
JavaOne℠
Sun's Worldwide Java Developer Conference

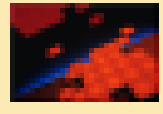

INTERSOLV
JDBC Drivers,
Bridges and
SequeLink
Edward M. Peters
Vice President & General Manager
DataDirect

DataDirect's Business

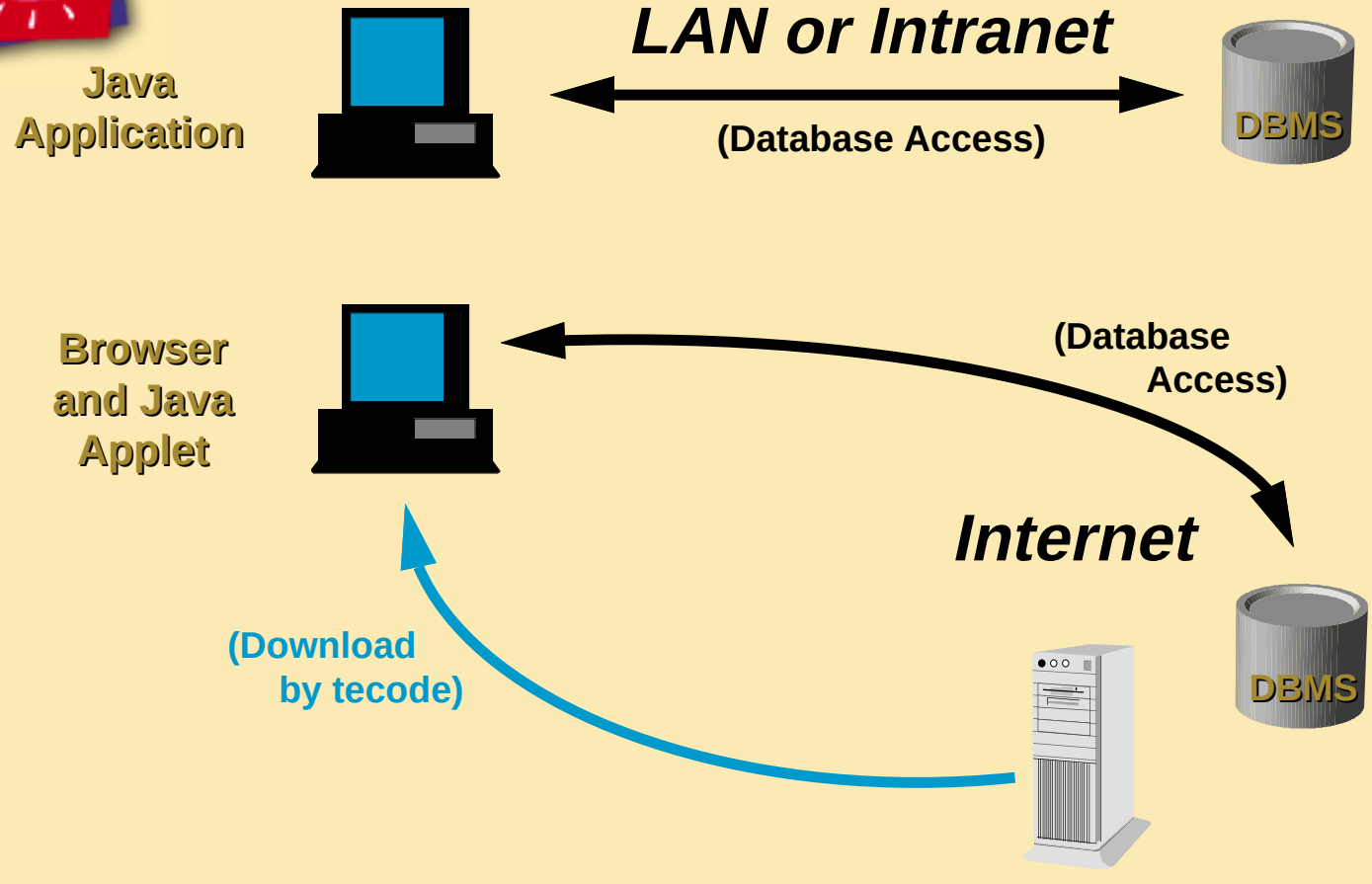
"Provide world class data connectivity from any application, to any data source, from anywhere, at any time."

Data Connectivity Requirements:

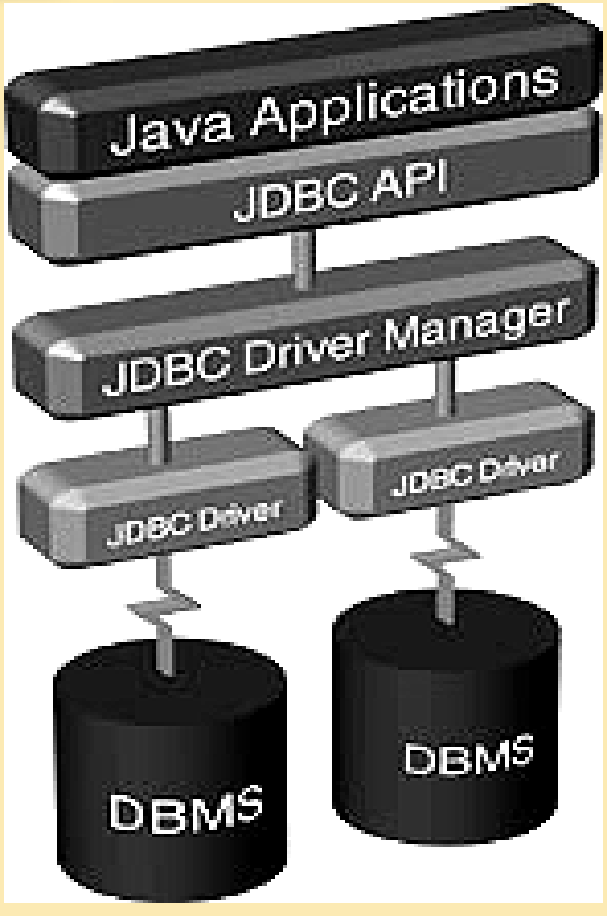
- From Multiple Apps
  - On Multiple Clients
    - Via Multiple "Wires"
      - To Multiple Servers
        - To Multiple data stores



Database Access with Java



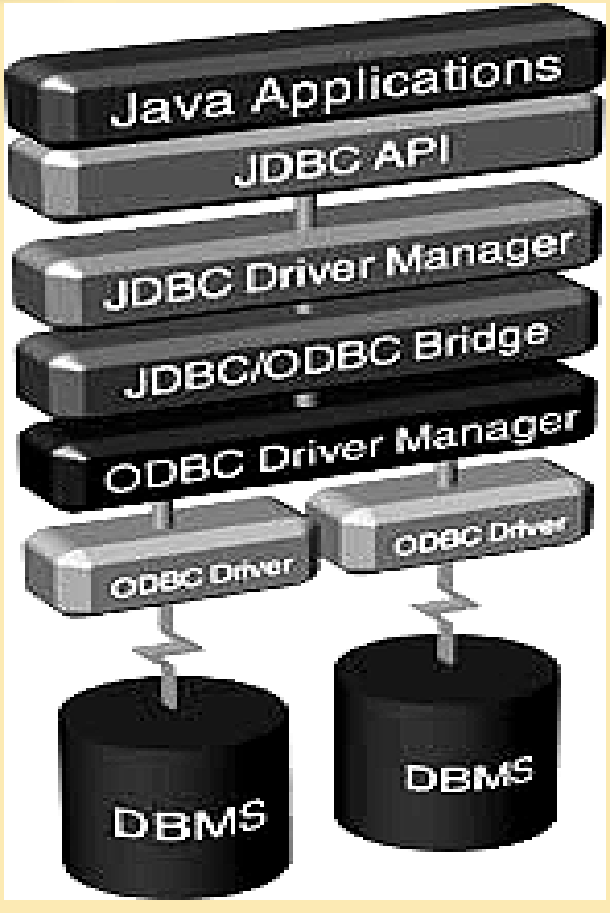
JDBC = Database Independence



- ***JDBC - a generic SQL database access framework***
- ***Java classes representing database connections, SQL statements, result sets, …***
- ***Plug in a JDBC Driver to match your DBMS!***

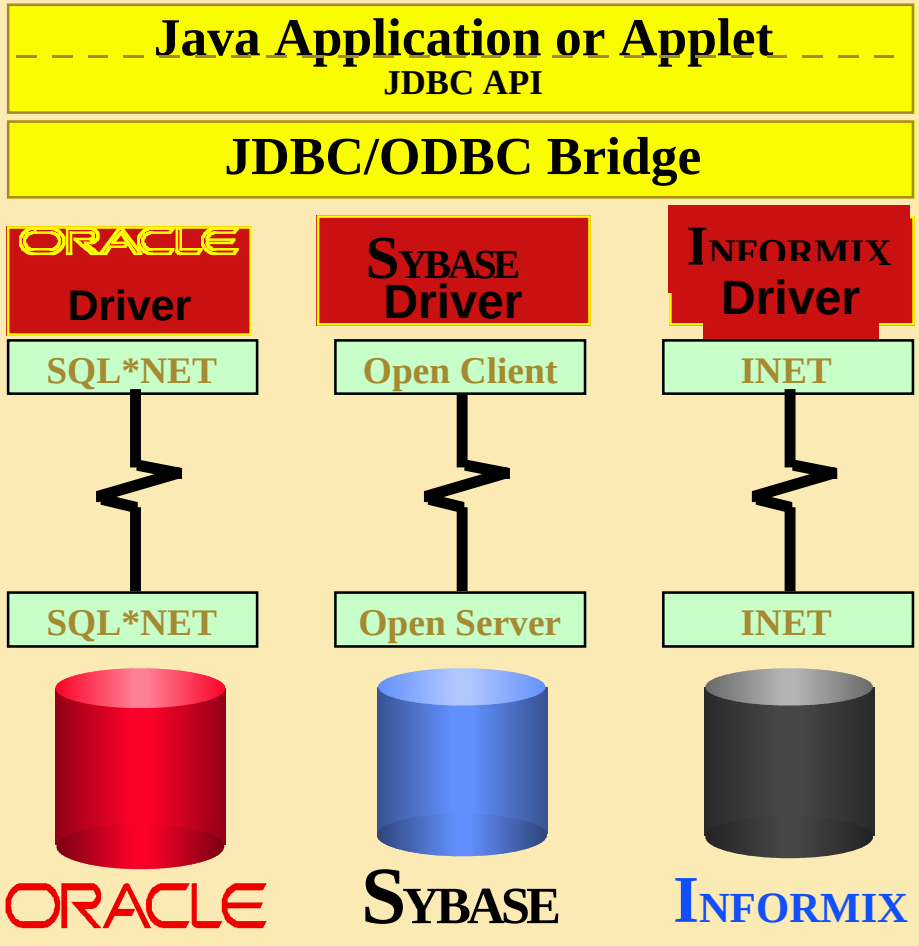
But, where do you get JDBC Drivers???

