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Forging the Future



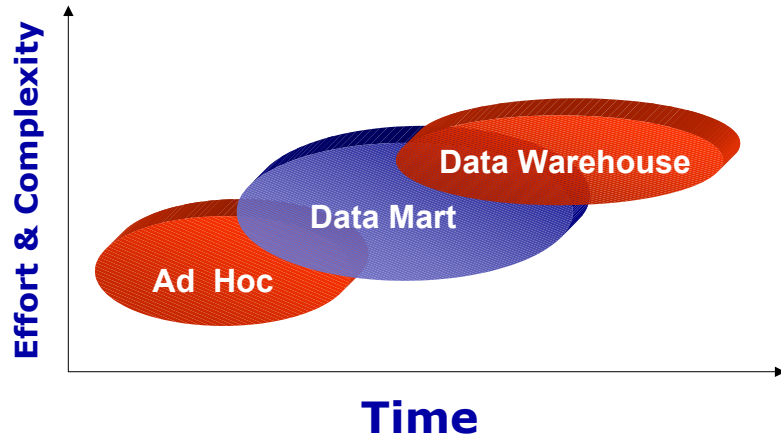
# Webifying Your HP e3000

**Birket Foster,  
Chairman and Owner  
MBFoster**

MB Foster



# Implementation





## Agenda

- Introduction to “Webifying”
- Technical Description
- “Webify” existing Applications
- The Issues: Tech / Business
- Business Profiles



## Introduction

- 90's Client/Server computing environment
- POSIX integrated into MPE
- SQL and ODBC for database connectivity
- HP e3000 evolves with web enabling
  - = APACHE, JDBC and SSL

### Introduction

In the early 90s, the open systems movement shifted the computer industry into a heterogeneous client/server computing environment. POSIX was integrated in the MPE operating system along with bundled networking functionality, SQL and ODBC for database access. MPE/iX provides interoperability with other systems such as Unix, NT and IBM with reliability, stability and the strength of high-speed online transaction processing. With the recent explosion of the Internet and the World Wide Web, the HP e3000 again evolves by embracing new key web-enabling technologies (Apache, LDAP, JDBC, and SSL). HP e3000 users now can do business over the Internet. We will continue to monitor new industry trends and activities in these rapidly changing environments and to refresh the platform with new technologies. We are committed to lead our customers to the evolving future of e-services.



## The Web Changes Everything!

- How does your organization communicate with your "ecosystem"!
- What are the transactions?
  - = Brochureware
  - = Collect Info
  - = Interactive (read only)
  - = Interactive (read/write/update)
- Where are the business rules?



## Integration is the key!

- How do you integrate the web into business processes
- ebXML suggests: Repository of processes, and metadata for the organization
- In theory this would become automatic trade between partners
- Requires well thought out integration



## ebXML

- Internet = information highway
- ebXML provides on ramps, off ramps and rules of the road
- See [ebXML.org](http://ebXML.org) for more info



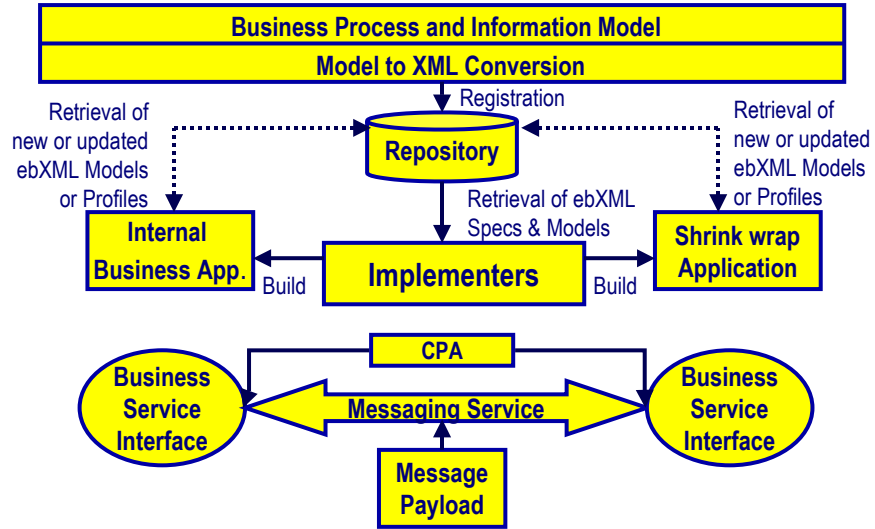
## ebXML

- ebXML architecture provides:
  - = A way to define business processes and their associated messages and content.
  - = A way to register and discover business process sequences with related message exchanges.



# ebXML Architecture

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## ebXML

- A way to define company profiles
- A way to define trading partner agreements.
- A uniform message transport layer.



