Don't Panic

What to Do If You've Still Got Hundreds of Forms 3.0 Applications

Bill Pribyl/DataCraft

HOUG   18 September 1996

Presentation available at www.datacraft.com

Look under Tips -> Forms Upgrade

Quasi Agenda

SQL*Forms 3.0

How long can I keep it?

Can it run against new server versions?

Forms 4.5

What are my upgrade options?

What about third-party converters?

Web Forms & Sedona

Why do I care about these technologies?

How do they impact my Forms decision?

Alternatives

What else should I be looking at?

How do the alternatives work?

Sources and Credits

Client experiences, 1991 - present

Conversations with John Stoddart/SCOUG, Sep 96

Telephone interview with Ben Wright/Oracle, Aug 96

Oracle Tech Support

DataCraft research on intranet development tools, Summer 96

Gartner Group research, 1995

"Database Publishing on the Web & Intranets" by Curt Lang and Jeff Chow (Coriolis, 1996)

"Web Database Tools," PC Magazine 10 Sept 96, partially at www.pcmag.com/iu/features/1515/dbase/dbase_o.htm

Many referenced product names are trademarked by their owners

Discussion

How many .frm files do you have?

- *500*

- *1000*

- *5000*

Discussion

What % of your users have:

▶ *PCs of any type?*

▶ *PCs with 32-bit O/S & 32 meg memory?*

▶ *Only terminals?*

Discussion

▶ Are the key decision factors:

Economic?

Political?

The Forms Legacy Problem

==>   Forms 3.0...for a while longer

Forms 4.5

Web Forms

Something else

The Lifecycle Matrix   From Bulletin 9250094.61

Product	When	Lifecycle Phase	Oracle Development	Oracle Worldwide Support
Developer 2000 w/ Oracle Forms 4.5 & Oracle Reports 2.5	now	Active	Enhancements & Maintenance	Customer Care Support
SQL*Forms 3.0/ SQL*Menu 5.0 and SQL*Reportwriter 1.1	through 12/31/96	Mature	Critical Fix Maintenance	Customer Care Support
SQL*Forms 3.0/ SQL*Menu 5.0 and SQL*Reportwriter 1.1	1/1/97 to 12/31/99	Functionally Stable	No Support	Extended Assistance Support
SQL*Forms 3.0/ & SQL*Menu 5.0 and SQL*Reportwriter 1.1	after 12/31/1999	Obsolete	No Support	No Support

Bad News

Forms 3, Menu 5, and Reportwriter 1.1:

▶ *Are not part of the Oracle 7.3 distribution*

▶ *Last shipped in 7.2*

▶ *Get no bug fixes after December 31, 1996*

Good News

Until the end of the millenium, Oracle will:

▶ *Answer questions on these products*

▶ *Provide problem workarounds where possible*

▶ *Offer upgrade assistance*

...with no fees beyond regular maintenance

Oracle's name for this is "Extended Assistance Support"

I Want to Run SQL*Forms 3.0 and Oracle 7.3!

Not to worry!

Forms 3.0 WILL run with server 7.3 in an Oracle-supported configuration...