JDBC + ODBC = Database Independence Today

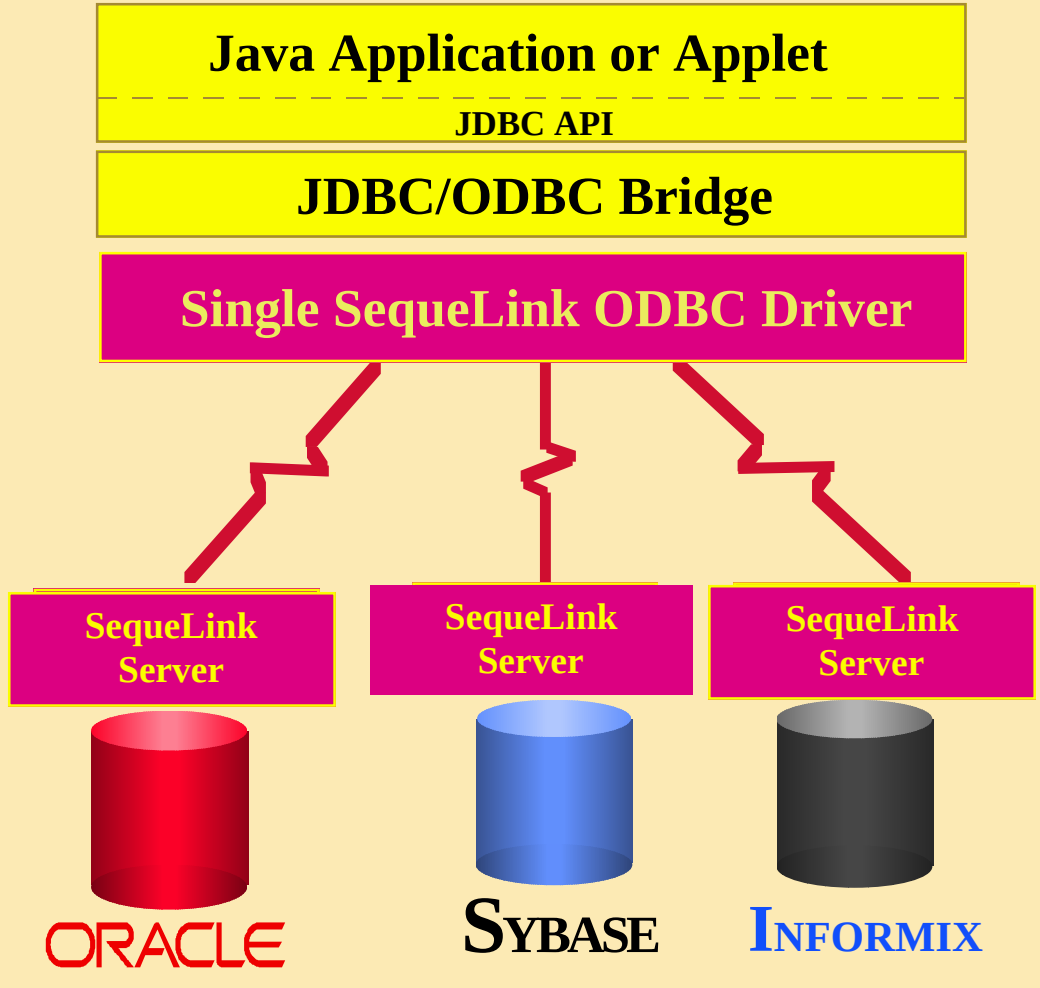


- ***JavaSoft chooses INTERSOLV, the ODBC market leader, to develop JDBC/ODBC Bridge!!!***
- ***Thin translation layer***
- ***Directly maps JDBC calls into ODBC calls***
- ***Distributed free with JDBC***
- ***Leverage any existing ODBC Driver with Java!!!***