## ebXML

- Designed
  - = for electronic interoperability,
  - = to allowing businesses to
    - find each other
    - agree to become trading partners
    - conduct business.



## ebXML

- operations performed automatically
- minimizing and/or eliminate the need for human intervention
- streamlines electronic business
- Is low cost, open, and standard



# 4 Easy Steps



Industry Group

Business Process and Information Model

Registry/Repository

Trading Partner Profile

Trading Partner Agreement

Trading Partner Profile

Business Documents

Company A

Company B

1. Design and Register Process
2. Implement and Register Profile
3. Optionally negotiate agreement
4. Conduct ebXML business



## **HPe3000... Webify for E-Business**

- Four main categories for E-Business
  - = "Webify" Existing Applications
  - = E-Commerce Applications
  - = E-Enterprise Solutions
  - = E-Services Solutions

### **HP e3000... Webify for E-Business**

In order to help our customers understand how to evolve their current business to the Internet and e-service world, we categorize our customers into four scenarios.



## “Webify”

- Focused business projects/applications  
= going web-based
- “Friendly” development environment  
= easily built & maintained web interface
- Leverage the HP e3000
- Can allow simple RPC to programs in an XL (PROCLIB on UX)

1. **“Webify” existing applications.** These are the customers including independent single shops wanting to bring their business to web-based computing. They want a friendly development environment to quickly deploy their applications with a common easily maintained browser interface, and to leverage their core HP e3000 applications with little or no effort.



## E-Commerce

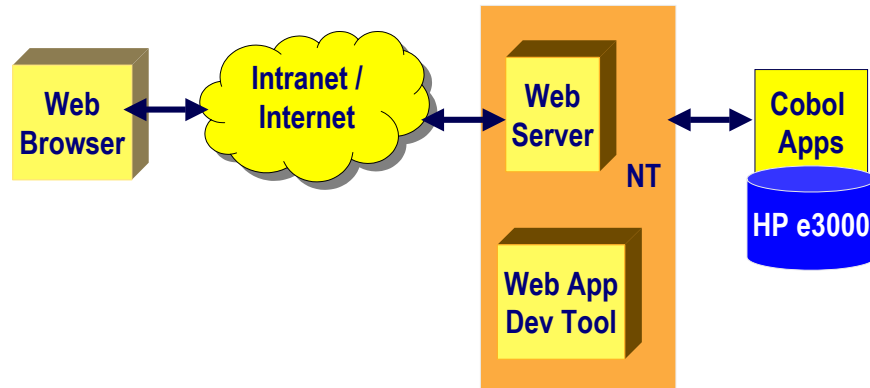
- Vendors want to quickly build web apps
- Time to production is critical
- Need/want packaged tools
- Must handle large amount of users
- Incorporate multiple systems and resources - need cross platform
- Does EDI (B2B/Ecommerce) fit?

**2. E-commerce applications.** These are e-commerce vendors that want to quickly build and deploy their applications while the critical information and business logic resides on the HP e3000. Time to production of these applications is critical, and code modifications must be made quickly enough to respond to the changing business demands. These customers need comprehensive packaged tools that enable rapid development and deployment of their applications, while providing high performance and secure access. They also need the ability to handle a large number of simultaneous users as well as the capacity to incorporate multiple systems and resources.





## “Webify” / E-Commerce Model





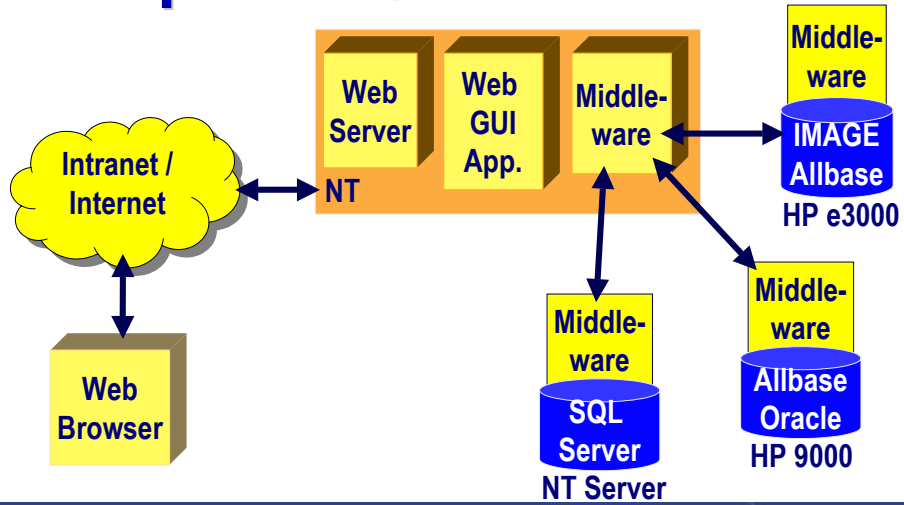
## Enterprise Solutions

- Want mission critical HP e3000 programs integrated into web apps
- Enterprise environment comprised of information systems, distributed databases
- Industry standard protocols and middleware
- Allow e-transactions to happen
- What is transaction monitor - 2P Commit?