1. Install Oracle 7.3 with desired options

2. Install Oracle 7.2 tools and database on a separate machine or in a separate ORACLE_HOME

3. Be sure SQL*Net 2.x or greater is installed and configured

4. Set users' environment variables:

   ▶ *ORACLE_HOME and PATH use 7.2 settings*

   ▶ *TWO_TASK is the 7.3 database's TNS name*

Conventional Approach

```sh
#!/bin/sh

# save old ORACLE_HOME to strip from PATH
OLDHOME=${ORACLE_HOME:-$PATH}

# make the new settings
ORACLE_HOME=/u01/app/oracle/product/7.3.2 ; export ORACLE_HOME
ORACLE_SID=PROD ; export ORACLE_SID
unset TWO_TASK

# Don't make any assumptions about what's in $PATH
case "$PATH" in
    *$OLDHOME/bin*)         PATH=`echo $PATH | \
                                sed "s;$OLDHOME/bin;$ORACLE_HOME/bin;g"` ;;
    *$ORACLE_HOME/bin*) ;;
    *:)                     PATH=${PATH}$ORACLE_HOME/bin: ;;
    "")                     PATH=$ORACLE_HOME/bin ;;
    *)                      PATH=$PATH:$ORACLE_HOME/bin ;;
esac

export PATH
```

```sh
#!/bin/sh

# First set TWO_TASK to the TNS name of the 7.3 database
TWO_TASK=prod.houston.datacraft.com ; export  TWO_TASK

# Now for safety remove ORACLE_SID so no BEQ connections possible
unset ORACLE_SID

# save old ORACLE_HOME to strip from PATH
OLDHOME=${ORACLE_HOME:-$PATH}

# Use the 7.2 distribution to use Forms, Menu, and Reports
ORACLE_HOME=ORACLE_HOME=/u01/app/oracle/product/7.2

# Don't make any assumptions about what's in $PATH
case "$PATH" in
    *$OLDHOME/bin*)      PATH=`echo $PATH | \
                            sed "s;$OLDHOME/bin;$ORACLE_HOME/bin;g"` ;;
    *$ORACLE_HOME/bin*) ;;
    *:)                  PATH=${PATH}$ORACLE_HOME/bin: ;;
    "")                  PATH=$ORACLE_HOME/bin ;;
    *)                   PATH=$PATH:$ORACLE_HOME/bin ;;
esac

export PATH
```

Benefits

+ No application changes required

+ No expensive PC upgrades required

+ Buys more time to decide what to do next

+ Gives market a chance to invent new technology

Risks

– No guarantee of continued O/S support

– Oracle will want to discontinue Oracle7 support 18 mos. after Oracle8 ships

– Users tend to want GUIs

Forms 3.0...for a while longer

==>   Forms 4.5

Web Forms

Something else

Forms 4.5

	Forms 4.5 char mode	Forms 3.0/Menu 5.0
Designer i/f	GUI only	char mode only
Trigger behavior	on-new-field-instance fires on nav...infinite loops likely	can navigate & in out of field in o-n-f-i
Runtime LOV	Auto-reduce by default	N/A
Runtime keys	Slightly different (can be changed w/ Oracle Terminal)	
Forms messages	Some new phrasing. Example: "Do you want to save"...	...instead of "Do you want to commit"
Command-line syntax	Slightly different (can be "wrapped")	
Menu security	Use Oracle server roles	Uses SQL*Menu roles
Screen size	Adapts to window size	Fixed at 80 or 132x24
V2-style triggers	STILL supported!	Supported

Forms 4.5 Character Mode

1. First upgrade forms and modules at the root of your "dependency tree" for referenced and called Forms

2. f45gen <module-name> <username/password>

   (Produces .fmb file and .fmx file by default)

3. Eliminate navigation in on-new-field-instance triggers

4. Test until you're happy

5. Revise default key map using Oracle Terminal, or retrain users

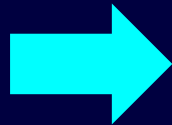The simple upgrade process is well-documented elsewhere:

▶ *http://www.oracle.com/products/ developer2000/upgrade/html/index.html*

Most Forms conversion literature overemphasizes key- and mouse-navigation issues

Real issues are more than skin deep

Upgrading to Forms 4.5 GUI
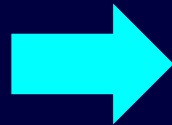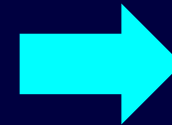
| Expert: "You'd do better to re-engineer" | → | Management: "Give us a cheap & dirty upgrade" | → | Users: "This stinks!" | → | Management: "Re-engineer" |

This pattern is repeated in virtually every Oracle shop that upgrades from 3.0 to GUI Forms

Upgrading to Forms 4.5 GUI — A Better Way

1. Train a small team in Forms 4.5

2. Select a pilot project

3. Select upgrade approach(es) to evaluate

   Converter + manual cleanup

   Simple one-to-one upgrade

   Modest inclusion of GUI features

   Complete re-engineer

4. Establish and document GUI standards as you go

5. Collect metrics for follow-on project sizing

A Slide With High Motherhood Factor

Use this juncture to convince management to use Designer/2000

Get your development team organized around repository-based tools

Inventory existing applications... take out the trash!

