

hp e3000

web
enablement



Alvina Nishimoto
HP CSY
R&D Program Manager

Your HP e3000 E-Toolkit: Web-Enabling Your HP e3000 Environment



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June 28, 2001

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Agenda

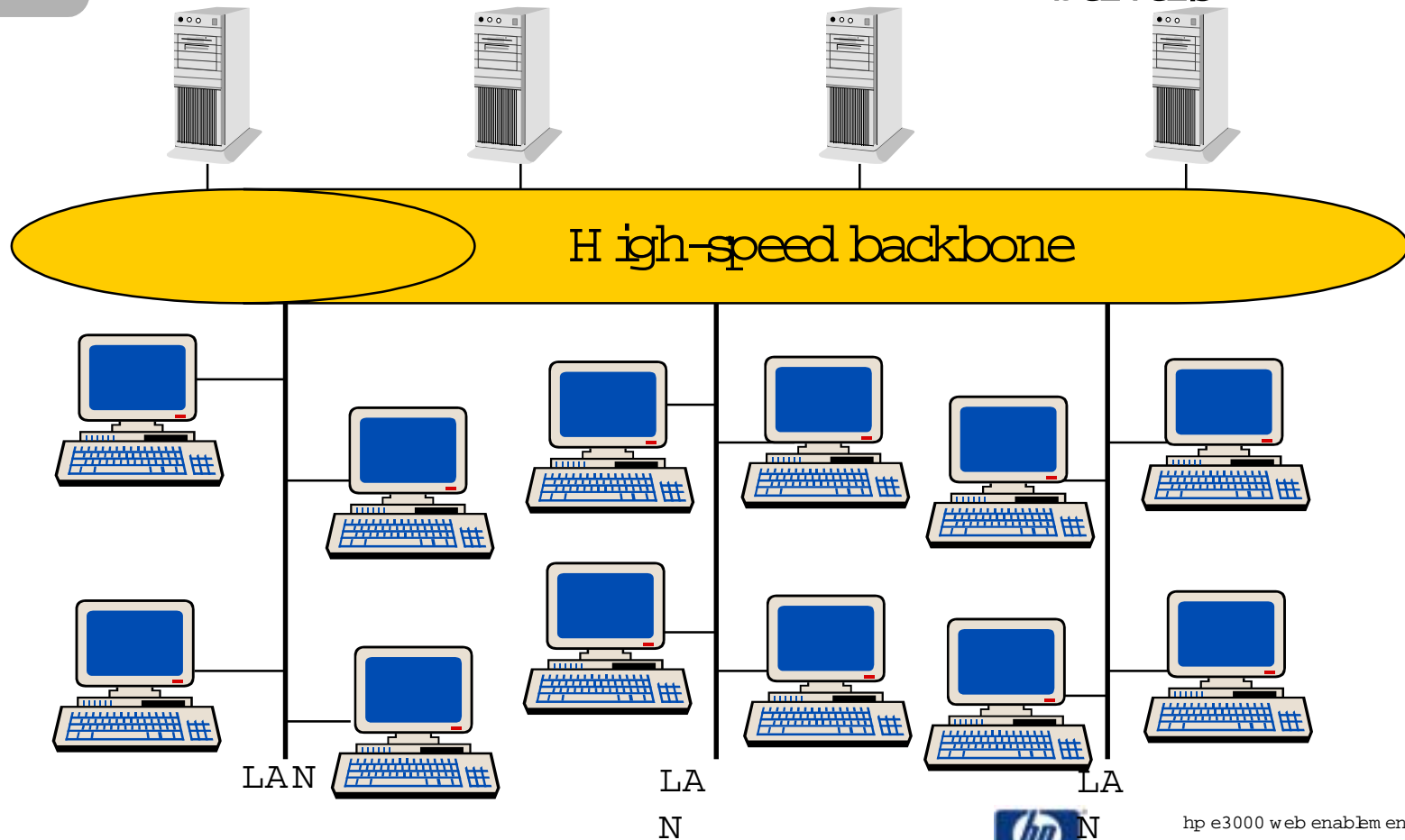
- The definition of middleware
- Different types of middleware on the HP e3000
 - Desktop access
 - Data access
 - Remote procedure call
 - Message-oriented middleware
 - Extraction/transformation/transport
 - LDAP
 - XML
- Difference between middleware and application servers
- HP Webwise

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Typical Enterprise Server Environment

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Web Server HP e3000 Server File Server Other Database Servers



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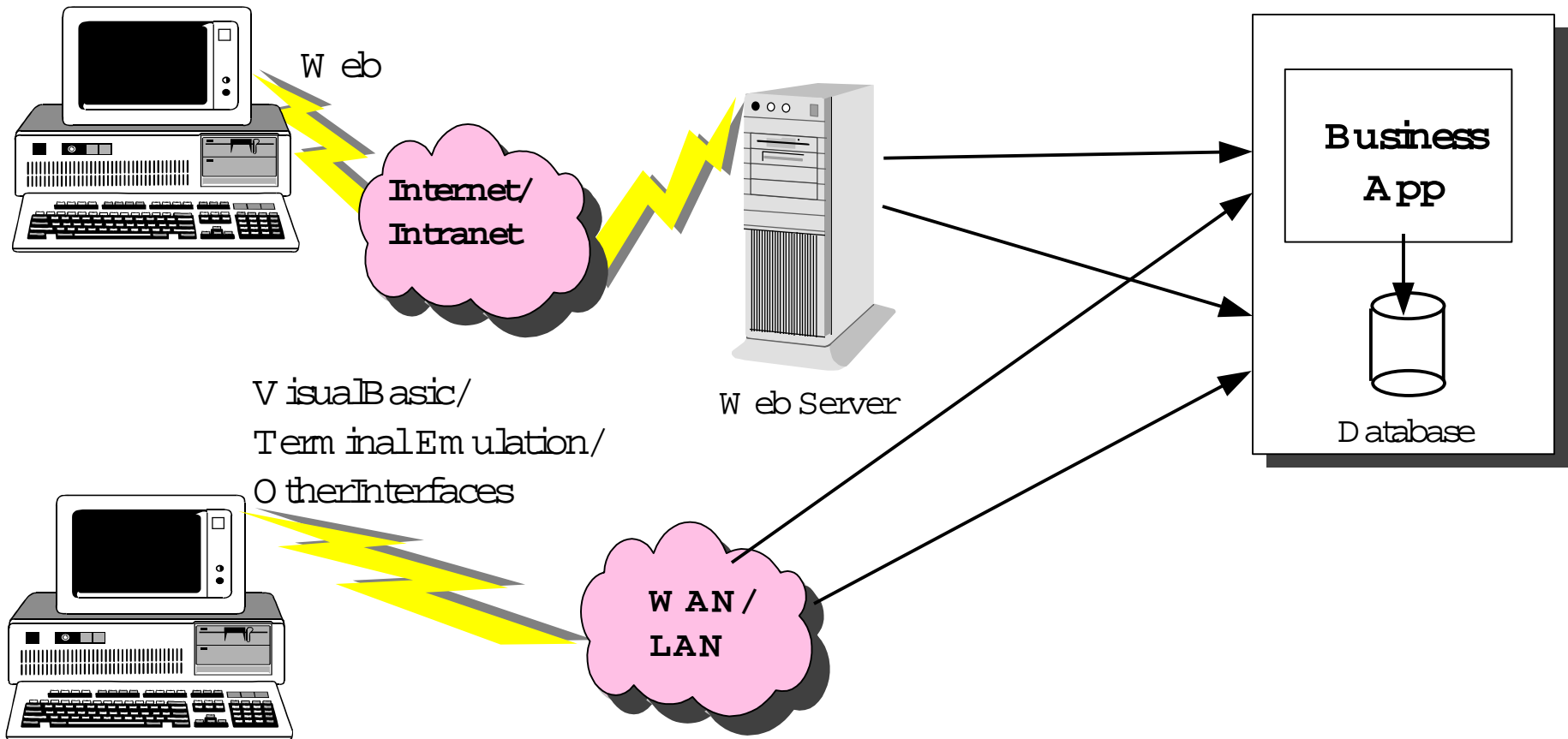
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HP e3000 Environment

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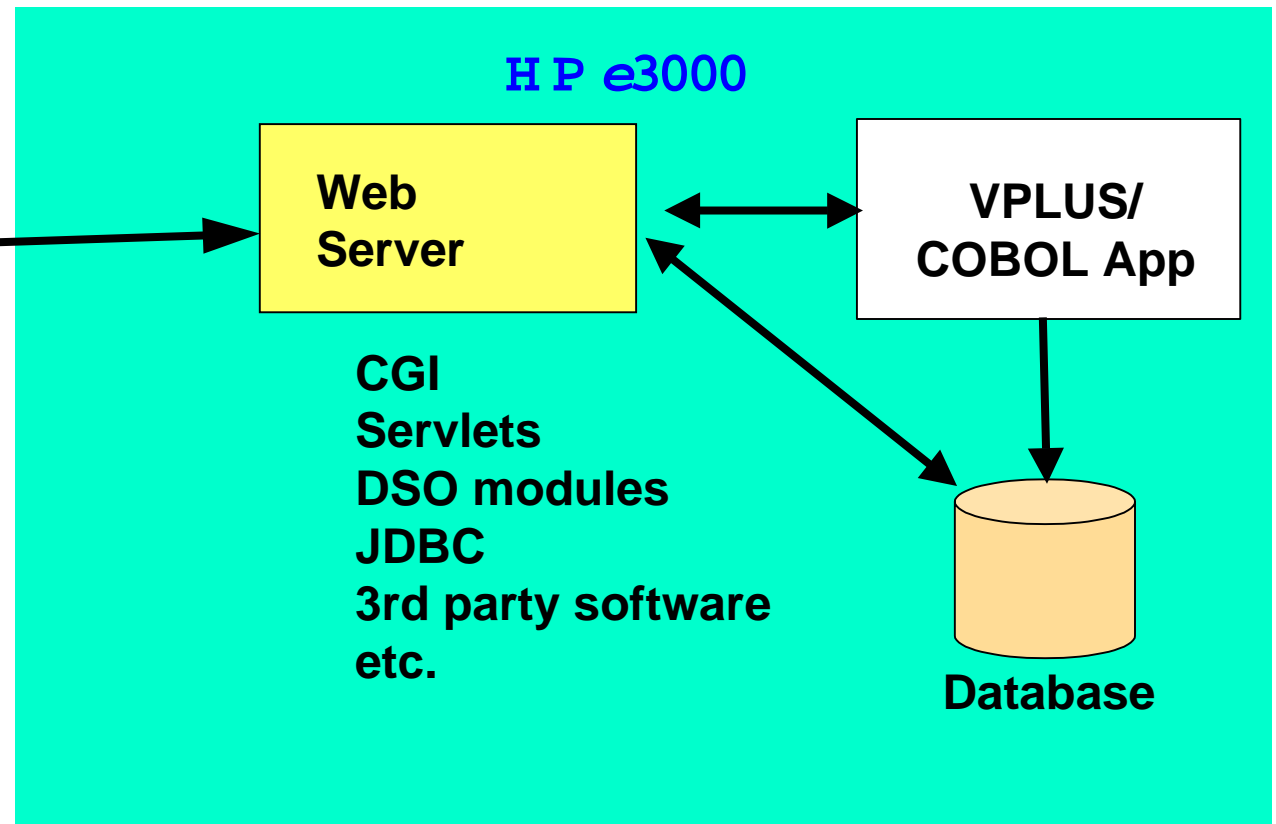
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HP e3000 Web/Application Server

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Web
Browser



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Evolution in Software Development and the Internet/Intranet

Application "Face Lift"

Application development toolkits will shift to support both Internet and Intranet business-strength applications via incorporation of WWW browsers, ORBs and Java-like OO 4GLs. (1996-1997)

Application Migration

WWW browsers, ORBs and Java-like OO 4GLs will evolve to include full-fledged application frameworks and application management for internal collaborative applications and extra-enterprise transactions. (1997-1998)

Application Re-architecting

The I-Way infrastructure (Internet, on-line services, media servers, content tools, billing services) will mature to accommodate business-critical applications, including electronic commerce. (1999-2001)

Source: META Group Inc.,
Feb/April 1996

New Uses for the Internet



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Distributed Applications - Typical Transition Approach

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- Establish new interface architecture
- Wrap existing applications
- Procure and/or build inventory of components
- Integrate and implement new components
- Replace wrapped components

