction Server



IBM Software

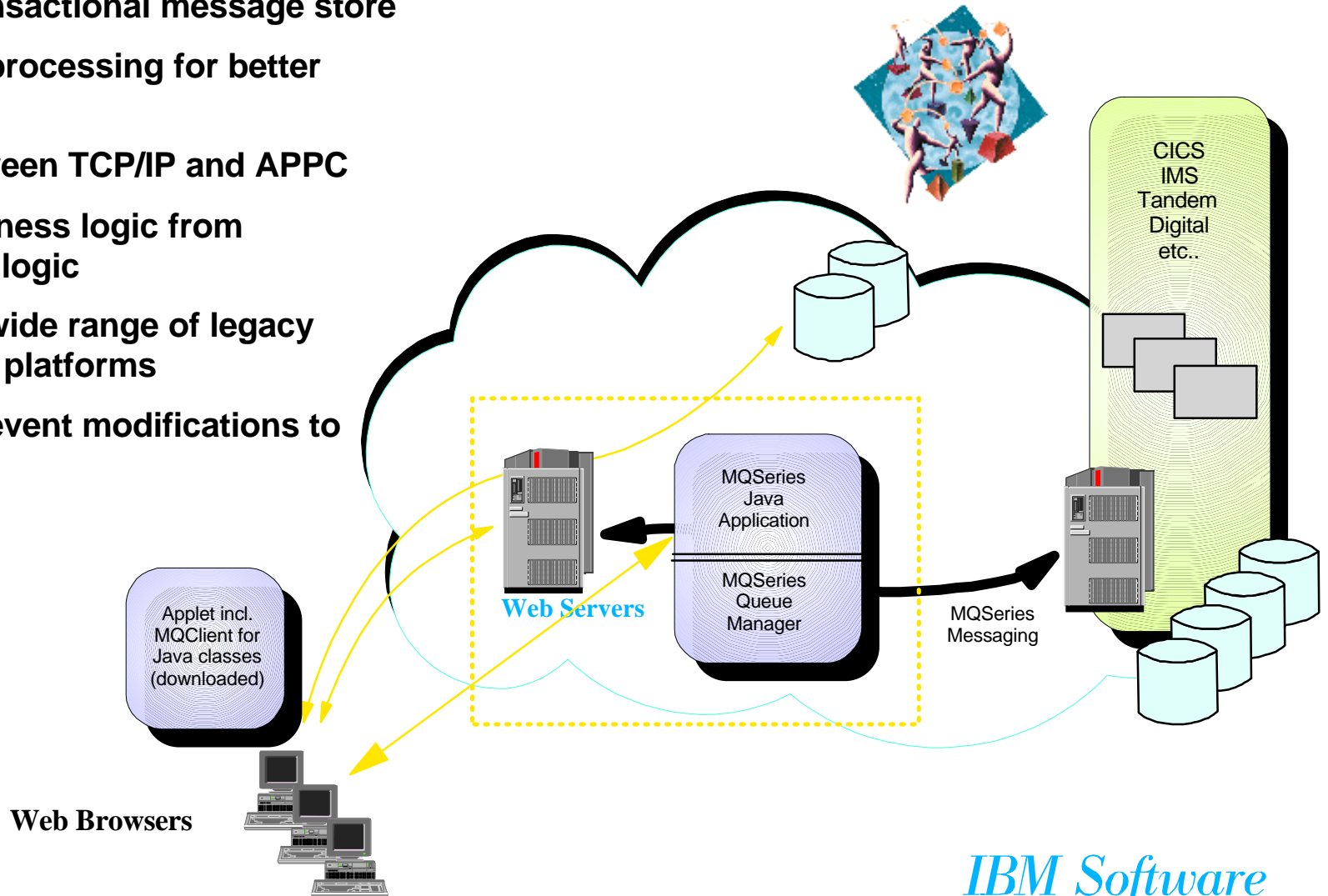
IMS Client for Java



MQSeries Internet Gateway - Application Access



- Reliable message delivery through a middle-tier web server to backend applications
- Provides transactional message store
- Overlapped processing for better throughput
- Bridges between TCP/IP and APPC
- Isolates business logic from presentation logic
- Accesses a wide range of legacy systems and platforms
- Can "push" event modifications to the browser