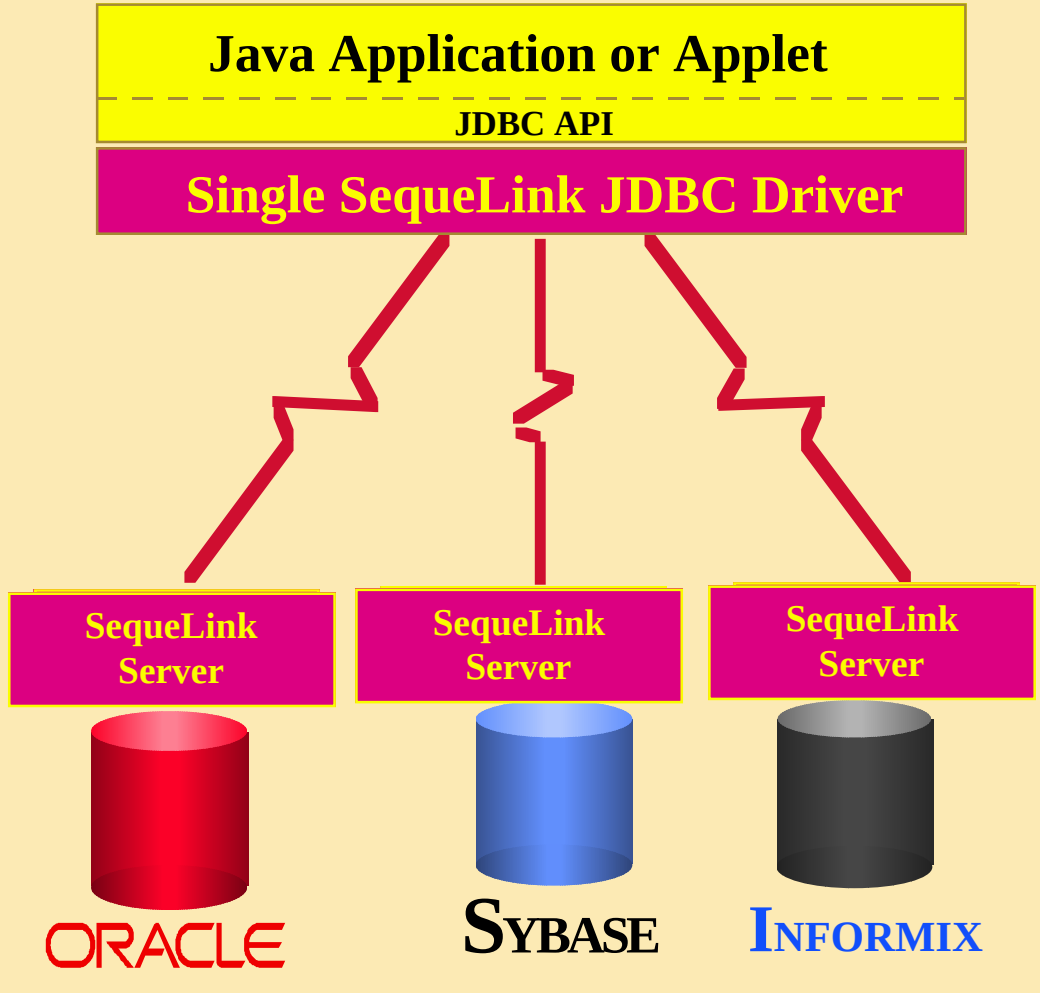
Java Connectivity with ODBC



Java Connectivity With SequeLink



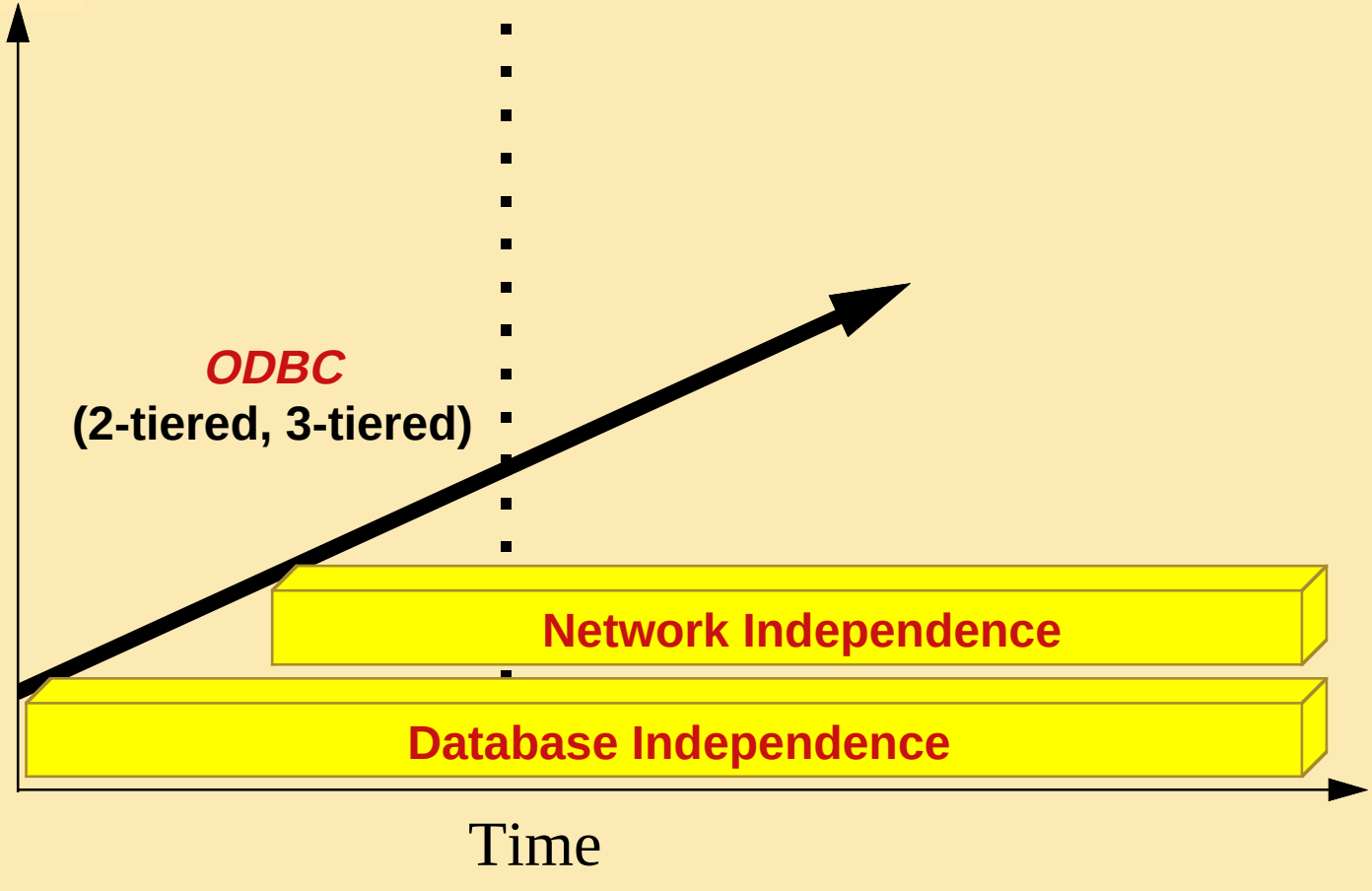
Java Connectivity With SequeLink



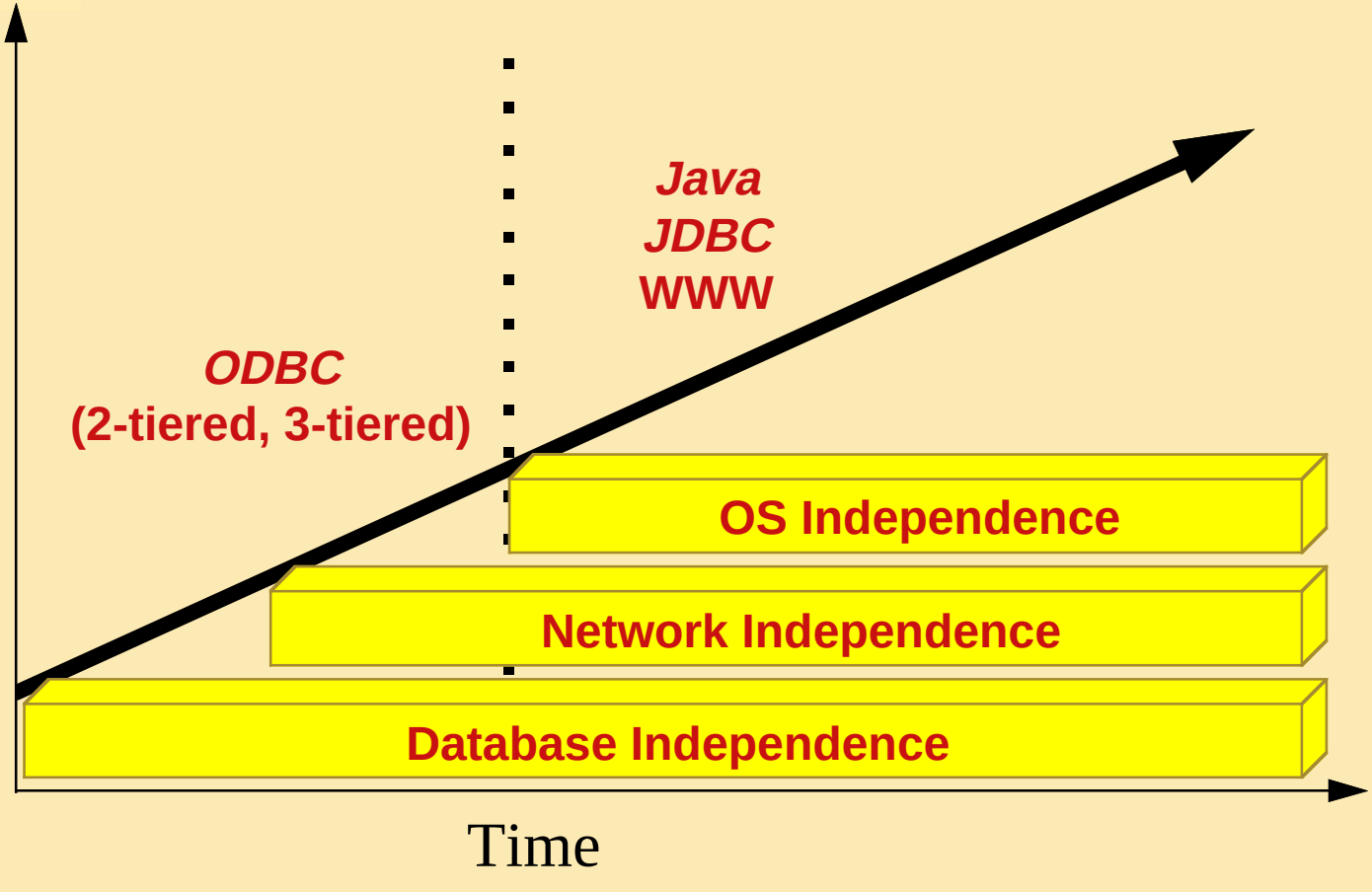
Java Connectivity With *SequeLink*

Clients	Networks	Servers	Databases
Any Browser	TCP/IP	WindowsNT OS/2 DEC Alpha OSF DEC Alpha Open VMS HP9000 AIX RS/6000 SCO UNIX Sun SPARC Solaris Sun SPARC SunOS MVS OS/400 DEC VAX Open VMS	DB2 V2R1 and later DB2/2 DB2/400 DB2/6000 INGRES Informix SE and OnLine Interbase Oracle Progress RdB MS SQLServer Sybase SQLServer Sybase System 10

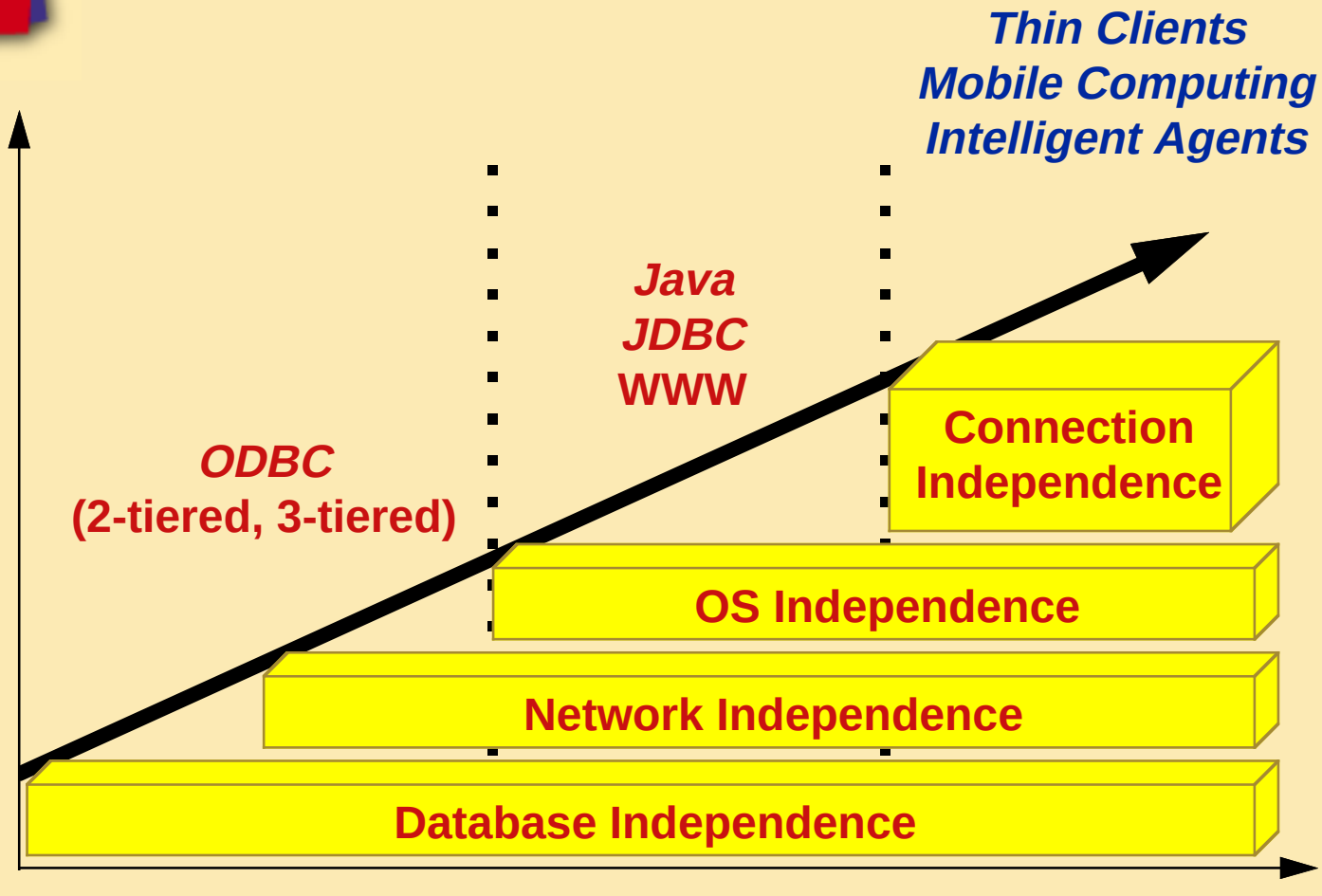
Data Connectivity Requirements



Data Connectivity Requirements



Data Connectivity Requirements



The Future of Information Connectivity

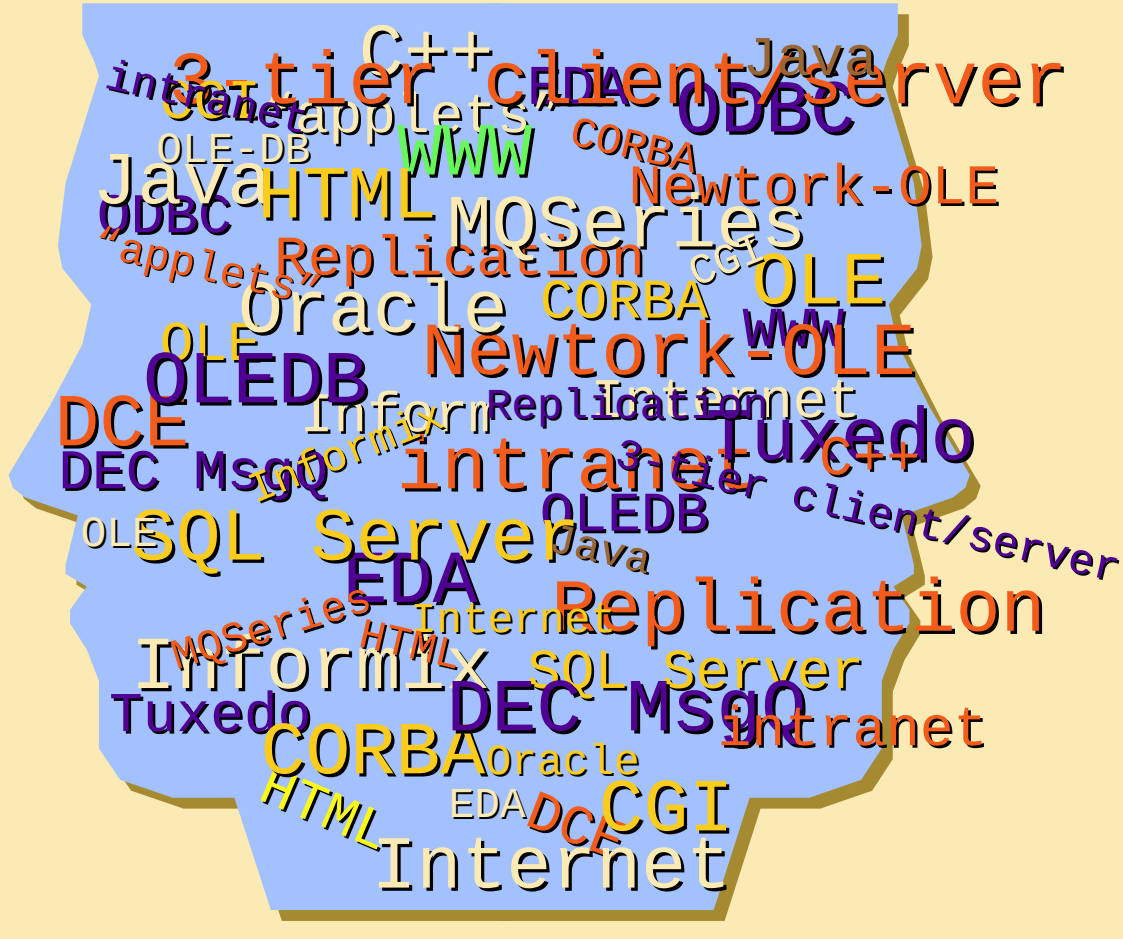
Roger J. Sippl, CEO, Visigenic Software, Inc.

