

The background features a dark, textured surface with a glowing blue and purple sphere in the center. The sphere has a white Apple logo on its top. A magnifying glass is positioned over the sphere, and a pen is visible on the right side. The text "Worldwide" is written in a golden, serif font across the top.

Worldwide

The background features a dark, textured surface with a glowing blue and purple sphere in the center. The sphere has a white Apple logo on its top. A magnifying glass is positioned over the sphere, and a pen is visible on the right side. The text "Developers" is written in a white, serif font, enclosed in a white rectangular box.

Developers

The background features a dark, textured surface with a glowing blue and purple sphere in the center. The sphere has a white Apple logo on its top. A magnifying glass is positioned over the sphere, and a pen is visible on the right side. The text "Conference" is written in a golden, serif font across the bottom.

Conference



WebObjects: An Overview

David Kay
Product Line Manager
WebObjects

Apple Computer, Inc.

WebObjects

It's in the bag!

- **Mach**
 - User, Developer version 4.2 pre-release
 - WebObjects Enterprise 3.1 pre-release
 - OpenBase version 5.1
- **Windows NT, Solaris, HP-UX**
 - WebObjects Enterprise 3.1 pre-release



1996: Established Leadership

- **Open Web Technology**
 - Web application server
 - Rapid development tools
 - Legacy integration
- **Customer success**
 - Sharper Image, Dell, Nissan, KN Energy
 - A leader in revenues: over \$15M
 - Over 275 customers
 - Over 50 deployed Internet apps



Why People Buy WebObjects

- **Time-to-market**
 - Rapid development tools
 - Pre-built objects
- **Flexibility and maintainability**
 - Pre-built objects, not code generation
 - Separation of UI, business logic, data access
- **Leverage existing data and applications**



The Web: Born in a Yellow Box

“At CERN in 1990, I developed the first client and server World Wide Web app using NeXT’s tools in just two months.

It was a combination of NeXT’s object-oriented environment, neat development tools, and a powerful class library which made it possible.”

— Tim Berners-Lee



Evolution of Web Technology

Complexity

Static
HTML

Simple
Forms and
Transactions

Live
Web
Applications

Time



Live Web Applications

**database
extension/
transaction
tools**

**plug-in
based
tools**



Live Web Applications

**database
extension/
transaction
tools**

**plug-in
based
tools**



Live Web Applications



**plug-in
based
tools**

- **Limited functionality**
- **Reliant on database**
- **Limited integration**



Live Web Applications



**plug-in
based
tools**

- **Limited functionality**
- **Reliant on database**
- **Limited integration**



Live Web Applications



- Limited functionality
- Reliant on client
- Limited



- Proprietary
- Client maintenance / versioning issues



Dynamic Network Applications

The Open Web Technology Approach

- **Web browser, server independent**
- **Cross-platform**
- **Cross-datasource**
- **Multiple languages**
- **Open APIs**



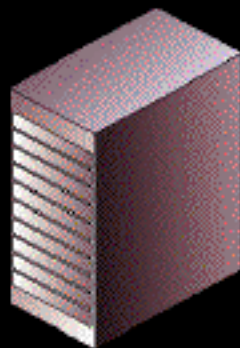
WebObjects

Open development platform for rapidly deploying dynamic web applications which integrate enterprise data and applications