Use both reverse- and forward-engineering to reuse and rebuild as appropriate

Upgrading to Forms 4.5 GUI

What About Third Party Converters?

▶ May be a good match for some applications

▶ Conversion technology cannot re-engineer for total GUI look and feel

▶ Only one product on market (Kumaran)

No competition

First two megabytes converted: $9,200

Cheaper to convert by hand?

▶ License does not allow for mistakes

	Forms 3.0	Forms 4.5 Character	Forms 4.5 GUI
Main Impact	DBA	Developers	Everyone
Risk	Low	Lowest	Medium
Cost	Lowest	Low	High
Position	Buys time	Possible interim step	Pilot

Forms 3.0...for a while longer

Forms 4.5

==>   Web Forms

Something else

What is "Web Forms"?

Client

Application Server

Database Server

Web Browser

Java Applet

Web Server

Developer/2000

Developer/2000 Application

Database
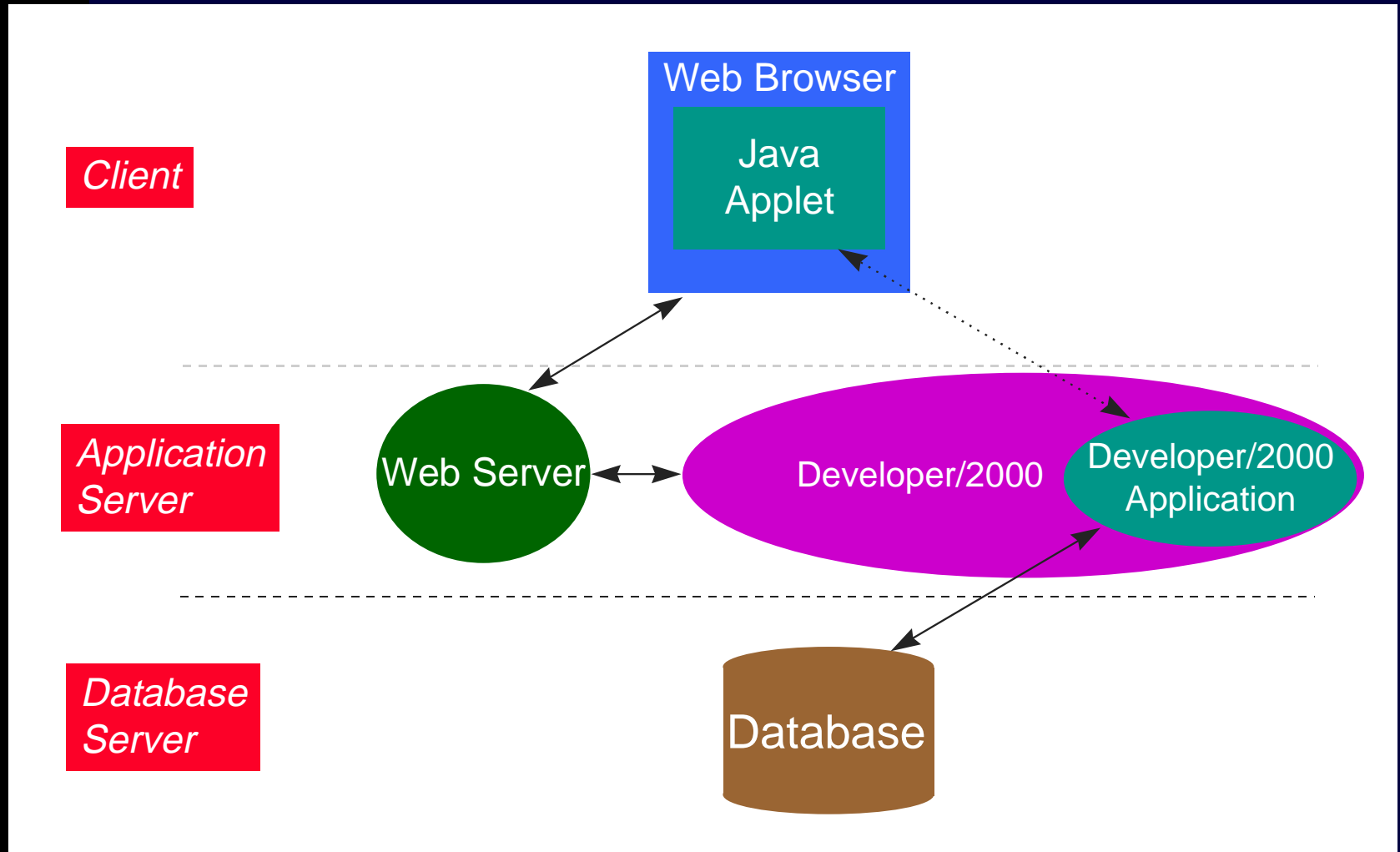
From www.oracle.com/promotions/intranet/html/devapp.html