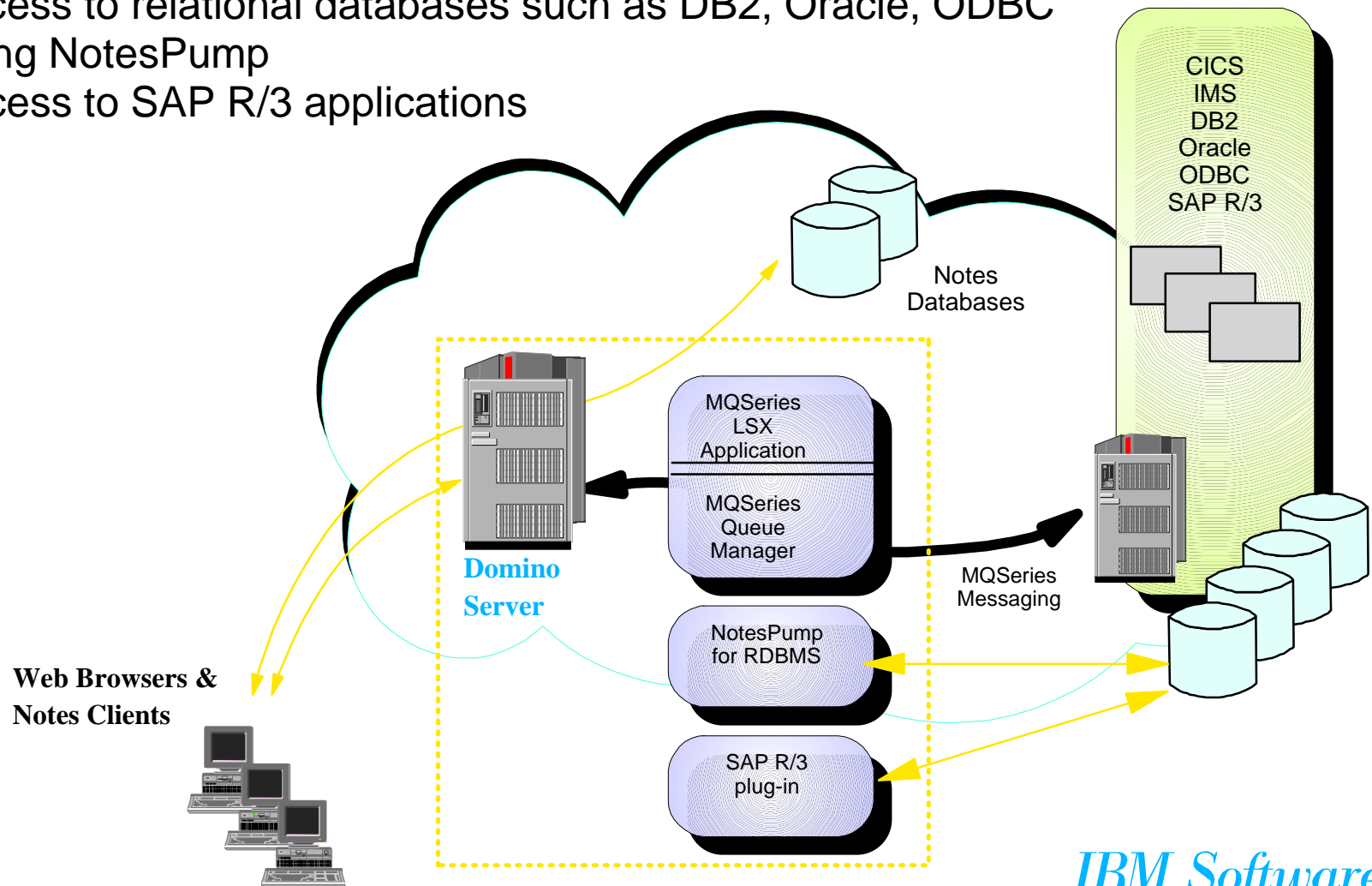


IBM Software

Lotus Domino.Connect - Domino/Notes Integration

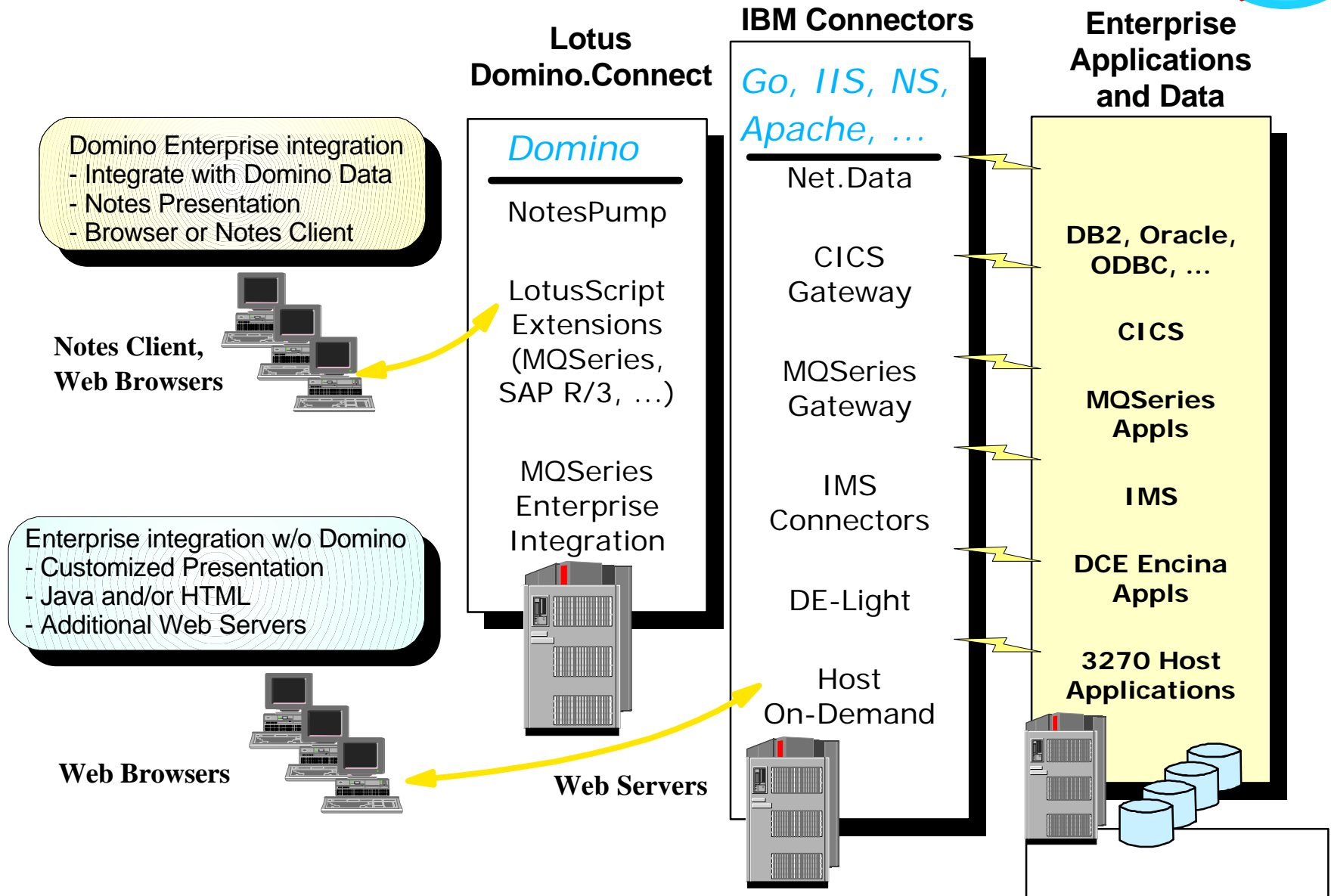


- **Links enterprise data through Domino/Notes**
 - Access to transaction systems such as CICS and IMS using MQSeries
 - Access to relational databases such as DB2, Oracle, ODBC using NotesPump
 - Access to SAP R/3 applications



IBM Software

Enterprise Access and Usage



Extending the Enterprise with Java



Enterprise Java Technologies

- Provides more server-side processing
- Provides greater control, security, and performance for data access
- More servlet/bean capabilities utilizing EJDK APIs

Gateway function

- Maps HTML requests to native languages
- Utilizes middle-tier web servers

Applet function

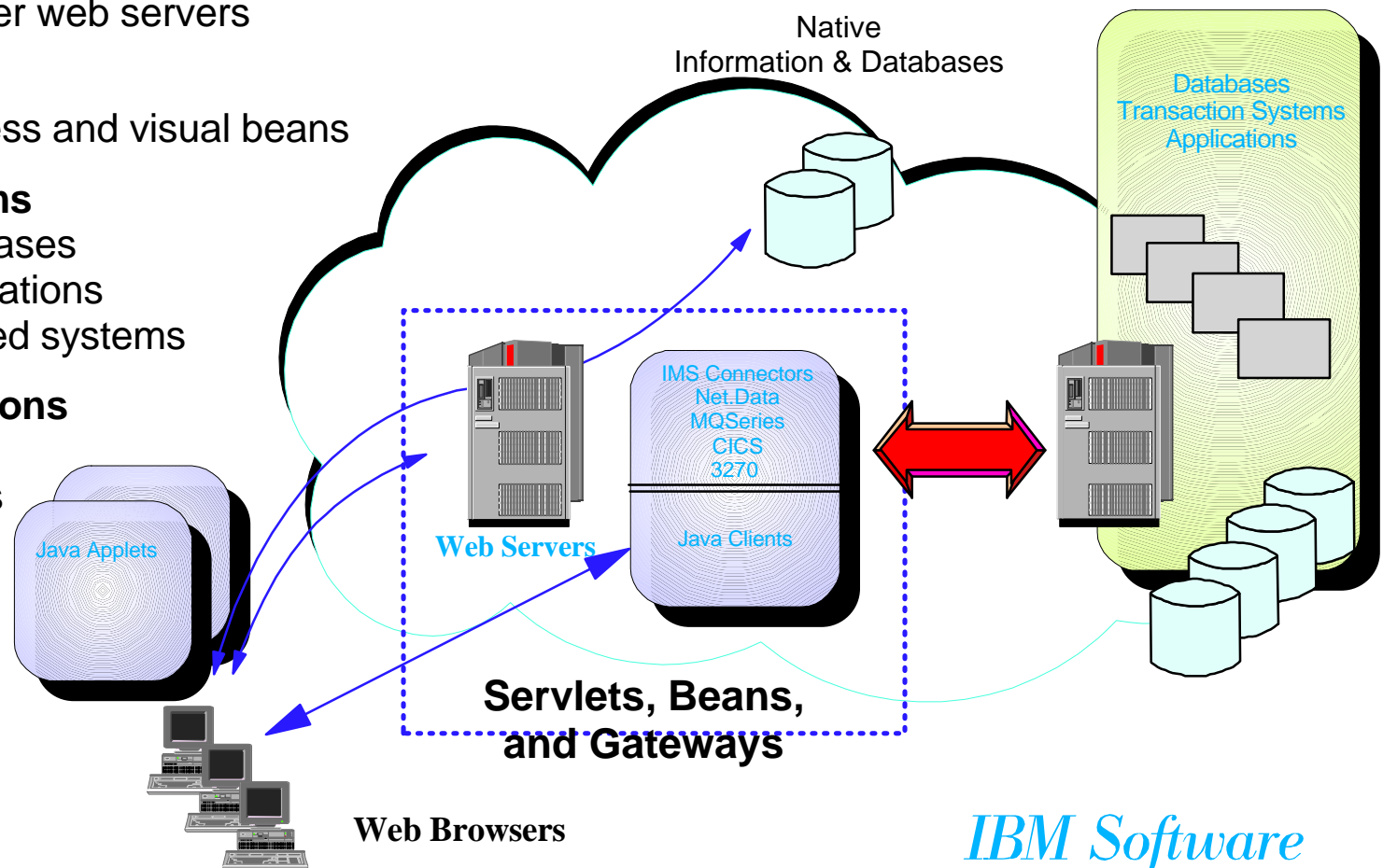
- Java-based access and visual beans

Enterprise systems

- Enterprise databases
- Enterprise applications
- Transaction-based systems

Web server functions

- HTTP/IIOP
- Local data stores



IBM Software

Enterprise Java Advantages



- Exploits *industry-wide* accepted standards, APIs, and technologies
- *Protects existing investments* by extending the reach of enterprise applications to the web
- Maintains control, security, performance, and scaling characteristics using server-side logic
- Maintains portability using Java across web servers and operating platforms
- Provides cost-effective application development and execution environments with easy-to-use visual tools, Java class libraries, and components for building comprehensive business applications.
- Provides gateways to existing relational databases, transactional systems, and applications.