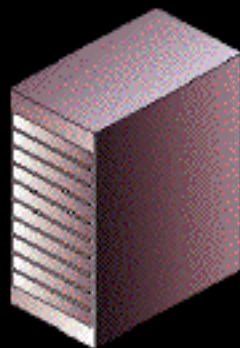
Basic Web Architecture

- Stateless request/response
- Supports only simple retrieval syntax



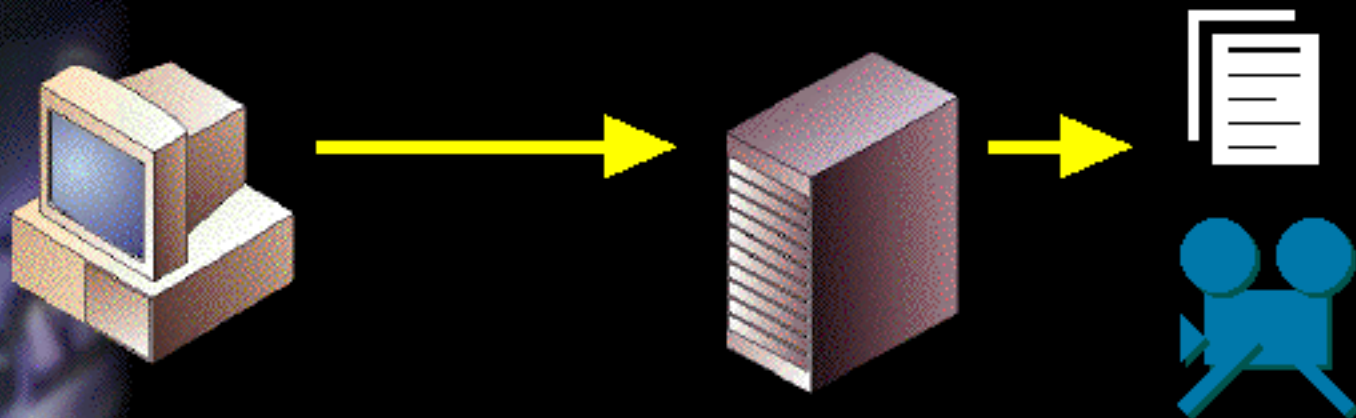
Basic Web Architecture

- Stateless request/response
- Supports only simple retrieval syntax



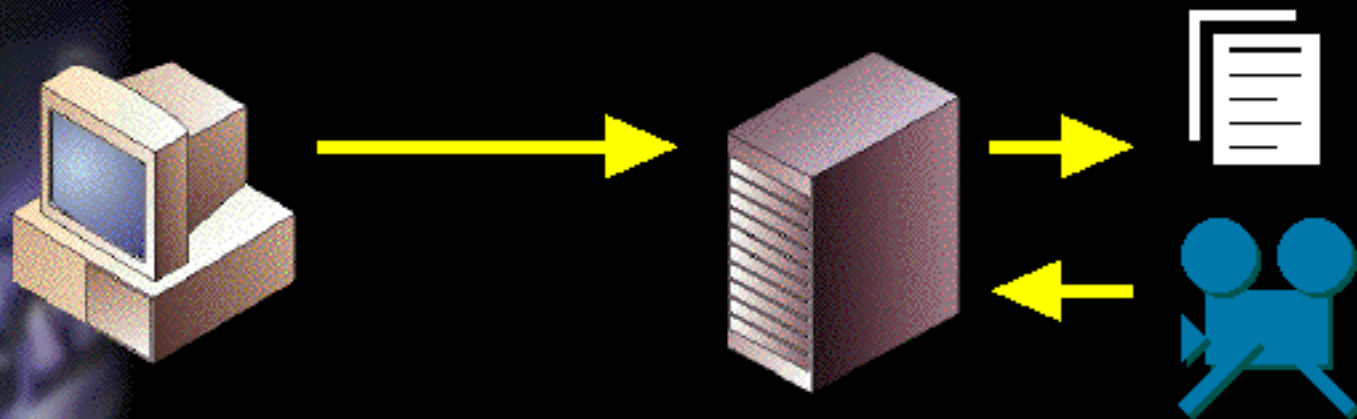
Basic Web Architecture

- Stateless request/response
- Supports only simple retrieval syntax