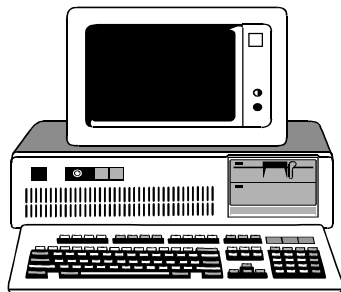


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Static Web Page

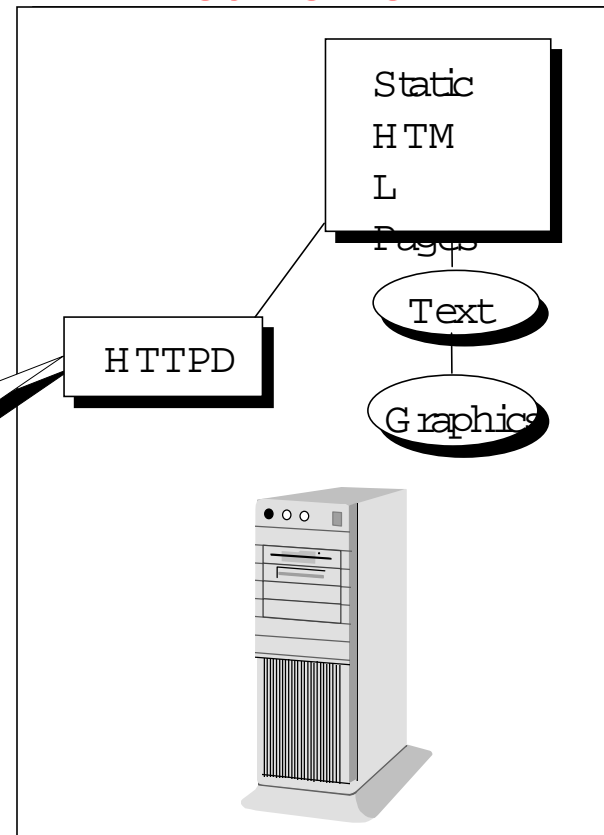
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Web Client



Internet
or Intranet
TCP/IP

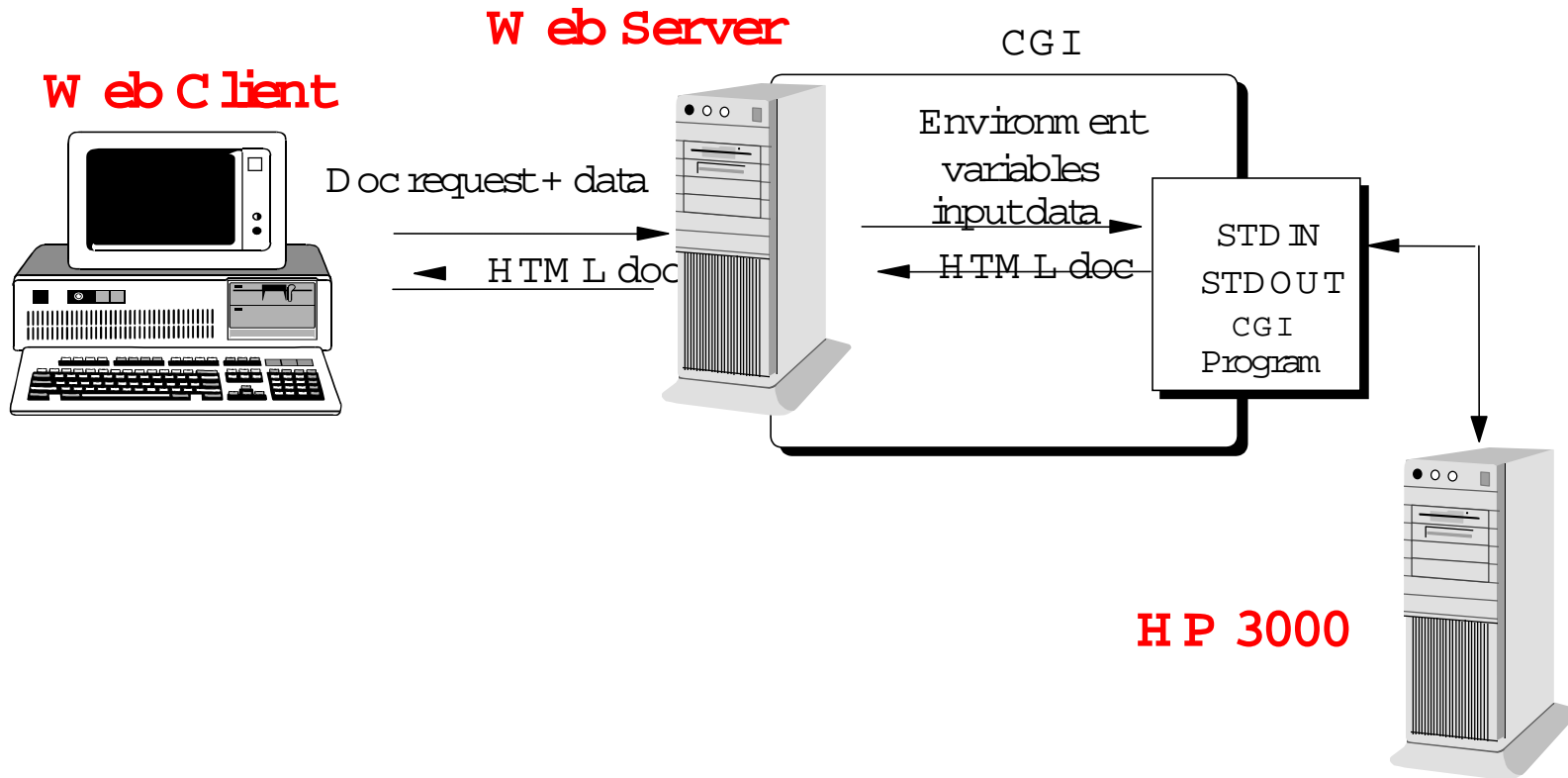
Web Server



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Common Gateway Interface

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Web Protocol is Stateless

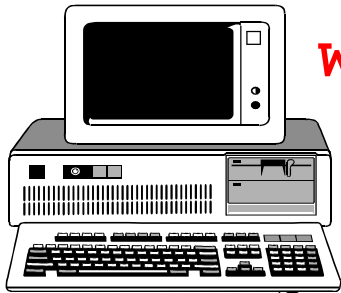
- A request is made to the server from the client, the information is provided and the connection is dropped
- Web server itself has no way of "remembering" the request
- CGI Web program must contain code to keep track of the following:
 - the user
 - all requests associated with that user
 - what information was sent to the user to create the illusion of a "state" environment

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HP e3000 Web Application

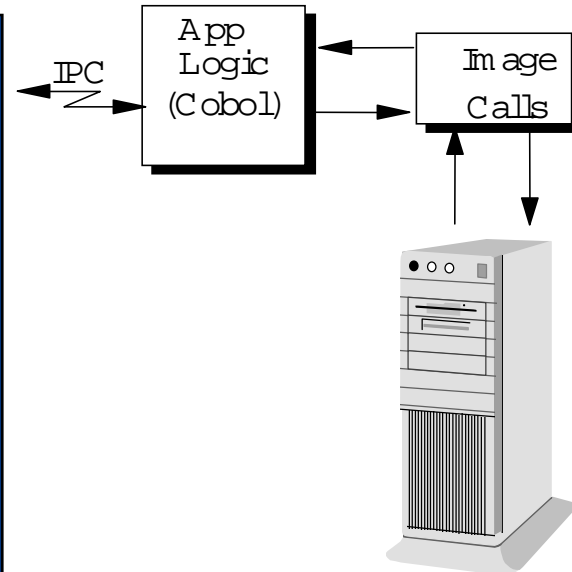
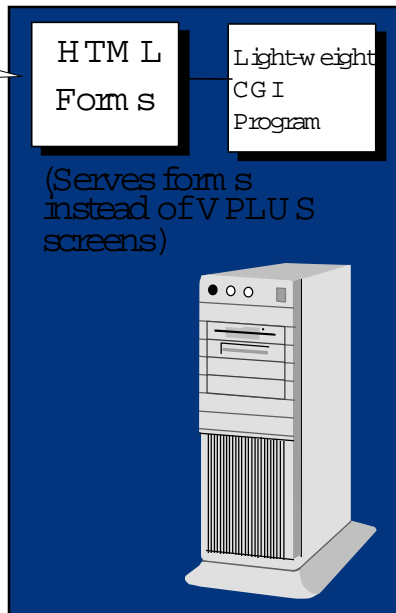
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Web Client



Internet
or Intranet

Web Server



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M iddlew are D rive rs

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- Dep loym ent of distributed applications
- Custom ers want choices in their dep loym ent options. Options include:
 - O S
 - DBM S
 - App lication packages

M iddlew are is key to building and integrating distributed application independent of underlying technologies.



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Job of Middleware

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"... make the complex world of distributed processing simpler by using middleware as the consistent intermediary rather than by building distributed programs that must natively communicate with nuts and bolts of all the unique requirements of each distributed resource"

IDC



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Why HP e3000 Customers Need Middleware?

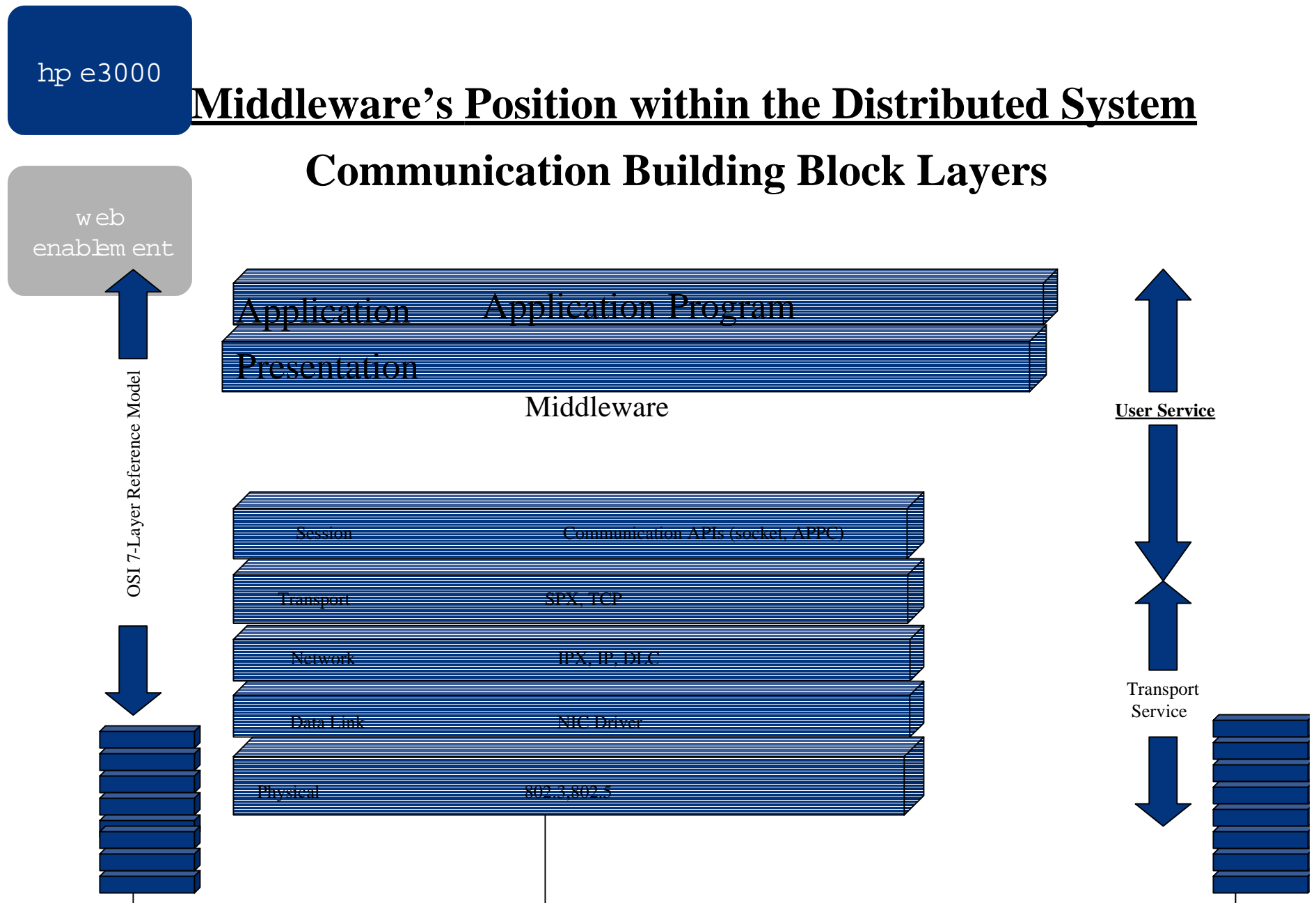
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- Makes the development of distributed applications easier
- Addresses the IS labor shortage
- Exploits the power of the Internet
 - GUI front end access
 - Easier access to backend computing resources
- Facilitate ability for distributed applications to scale up
- Allows HP e3000 to participate in this network computing environment