Why "Web" Forms?

Mostly economic reasons...

▶ *Client/server costs double those of mainframe*

▶ *PC "total cost of ownership" can be more than $10,000/year*

▶ *Thin clients can be 75% cheaper!*

...some are personal...

▶ *Microsoft attitude is driving users away*

...and there is the halo effect

▶ *Internet makes it cool to be a geek...so bring an intranet to work!*

Preparing Forms 3.0 Apps for Web Forms

1. Convert to 4.5 GUI

    ▶ *Conversion issues virtually identical*

    ▶ *Avoid when-mouse-enter, when-mouse-leave*

    ▶ *Don't use on-mouse-move trigger*

2. Wait

Web Forms Project Status

▶ Development team readied demo for Larry Ellison August 19

Ran on various platforms such as Netscape Navigator and the NC

▶ Product release due "late 1Q97 or early 2Q97"

But before Web Forms there will be Forms 5.0...

At least:

▶ *Improved scalability*

▶ *Better OCX support*

▶ *Easier logic partitioning between client & server*

▶ *Developer productivity tools such as wizards*

▶ *An object library*

Scheduled release 1Q97

And What About... Sedona?

Sedona is "an object component-based development framework supporting object standards such as OLE, Java, CORBA, Smalltalk, OpenDoc, and C++"

Will alter the way we build Forms applications

▶ *Will serve as repository for Developer/2000 "parts"*

▶ *Will alter design approach for reusable components*

▶ *Increases granularity of source and version control*

Sedona...

Components

▶ *Active repository for store & manage objects*

▶ *Object Factory component generator*

▶ *Object Mediator middleware*

As of Oct 95, was to ship Summer 96; now "with Oracle8"

Have a look at:

▶ *http://www.infoworld.com/cgi-bin/ displayArchives.pl?30java.htm*

Analysis Upgrade Options and Future Technologies

	Forms 3.0	Forms 4.5 Char	Forms 4.5 GUI	Web Forms	Sedona
When?*	Now	Now	Now	Mid-97	Late 97
Main Impact	DBA	Developers	Everyone	DBA/sys admin	Developers
Risk	Low	Lowest	Medium	High	Very high
Cost	Lowest	Low	Highest TCO	Low TCO after upgrade	Unknown
Position	Buys time	Interim step	Pilot first	Monitor closely**	Wait and see

*Futures are guesses   **Go to SCOUG mtg in January

Do We Really Want to Continue with Forms?