3. **Enterprise solutions.** These are the customers who want their mission critical HP e3000 applications to fit into the evolving Internet and web-centric enterprise environment. The enterprise environment is comprised of information systems with distributed databases, automated business processes and business practices that are tightly integrated with web-based applications. These applications use many emerging industry standards, protocols and middleware technologies in the networking, security and distributed OLTP areas



# Enterprise Model





## E-Services

- Develop business applications
- Produce pay as you go services (Apps on tap or Application Service Provider (ASP))
- Services built on transaction fee model
- Enables quick, inexpensive deployment
- Rent out hardware/software to provide the complete solution

4. **E-services solutions.** These are the customers that develop business applications running on the HP e3000 and deliver pay-as-you-go services on the Internet. These services are built on the transaction-based fee usage model. This new business model enables companies to

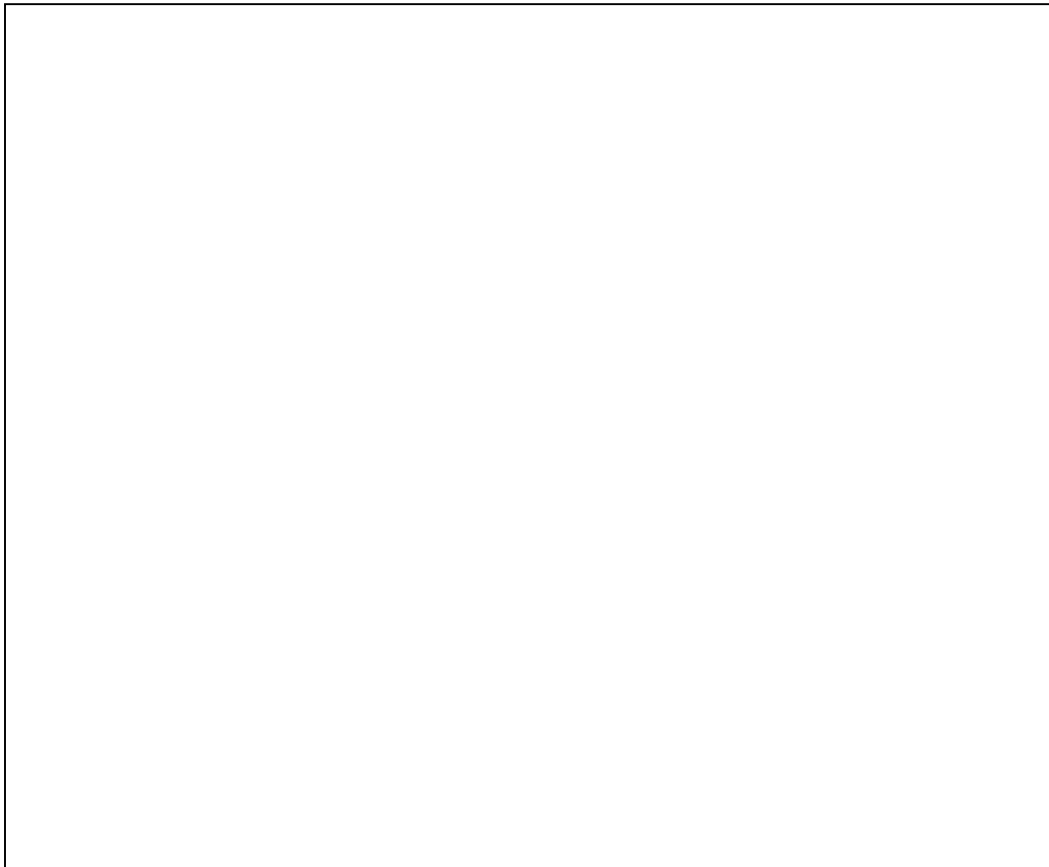
drive down their overall IT costs by allowing them to focus on building and deploying applications that are uniquely strategic to their business and rent virtually everything else, such as hardware, storage and middleware — as needed for a complete solution