Cost of Success

- Five Year Total Cost of Operation per PC/LAN user - $60,000
- Increased 100%
- since 1988
- Operating Costs = 5X Capital Investment

* Gartner Group 2/96

New Technology Pressures



Middleware Requirements

- Existing
  - Support for Heterogeneous Platforms and Databases
  - Choice of Information Delivery Tools and Technology
- New
  - Simpler connectivity environment
  - Consistent, Secure Enterprise Data Access
  - Control Over Distributed Technology Deployment
  - Flexibility for Changing Technology Directions

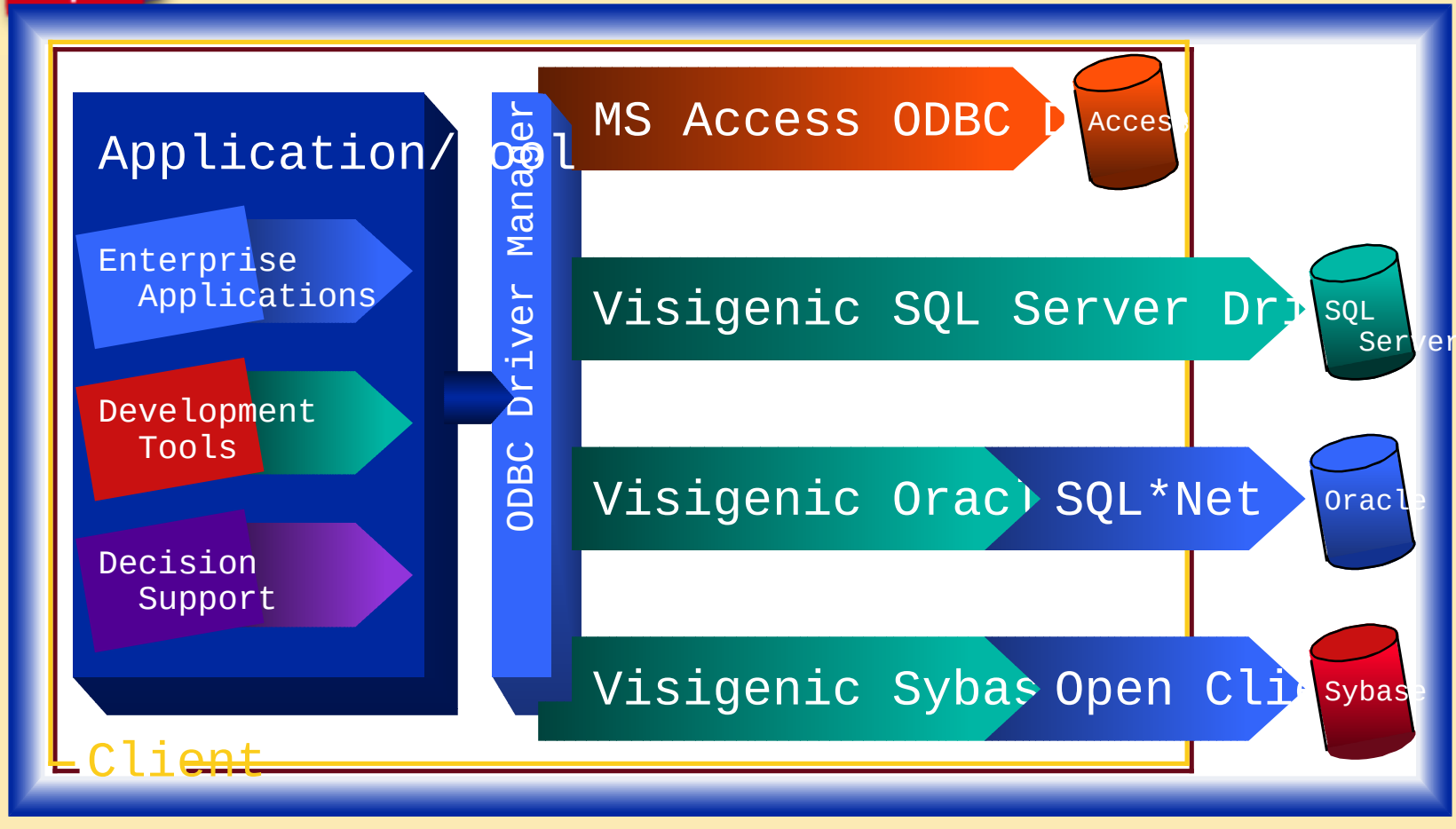
Visigenic OPENCHANNEL

A Next Generation Database

Connectivity Architecture That Offers:

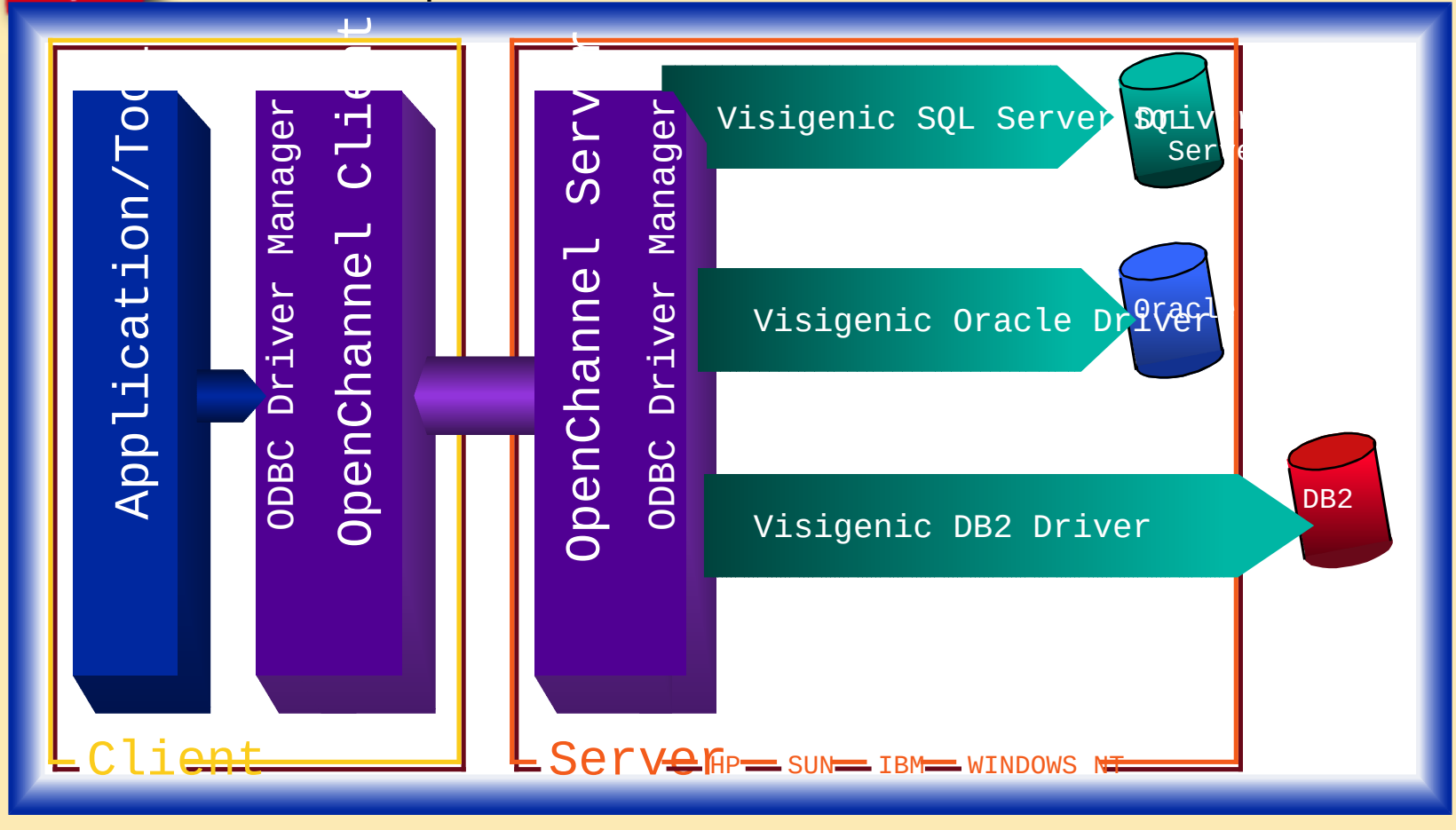
- Simplification
- Choice
- Control
- Cost Effectiveness