Middleware's Position within the Distributed System

Communication Building Block Layers



OSI 7-Layer Reference Model

User Service

Transport Service



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Types of Middleware are

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- Desktop Access
- Data Access
 - ODBC
 - JDBC
 - Gateways
- Remote Procedure Call
- Message-Oriented
- LDAP



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Desktop Access Middleware

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- Interoperability between client graphical user interfaces and existing applications
- Allows new user interface to be added to an existing application with little or no code changes
- First step into distributed systems
- Means to leverage backend applications with GUIs and internet front-ends
- Means to provide better customer service through improved access to backend data



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HP e3000 Desktop Access Middleware

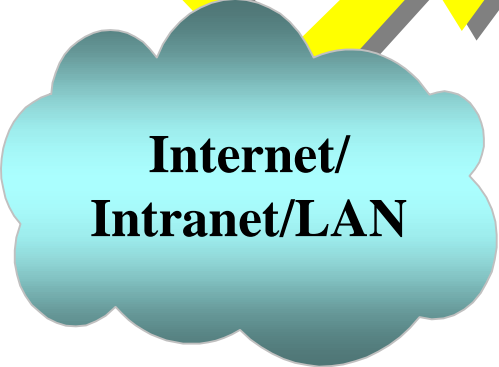
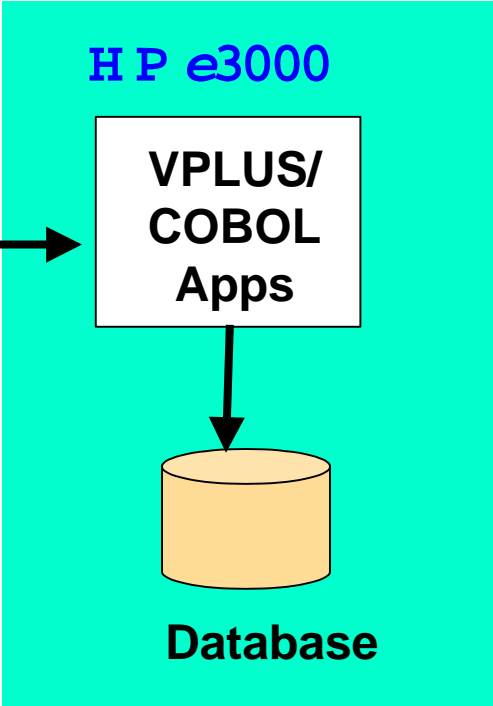


Web/
Visual Basic/
Other Interfaces



Web Server/
Application server

Middleware



Internet/
Intranet/LAN

- Advanced Network Systems
- Bradmark
- LegacyJ
- Minisoft
- Walldata
- WRQ



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Terminal Emulation in a Web Browser

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- Millware ScreenJet
- Microsoft Javelin
- NetManage Wadata
- WRQ Reflection



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Vplus Conversion

- Advanced Network Systems Vplus+ API
- Computer Associates Opal
- Bradm ark VB-View
- LegacyJ Java Remote Client
- Microsoft WebDimension (non vplus also)
- USIN VisualMagic



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System Management/File Access

- Bradm ark M P E C om m and C enter
- M ilw are TheDash
- O m n i s o l u t i o n s G U I B 0 0 0
- S a m b a



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Sam ba

The screenshot shows a Windows Explorer window titled "Exploring - hpwld98". The menu bar includes File, Edit, View, Tools, and Help. The left pane, "All Folders", shows a tree view with "hpwld98" selected under "public on '15.136.25.220' (E:)". The right pane, "Contents of 'hpwld98'", displays a table of files and folders.

Name	Size	Type	Modified	Attrib
ae98.ppt	579KB	Microsoft PowerPoin...	08.07.98 11:31	
install.ppt	86KB	Microsoft PowerPoin...	10.07.98 08:55	
install.txt	4KB	Text Document	10.07.98 08:55	
printcap	1KB	File	10.07.98 08:26	
readme.txt	6KB	Text Document	07.07.98 16:32	
readme2.txt	1KB	Text Document	07.07.98 16:32	
samba07.txt	33KB	Text Document	07.07.98 16:33	
smb.conf	8KB	CONF File	10.07.98 08:25	
tztab.txt	9KB	Text Document	07.07.98 16:34	
user.map	1KB	MAP File	10.07.98 08:26	

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OmniSolutions GUI3000

GUI3000 - HP3000 System Manager Toolbox - Main Menu

File Connection Edit View Filter Tools Window Help

mars

Explorer DIAMOND - Connected to mars(MGR.TIMEWARP)

Total = 789.15 mb

Contents of @.DB.DIAMOND

Filename	In Use?	File C...	Size	Type	Eof
VCSSE...	No	NMPRG	128W	FB	...
VCSCH...	No	8	72B	FA	...
VCS13	No	PRIV	1664W	FB	...
VCS12	No	PRIV			
VCS11	No	PRIV			
VCS10	No	PRIV			
VCS09	No	PRIV			
VCS08	No	PRIV			
VCS07	No	PRIV			
VCS06	No	PRIV			
VCS05	No	PRIV			
VCS04	No	PRIV	1408W	FB	...
VCS03	No	PRIV	1408W	FB	...
VCS02	No	PRIV	1408W	FB	...
VCS01	No	PRIV	1024W	FB	...
VCS	No	PRIV	128W	FB	...
SCHEM...	No	8	72B	FA	...

DB.DIAMOND 17 Files on MPEXL_SYSTEM_VOLUME_SET : Size 27,856

Details of current files. Right click on name for more details. Click on title to sort

Connected to mars

Start Microsoft PowerPoint - [nt... OmniSolutions, Inc. - Micro... http://www.gui3000.... 12:27 AM

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Development Environments

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4GL

- ACS Van Gogh
- Cognos PowerHouse
- Speedware Autobahn
- VisualSpeedware

3GL

- Robelle QED II for Windows
- Whisper Technology Programmer Studio



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Whisper Programmer Studio

The screenshot displays the Whisper Programmer Studio interface. The main window shows a C program named `do_binds.c` with the following code:

```
/* Bind input variables. */
sword
do_binds(cda, stmt_buf)
Cda_Def *cda;
text *stmt_buf;
{
    sword i, in_literal, n;
    text *cp, *ph;

    /* Find and bind input variables for placeholders. */
    for (i = 0, in_literal = FALSE, cp = stmt_buf;
         *cp && i < MAX_BINDS; cp++)
    {
        if (*cp == '\')
            in_literal = ~in_literal;
        if (*cp == ':' && !in_literal)
        {
            for (ph = ++cp, n = 0;
                 *cp && (isalnum(*cp) || *cp == '_')
                 && n < MAX_SQL_IDENTIFIER;
                 cp++, n++)
            ;
            *cp = '\0';
            printf("Enter value for %s: ", ph);
            gets((char *) &bind_values[i][0]);

            /* Do the bind, using obndrv().
             NOTE: the bind variable address must be static.
             This would not work if bind_values were an
             auto on the do_binds stack. */
            if (obndrv(cda, ph, -1, &bind_values[i][0], -1, VARCHAR2_TYPE,
                    -1, (sb2 *) 0, (text *) 0, -1, -1))
            {
                oci_error(|
                oci_error(Cda_Def*cda)
            }
        }
    }
}
```

The bottom window shows the compilation output:

```
>> Command cc -c /usr2/home/rdbms/demo/cdemo2.c -o x
/usr2/home/rdbms/demo/cdemo2.c: 41: Can't find include file oratypes.h
/usr2/home/rdbms/demo/cdemo2.c: 42: Can't find include file ocidfn.h
/usr2/home/rdbms/demo/cdemo2.c: 46: Can't find include file ocikpr.h
/usr2/home/rdbms/demo/cdemo2.c: 48: Can't find include file ocidem.h
Command completed
```

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Data Access Middleware

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- Application to data source synchronous interoperability model
- Provides data-oriented API to make requests to read or update data from server-based data sources
- Uses either SQL syntax or proprietary database gateway API
- Need to build applications that are database independent



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HP e3000 Data Access Middleware

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Client/ Application

Web/Visual Basic
Lotus Notes/
Exchange
Interface

Middleware

Case, XML

ODBC
JDBC

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Business
App
Image/SQL

Internet/
Intranet/Lan

Microsoft Excel
Lotus 1-2-3
Crystal Reports
Microsoft Interdev, etc.



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ODBC and JDBC Drivers

- HP's ODBC and JDBC drivers
- Advanced Network Systems ADBC
- CSL Linkway ODBC
- DISC OMNIDEX for the Web
- MB Foster ODBC Link/SE
- Microsoft ODBC /32



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Information Builders, Inc (IBI)

EDA /SQL

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- Enterprise Data Access/SQL (EDA /SQL)
- Direct access to heterogeneous databases on heterogeneous platforms transparently
- Access TurboIMAGE, Allbase, Oracle, KSAM data on HP3000 from a multi-database and multi-platform environment
- Uses TCP/IP or NETIPC for network access
- FOCUS (window-based) is a decision support & analysis tool



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Extraction/Transformation/ Transport Middleware

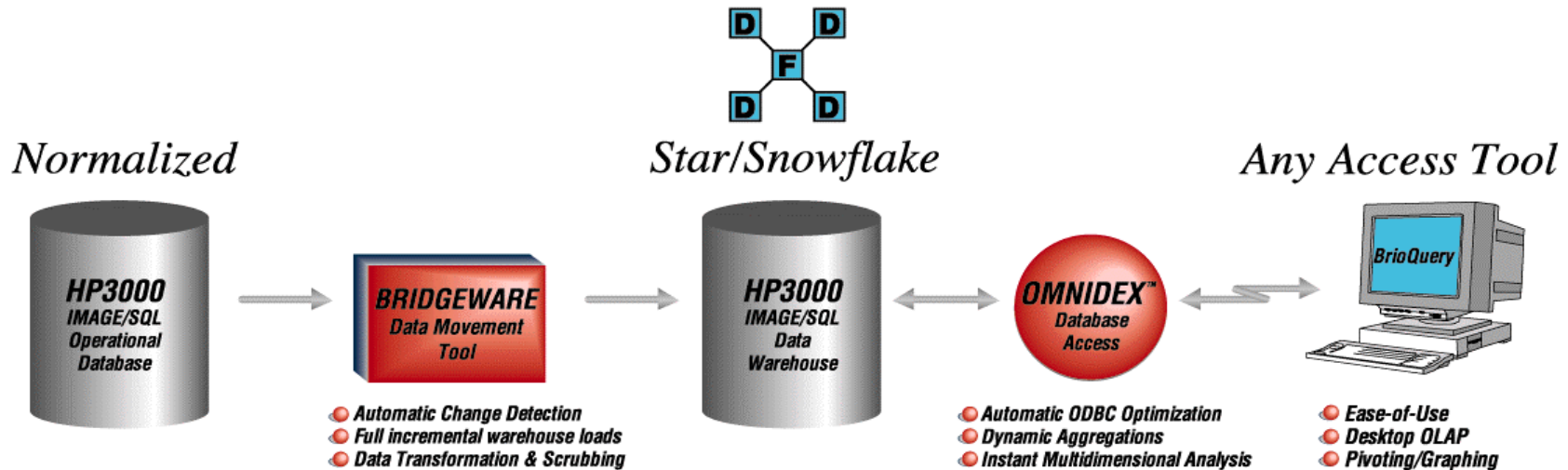
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- Used for decision support systems (DSS) and integration
- Does reformatting, syntax conversion, and has prebuilt transformations
- Content-based, rules-based driven transformation
- Realtime or bulk load API



Data Warehousing for the HP3000

Made EASY by the Companies you trust!