# Web Needs

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	Webify Apps	E-Commerce Apps	Enterprise Solutions	E-Services Solutions
Who	Independent Single app shops	E-Commerce Vendors	Enterprise Customers	Future masses Transaction-based E-services
Needs	Connect existing Apps to internet Little or no effort Easy dev. Envir Leverage MS	Rapid Dev. Envir. Scability Performance	Fit apps into Enterprise envir Internet connectivity Follow ind. Trends & standards Scalability Perform.	<b>Reduce IT costs,</b> <b>Build/deploy unique</b> <b>Strategic apps</b> <b>Apps on tap,</b> <b>Brokering</b> <b>Next gen. portals</b>
Tools	CGI, Servlets ODBC, JDBC FE Development Tools	4GL & GUI Integrated Packaged tools ODBC, JDBC	<b>DCE, LDAP</b> <b>SSL, X,509, PKI</b> <b>ODBC, JDBC</b> <b>MQSeries</b> <b>MSMQ etc.</b>	CGI, Servlets, FE tools Integ. pkgd tools LDAP, SSL, X.509, PKI, ODBC, JDBC "E" Speak





## “Webify”ing Needs

- Original Focus on Visual Appeal
- Business needs changed to interactive Bi-Directional information access
- Web Apps have gone from static to strategic
  - = going to underlying/remote databases

### Webify Existing Applications

In earlier days, a well-designed web site using multimedia elements and having visual appeal impressed people. Today’s businesses expect interactive, instant, bi-directional access to information, and full Web-based applications that directly support key business processes. These web applications transform Web sites from collections of static HTML pages into strategic applications capable of exploiting underlying data base capabilities. These applications will include both Intranet and Internet dynamic database connectivity.

The HP e3000 has long enabled customers to take advantage of Web technologies without having to throw away their investments. This section will discuss how to leverage your existing applications accessing databases on the HP e3000, and make them available to the web.



## Front-End Tools

- Customers like GUI for App front ends.
- Various tools have emerged to allow quicker development
  - = **Samba/iX** provides access via Microsoft Networking Protocols (SMB)
  - = **GUI3000** manages files, groups and accounts, provides information about your Turbo/IMAGE
  - = **Qedit** for Windows, client/server editor, edits host HP files from a Windows-based GUI

### Front-end tools

While wanting to “webify” their existing 3000 applications, many customers are accustomed to the GUI and the information access tools available in the Windows environment. Various tools have emerged to address the need for quicker and easier software development.

**HP Samba/iX** is a suite of programs that allow the HP e3000 to provide services using the Microsoft Networking protocol SMB. Samba/iX allows MPE to act as a file and print server to PC client running on the Windows environments. The byte stream files and printers on MPE can be accessed directly from Windows and NT. The remote file system becomes transparent to the user. Samba/iX is available since 6.0 release.

**GUI3000** from OmniSolutions, Inc is a graphical front end for HP e3000, which is similar to the Windows “Explorer” or “File Manager” products. GUI3000 manages files, groups and accounts, provides information about your Turbo/IMAGE databases, and establishes an inter-face to the HP e3000 for carrying out commands.

**Qedit** for Windows from Robelle is a client/server editor, which edits host HP files from a Windows-based GUI environment.

The **MPE Command Center** is a powerful Windows-based graphical user interface that provides IT Administrators a true Windows look and feel. Terminals or terminal emulation programs

are no longer required to open the MPE file system, and manage accounts, groups, users and files under MPE on the HP e3000 system.



## ODBC

- Application-Programming Interface (API)
  - = defined by Microsoft (Based on ISO/ANSI standards)
- Provides standard interface to access databases
  - = Requires relational data
  - = IMAGE and ALLBASE
- Allows Apps to connect to any database that uses a ODBC driver with little or no change

### ODBC

ODBC is an application-programming interface (API) that is defined by Microsoft. ODBC provides a standard interface for accessing a variety of databases using SQL such as IMAGE/SQL and ALLBASE/SQL. An application that uses the ODBC interface can connect to any database over the network that has an ODBC driver, usually with no changes to the application. The most popular web development middleware that provide database connectivity are using ODBC.





## ODBC

- MBF-UDALink extends the ODBC standard access to non-relational data
  - = Direct to Image
  - = KSAM and MPE file access
  - = MBF-subfiles/Powerhouse subfiles/other self-describing
  - = Provides end-user environment with
    - Security
    - simplicity
    - data views