Traditional ODBC Architecture



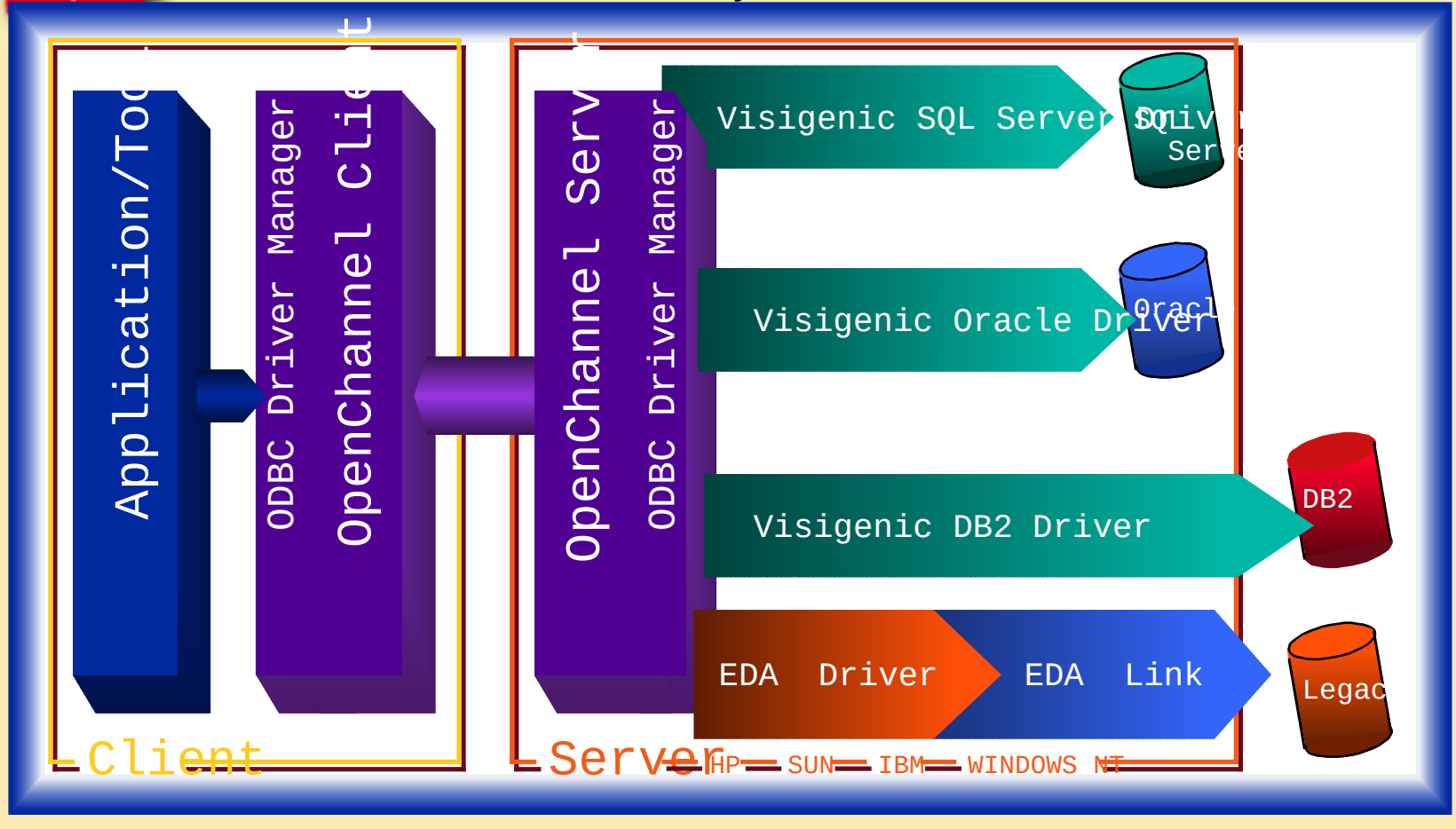
OpenChannel Server

All the Openness of ODBC on the Server

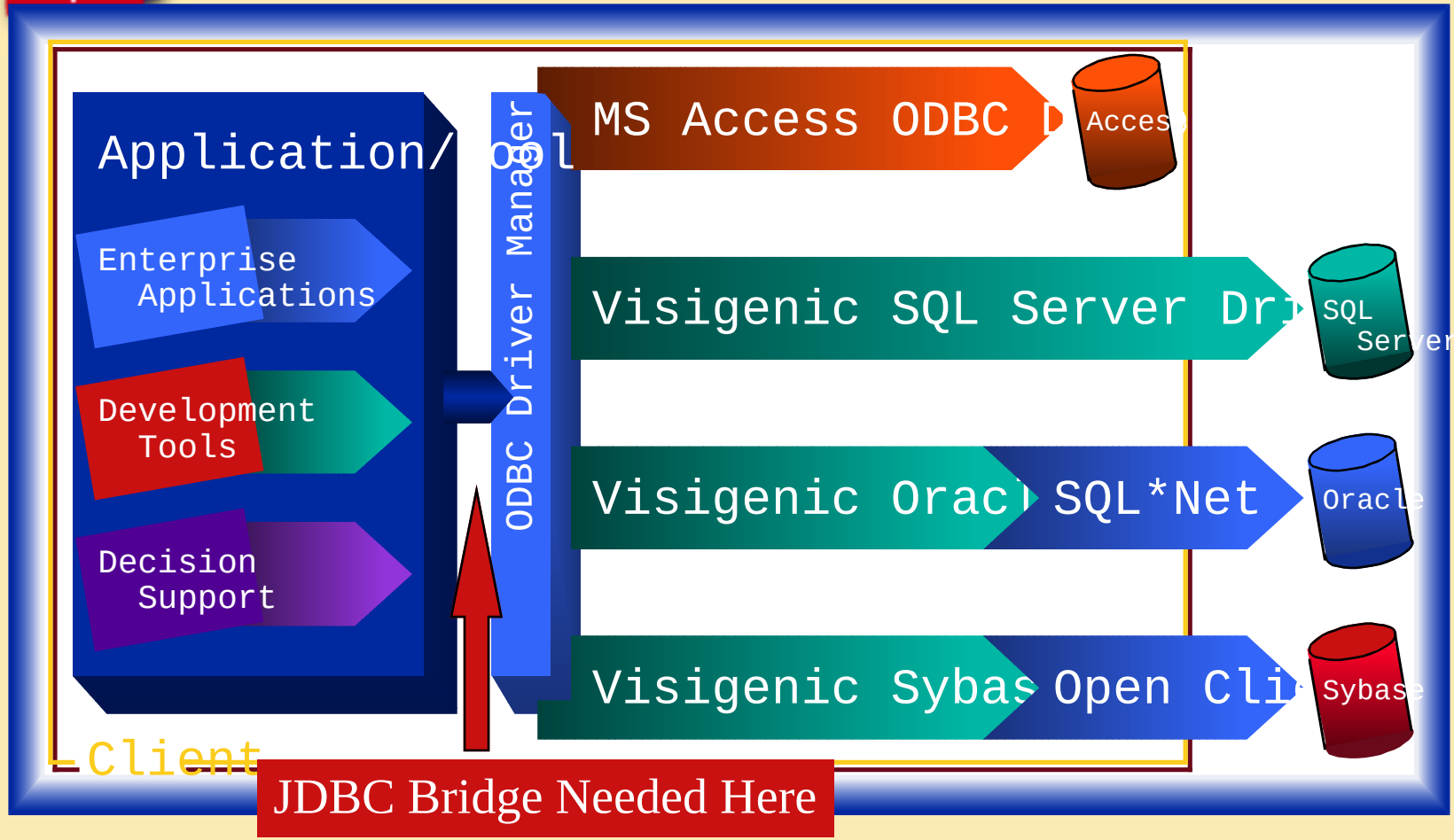


Choice of ODBC Drivers

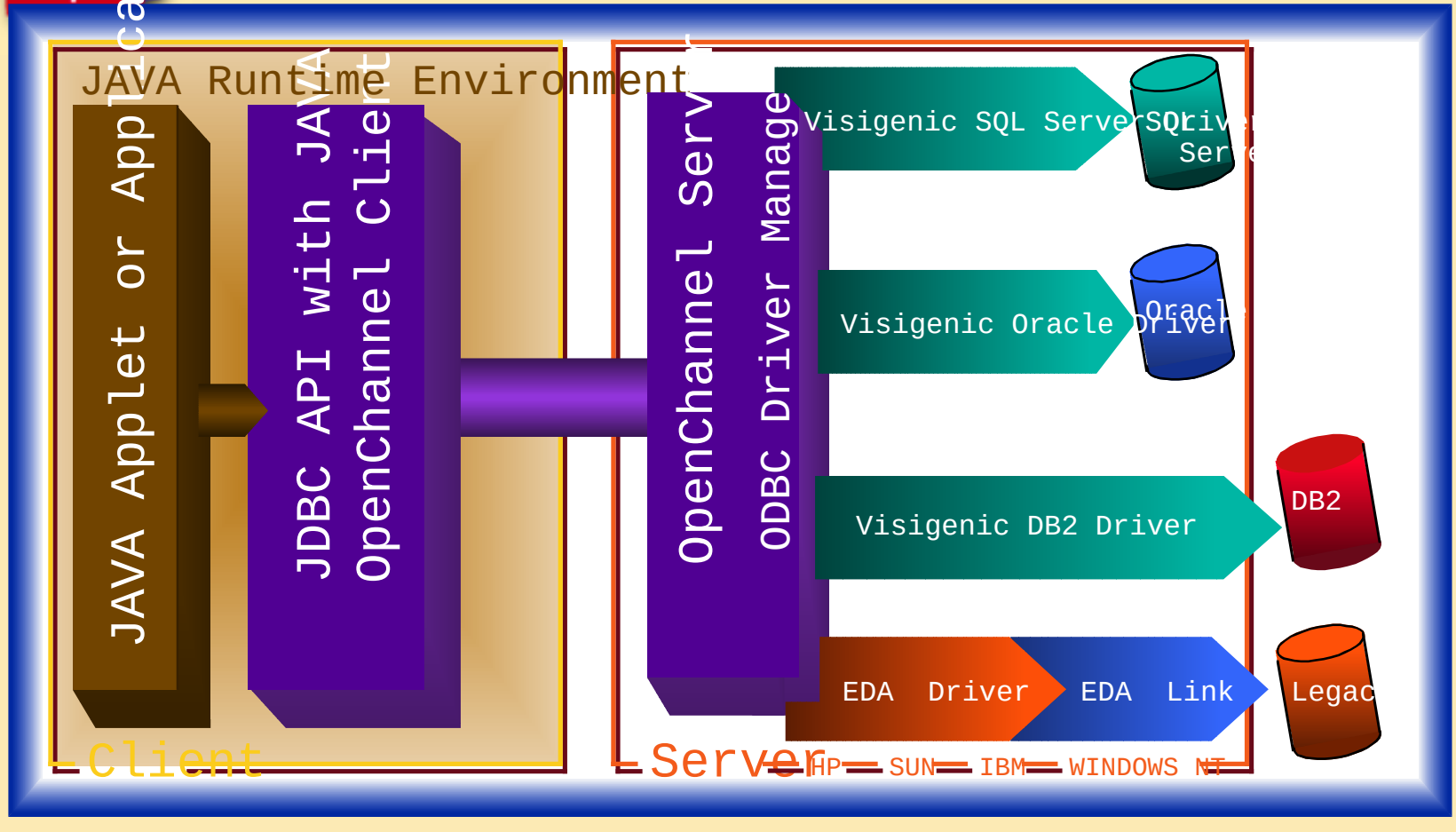
Works with Third Party Drivers



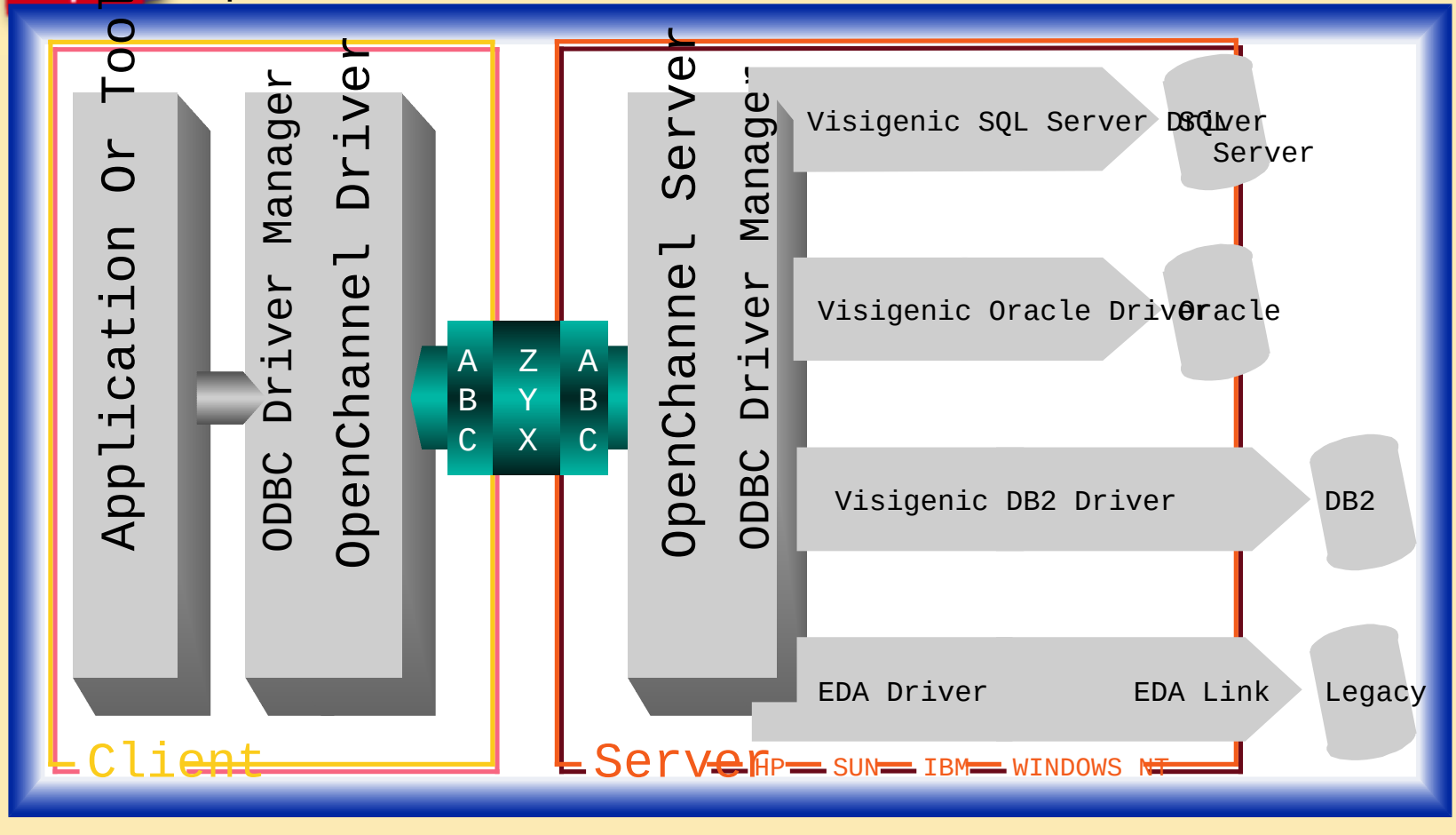
Traditional Architecture – With JDBC Bridge



All Java JDBC Client – No Bridge Needed