Yes	No
+ Generally efficient for developers	− Much more proprietary than Oracle Server
Especially when used in combination with Designer/2000	− Locks us in to Oracle's upgrade path
+ Well-integrated with server	− Cost of 3.0 to 4.5 GUI upgrade raises fears about next major release
+ If you're already using PL/SQL, why learn a new language?	− Tends to lag more than one technology curve
+ Maintained by very sharp people at Oracle	− May ultimately make us dinosaurs

You WILL re-engineer Forms 3.0 apps if you want successful GUI apps. So why not consider...

Forms 3.0...for a while longer

Forms 4.5

Web Forms

==> Something else

Attributes of the ideal corporate application development tool:

▶ *Standards-based (not just SQL and HTML!)*

▶ *Available from multiple vendors*

▶ *Requires no special client software*

▶ *Within the grasp of the average programmer*

▶ *Specifically tuned for database application development*

▶ *Industrial strength*

(You could also look for an off-the-shelf application)

What kind of Internet access do you have?

▶ *T1 or other high speed*

▶ *ISDN from work*

▶ *ISDN from home*

▶ *28.8 from work*

▶ *28.8 from home*

Does your company have an intranet...

▶ *Planned?*

▶ *Under development?*

▶ *In production?*

Tools and Technologies — Some Representatives

	Standards-Based	Vendors	Client	Learnable	Productive	Ind. Strgth
Dev2K, P-builder, Delphi	some	one	prop.	eventually	very	yes
WebServer	some	one	browser	yes	when generated	probably
CGI w/ perl	yes	yes	browser	yes	moderate	no
Visual Basic	de facto	one	MS	somewhat	moderate	can be
C++, ActiveX	not class libraries	several	MS	maybe not	depends	can be
Java	de facto	many	browser	somewhat	not yet	not yet
JavaScript	in progress	many	browser	yes	fair	not yet
Livewire	part	one	browser	yes	yes	close
Cold Fusion	part	one	browser	yes	yes	no
NetDynamics	part	one	browser	yes	yes	yes
jdbcKona/T3	mostly	one	browser	as Java	as Java	not yet