## Two-Tier Architecture

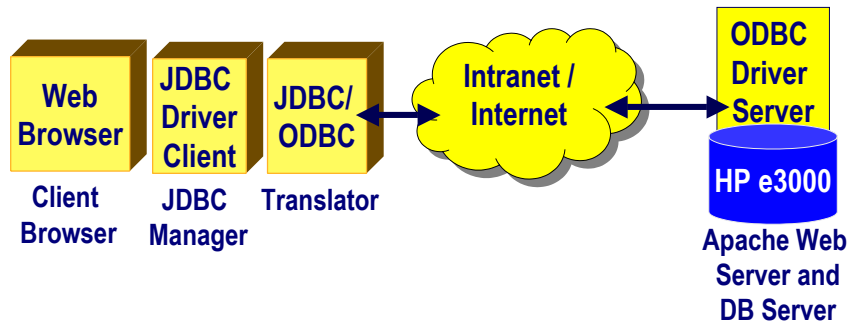
- Database and Web Server on same machine
  - = ODBC Client pre-installed or downloaded
  - = Common for applications served from HP e3000

### Two-tier Model

In the two-tier architecture, the database and Web server are placed on the same machine as the ODBC application. The ODBC application, ODBC API, and ODBC driver client either are preinstalled on the client systems or downloaded from the Web server. Applications can run as an application or as a program on another machine. The most common use would be for applications that are served from a HP e3000 web server.

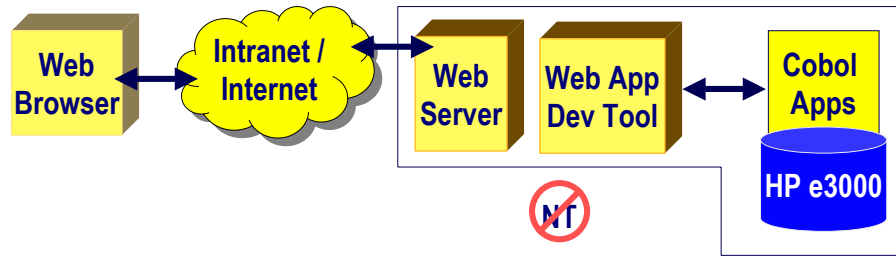


## Two-Tier Model





## “Webify” / Apache E-Commerce Model





## Three-Tier Architecture

- Components
  - = Web Browser
    - Client Work Station
  - = Web Server
    - HTTP server / GUI Interface
  - = Database Server
    - ALLBASE/IMAGE

### Three-tier Architecture

#### **Three-tier thin-client Model**

It is often undesirable to have the database and the Web server on the same machine. The three-tier thin-client model allows for physical separation of the database and Web server. This architecture allows developers to make use of accessing the data, and processing that data separate from a heavily loaded Web server.

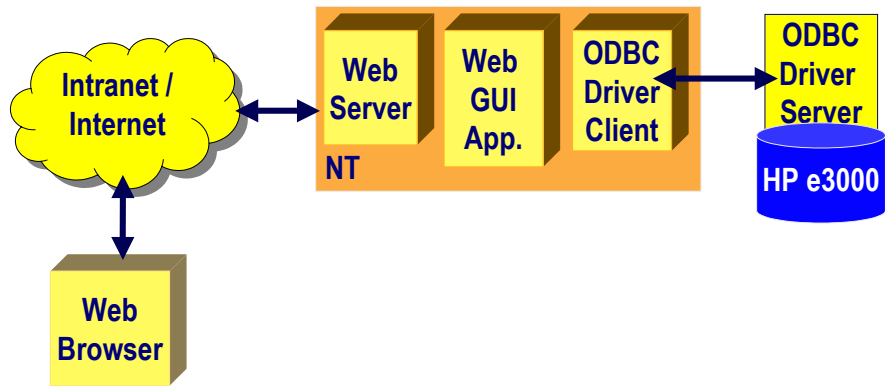
#### **Three-Tier Model Basics**

The following diagram shows a three-tier architecture of a Web-Database ODBC model, Web browser, Web server, and database server. The Web browser is on any PC or workstation client.

The Web server includes an HTTP server and a Web GUI tools application running on NT. The database server has ALLBASE/SQL or IMAGE/SQL running on the HP e3000. When a Web browser requests a data page from the Web server, the Web server uses an application program to access databases via an ODBC driver, generates an HTML-data page on-the-fly, then passes the page to the Web browser. The integration of database occurs between the Web server and database server, and is transparent to the browser.



## Three-Tier Model





## How to Make it Happen

- Who are the users?
- You must plan the transactions
- What will you allow to be across the web?
- What security? Do you need SSL?
- What is the flow?
- What if the internet is slow?
- How will you support users?



## What is your Plan?

- How to Layout pages
  - = About Face - Alan Cooper
- How will the “users” learn about this?
- How will they learn the flow?
- What is the business reason for doing this?
- How will it change the workflow?
- What is the process for design?





## What is the Plan?

- What is the impact on the computer operations?
- What is the expectation for performance?
- How do you measure performance?
- How scalable is the application?
- How many users could this involve?
- What is the workflow change?