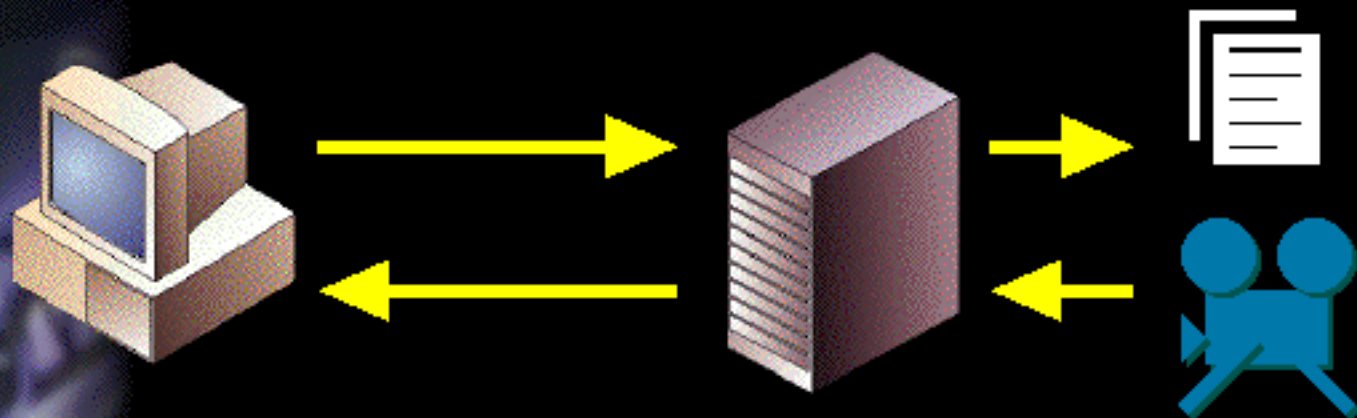
Basic Web Architecture

- Stateless request/response
- Supports only simple retrieval syntax

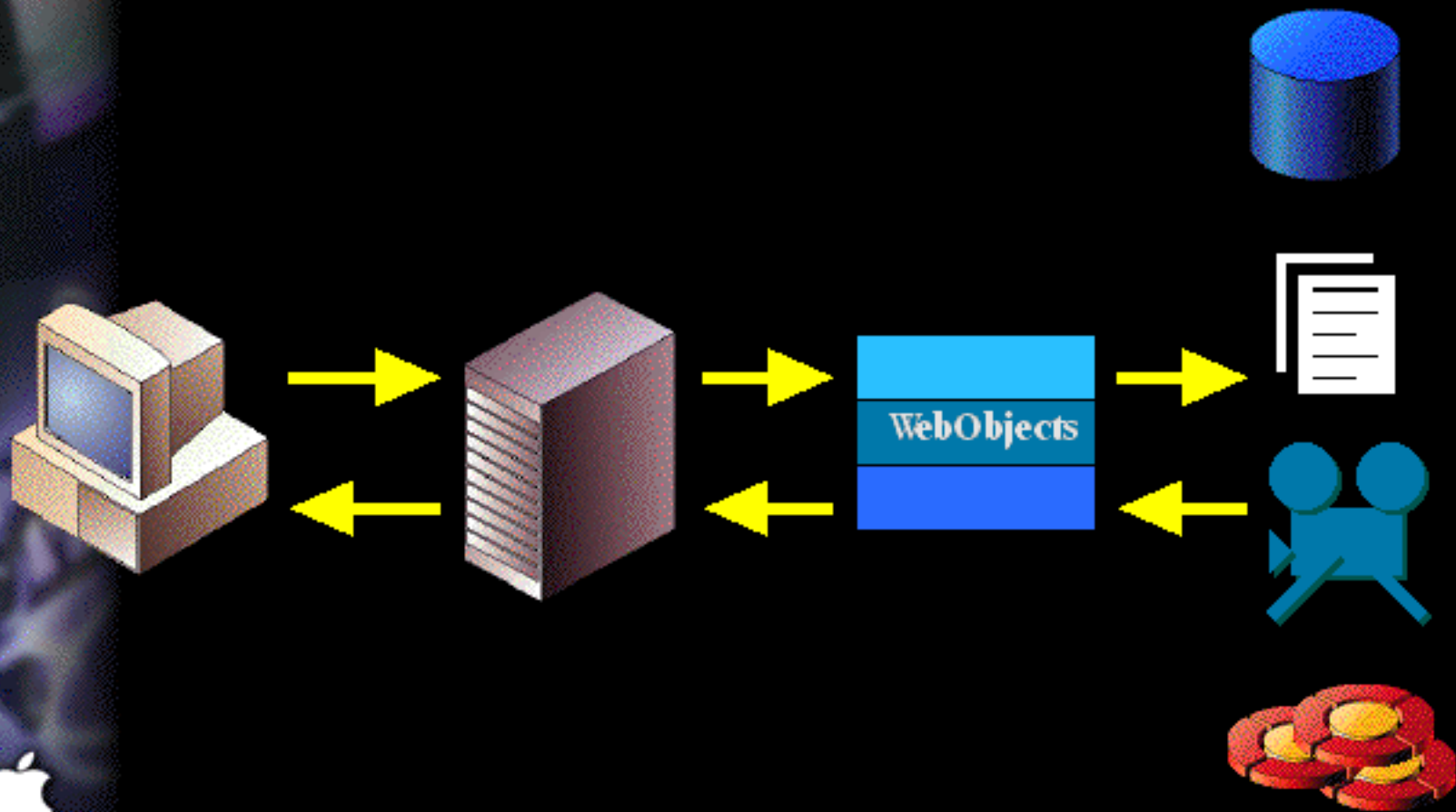


Basic Web Architecture

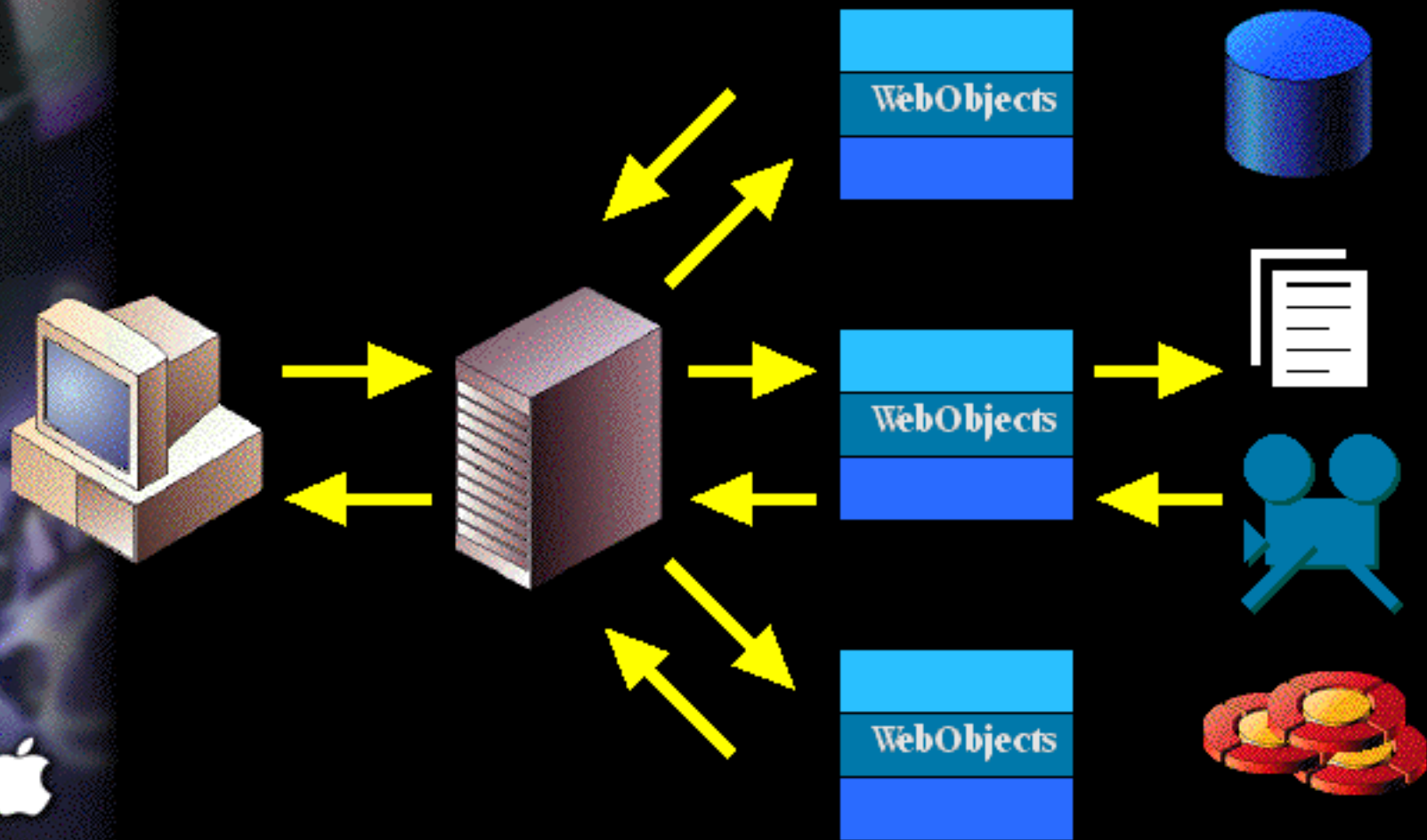
- Stateless request/response
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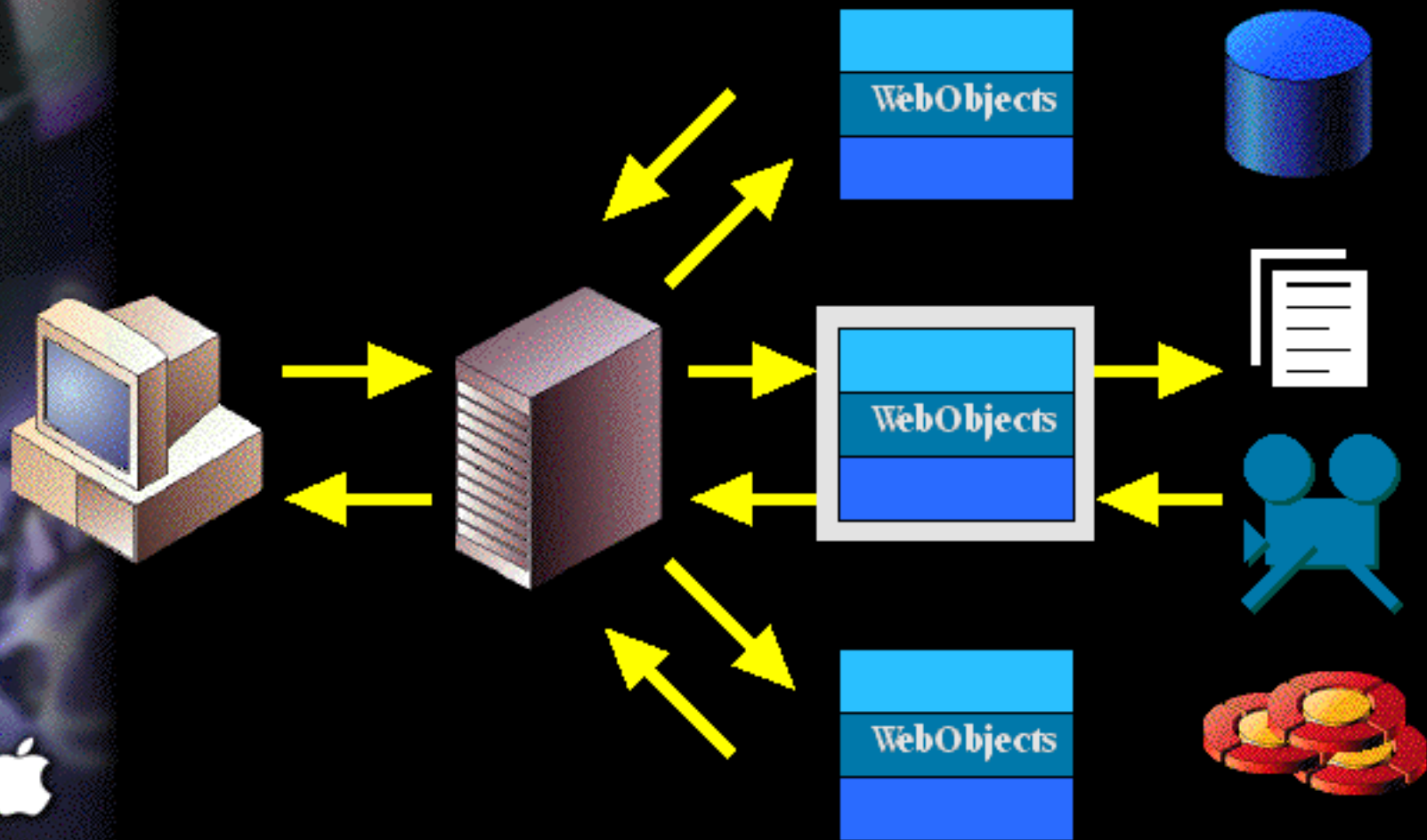
WebObjects Architecture