IBM Software

IMS Connector Information



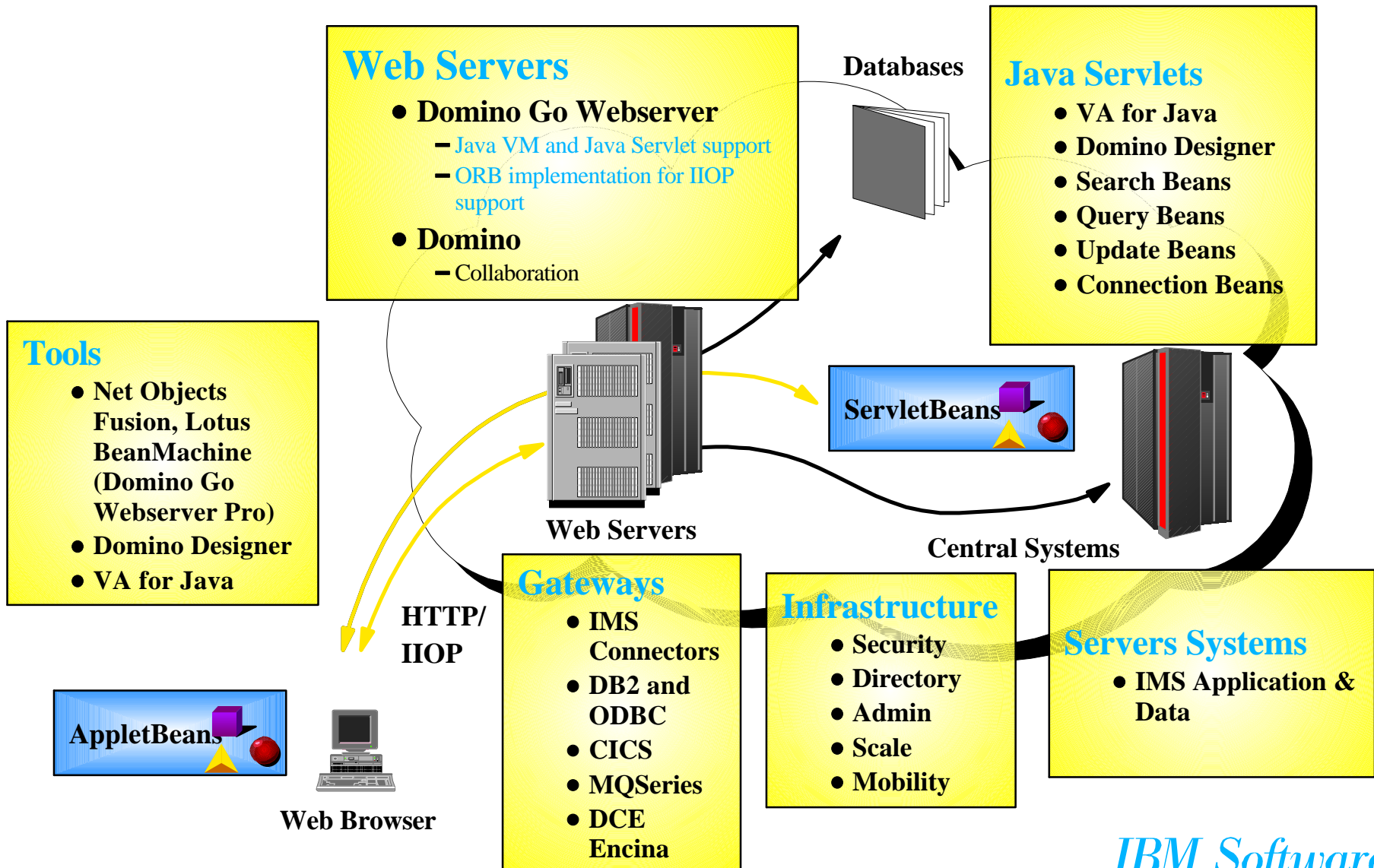
■ IMS Connectors

- At GA level
- Provided at no additional charge for IMS Access
- Additional information available and code downloadable from
 - IMS home page
 - <http://www.ibm.com/ims>
 - IBM Connectors home page
 - <http://www.ics.raleigh.ibm.com/ibmconnectors>
 - ebusiness CD ROM
- IMS Redbook
 - Connecting IMS to the World Wide Web - A Practical Guide to IMS Connectivity