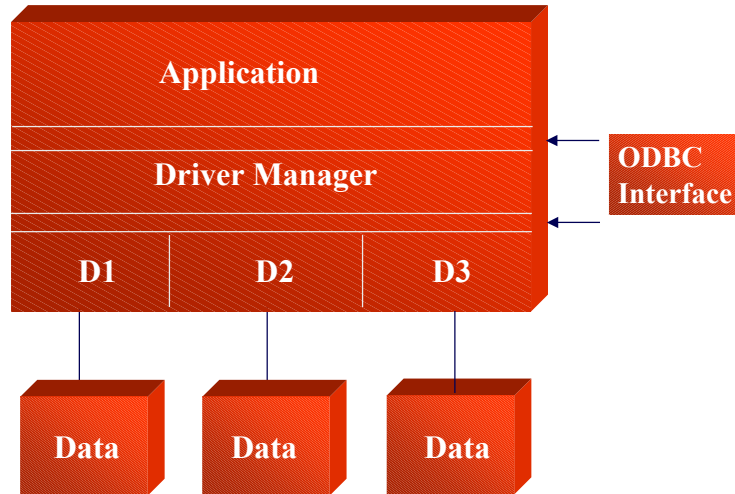


## Using MBF-UDALink to Webify HP e3000

- MBF-UDALink includes MBFoster's ODBC and JDBC Drivers
- MBF-UDALink Client on Mid-Tier
  - = Access IMAGE and ALLBASE
  - = MPE, KSAM, Oracle and self describing file formats like MBF-subfiles, Powerhouse subfiles, or Query SD files

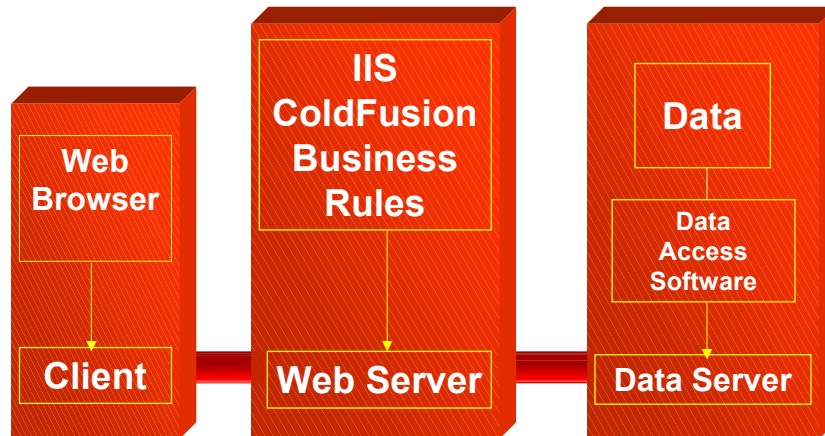
# ODBC Interface

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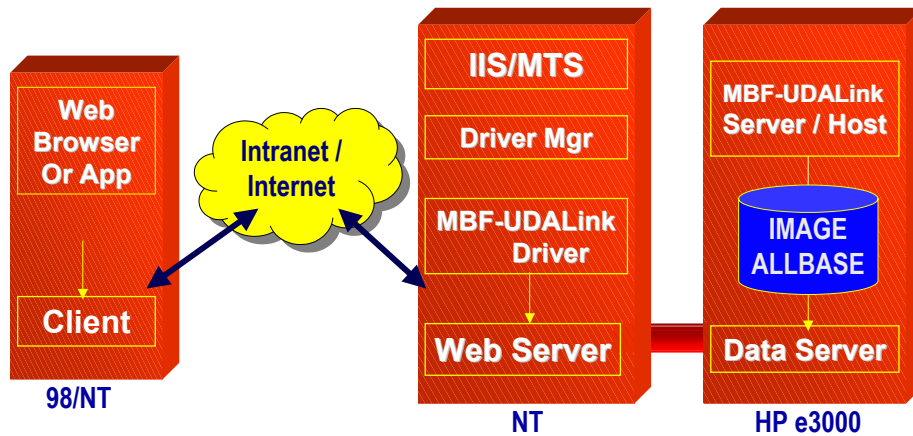
## 3 Tier Client-Server



- NT vs. HP
- Multi-threading, each request given thread and separate data space
- Application Server (middle layer) also becomes Data Server to Client



## MBF-UDALink and IIS



- NT vs. HP
- Multi-threading, each request given thread and separate data space
- Application Server (middle layer) also becomes Data Server to Client



## Design Considerations

- Security
- Performance
- Simplicity



## Security

- Who should be allowed to use these web pages?
- How will you validate the user?
- Is there any data that needs security?
- Should the server put any pages into Secure Sockets Mode or is it OK for everyone to read the data?