WebObjects Architecture



WebObjects Architecture



Inside WebObjects

WebObjects



Inside WebObjects

Application
Server



Inside WebObjects

Application
Components

Application
Server



Inside WebObjects

Development
Tools

Application
Components

Application
Server



Inside WebObjects

Development
Tools

Application
Components

Application
Server

**Scalability &
Distribution**



Inside WebObjects

Development
Tools

Application
Components

Application
Server

Scalability &
Distribution

Dynamic
Object
Runtime



Inside WebObjects

Development
Tools

Application
Components

Application
Server

Scalability &
Distribution

Dynamic
Object
Runtime

Inter-
operability



Inside WebObjects

Development
Tools

Application
Components

Application
Server

Data
Access
Components

Scalability &
Distribution

Dynamic
Object
Runtime

Inter-
operability



Inside WebObjects

Development
Tools

Application
Components

Application
Server

Web
User
Interface

Data
Access
Components

Scalability &
Distribution

Dynamic
Object
Runtime

Inter-
operability



Inside WebObjects

Development
Tools

WebObjects
Builder

Application
Components

Web
User
Interface

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operability



Inside WebObjects

Development
Tools

WebObjects
Builder

Project
Builder

Application
Components

Web
User
Interface

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Access
Components

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Runtime

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operability



Inside WebObjects

Development
Tools

WebObjects
Builder

Project
Builder

Enterprise
Object
Modeler

Application
Components

Web
User
Interface

Data
Access
Components

Application