Secure Communications



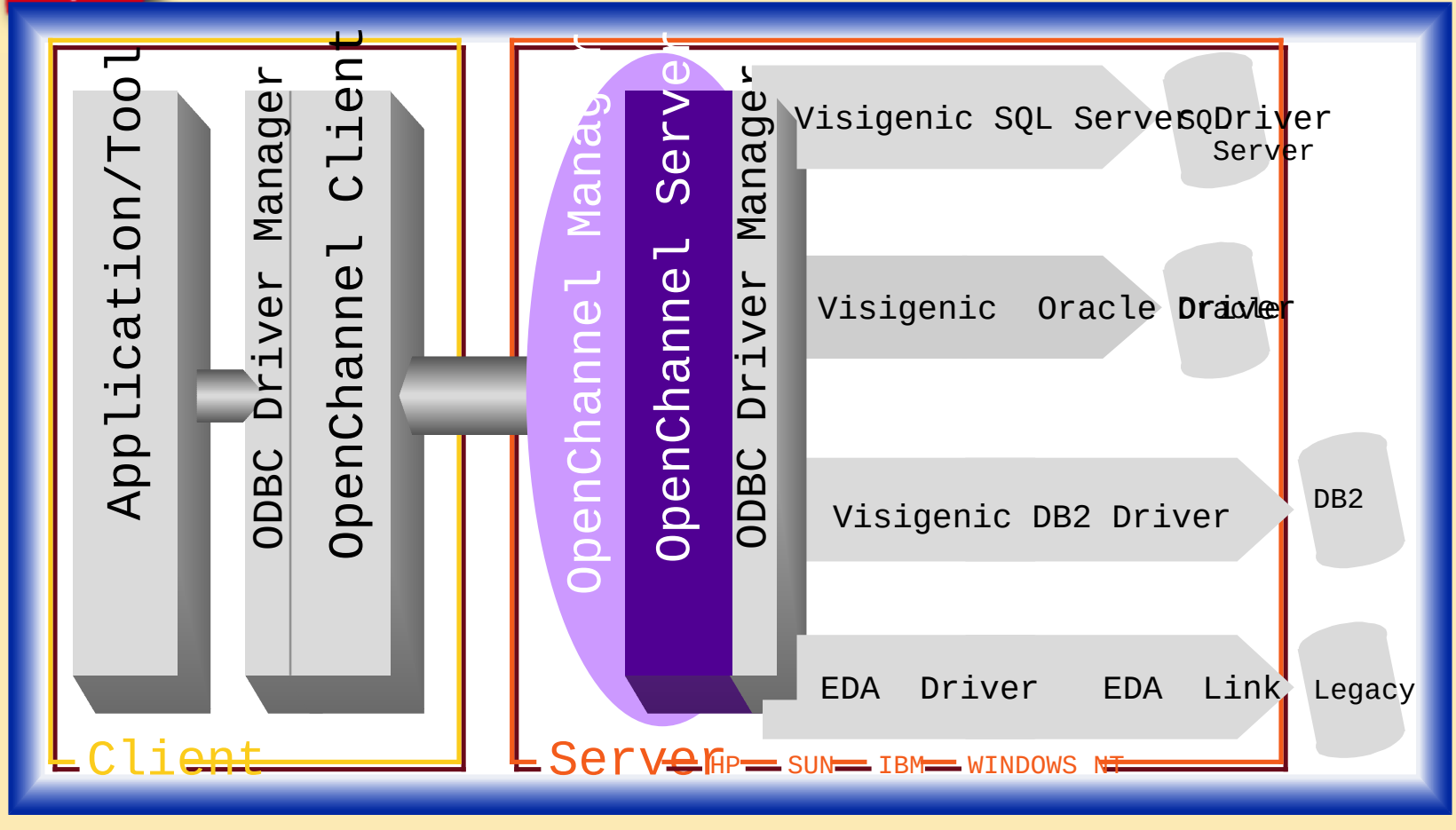
OpenChannel Secure

Secure Communications

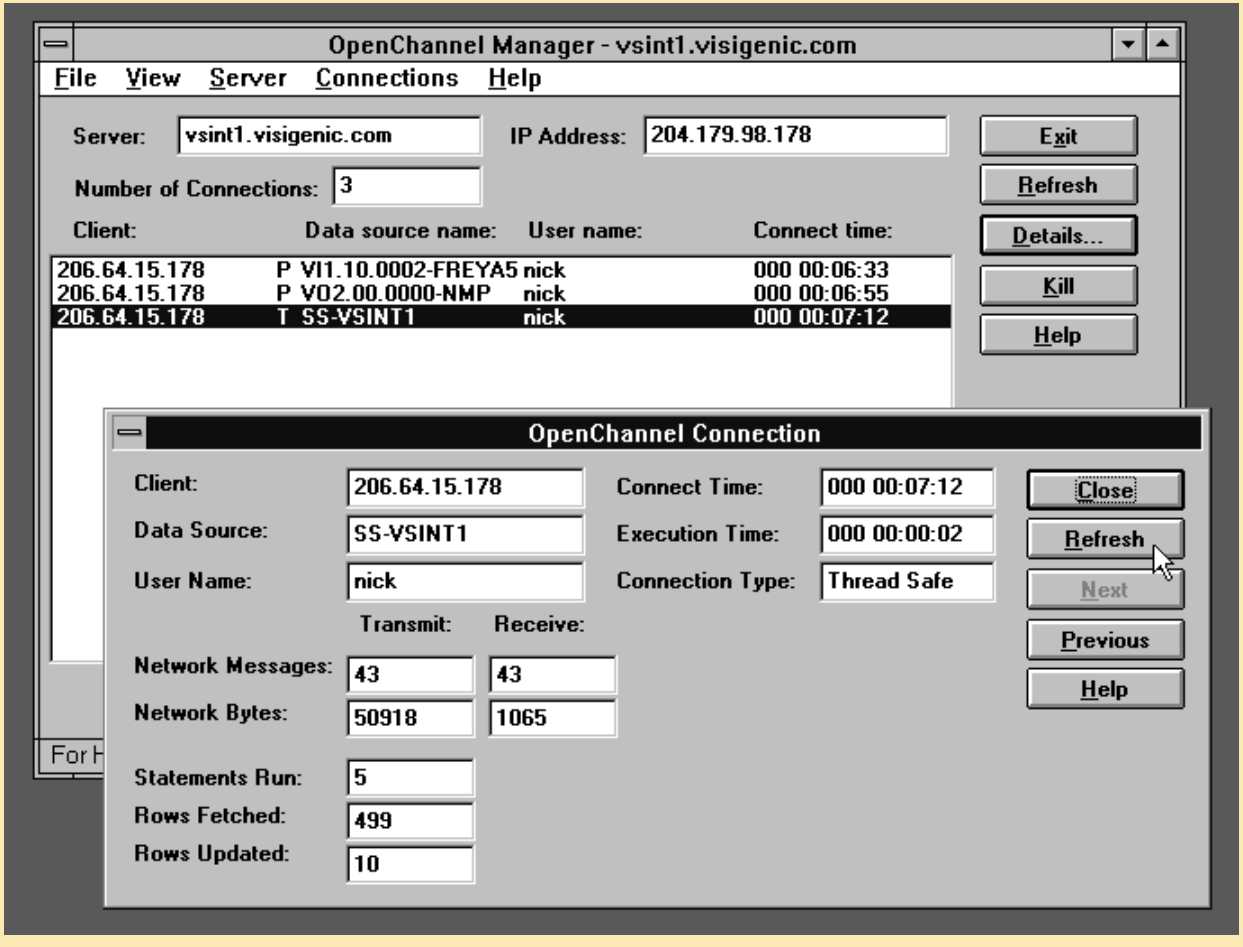
- RSA-based
- RC5 public/private Key Encryption
- 40-bit Key - Allowed for Export
- Multiple Configurations
  - Secure Client to Secure Server
  - Secure Client to Clear Server
- Available Release 1.1 as an Option