Remote Procedure Call Middleware

- Application to application synchronous interoperability for procedural languages
- Applications ship a direct call for the execution of a procedure within a remote application
- Widely associated with DCE
- Trend to bundle RPC with OSs
- RPC included in Java as part of RMI

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HP e3000 RPC Middleware

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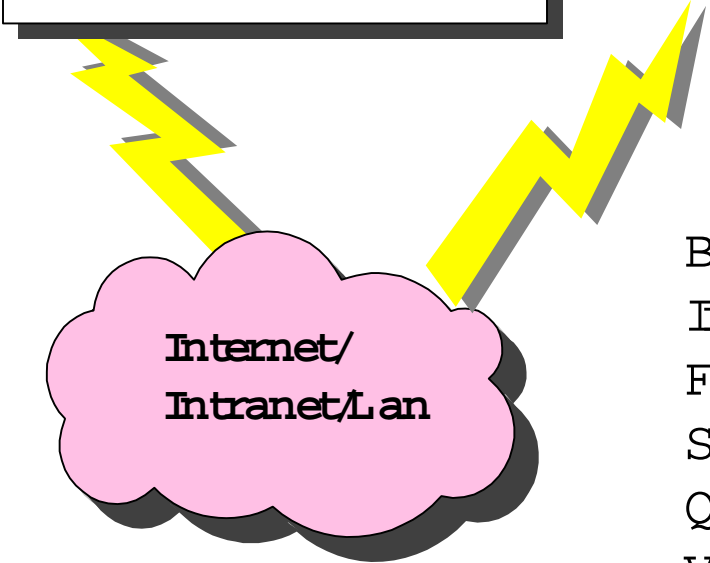
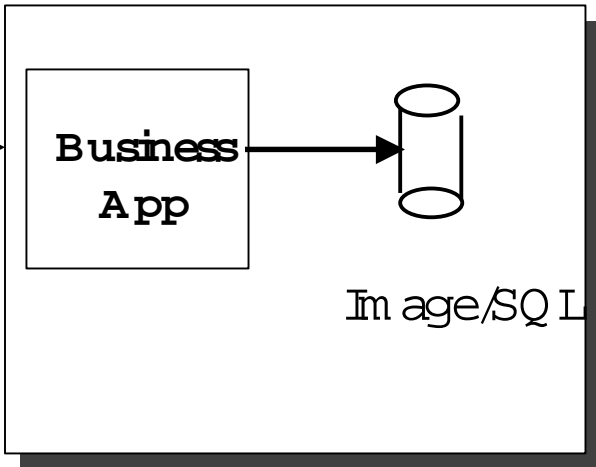
**Client/
Application**

Middleware

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Web/
VisualBasic
Interface

DCE



Bradm ark StarM an
Ironside Technologies,
Fioravanti/Redwood,
Speedware Autobahn,
QuestNetBase Client,
VisualSpeedware



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RPC Middleware

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FrontEnds for Manufacturing & Distribution

- Bradm ark StarMan
- Ironside Technologies
- Fioravanti/Redwood

Development Tools

- Speedware Autobahn
- VisualSpeedware



Message-oriented Middleware

- Application to middleware synchronous or asynchronous interoperability
- Applications make requests by passing messages directly to the middleware
- Messages are records calling for action and supplying the input needed by that action
- Event-driven mode of processing, middleware waits for message to invoke the action

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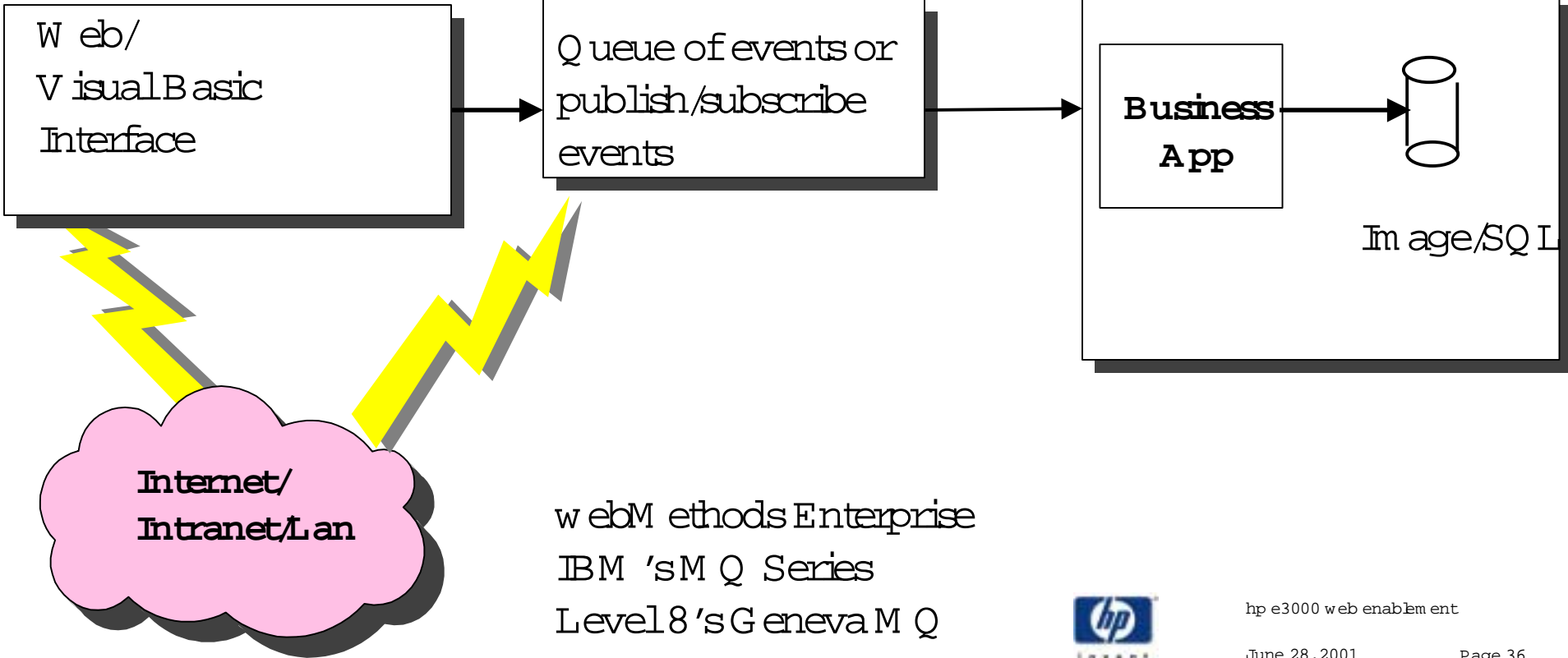
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HP 3000 Message-Oriented Middleware (MOM)

Client/ Application

MOM

HP 3000



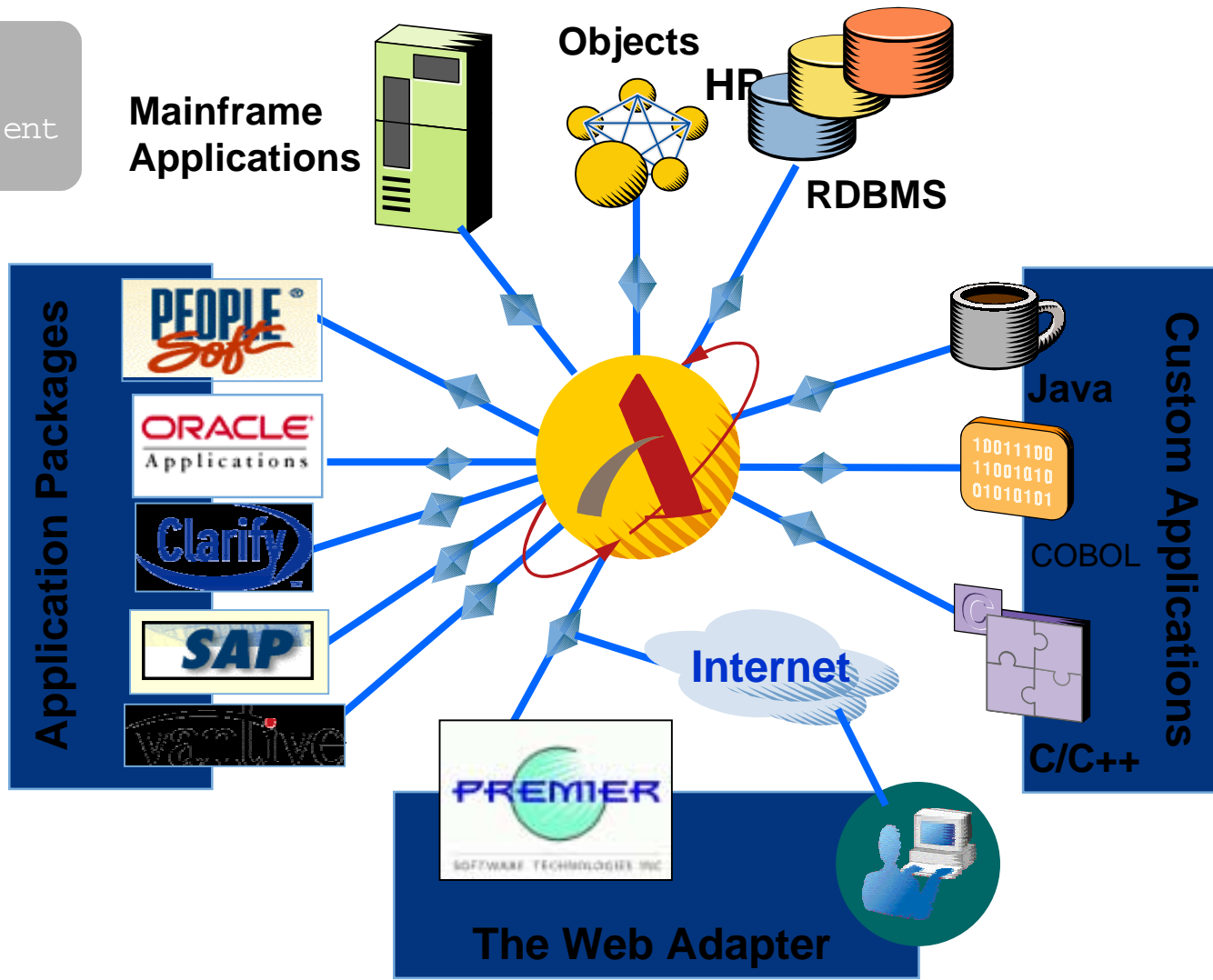
webMethods Enterprise
IBM's MQ Series
Level 8's Geneva MQ



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The Web Adapter

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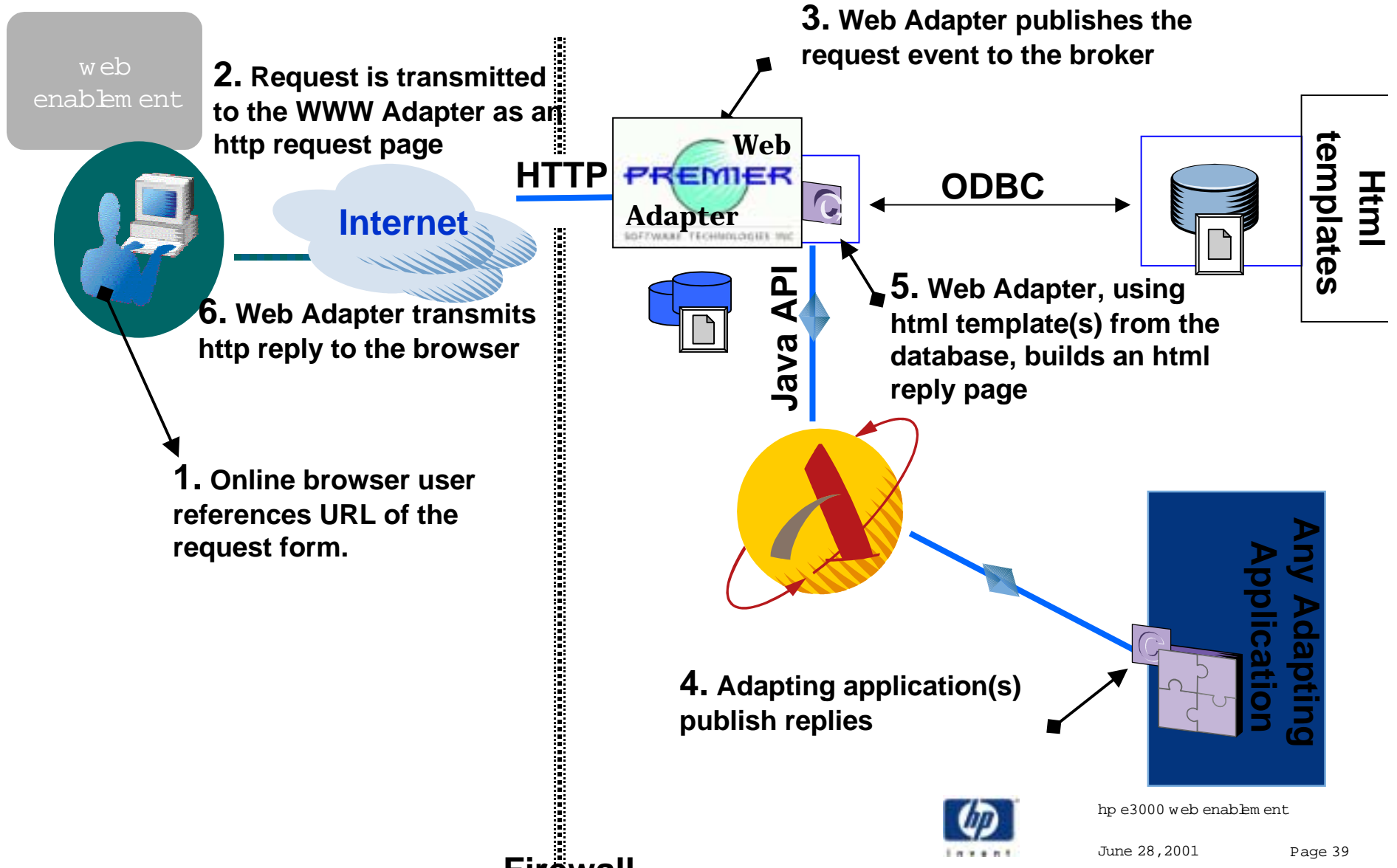
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What does the Web Adapter do?