Server

Scalability &
Distribution

Dynamic
Object
Runtime

Inter-
operability



Inside WebObjects

Development
Tools

WebObjects
Builder

Project
Builder

Enterprise
Object
Modeler

Application
Components

Web
User
Interface

Customer
Business
Logic

Data
Access
Components

Application
Server

Scalability &
Distribution

Dynamic
Object
Runtime

Inter-
operability

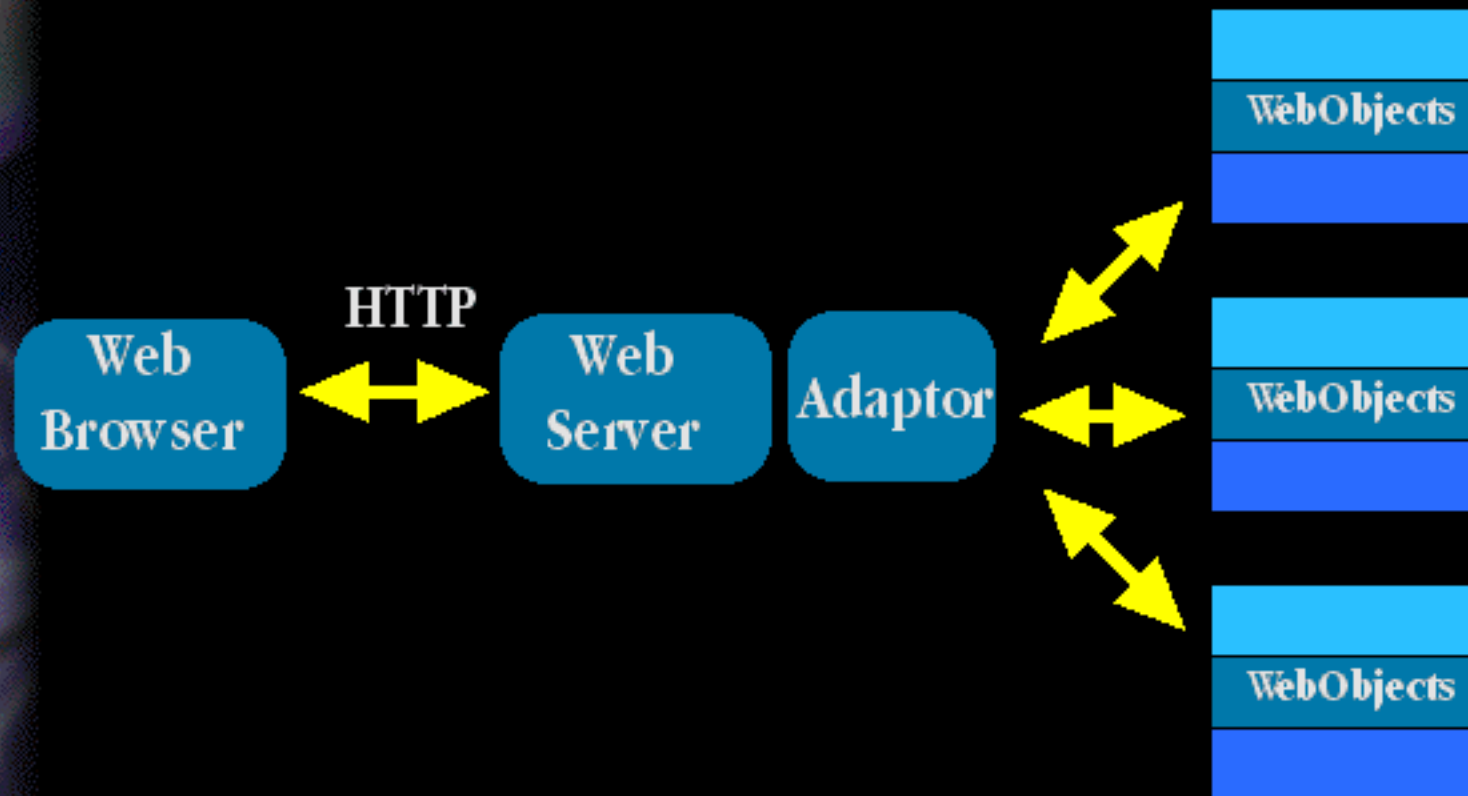


Inside WebObjects

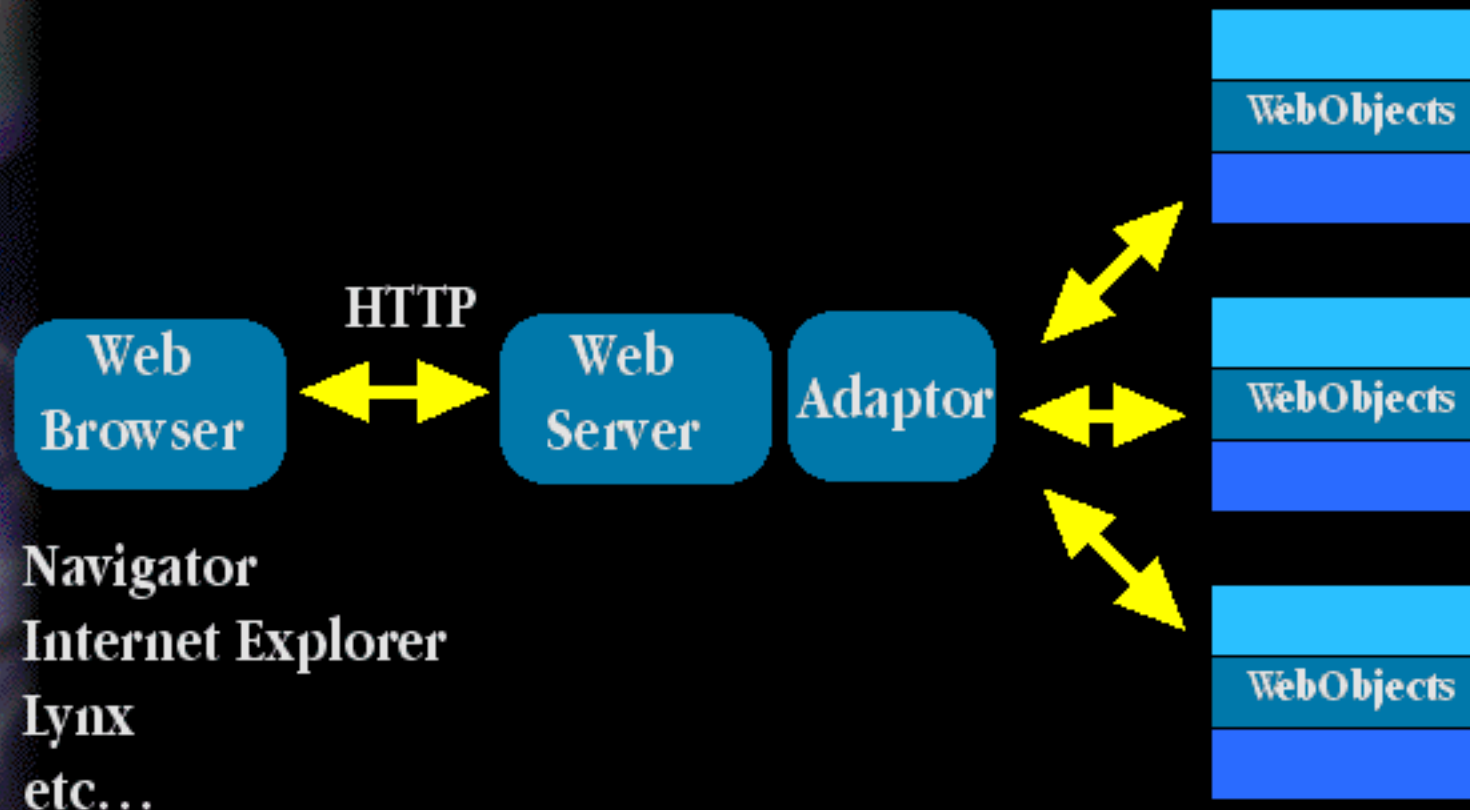
WebObjects



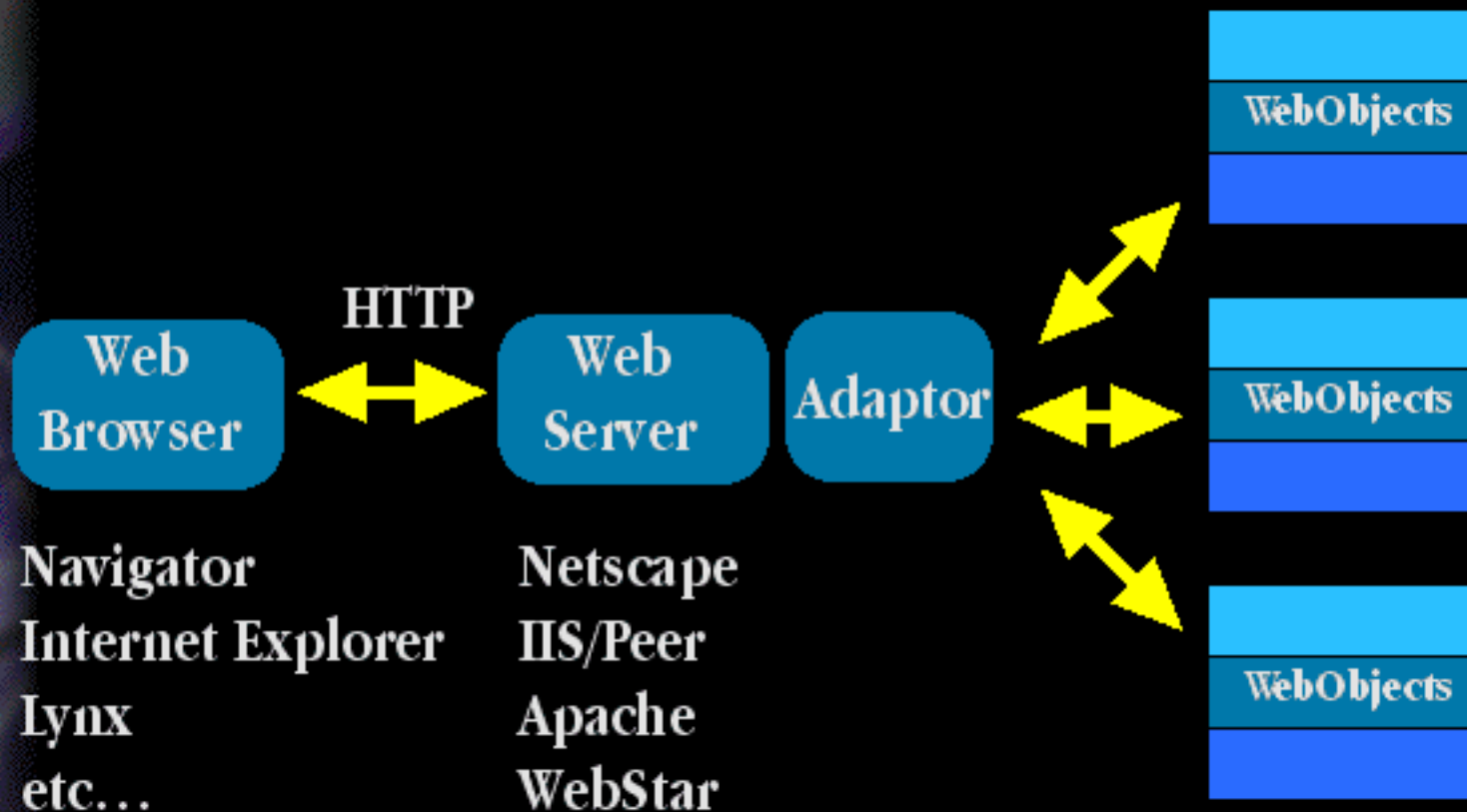
Deploying WebObjects



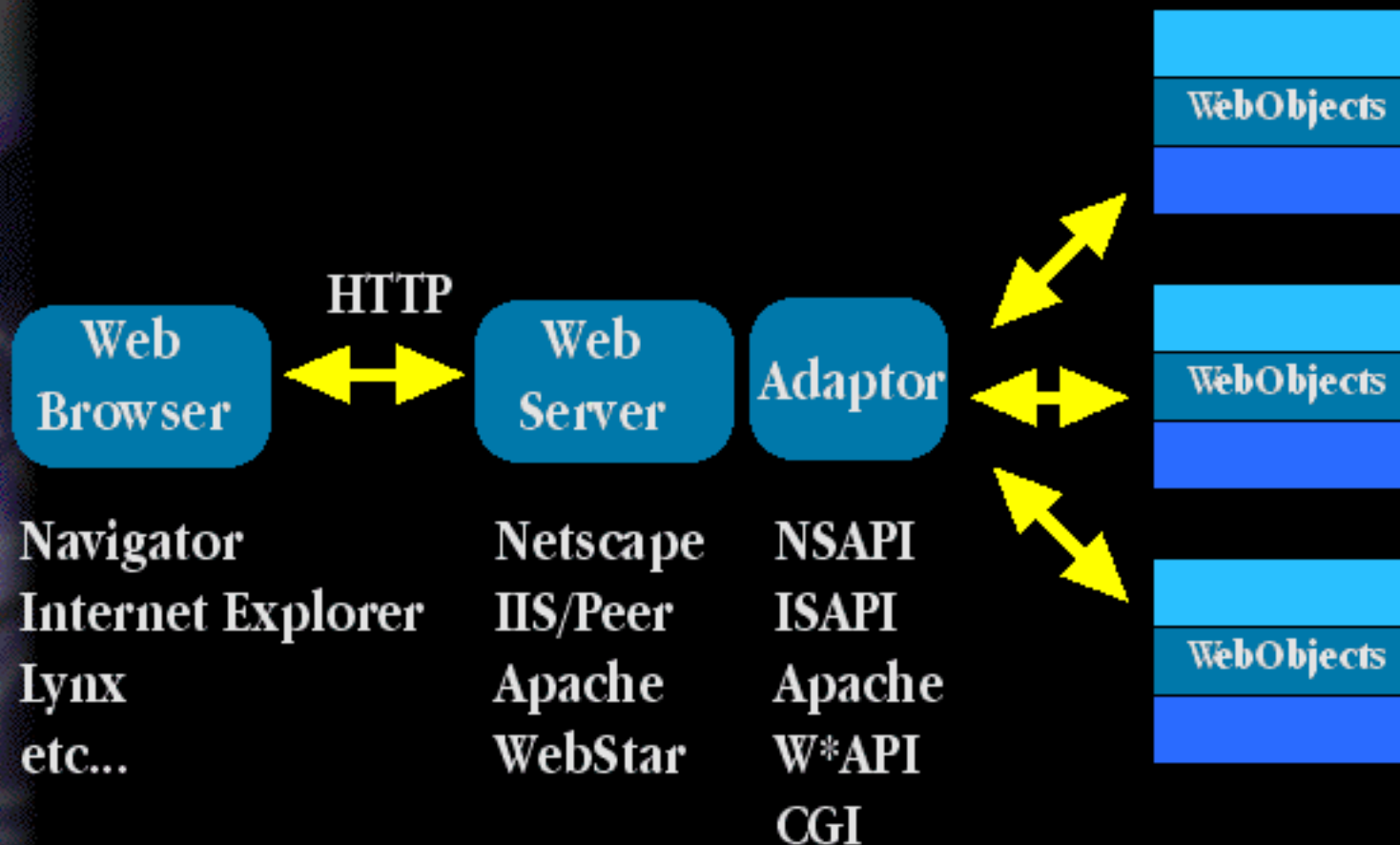
Deploying WebObjects



Deploying WebObjects



Deploying WebObjects



What's in WebObjects?

Enterprise Object Modeler

Project Builder

WebObjects Builder

WebObjects Framework

Enterprise Object Framework

Distributed Object Framework

Foundation Classes

Dynamic Runtime

Java VM



Yellow Box for Desktops

Enterprise Object Modeler

Project Builder

Interface Builder

AppKit

Enterprise Object Framework

Distributed Object Framework

Foundation Classes

Dynamic Runtime

Java VM



The Web-Enabled Yellow Box

Enterprise Object Modeler

Project Builder

WebObjects Builder

Interface Builder

WebObjects Framework

AppKit

Enterprise Object Framework

Distributed Object Framework

Foundation Classes

Dynamic Runtime

Java VM



Two-tier Client-Server

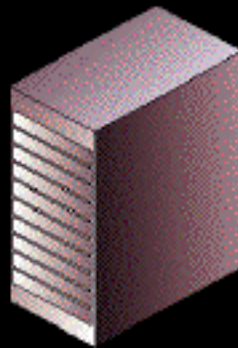
**Desktop
Computer**



Business Logic 
(client application)



**Database
Server**



Business Logic 
(stored procedures)



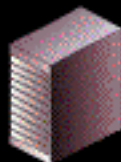
Two-tier Client-Server Goes Web

**Desktop
Computer**

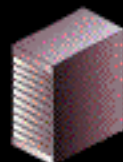


**User Interface
Presentation**

**HTTP
Server**



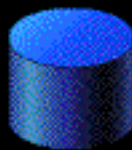