Issues in Web-Database Integration

Web connections are sessionless

Pooled cache of waiting connections => security risks
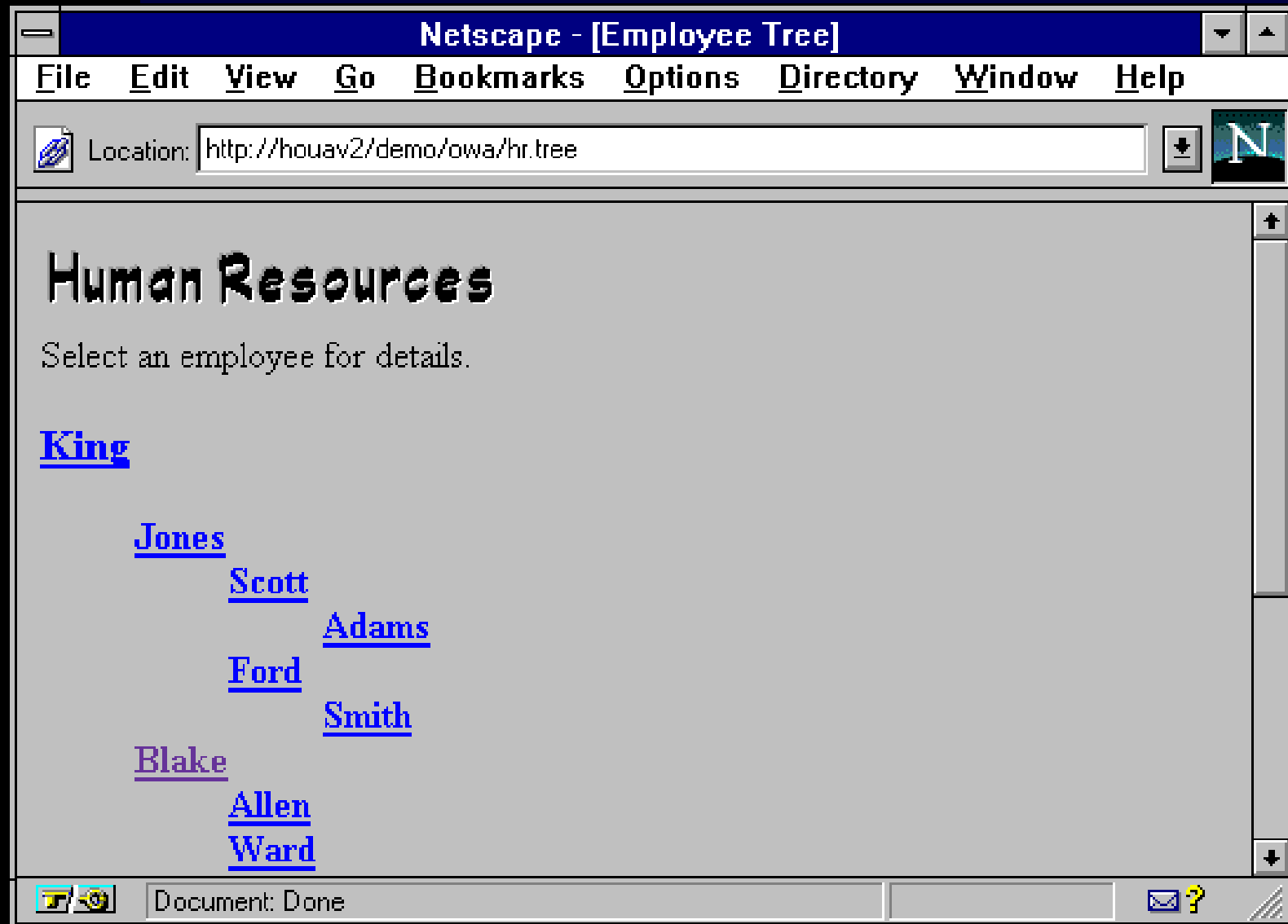
Three tier perfomance and troubleshooting

Some tools are young even in web-years

Support for stored procedures & all parameter types

A long list of tools:
http://www.stars.com/Vlib/Providers/Database.html

```
procedure tree (itop in varchar2) is
    cursor emp_tree (this_mgr number) is
        select empno,ename,mgr,hiredate,sal,comm,level,deptno from emp
        connect by prior empno = mgr start with empno = this_mgr;
    prev_level number := 1;
    ntop emp.empno%type;
    cbuf varchar2(255);
begin
    prolog('Employee Tree');
    htp.p('Select an employee for details.');
    if itop is not null then
        ntop := to_number(itop);
    else
        ntop := ceo;
    end if;
    for e in emp_tree(ntop) loop
        while e.level < prev_level loop
            htp.ulistClose;
            prev_level := prev_level - 1;
        end loop;
```

```
    while e.level > prev_level loop
        htp.ulistOpen;
        prev_level := prev_level + 1;
    end loop;
    cbuf := htf.anchor('hr.person?iempno=' ||
        to_char(e.empno),initcap(e.ename));
    if is_me(e.ename) then
        cbuf := cbuf || ' (This is you)';
    end if;
    if e.level = 1 then
        htp.header(3,cbuf);
    else
        htp.bold(cbuf);
        htp.nl;
    end if;
end loop;
while prev_level > 1 loop
    htp.ulistClose;
    prev_level := prev_level - 1;
end loop;
epilog;
end;
```

Generated HTML

```html
<HTML>
<HEAD>
<TITLE>Employee Tree</TITLE>
<BASE HREF="http://houav2:80/demo/owa/hr.tree">
</HEAD>
<BODY>
<IMG SRC="/hr-img/hr.gif" ALT="hr.gif" border=0>
<BR>
Select an employee for details.
<H3><A HREF="hr.person?iempno=7839">King</A></H3>
<UL>
<B><A HREF="hr.person?iempno=7566">Jones</A></B>
<BR>
<UL>
<B><A HREF="hr.person?iempno=7788">Scott</A></B>
<BR>
<UL>
<B><A HREF="hr.person?iempno=7876">Adams</A></B>
<BR>
</UL>
...
```