- Auto crafts html pages for *Events*
 - Developer may customize
- Enables developer to interact with Broker from the Browser
 - Receives WEB GET and POST request operations
 - Transforms operations into Active *Events*
 - Publishes the *EventRequest* to a Broker
 - Receives corresponding *EventReplies*
 - Transforms *Reply Events* into html pages.

Using the Web Adapter



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Willow Technology

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Willow Technology and MQSeries

- Leading independent producer of fully compliant MQSeries client and server products.
- Developed under license from IBM
- Sales & support of IBM and Willow MQSeries products
- MQSeries systems integration, custom development, proof of concept, consulting
- More Information
 - web: www.willowtech.com; email: info@willowtech.com
 - phone: +1.408.377.7292; fax: +1.408.377.7293



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Willow Technology

MQSeries on MPE/ix

- MQSeries Client for MPE
 - V2 Client
 - Posix Client in Beta
 - V5.x Client
- C, COBOL interfaces
- TCP/IP interface
- Requires MPE/ix 6.0 or later
- Fully supported replacement for IBM Posix client



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Messaging Experts

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- Level 8 personnel developed the original version of IBM MQ Series
- Worked with Microsoft on MSMQ and MSMQ interoperability products:
 - GenevaMQ Bridge for MQ Series
 - GenevaMQ Client



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Microsoft Alliance

- Announced – October 1998
 - Microsoft Licenses MSMQ – MQ Series Bridge
 - NT Component of Geneva MQ to ship with Windows 2000
 - Microsoft to provide 1st and 2nd level support for Geneva MQ Server



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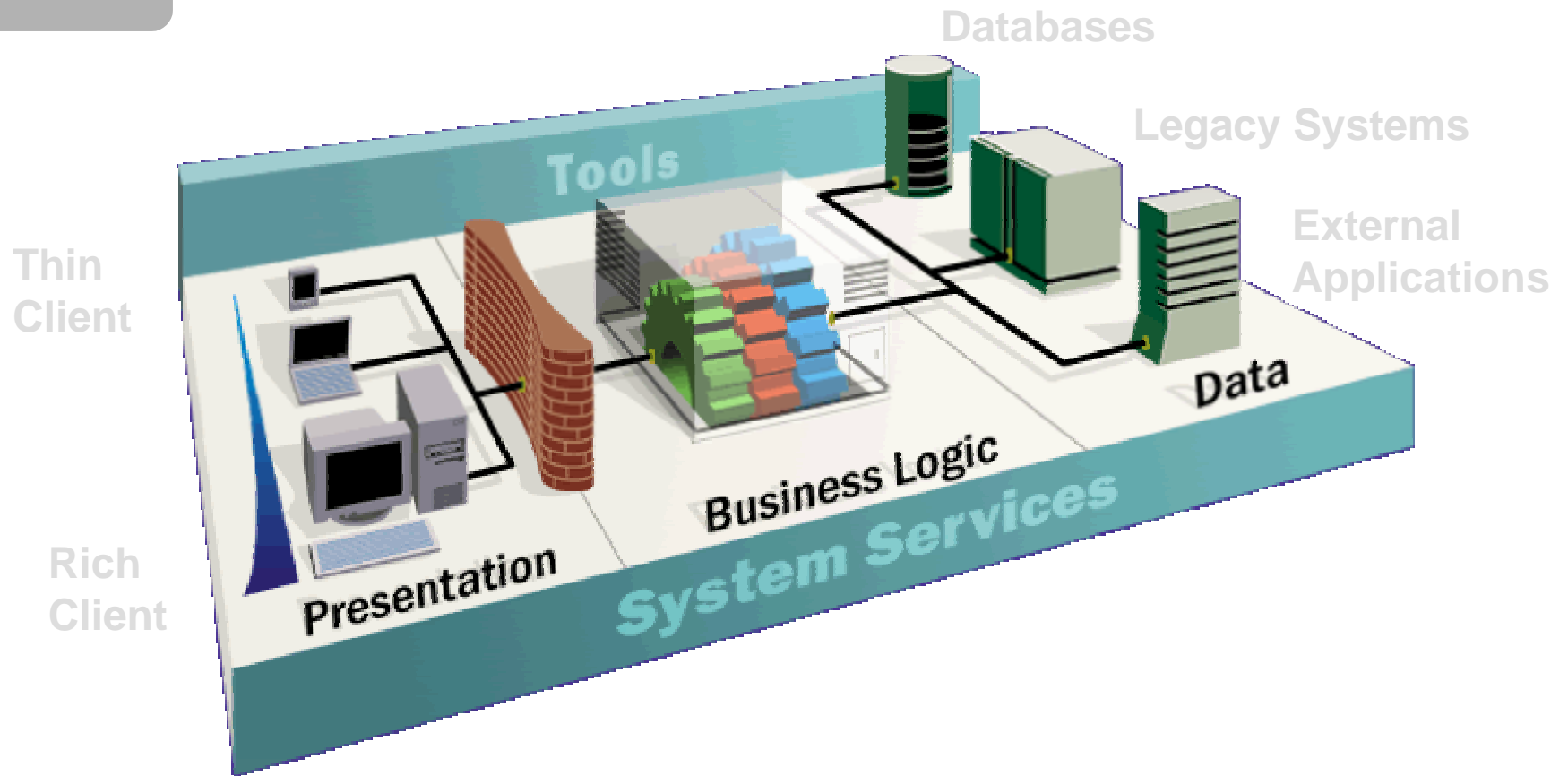
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Windows DNA

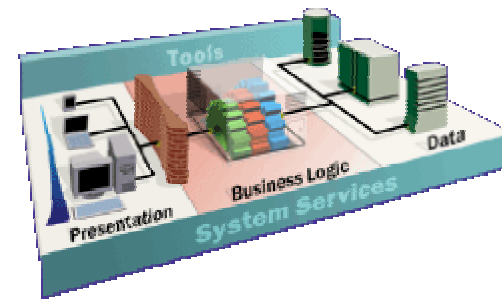
The development model for Windows



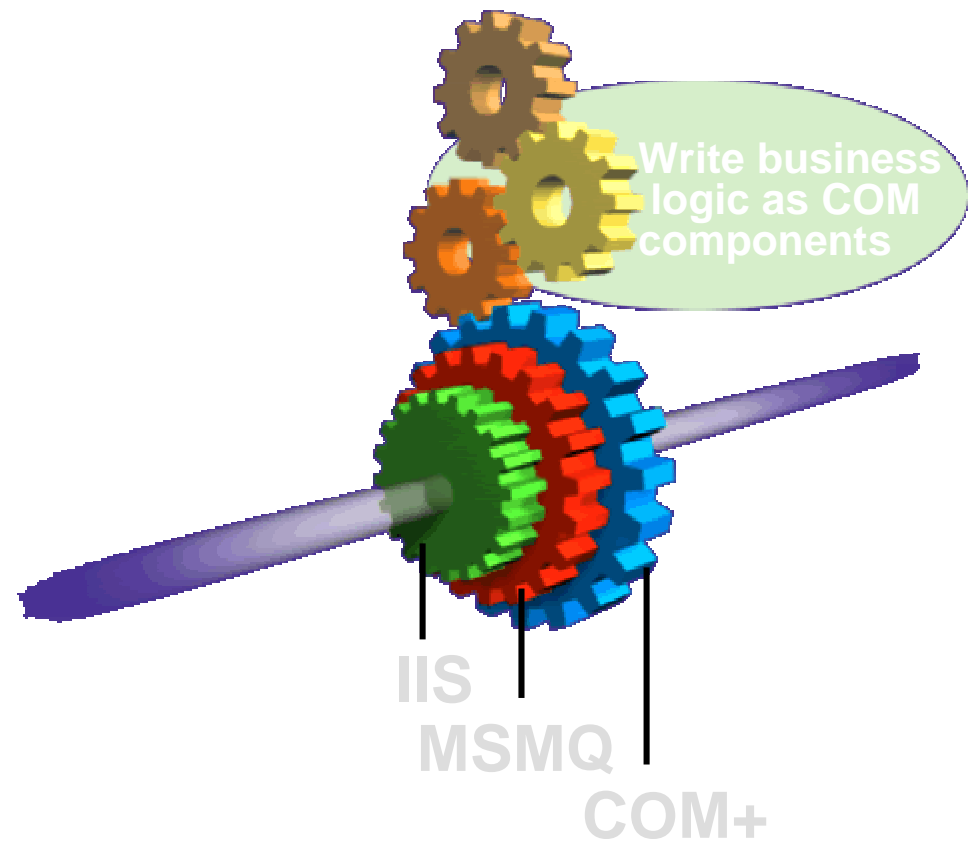
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Windows DNA Business Logic

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- Web
- Transaction
- Message Queuing
- Directory
- Security
- Build on each other
- Integrated together



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M S M Q

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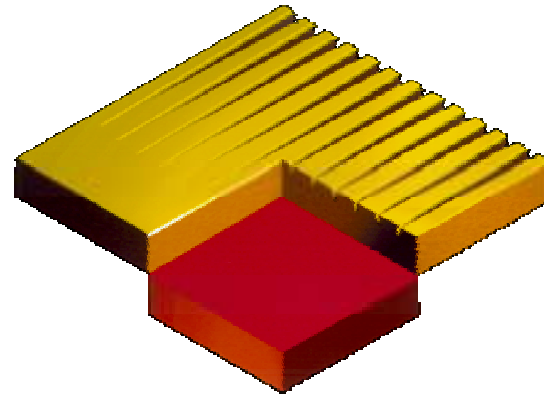
- Key technology component of Windows DNA
- Microsoft's implementation of the message queuing paradigm for the Windows NT operating system
- Windows only!!!!