**Web App
Server**



**Business Logic
(client application)**



**Database
Server**



**Business Logic
(stored procedures)**



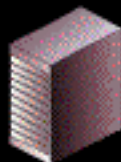
Flexible Tier for the Web

**Desktop
Computer**

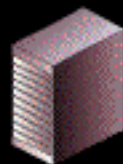


**User Interface
Presentation**

**HTTP
Server**



**Web App
Server**

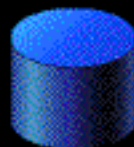


Business Logic



Business Logic

**Database
Server**



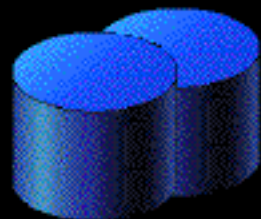
Business Logic



Connectivity

Datasources

- Oracle
- Sybase
- Informix
- ODBC
- Mainframes



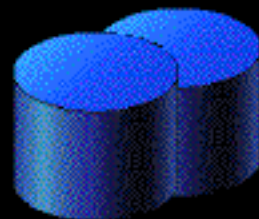
Connectivity

Multimedia

- Images
- Sound
- Animations

Datasources

- Oracle
- Sybase
- Informix
- ODBC
- Mainframes



Connectivity

Multimedia

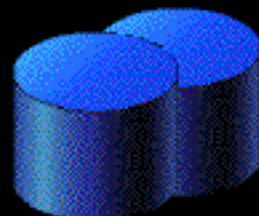
- Images
- Sound
- Animations

Datasources

- Oracle
- Sybase
- Informix
- ODBC
- Mainframes

Function

- OLE/COM
- CORBA
- Legacy
- C/C++ APIs



Everyone Talks About Data...

da • ta | 'dat-e, 'dat- *also* 'dat- \n *pl but sing or pl in constr, often attrib* [L, pl of *datum*] (1646)

factual information
(as measurements or statistics)
used as a basis for reasoning



Business Logic is the Key Issue

- **Data is just an input**
- **Describes the business processes which**
 - Add value to your data
 - Facilitate the operations
 - Drive your business
- **One of your most valuable assets**



Reusing Business Objects

- **Across interfaces**
 - Desktop
 - Web
 - Java clients
- **Across applications**
- **Across data sources**



Build at Your Level

**Graphical
Designers**



**Component
Assemblers**



**Component
Developers**



**Object
Developers**

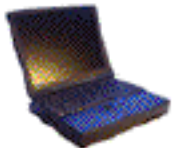


What Is a WebObject?