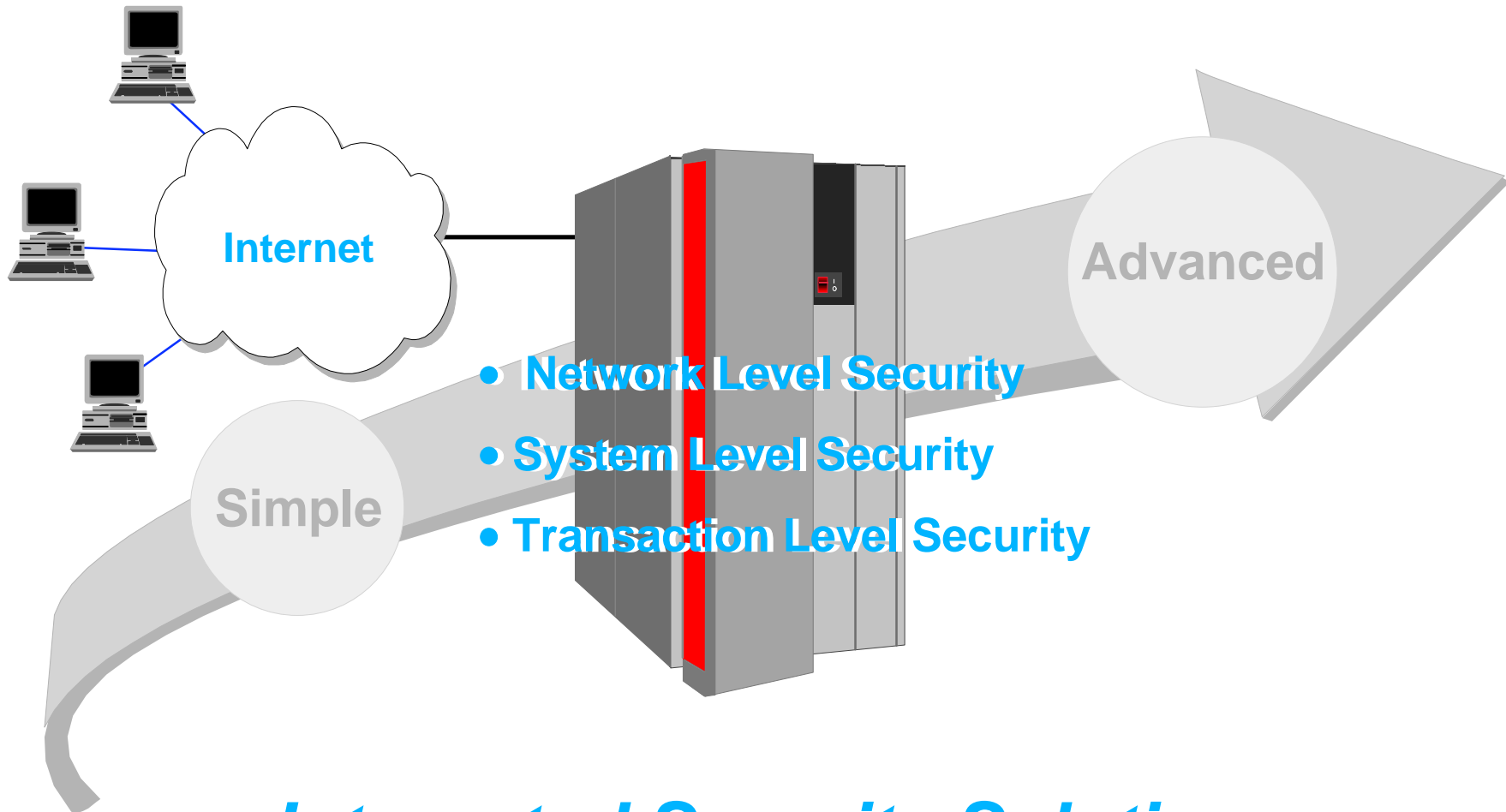
- <http://www.redbook.ibm.com>

- ## ■ Additional information on other IMS Internet solutions also available through IMS home page and IBM Connectors home page

IBM Software



S/390 Security Advantage for e-business



Integrated Security Solutions

IBM Software



■ Network Level

- Helping to protect Enterprise networks
- Public network exploitation
- Authentication

■ System Level

- Access control to all resources
- Change management
- Workload isolation

■ Transaction Level

- Privacy/Confidentiality
- Authentication
- Non-repudiation
- Back-out capabilities

e-business Security Elements in OS/390



■ **Network Level:**

- Firewall Technologies
 - IP Filtering
 - Network Address Translation (NAT)
 - Virtual Private Network (VPN) with Crypto HW
 - Proxy Servers
 - SOCKS server
 - Domain Name services

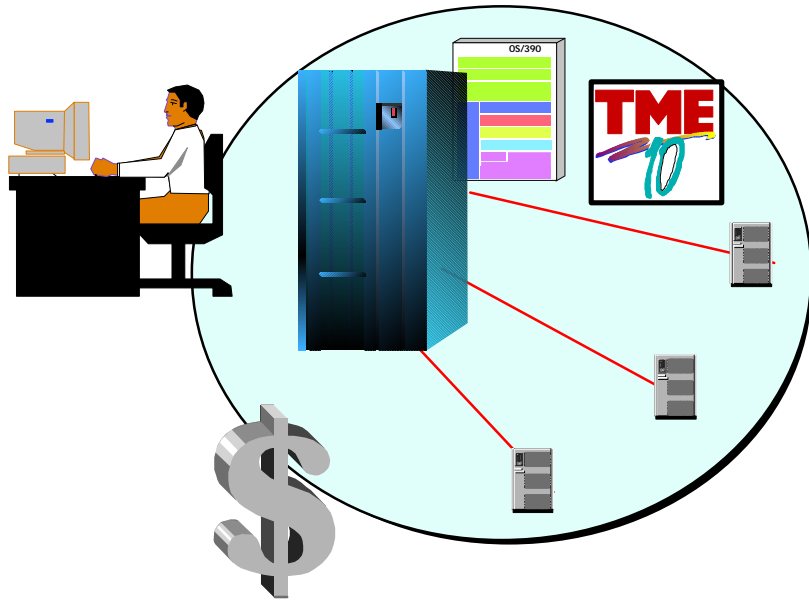
■ **System Level:**

- Integrity
- Security Server
- Security Access Facility (SAF)
- LPAR Workload Isolation

■ **Transaction Level:**

- Domino Go Webserver
 - SSL support
 - X.509 Digital Certificates
- SET support
- IBM CommercePoint Payment
- S/390 Cryptographic Coprocessor