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GenevaMQ

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- An enterprise platform for building cross-platform message queuing solutions based on MSMQ
- Available on MPE/iX, UNIX, MVS, AS/400, VMS, Unisys and over 12 other enterprise platforms



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GenevaM Q

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- GenevaM Q for HPE3000 MPE/iX (independent and dependent client)
- Provides fundamental windows to MPE connectivity
- API implemented in both
C or COBOL 85

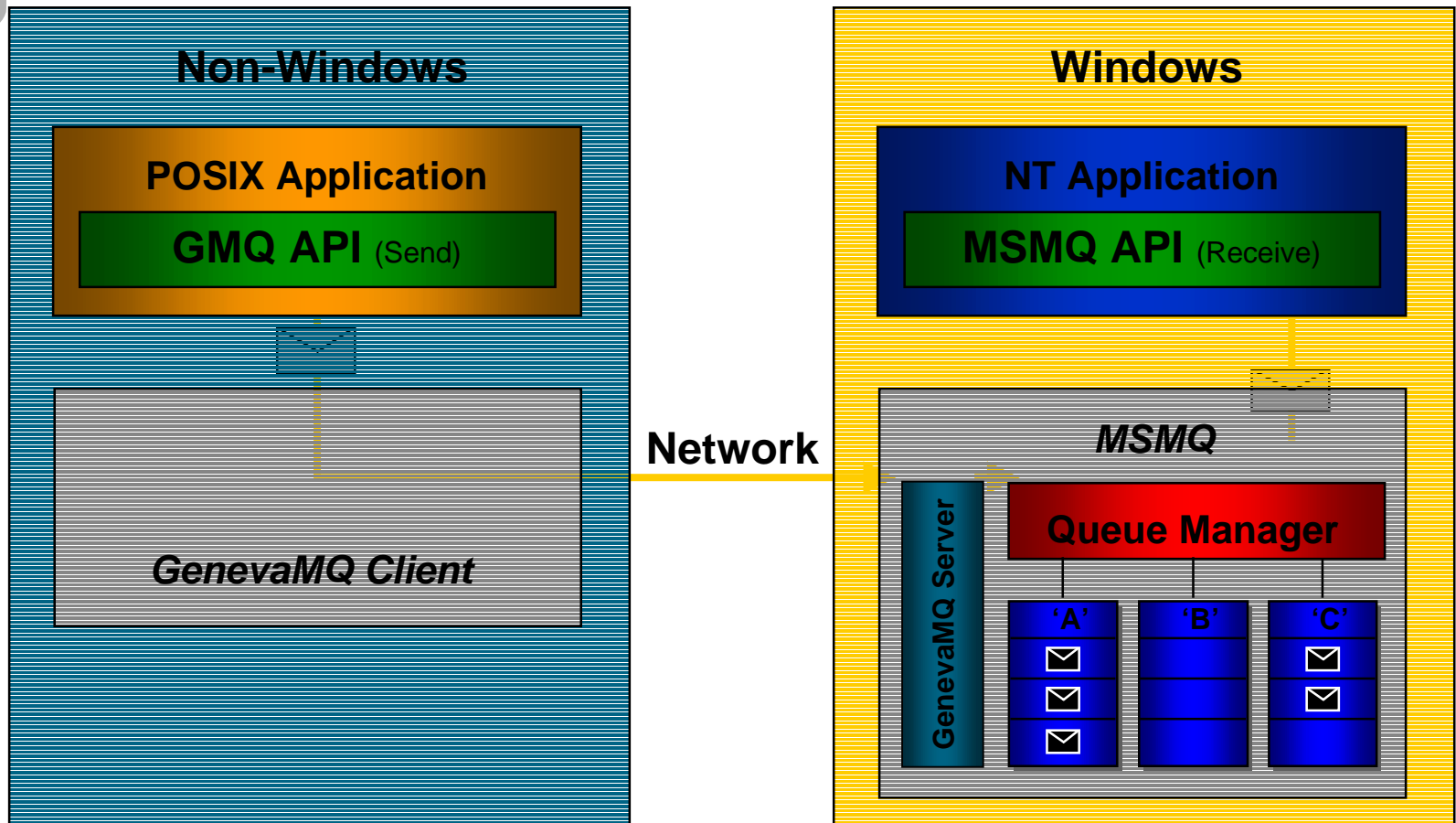


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Architecture

Dependent Client

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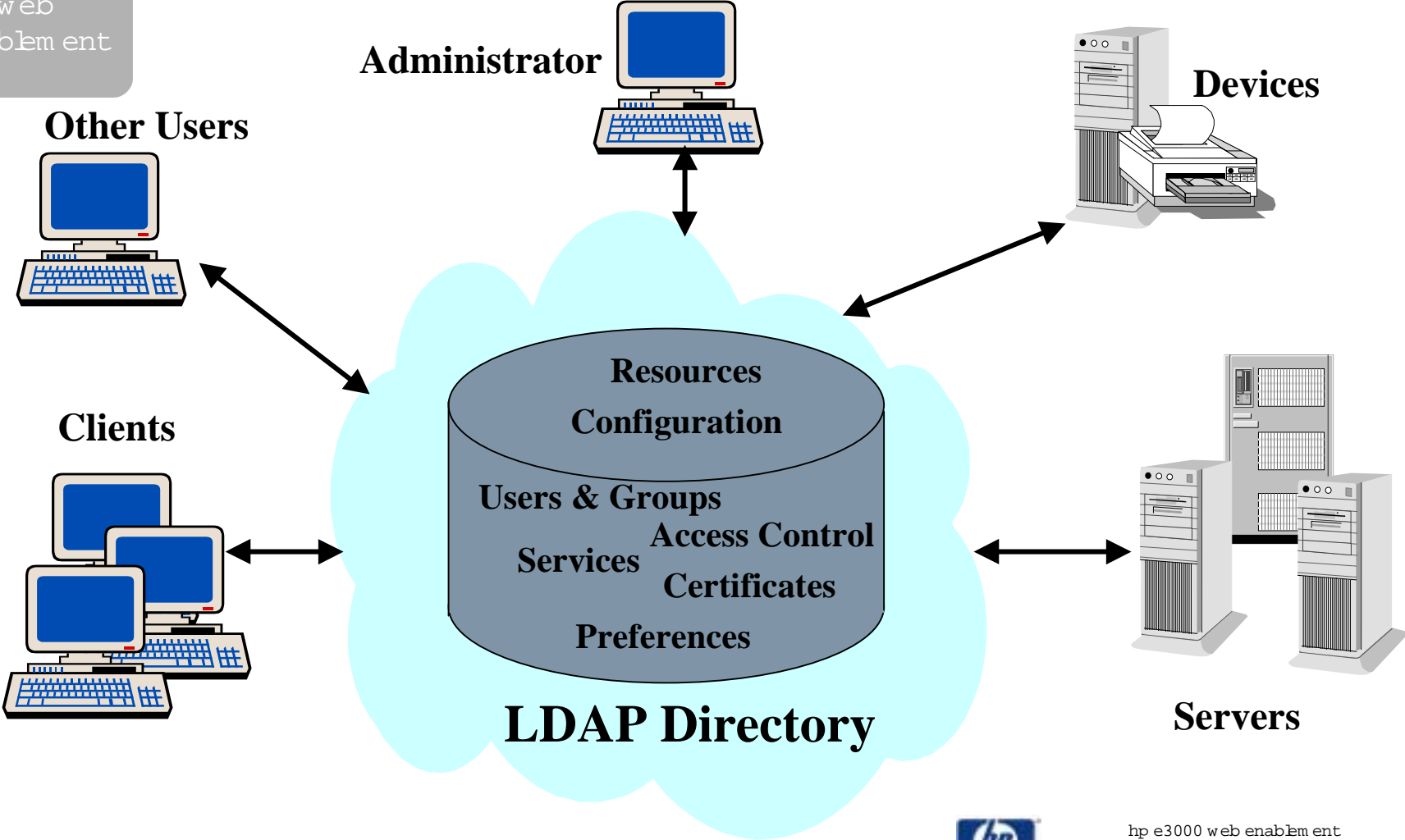
What can you do with LDAP?

- A directory web in much the same way that http & html are used to define inplement the global hypertext web.
- Any LDAP client may peruse the global directory just as they can use a web browser to peruse the global Web
- Provides one central source for searching, updating, and authenticating access to data

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LDAP - the Big Picture



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XML

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- E-commerce has XML processing as part of the MACS application
- Different from HTML in that it separates content from presentation
- Allows data to be interpreted without knowing a specific format beforehand
- Built into many application servers that use ODBC or JDBC to get to the data
- Lots of different types of XML, translators becoming prevalent



XML - English Analogy

FOURSCOREANDSEVENYEARSAGOOURFOREFATHERSBROUGHTFORTHONTHISCONTINENTANEW NATION CONCEIVED IN LIBERTY AND DEDICATED TO THE PROPOSITION THAT ALL MEN ARE CREATED EQUAL NOW WE ARE ENGAGED IN A GREAT CIVIL WAR TESTING WHETHER THAT NATION OR ANY NATIONS SO CONCEIVED AND SO DEDICATED CAN LONG ENDURE

Four score and seven years ago, our forefathers brought forth on this continent a new nation, conceived in liberty and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure.

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RSA 's BSAFE SSL-C

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- Core cryptographic services – [Crypto-C](#) and PKI service – Cert-C .
- Security simplified: one trusted vendor for both the secure protocol and the underlying cryptography
- Dramatic time to market benefits in the development of SSL-enabled applications
- SSLv2, v3 and TLS v1 specification support provides quick and interoperable functionality between SSL clients and servers
- Full-strength, supported product available in many countries



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Middleware Types and Corresponding Products

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Synchronous RPC	SQL-Oriented Data Access	Object Request Broker	Message Oriented	Publish/Subscribe	Asynchronous RPC
<ul style="list-style-type: none">• Microsoft MTS• NCR TOP END• IBM Encina• BEA Tuxedo• IBM CICS	<ul style="list-style-type: none">• JDBC• Interolv• DataDirect• Oracle Connect• IBIEDA/SQL	<ul style="list-style-type: none">• Visigenic VisiBroker• BEA ObjectBroker• Iona Orbix• TIBCO• TIB ObjectBus	<ul style="list-style-type: none">• Momentum XIPC• Microsoft MSMQ• BEA MessageQ• IBM MQ Series• NEON• NEONet	<ul style="list-style-type: none">• ActiveActiveWeb• Talarian• SmartSockets• TIBCO• TIB Rendezvous	<ul style="list-style-type: none">• HTTP• NobleNet RPC

Source: DBM S



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What Application Servers Do

- Integration with legacy systems and databases
- Website support
- Web integrated system development
- Personal computer system development
- E-commerce
- Performance management

- Source: Application Server Powering the Web-Based Enterprise by Jesse Feiler



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Application Servers vs. Middleware

- Application servers mediate between databases and web servers
- Middleware mediate between system components that may be databases and Web servers or other components
- Middleware is more general

Source: Application Server Powering the Web-Based Enterprise by Jesse Feiler



HP WebWise.

internet suite of key offerings
for e-business and
web-enabling
your hp e3000



HP WebWise.

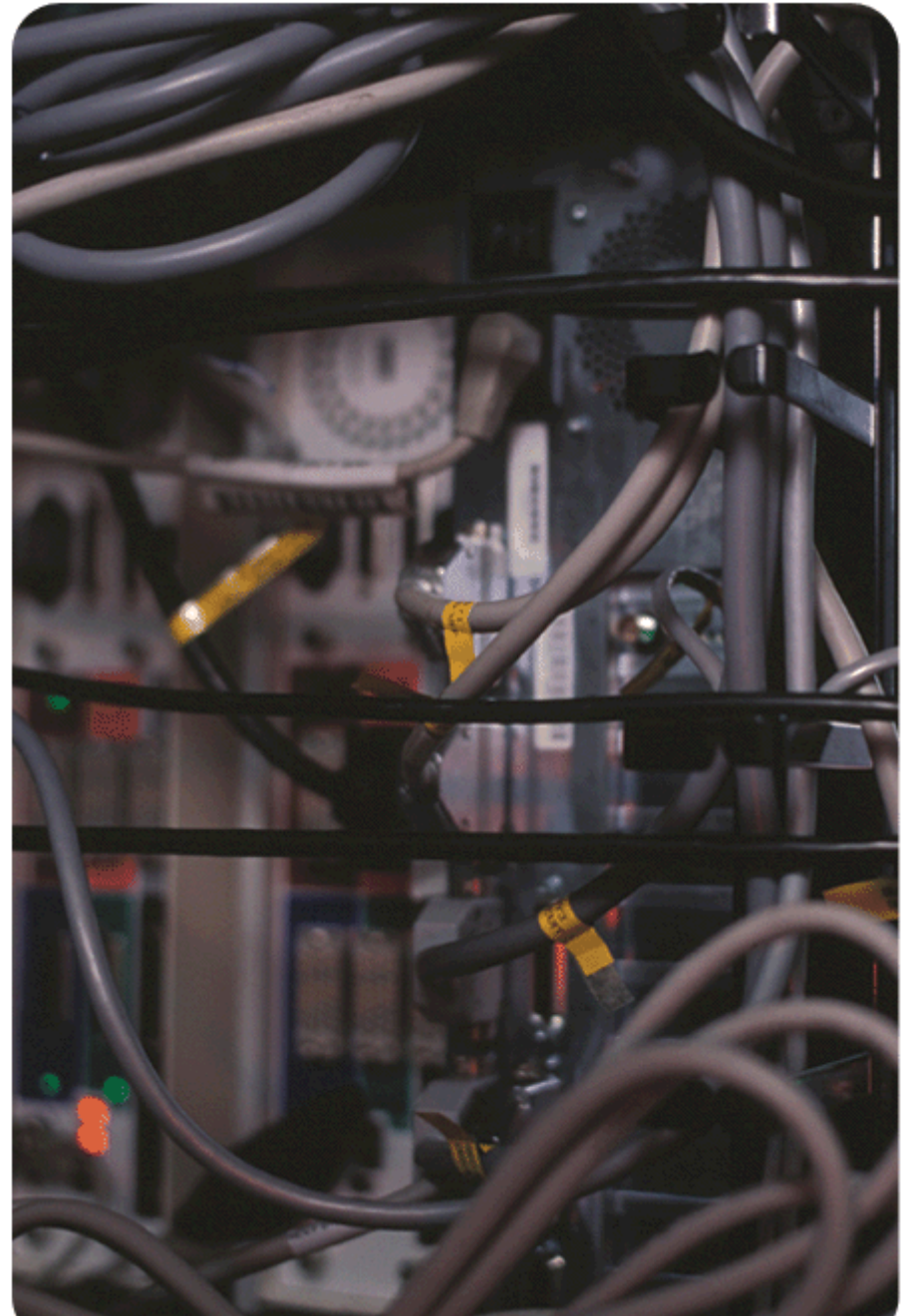
hp webwise secure webserver

based on the apache
webserver

128 - 168 bit encryption and
authentication

the most popular webserver
package in the industry

cross-platform , open source
solution



hp website mpe/x secure web
serverbased on open-source
apache
orderable and shipping now from
an hp reseller or sales rep.
on-line order, purchase, and
download available today from
www.software.hp.com
fullhp support via the response
center
affordable pricing based on
system performance tier
new features and functionality are
planned for fy 2001