Control Over Connectivity

Allows you to monitor and manage connections



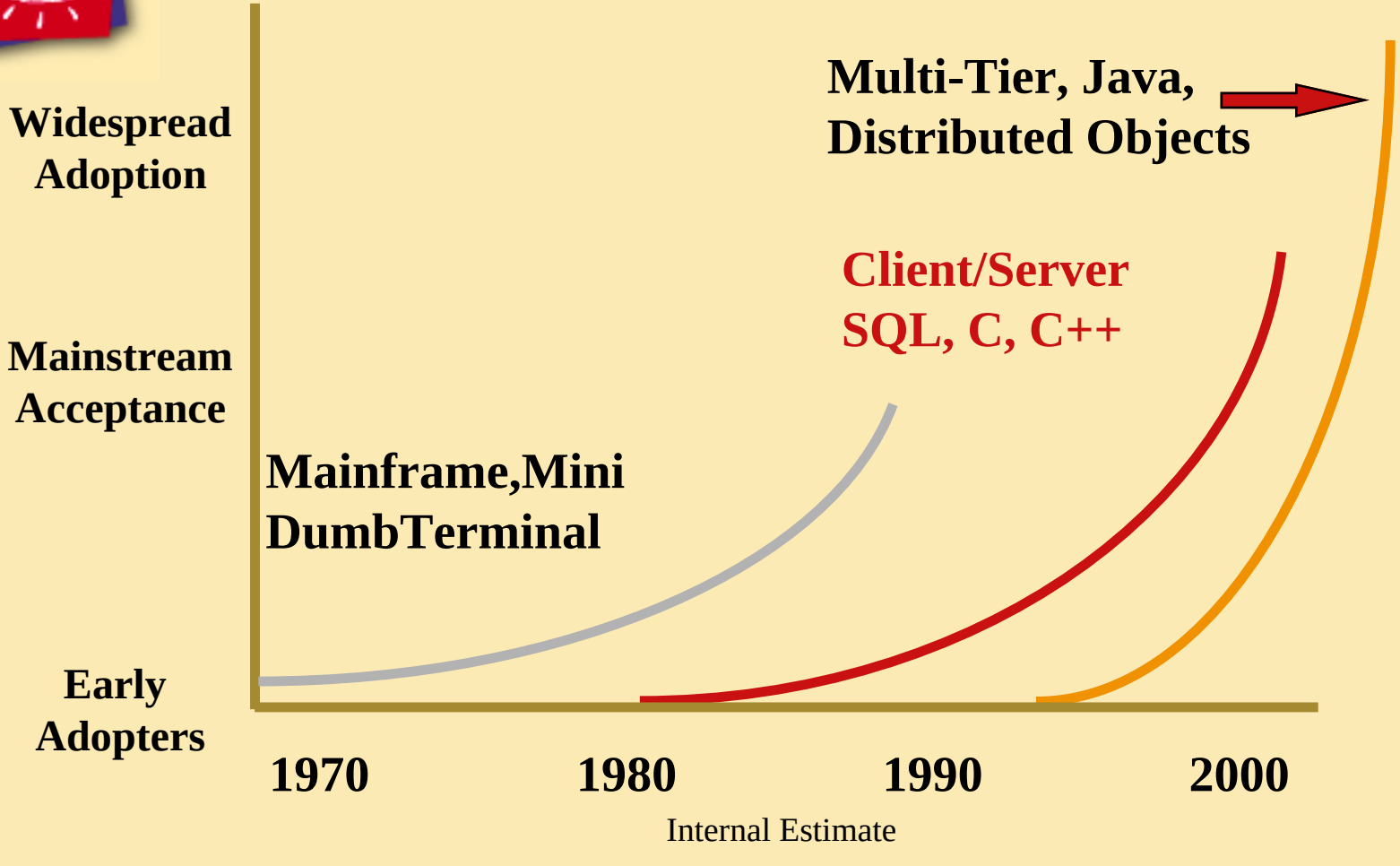
OpenChannel Manager



Some Controversy – What Are We Saying About HTTP?

- HTTP will be used for “browsing” – not for real application traffic
- Once HTTP browsing finds the page, the code will download and other, more functionally specific, protocols will take over
- For commercial applications, they are database independent SQL protocols (Open Channel) and IIOP, intermixed

Paradigm Shifts

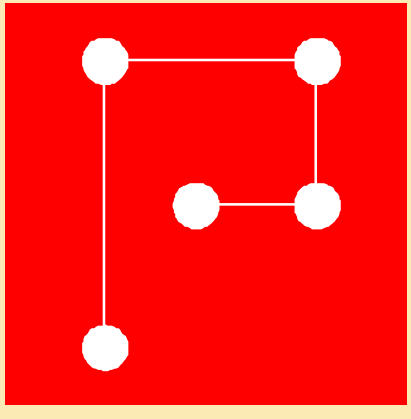


Internal Estimate

The News

- Visigenic and PostModern Merge

+



Visigenic Software & PostModern Computing

Visigenic

- Founded 1993 by Roger Sippl, Chairman & CEO
- Leader in Cross-platform Database Connectivity
- 80 employees

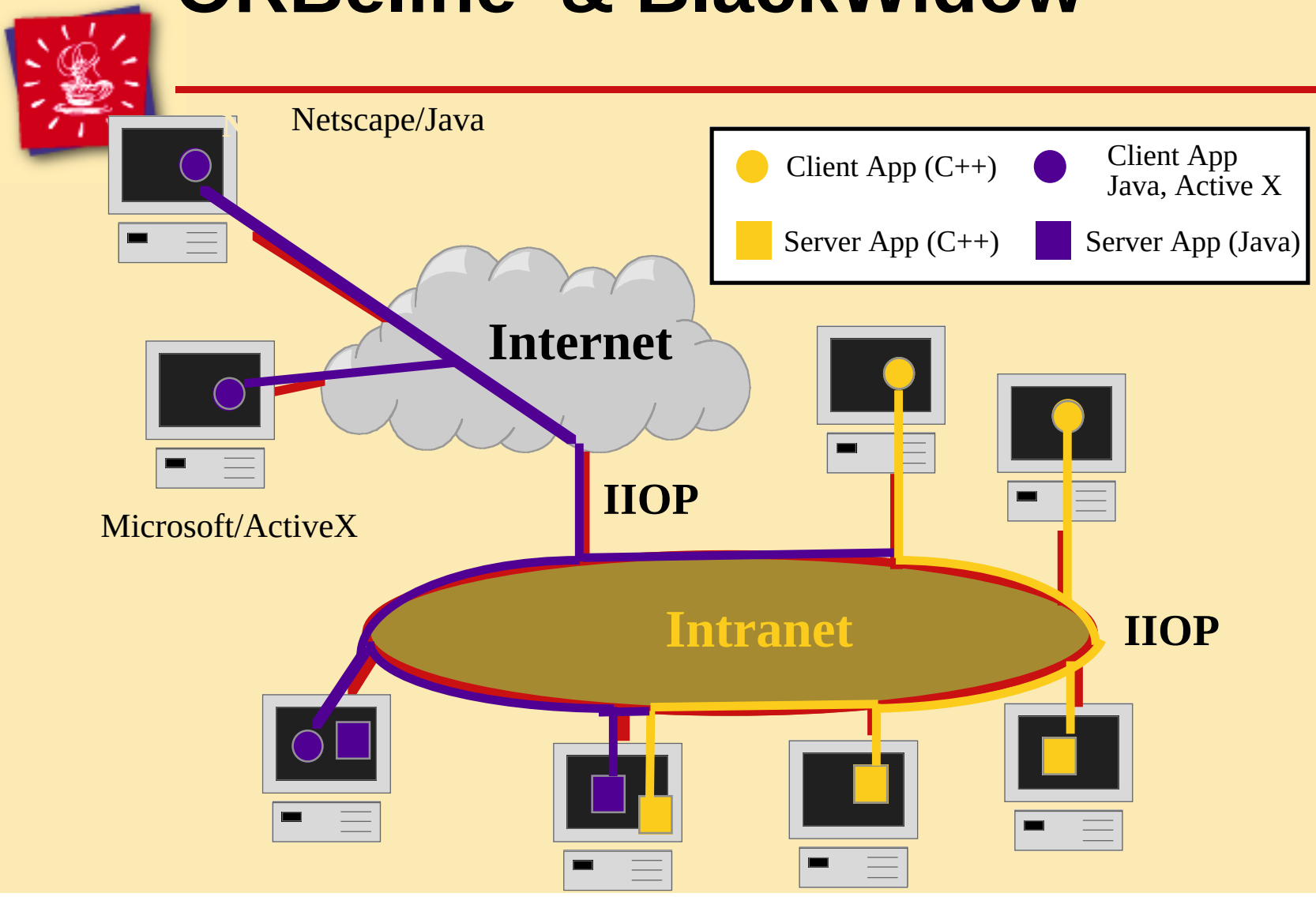
PostModern Computing

- Founded 1991 by Jens Christensen
- Leader in ORB and Java Technology
- 8 employees

Mission

- To Be the Premier Independent Provider of Standards-Based Middleware for Developing and Managing Distributed Applications for Enterprise Networks and the Internet