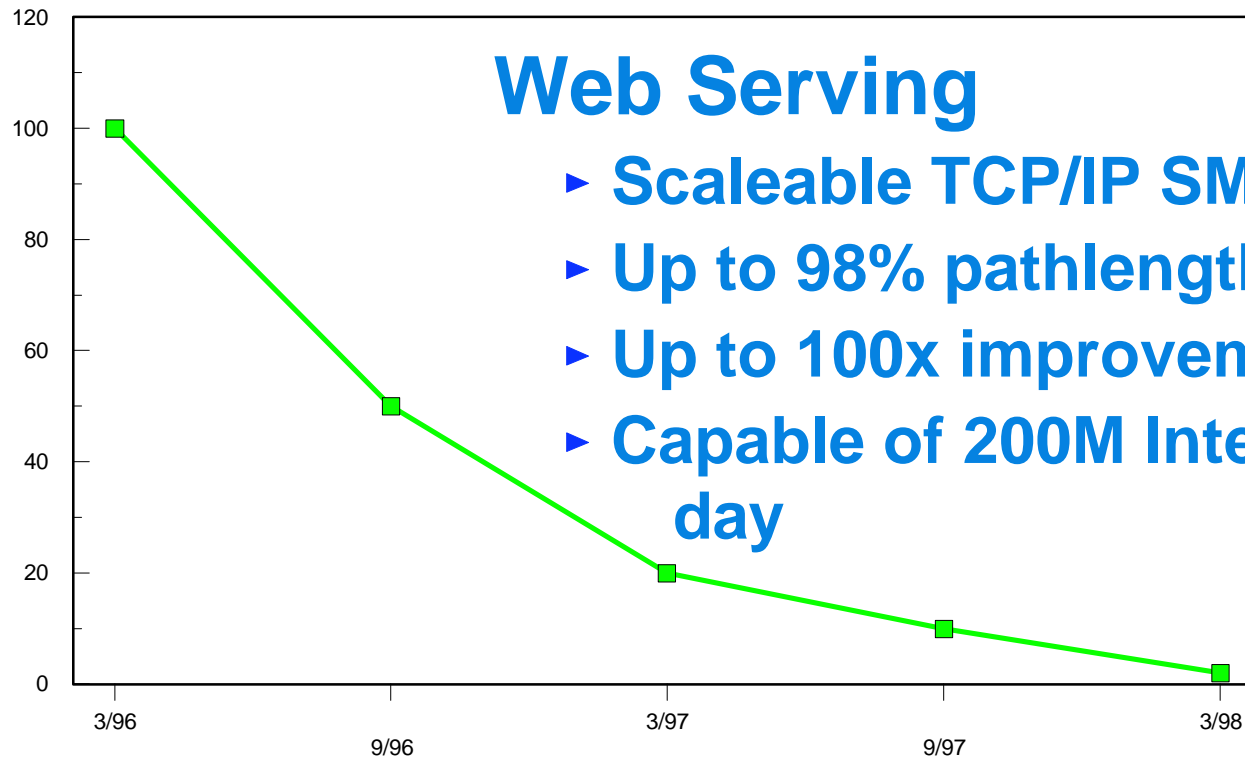
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- Workload management and balancing
 - *C application interfaces*
- Systems Management Tools
 - *Enhanced for usability*
- Automation with *System Automation for OS/390 Release 3*
- Integration with Tivoli (Global Enterprise Manager and Tivoli Enterprise Connections)
- *SMP/E significantly enhanced*
- *Installation through ServerPac*



Pathlength Percent



Web Serving

- ▶ Scalable TCP/IP SMP daemon
- ▶ Up to 98% pathlength improvement
- ▶ Up to 100x improvement in connects/sec.
- ▶ Capable of 200M Internet transaction hits per day

Achieved thru enhancements to Domino Go Webserver, C/C++ Compiler, HFS, LE, UNIX and System Services, eNetwork Communications Server - TCP/IP Services

IBM Software



VOLVO

Challenge: Delivering uniformity of presentation and ease of use, whether accessing financial data or technical drawing, while retaining complete security control of the data

Solution: Delivering intranet and internet access throughout the company, exploiting Netscape browsers, IBM Internet Servers on OS/390, and the IMS gateway to the web for access to corporate data.

Benefits: Competitive business advantage.

Boeing Commercial Airplane Group



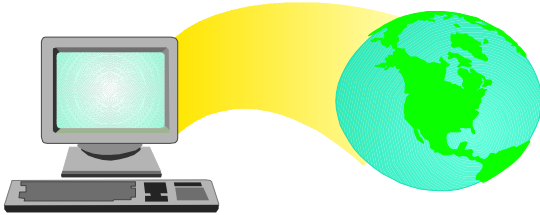
Challenge: Enable the company's 500 customers to easily locate, order, & track shipment of parts

Solution: Internet access to Boeing's DB2 & IMS operational data & hot links to Fedex and UPS

Benefits: Reduced costs for Boeing & its customers, plus improved customer satisfaction