where to buy

luris enhydra application server

facilitates rapid development
and deployment of java and xml
applications



uses for application servers:
connecting to legacy data
creating new solutions
deploying internet solutions
*100% java means portable across all
hardware platforms*

hp e3000 and lutris
enhydra

based on open source enhydra
application server

100% java
xm land wireless server



lutris technologies

sponsor and developer of enhydra on
the hp e3000

enhydra enables developers to develop
and deploy java and xm applications for
the e3000

hp e3000 and lutris
enhydra

solution sell:
lutris = internet savvy
hp = hp e3000 savvy



based on open source enhydra
application server

100% java
xml and wireless server

lutris technologies

sponsor and developer of enhydra on
the hp e3000

enhydra enables developers to develop
and deploy java and xml applications for
the e3000

java and interoperability for the hp e3000

- java database connectivity (jdbc)
 - mpe/ix sdk for java 1.2
 - version 1.3 on the way
- mpe/ix hotspot virtual machine for java
 - 2x to 5x the performance of the classic java vm
- java servlets available in lutris enhydra 3.5 from lutris



interoperability with other platforms:

current version of samba for
interoperability with nt
(v 2.0.7 in 7.0 express 1)

ldap lightweight directory access
protocol

odbc connectivity from mb foster
associates & others

open source enterprise

software and services

enhydra - the leading open source

java/xml application server

lutris-certified products

lutris services:

internet consulting,

support,

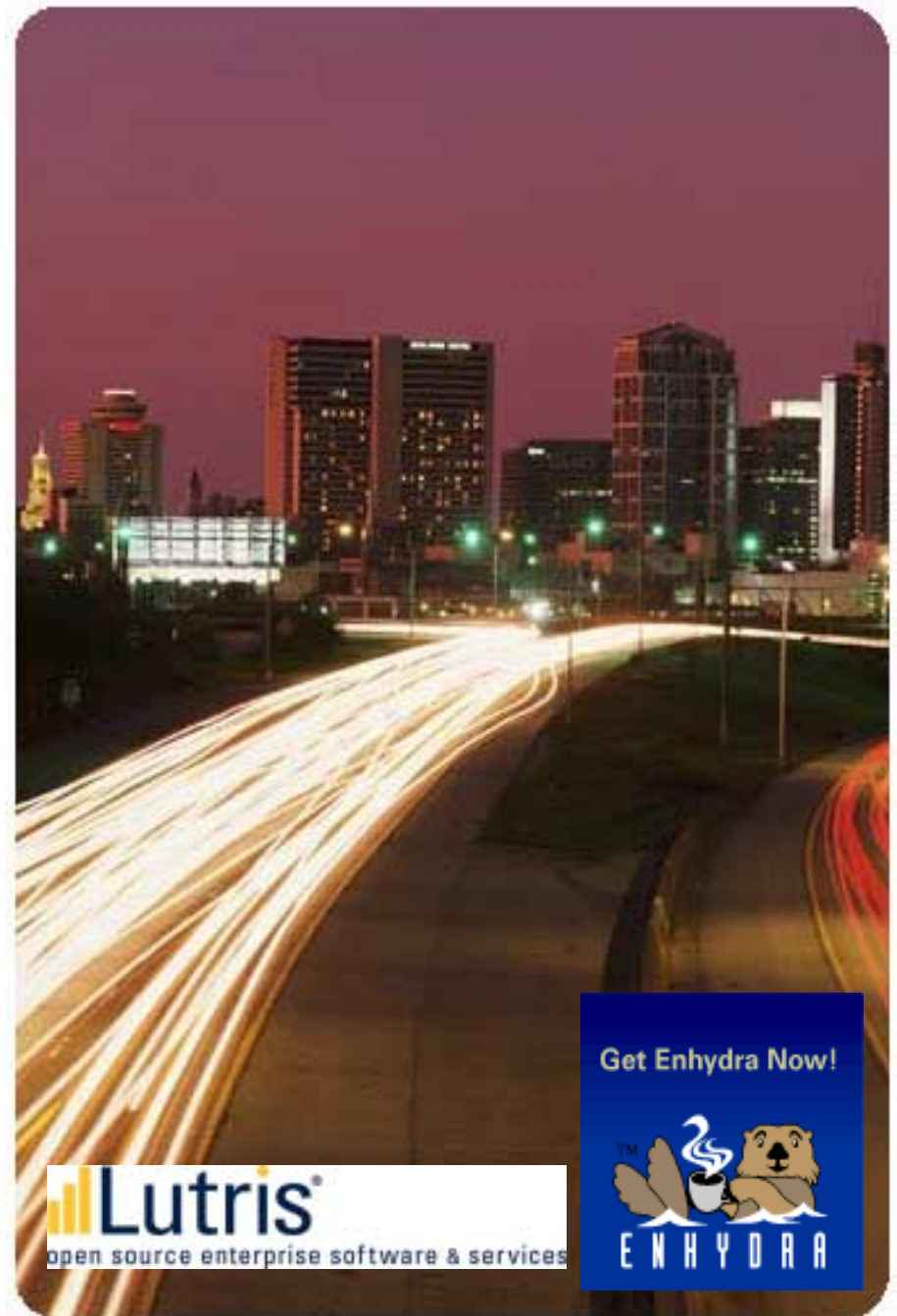
education

investors: chase capital partners,

intel 64 fund (includes hp), com paq,

nec, db alex brown, chase h& q

form ore info: www.lutris.com



Lutris
open source enterprise software & services

Get Enhydra Now!



open source

a development methodology
a licensing scheme

available to anybody
can be modified by anybody



open source

a development methodology
a licensing scheme

available to anybody
can be modified by anybody

lutris does the core
engineering on enhydra

partners, consultants, isvs can
view and modify the source



open source

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a licensing scheme

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can be modified by anybody

luris does the core engineering
partners, consultants, isvs can
java forms the basis for enhydra
easily migrated to platforms like