WebServer Comments

Advantages

+ With Designer/2000, can generate web applications*

+ Allows use of PL/SQL, Java, SSI, custom via API

+ WRB allows use of non-Oracle web server

Disadvantages

− Very low market share (0.02% on Internet)

− Code-heavy

− Apps may be totally locked in to Oracle

− Only recently did Oracle begin using it at www.oracle.com

*Read-only now; r/w transactions in Rel. 1.3W (Nov/Dec 96)

It's a Java World — Terms

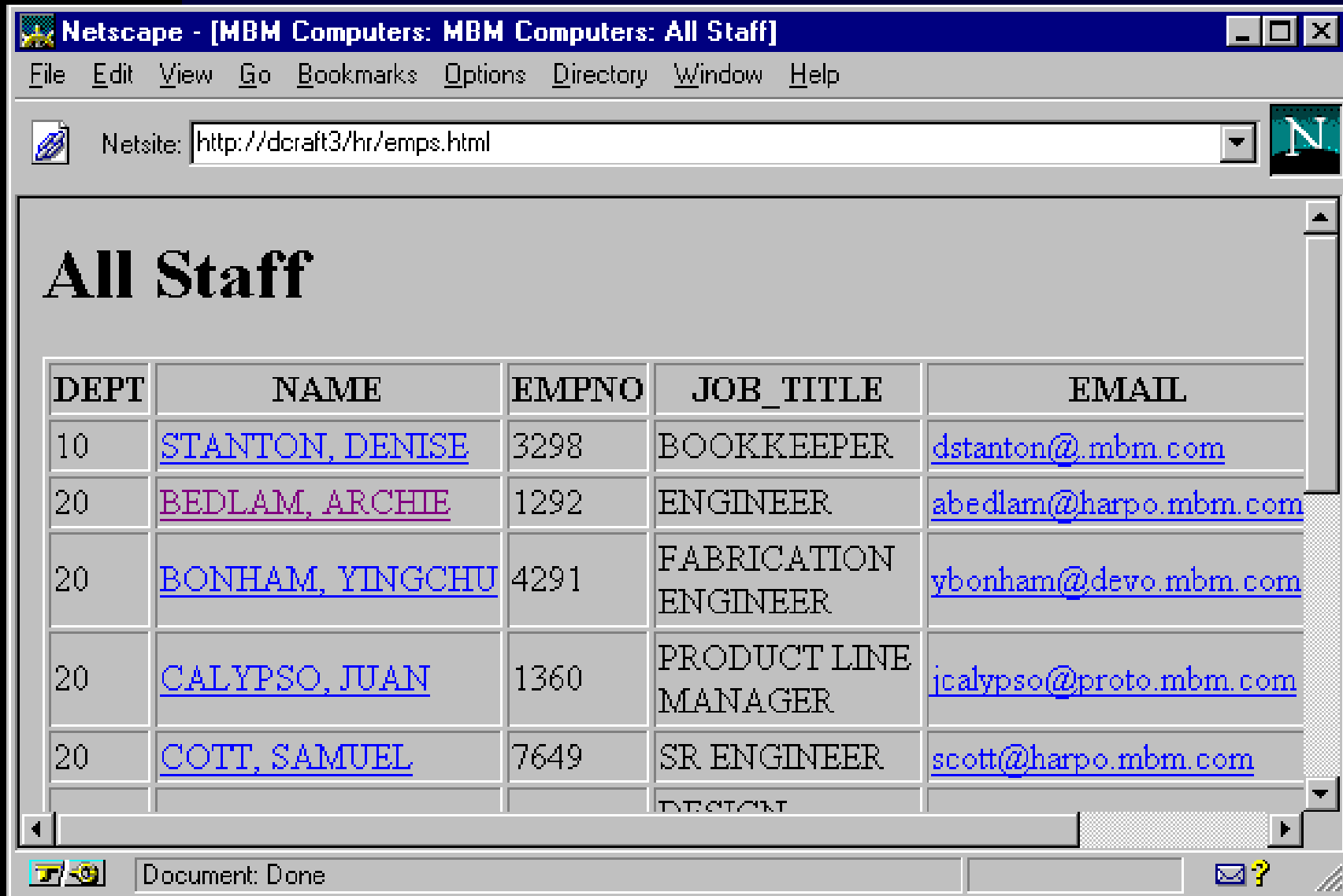| Term	Description
Java	Portable, object-oriented, adaptable programming language trademarked by Sun
JavaScript	Client-side form allows programmatic interaction and control of web pages
LiveWire	Server-side form of JavaScript that links Netscape web servers with database servers
JDBC	Java Database Connectivity: an emerging standard to link Java with databases
JDBC-ODBC bridge	PC software for linking JDBC calls with databases via ODBC
Java Beans	(In work) Set of Java APIs to facilitate Java component reuse