License: http://143.165.62.4/scripts/PrintObject.asp?2001/OrderCode=107

Mail Quit **DELL** Help

Dell Latitude XPi CD Notebooks

 \$ 4858

action

data

- Latitude XPi CD Pentium Notebook with 1GB RAM:
150MHz with 12.1 inch SVGA Active Matrix Color Display.
- Additional Memory:
NONE
- Hard Drive:
1.2GB EDC Hard Drive
- Operating System:
Microsoft Windows 95 and Mobile Computing Software.
- Network Adapter:
NONE
- Modem:
Magnum PCMDA 28.8Kbaud/Outdial Modem
- Additional Options:
 - Additional Lithium Ion Battery \$159
 - Leather Carrying Case \$125
 - Nylon Carrying Case \$69
 - Additional AC Adapter \$39

HTML

```
<WEBOBJECT NAME = NAMETEXT>  
</WEBOBJECT>
```

DECLARATIONS

```
NAMETEXT = WOTextField {  
    value = nmtext}
```

SCRIPT or CODE

```
function nmtext () {  
    object = name.doThings();  
    return object;  
}
```

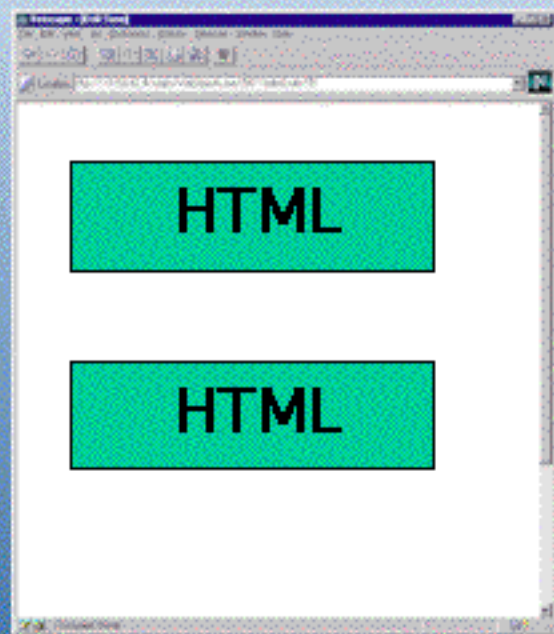
Choice of Languages

Preserve investment; build for the future

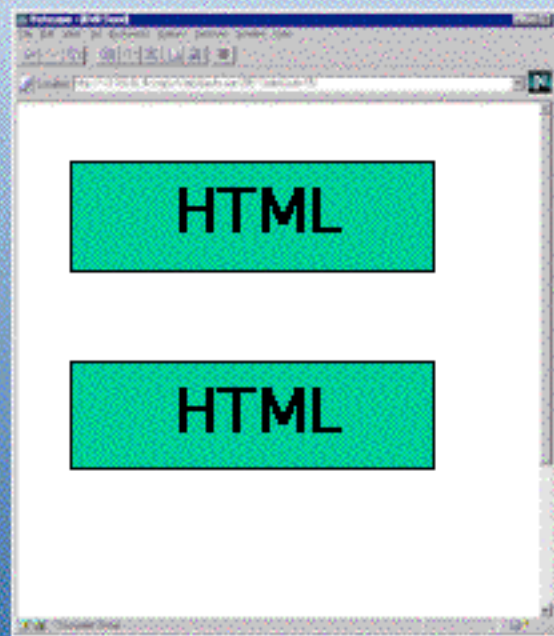
- **Scripting language: WebScript™**
 - Application logic
 - High productivity
- **100% pure JAVA**
- **Objective-C**
 - Bridged object runtime to Java
 - Subclass Objective-C in Java, and vice versa
- **C, C++, other compiled languages**



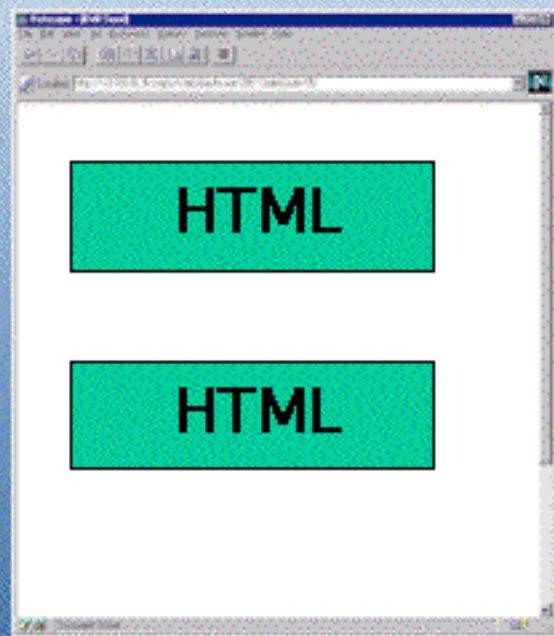
Web User Interface



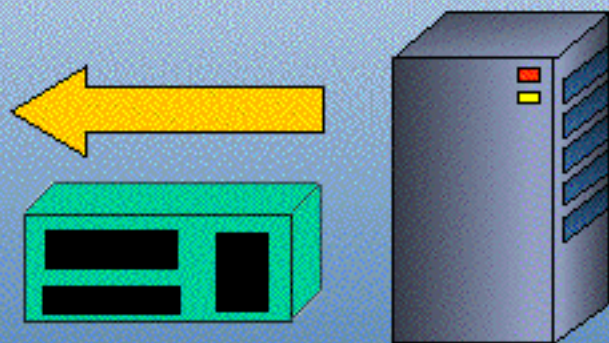
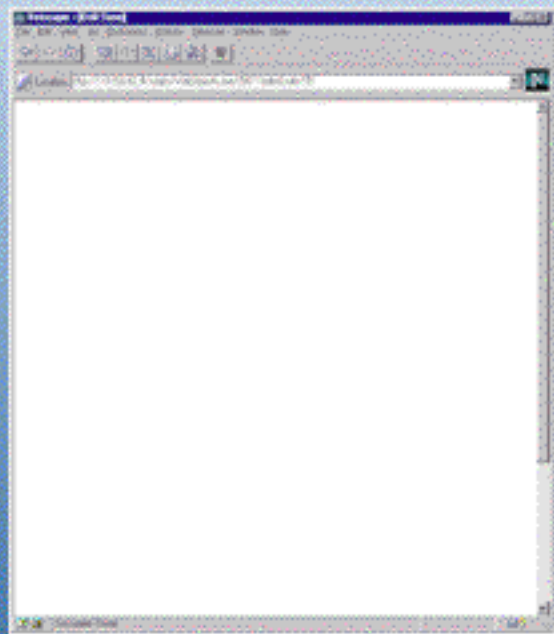
Web User Interface



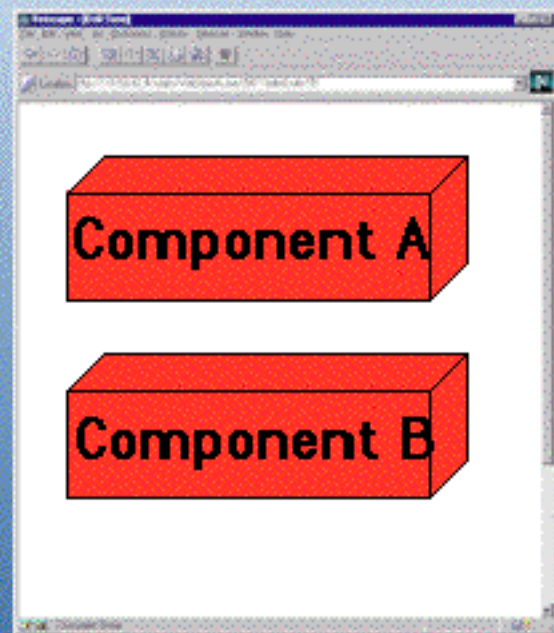
Web User Interface



What If...?