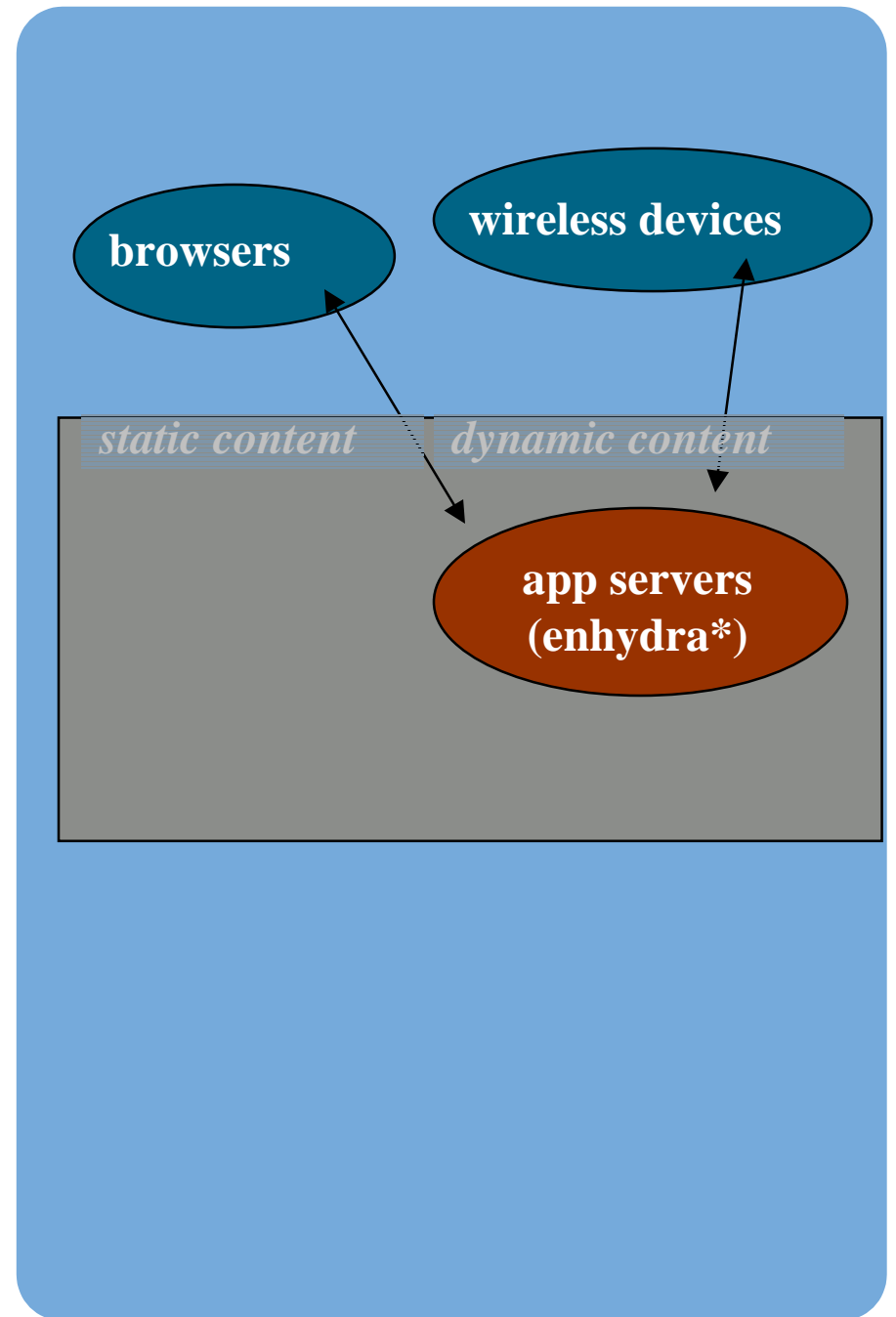
application servers

development and deployment

environment for dynamic

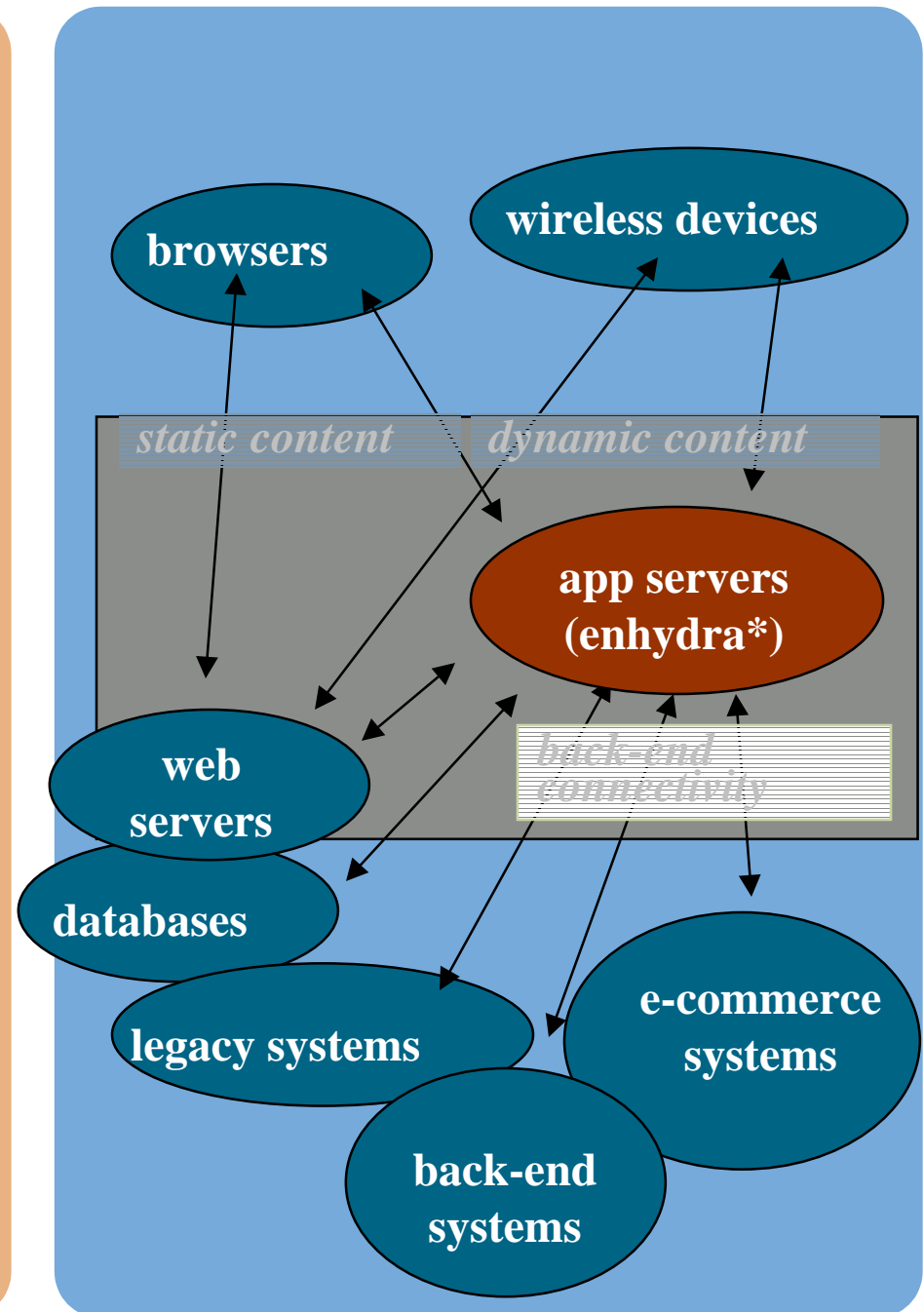
web and wireless applications.

used for building dynamic, data driven
applications



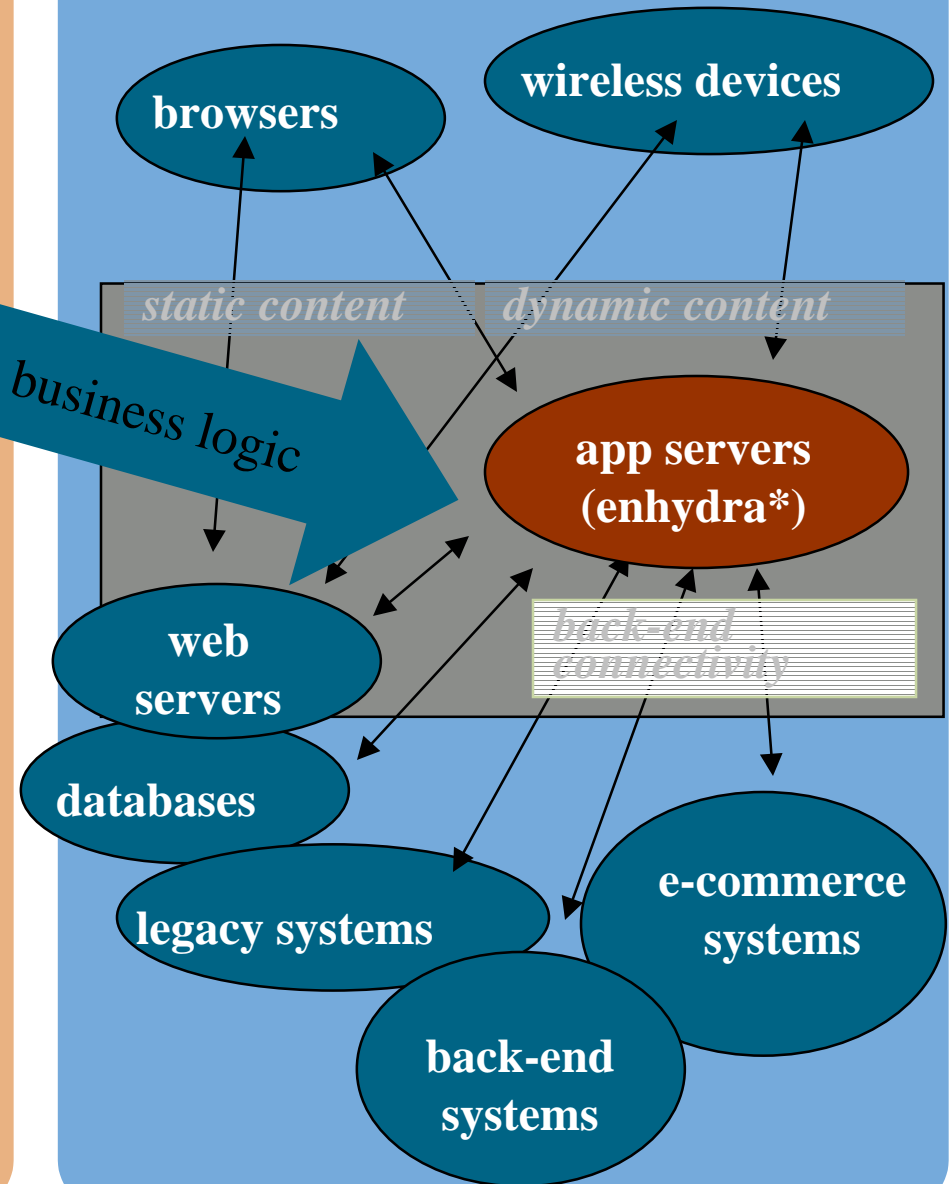
application servers

development and deployment environment for dynamic web and wireless applications used for building dynamic, data driven applications able to draw upon data from many types of data sources: databases, legacy systems, erp systems, xml data stream, etc.



application servers

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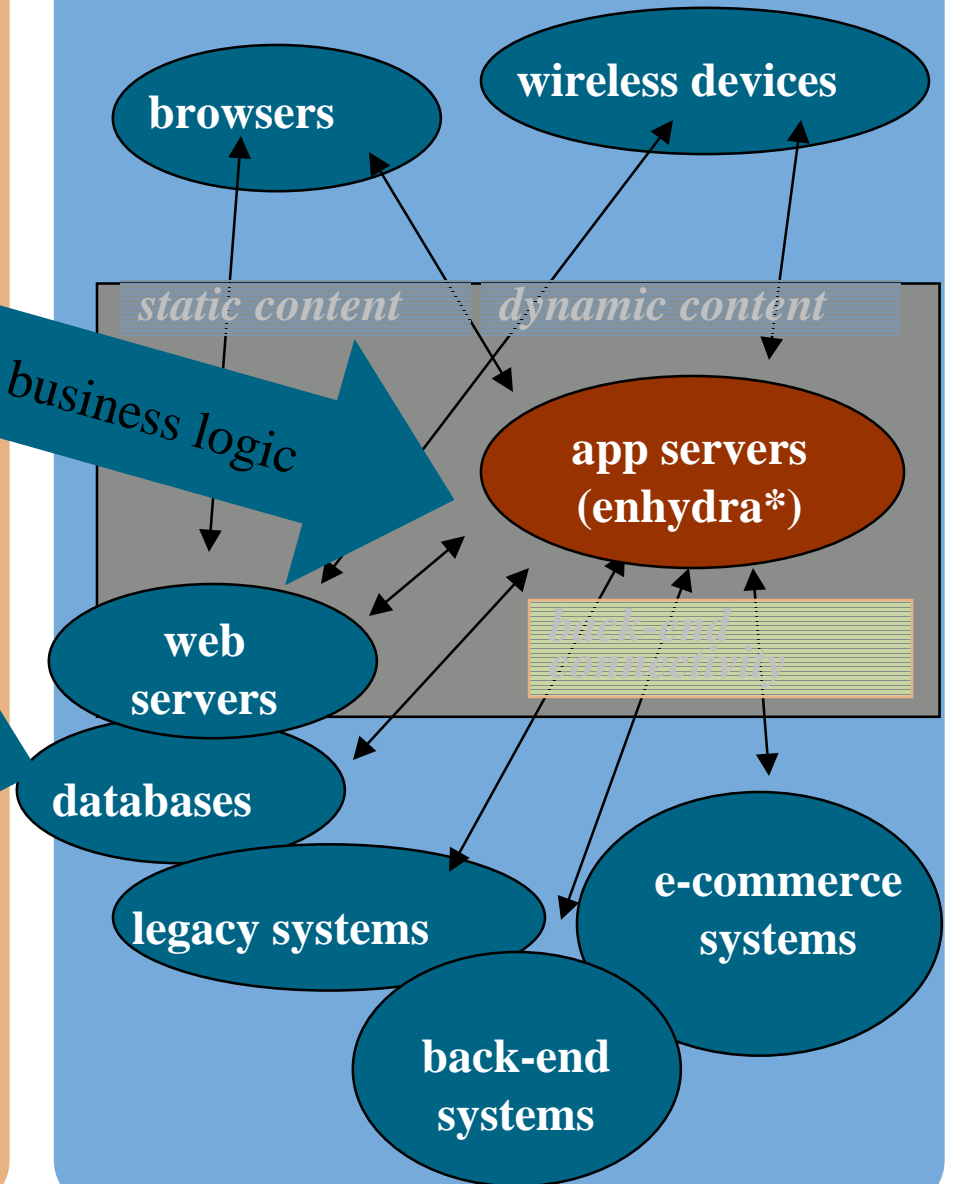


application servers

development and deployment environment for dynamic web and wireless applications used for building dynamic, data driven applications able to draw upon data from many types of data sources: legacy systems, erp systems, stream, etc.

image/sql
via jdbc

business logic



lutris and webwise

the application server is one component of a complete solution stack. secure apache webserver provides security and the ability to serve static content application server used to create data-driven dynamic web (servlets) and wireless applications

e3000 ebusiness solution stack

web and wireless apps

lutris enhdyra

apache webserver

mpe/ix

hp e3000

Webwise suite

References 1

Tool	Tool Type	Contact Info
SAMBA	NT file and print sharing	www.hp.com/go/3000
Bradmark MPE Command Center	GUI front-end	www.bradmark.com
Minisoft Frontman	GUI front-end	www.minisoft.com
OmniSolutions GUI 3000	GUI front-end	www.omnisolutions.com
WRQ Reflection 1, version 6.0	Active document support	www.wrq.com
Advanced Network Systems	JDBC driver	www.advnetsys.com
CSL Linkway	ODBC driver	www.csllink.com
MB Foster ODBCLink/SE	ODBC driver	www.mbfoster.com
Minisoft ODBC/32	ODBC driver	www.minisoft.com
Crystal Reports	ODBC spreadsheet	www.img.seagate.com
Lotus 1-2-3	ODBC spreadsheet	www.lotus.com
Microsoft Excel	ODBC spreadsheet	www.microsoft.com
Casahl Replic-Action	ODBC tool (Lotus Notes and Microsoft Exchange)	www.casahl.com
Haht Hahtsite	ODBC tool	www.haht.com
Macromedia Backstage	ODBC tool	www.macromedia.com
Microsoft Access	ODBC tool	www.microsoft.com
Microsoft dbWeb	ODBC tool	www.microsoft.com

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Microsoft FrontPage	ODBC tool	www.microsoft.com
Microsoft Visual Interdev	ODBC tool	www.microsoft.com
Microsoft Word	ODBC tool	www.microsoft.com
NetObjects Fusion	ODBC tool	www.netobjects.com
Information Builders EDA	Gateway	www.ibi.com
Oracle Transparent Gateway for IMAGE/SQL	Gateway	www.oracle.com
Sybase Open Client/Open Server	Gateway	
Speedware Autobahn	Middleware	www.speedware.com
Bradmark StarVision	Middleware	www.bradmark.com
DCE	Middleware	www.hp.com
DISC OMNIDEX for the Web	Middleware	www.disc.com/index.html
Minisoft Middleman	Middleware	www.minisoft.com
Premier Software OSCAR (Open Services Catalog & Application Registry)	Middleware	www.premiersoft.com
Taurus Bridgeware	Middleware (database to database extraction)	www.taurus.com
Level 8 Software	Middleware	www.level8.com
Willow Technology	Middleware	www.willow.com
Lutris Enhydra	Application Server	www.lutris.com

hp e3000

Q uestions

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