IBM Software

Internet Solutions Directions



Simplify Access

Provide Connector Integration

Improve Levels of Performance and Functionality

Improve AD Tools

Improve Delivery/Service

Improve Portability

1998

IMS Client for Java

IMS Web

IMS Object Connector

IMS TCP/IP/OTMA Connector

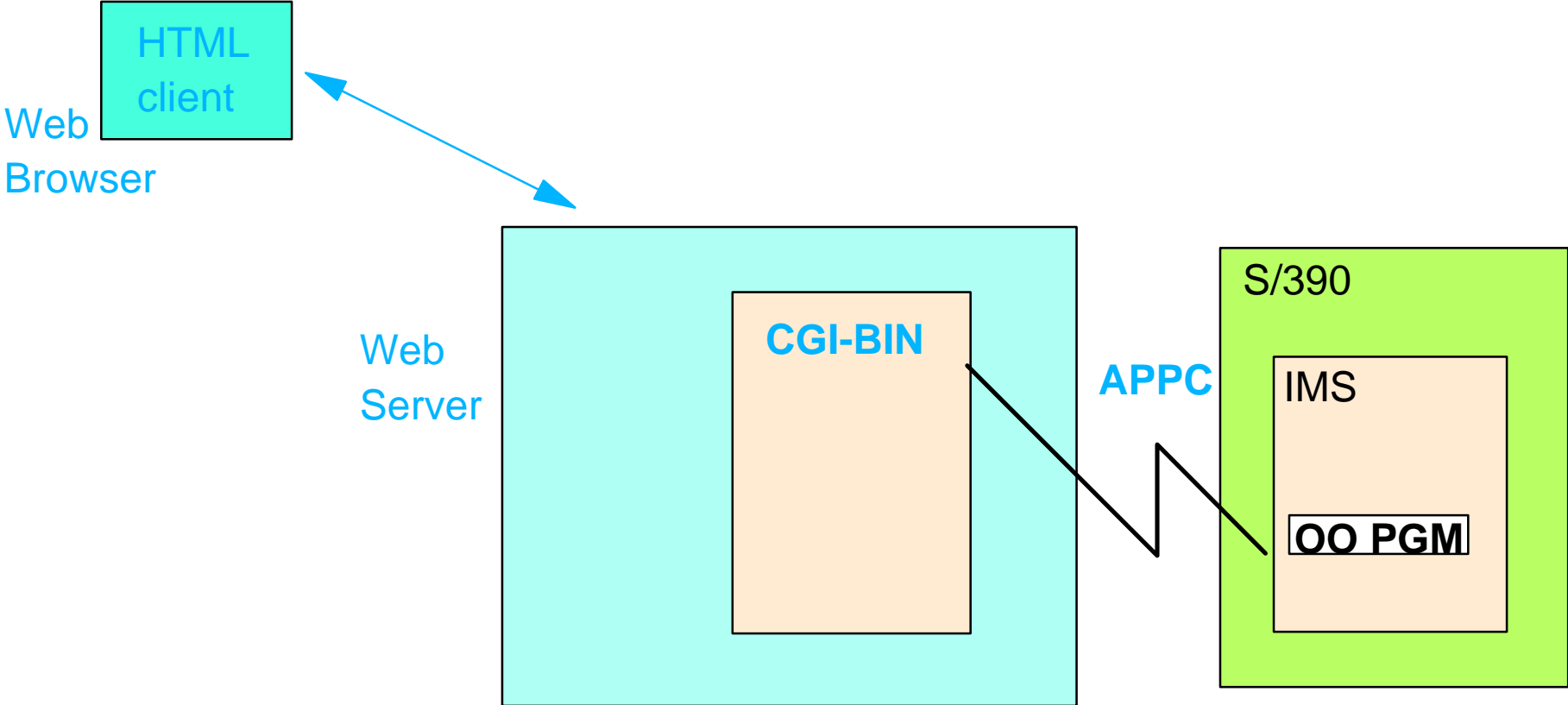
IMS WWW Templates

IBM Software

IMS Object Connector



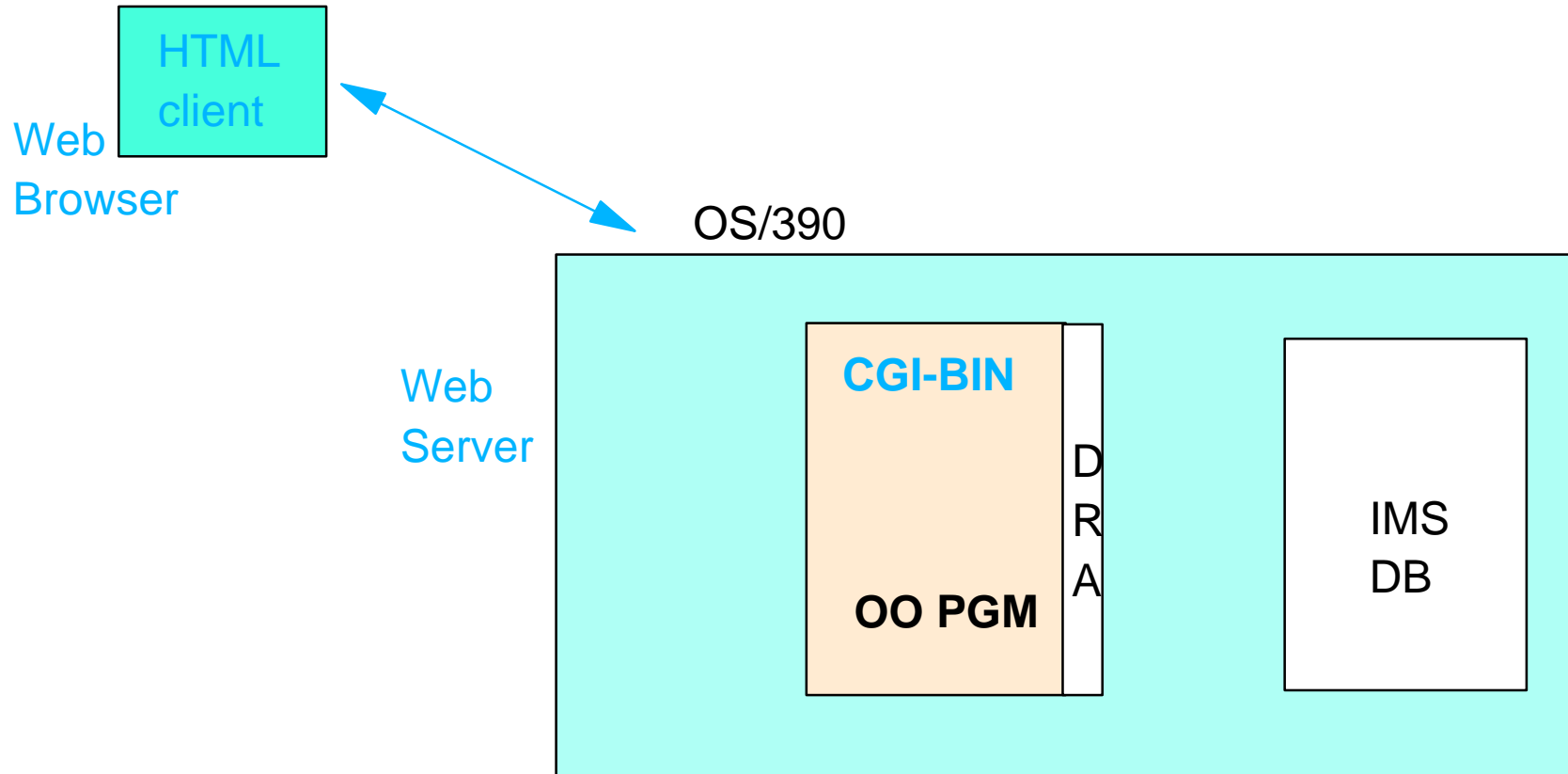
OO access to IMS Transactions and Databases