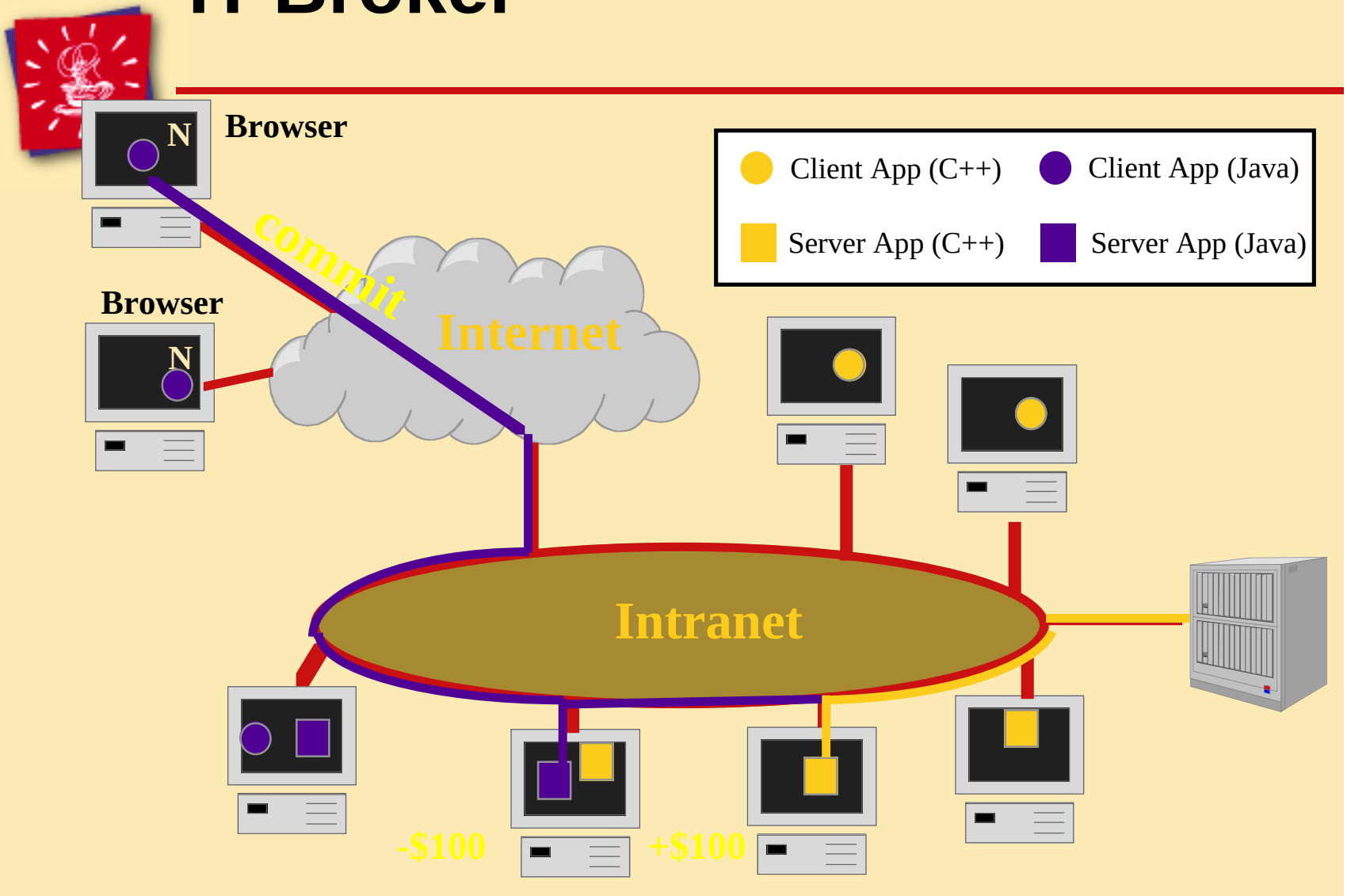
ORBeline & BlackWidow



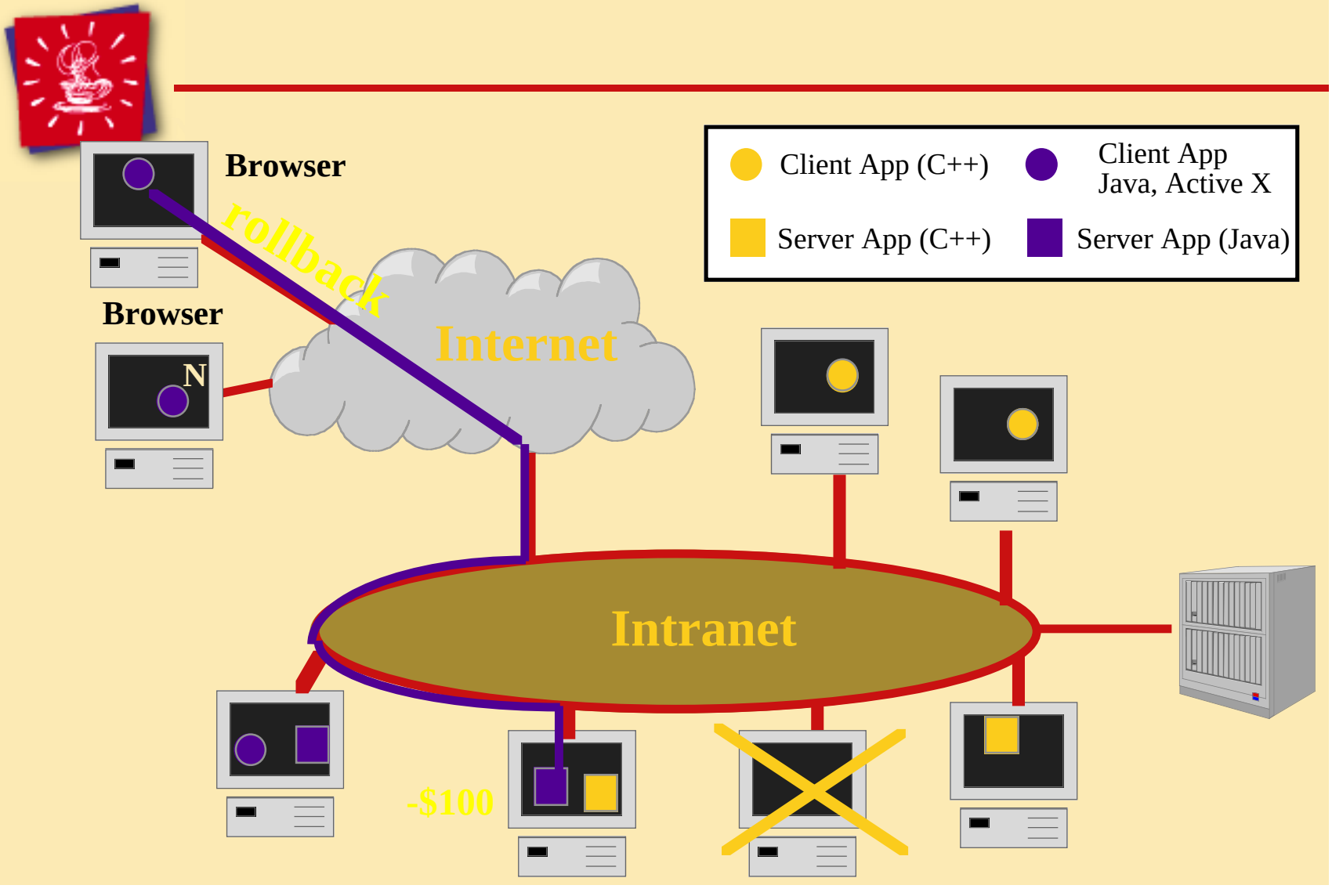
When Your Distributed Object Traffic is Database Traffic

- Use ODBC Drivers on Server Side
- Use ODBC, JDBC or CORBA on Clients
- Java, as a Remote Object, Can be Your Generic Stored Procedure Language, with JDBC and the ODBC Bridge on the Server
- Your ORB Traffic Can Perform Heterogenous Two-Phase Commits

TPBroker


Browser
Browser
commit
Internet
Client App (C++)
Client App (Java)
Server App (C++)
Server App (Java)
Intranet
-$100
+$100

TPBroker


Client App (C++)
Client App
Java, Active X
Server App (C++)
Server App (Java)
Browser
Browser
N
rollback
Internet
Intranet
-$100

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- Brochures and More Information

Visigenic Software

Visit our Web Site and Test Drive

OpenChannel

FREE

Downloadable Clients and Servers

http://www.visigenic.com

Visigenic Software, Inc.

Roger J. Sippl, CEO

The Future of Information Connectivity

Open Channel and Open Channel for Java

Object Databases for Java™

Daniel Weinreb
Database Architect
Object Design Inc.

Object Design

- The world's leading object-oriented data management system company
- ObjectStore for C++
- First shipped in 1989
- Now in Release 4.0

Database for Java™ Objects

- Direct representation of Java™ information
- Single type system
- No flattening into records
- Flexible: handles anything that Java handles

Full Java Safety

- Database system understands Java type system
- Java type safety is fully enforced, automatically
- Changes in Java types are handled properly

High Performance

- Avoids slow n-way joins for sophisticated data
- Relationships are represented directly
- Data is clustered properly

Full-Function Database (1)

- Concurrent access with locking
- Transactions and recovery
- Multi-client/multi-server distributed access to data
- Two-phase commit
- Incremental backup and restore

Full-Function Database (2)

- Query optimizer
  - Automatic index selection
- Access methods
  - B-tree
  - Dynamic hash table
- Schema evolution

Full-Function Database (3)

- Robust and reliable
- Data integrity and security
- Scaleable: many users, large databases

Extended Data Types

- Images (.JPG, .GIF)
- Video (MPEG, .MOV)
- Audio (.AU, .WAV)
- Java Applets
- Text with full-text indexing
- HTML

Types are Extensible

- New types are always arriving
  - e.g. VRML 2.0
- You can add new types
- Roll your own, or extend existing ones

JDBC Access to Object Data

- Java programs for relational databases can use object data transparently
- OpenAccess creates a relational view of object data
- Based on a powerful schema mapper
  - Can implement a relational column using arbitrary functions

Object-Relational Mapping

- DB/Connect maps object data to an underlying relational DBMS
  - e.g. Oracle, DB/2
- Based on the same schema mapper
- OODB as a “data warehouse”
- Cache data as objects for fast access

Summary

- For a record-oriented language like COBOL, use a relational database.
- For an object-oriented language like Java, use an object-oriented database!

O_2 Technology and Java

Francois Bancilhon
O_2 Technology

O_2 Technology: Mission Statement

- "Providing database solutions to object developers"
- Our users are object developers
- Our products are "object centric"

O_2 Technology: Current Products

- ODMG database engine
- Development tools
  - Languages
  - GUI
  - Environments
- Connectivity tools
  - Relational
  - Web
  - Corba
  - Reports

O_2 Technology: Differentiators

- ODMG compliance (now):
  - ODMG object model
  - ODMG C++ binding
  - ODMG Smalltalk binding
  - ODMG OQL
- Scalability
- Tool set completeness

ODMG Binding

- Defined for C++ and Smalltalk
- Being defined for Java
- Includes OQL
- Object centric
  - define you objects in your language
  - make them persistent
- Programming language centric
  - transparent persistence vs. read/write
  - includes the query language

ODMG vs. JDBC

- JDBC is relation centric
  - user has to know the relational schema
  - addresses the legacy data
- ODMG is object centric
  - user ignores the underlying database engine
  - addresses the object developer
- Both are needed and will be used jointly
- Both should be offered

A Read/Write Java Interface

- Lower level than ODMG
- First step towards full ODMG
- Explicit control over IO
- Same object model in Java and in your database engine
- But interact with explicit read/writes

A Read/Write Java Interface

- Define your persistence capable classes
- Write Java objects to the database
- Read objects from the database
- Database management (connect, open, close)
- Transaction management (begin, commit, validate, abort)
- Lock management
- Extent access

Read/Write Java Interface: Benefits

- No impedance mismatch
- Object centric
- Mapping to DB engine is done for you
- Performance

O_2 Technology: Development Plans

- Read/Write interface: Q3 1996
- ODMG interface: Q1 1997


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