## SSL

- Secure Sockets Layer
- Provides Encryption
- Provides Authentication
- Provides Certificates





## Performance

- How many records need to be read to satisfy the request?
- How many records will be selected by the largest query?
- How will the selection be done?
- Do any of the queries span multiple data bases?
- Does your webserver allow connection pooling?



## Connection Pooling

- Implemented by the ODBC Administrator
- Big Performance Gains
  - = Internet apps that connect and disconnect
- Save resources and Overhead
- Multiple Apps in single process



## Multi-Threading

- MBF-UDALink is Thread Safe
  - = handle a call from any thread at any time
    - Connect
    - Use Connection
    - Disconnect



## Simplicity

- How will we avoid providing more data than the user wants?
- Is there a need to require selection criteria to reduce the information retrieved.



## Managing ODBC

- Who are the users?
- What are they doing?
- What is the performance?
- How can we manage the users?
- How do we “see” the listener job?

# MBF-Console

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**MB Foster Console**  
File Connect View Window Help

**Listeners on Arthur (M.B.Foster Associates Limited - HQ)**

Number	Port Number	Started at	Version	Jobnum	#Users	CPU (sec)
1	12310	1999/11/09 13:28:57	5.56.00	#J267	2	3.3

**Connections on Arthur (M.B.Foster Associates Limited - HQ)**

Number	Port Number	Pin	Started at	IP Address	Login	CPU (sec)	Msgs Recvd	Msgs Sent
1	12310	112	1999/11/09 14:01:25	192.9.3.238	DENN	1.7 (0.6%)	125 (36/per)	127 (36/per)
2	12310	124	1999/11/09 14:05:01	192.9.3.237	CONSOLE	0 (0%)	0 (0/per)	0 (0/per)

Connected 11/9/99 3:11 PM

# MBF-Console

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**MB Foster Console**  
File Connect View Window Help

**Server at pin 124**

Port Number	12310	View Logfile
Pin	124	Start Logging
ODBCLOG Setting	1	Stop Logging
Server Started at	1999/11/09 14:05:01	Kill Process
IP Address	192.3.3.237	Help
Login	CONSOLE	Close
Client Version		

Statistics for time period 14:06:13 to 14:07:18

Last server activity reported	0min,2sec
CPU Time	0.3 (0%)
Messages Received	18 (7/min)
Messages Sent	18 (7/min)
Bytes Received	317 (96/min)
Bytes Sent	27149 (11.4k/min)
Number of Select Statements	0
Records Fetched	0
Number of Update Statements	0
Number of Delete Statements	0

PU (sec)	Msgs Recvd	Msgs Sent
7 (0.6%)	125 (36/per)	127 (36/per)
3 (0%)	18 (8/per)	18 (8/per)
4 (0%)	0 (0/per)	0 (0/per)

Connected 11/9/99 3:13 PM



## Setting up MBF-UDALink with IIS

- Create the data source on the NT server.
- Configure the MS-IIS server to use the data source.
- Build a basic web page.
- Configure the UDALink server on the HP e3000.
- Start the server
- Populate the web page with data from the HP e3000 Image server.



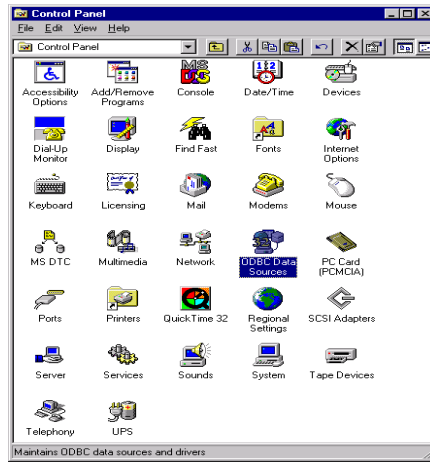


## Step-by-Step

- Web Browser
- NT server
- HPe3000 as back end
- Configure ODBC
- Use MS-IIS or ColdFusion by Allaire
- Build Prototype



# Data Source Creation



## ODBC Administrator



# DSN Setup

The screenshot shows a dialog box titled "MB Foster UDALink" with the following fields and options:

- Data Source Name:** MBFosterDSN
- Description:** This data source used for UDALink 32Bit
- Connection Type:**  Direct serial,  Modem,  Winsock
- User-ID:** A1 (with a '?' icon and "will prompt" text)
- Password:** P (with a '?' icon and "will prompt" text)
- Host server name or IP Address:** 123.456.789.111
- Socket ID (Port number on host):** (Leave blank to use default)
- Timeouts (ms):** Command: 180000, Sort: 0
- MAXSTMT:** 48
- Logging:**  Client Logging,  Host Server Logging