IMS Object Connector Directions



OO access to IMS Databases

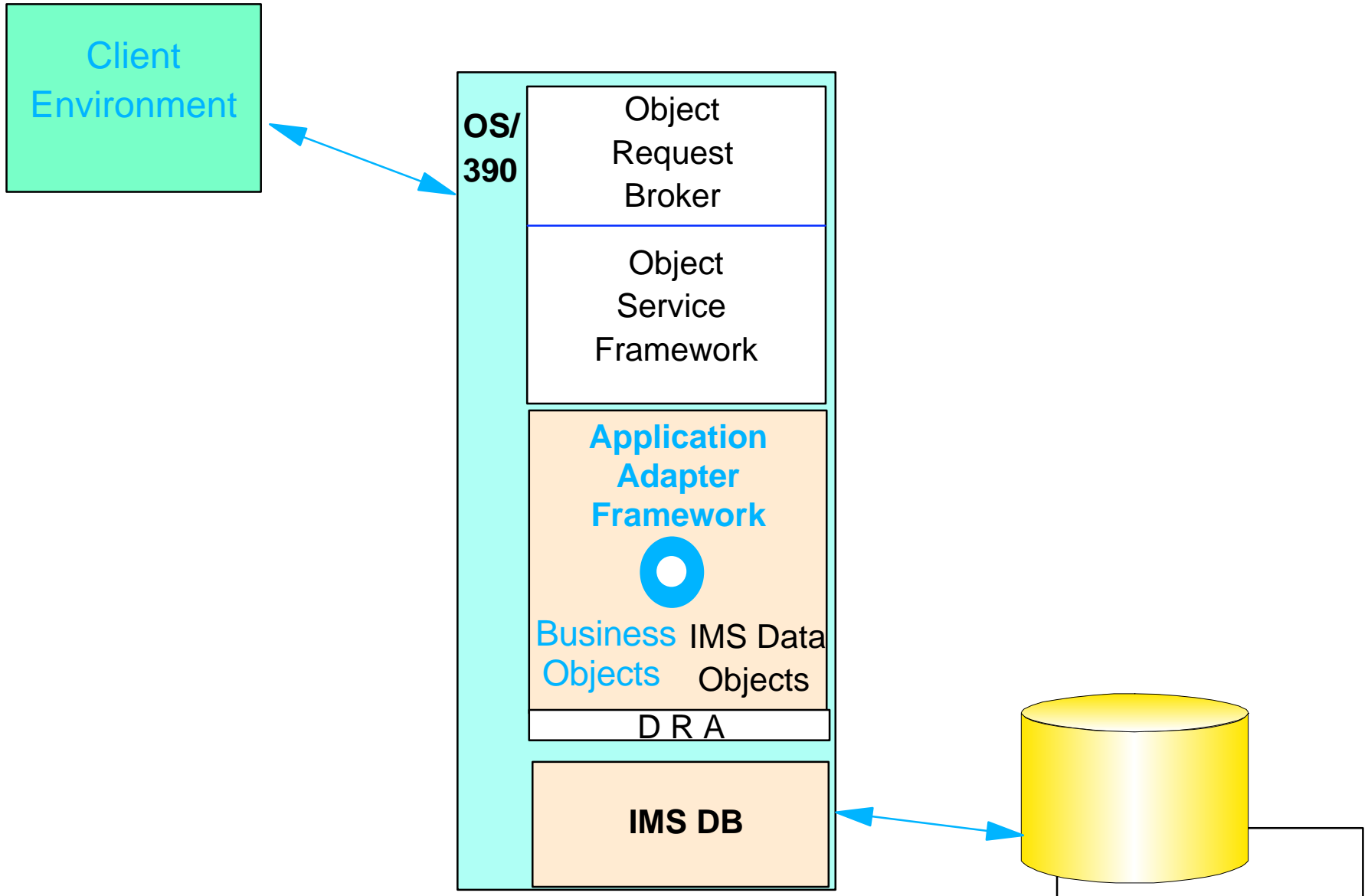


IBM Software

IMS Object Connector Directions



Component Broker Access to IMS Databases





IMS supports a wide variety of solutions that allow access to IMS from the Internet with

- **Consistency**
- **Flexibility**
- **High performance**