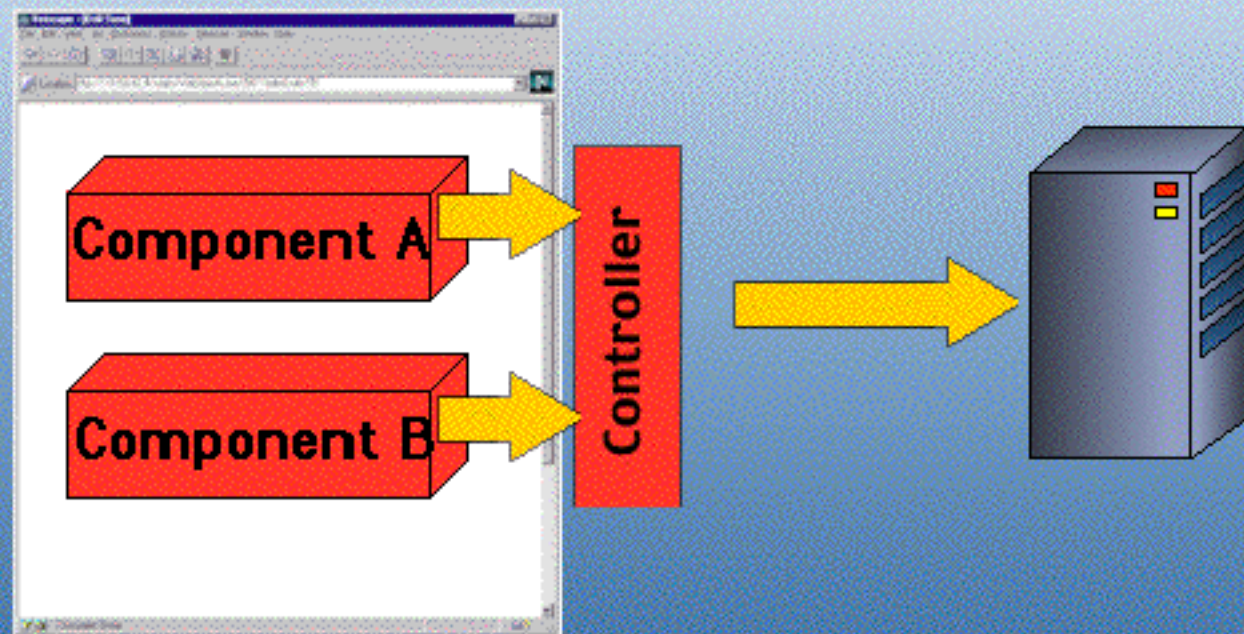
Live Client Components



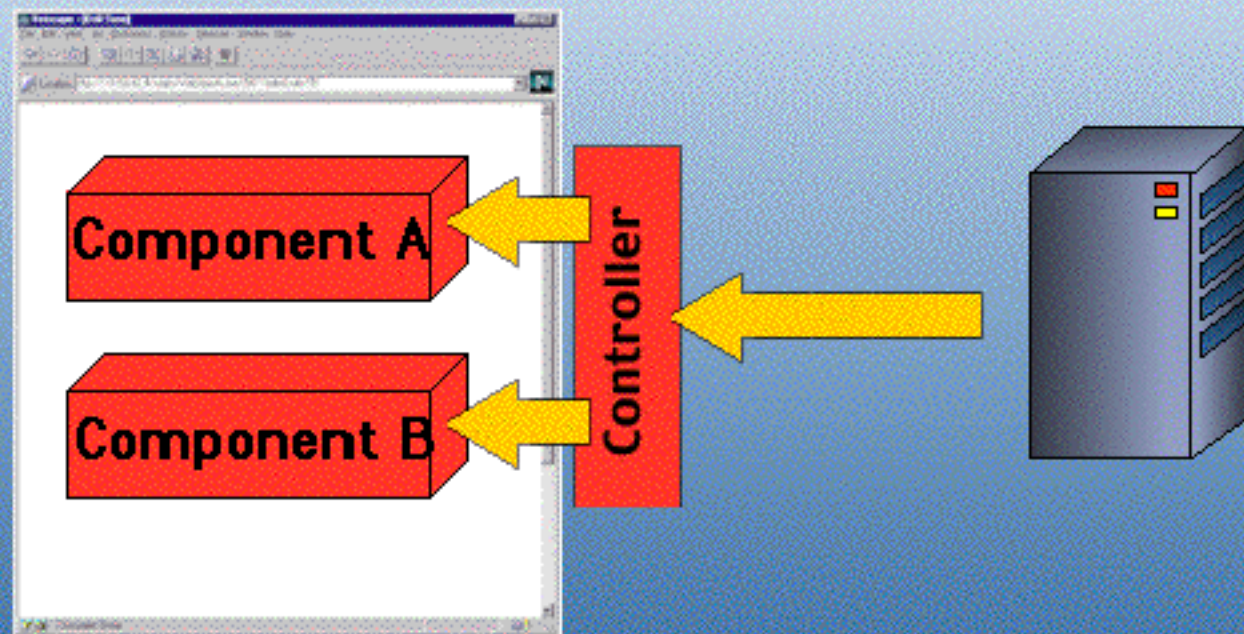
Controller



Live Client Components



Live Client Components



A Platform for Developers

- **New Opportunities**
 - Stand-alone web apps
 - Web-enabled desktop apps
 - Internet services
 - Extending the platform
- **Target: Developers**
 - Competitively-priced tools
 - **Free** deployment



An Enterprise Product

WebObjects Enterprise

- Scalability
- Enterprise data access
- New tiered pricing
 - Workgroup
 - Division
 - Unlimited



Cross-Platform Technology

- **Development and Deployment**
 - Windows NT
 - OpenStep for Mach
 - Coming soon: Rhapsody
- **Deployment Only**
 - Solaris
 - HP-UX



WebObjects Strategy

- **Work with standards and market leaders**
- **Offer choice of languages**
- **Ensure development today can be leveraged in the future**
- **Support a broader market of developers**
- **Give customers more to start with**
- **Support increasingly flexible-tier architectures**



WebObjects 1997 Plans

- **Spring: WebObjects 3.1**
- **Summer: WebObjects 3.5**
 - Enhanced ease-of-use
 - More pre-built components
 - Rhapsody support
- **Early 1998: WebObjects 4.0**
 - Enhanced Java client-server



Learning More

- **409: WebObjects Frameworks**
- **410: Using WebObjects Builder**
- **411: Data Access in WebObjects**
- **412: WebObjects Client Technologies**
- **413: Deployment and Performance**
- **414: New Business Opportunities**
- **417: Soldiers in the Web War**



Now What?

- Attend relevant WebObjects tracks
- Pick up your CD
- Check out <http://www.omnigroup.com>
- **Start developing!**





Q&A

The background features a dark, textured surface with a glowing blue and purple sphere in the center. A white Apple logo is positioned at the top of the sphere. The text "Worldwide Developers Conference" is overlaid on the image. "Worldwide" and "Conference" are in a gold, serif font, while "Developers" is in a white, serif font enclosed in a white rectangular box. The overall aesthetic is futuristic and tech-oriented.

Worldwide

Developers

Conference