**DSN Name**  
**User ID**  
**User**  
**Password**  
**Server IP**  
**Listener**  
**Socket**



# Build A Web Page (ASP)

```
Microsoft Development Environment [design: [111151.asp]]
File Edit View Project Debug HTML Table Format Tools Window Help
[Address Bar]
[Toolbar]
[File Explorer]
[Code Editor]
[Properties Window]
[Output Window]
[Server Explorer]

<HTML>
<HEAD>
<META name=VI60_defaultClientScript content=VBScript>
<TITLE> (ADO) ActiveX Data Objects Example </TITLE>
</HEAD>
<BODY bgcolor=LightSkyBlue background=file://C:\WINDOWS\
<H2> MEMBERSDE.SQL4.TESTSYS </H2>

'
'Create a connection object and point it to
'YOUR data source, also with the
'UID and PWD and any other required parameters for your
strProvider = "DSN=SETEST;"
Set ADOCN = Server.CreateObject("ADODB.Connection")
Set ADORS = Server.CreateObject("ADODB.Recordset")
ADOCN.Open strProvider,"",""

'Create the Recordset object and fill it with
'the record from the SQL statement(VARSQL), using the
'already established connection(ADOCN)
VARSQL = "SELECT * FROM MEMBERS.MEMBERSHIP WHERE NUMBER
Set ADORS = ADOCN.Execute(VARSQL)
```



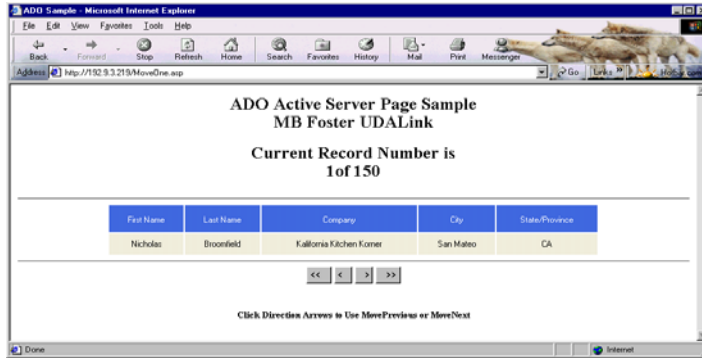
# MBF-UDALink ASP Page in IIS

MEMBRDE.SQL4.TESTSYS

NUMBER	FIRST NAME	LAST NAME	COMPANY	ADDRESS	CITY	STATE	ZIP	EXPIRY DATE	L
10009	Nicholas	Broomfield	Kalifornia Kitchen Korner	1672 South Amphlett Blvd.	San Mateo	CA	94402	20000109	15
10017	Joan	Churchill		895 Veteran's Blvd.	Redwood	CA	94063	20000217	15
10025	Bruce	Beresford		295 West Broadway	Glendale	CA	91204	20000325	15
10033	Eliezo	Subiela		312 East 7th Street	Austin	TX	78701	20000403	15
10041	Alan	Cavaler		85 Second Ave	Needham	MA	02194	20000511	15



# ASP Page allowing Movement through the recordset





## So what to do to Webify your HPe3000?

- Getting the management by Golf course/Magazine message
- Study the problem
- Select technology
- Take some training
- Design a solution



## **What are people doing to Webify their 3000**

- Order status
- Inventory availability and reservation of product
- Shipping info
- HMO online details
- Return/Repair info
- Main Theme: Self-service on info





## Profile 1 - Calsonic

- Automotive Supplier
- Allows Suppliers to work more closely
- Let suppliers see payment info
  - = self service



## Calsonic - Tech Specs

- Using HPe3000
- SSL - Apache 1.3.6
- Format data with Python to generate HTML
- MANMAN data



## Calsonic Business Impact

- Streamline automated processes and build to supply chain integration
- \$4000 per month in fax charges
- Suppliers can get their own data
- Phase 1 A/R shipping and planning personnel
- Users trained over phone



## Profile 2 - Techneglas

- Supplier of glass
- In the TV tube business
- In the CRT business
- Working with some companies on Flat Panel



## Techneglas - Tech Specs

- HPe3000
- Powerbuilder
- NT server - SQL Server 7 and Active Server Pages
- SSL
- Home grown apps



## **Techneglas - Business Impact**

- Let customers/suppliers/users see the Orders, Shipments and payments
- Phase 2 - accepting data into 3000



## Profile 3 - Pierce County

- Building permits
- Tracking the process - approval
- Track inspections
- Need info on inspections



## Pierce County - Tech Specs

- HPe3000
  - = 16 million records
  - = Omnidexed
- Also links from web page to Sun GIS system
- No security - public info





## Conclusion

- Web Access can be done several different ways
- Involve users in design
- Understand timing required
- Understand the business case!



## Contact Us

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