Netscape - [MBM Computers: MBM Computers: All Staff]

File   Edit   View   Go   Bookmarks   Options   Directory   Window   Help

Netsite: http://dcraft3/hr/emps.html

All Staff

DEPT	NAME	EMPNO	JOB_TITLE	EMAIL
10	STANTON, DENISE	3298	BOOKKEEPER	dstanton@.mbm.com
20	BEDLAM, ARCHIE	1292	ENGINEER	abedlam@harpo.mbm.com
20	BONHAM, YINGCHU	4291	FABRICATION ENGINEER	ybonham@devo.mbm.com
20	CALYPSO, JUAN	1360	PRODUCT LINE MANAGER	jcalypso@proto.mbm.com
20	COTT, SAMUEL	7649	SR ENGINEER	scott@harpo.mbm.com

Document: Done

```
<HTML>
<HEAD>
<TITLE>MBM Computers:
<server>
    if ( request.deptno != null )
        write("MBM Computers: Department " + request.deptno + " Staff");
    else
        write("MBM Computers: All Staff");
</server>
</TITLE>
</HEAD>

<BODY>

...snip...

<TABLE BORDER>
<server>
    if (request.deptno == null)
        cursor = database.cursor("select deptno dept, lname || ', ' "
                + " || fname name, empno, "
                + "job_title, email, voice from employees "
                + "order by deptno, lname");
    else
        cursor = database.cursor("select "
                + "lname ||', ' || fname name, empno, job_title, "
                + "email, voice "
                + "from employees where deptno="
                + request.deptno  + " order by lname");

    showDatabaseError();
```

```
            write("<tr>");
            i = 0;
            while ( i < cursor.columns() ) {
                write ("<th>", cursor.columnName(i), "</th>");
                i++;
            }
            write("</tr>");
            while (cursor.next()) {
                write("<tr>");
                i = 0;
                while (i < cursor.columns() ) {
                    if (cursor.columnName(i) == "NAME") {
                        write("<td nowrap>");
                        write("<A HREF=\"editme.html?empno=" + cursor.empno + "\">");
                        write(cursor.name, "</A></td>");
                    }
                    else if (cursor.columnName(i) == "EMAIL") {
                                    write("<td>");
                                    write("<A HREF=\"mailto:" + cursor[i] + "\">");
                                    write(cursor[i], "</A></td>");
                    }
                    else
                        write("<td>" + cursor[i] + "</td>");
                    i++;
                }
            }
        cursor.close();
        showDatabaseError();
</server>

</TABLE>

</BODY>
</HTML>
```

See www.datacraft.com for commented version

```
<HTML>
<HEAD>
<TITLE>MBM Computers: All Staff</TITLE>
</HEAD>
<BODY>
<H1>
All Staff
</H1>

<TABLE BORDER>
<tr><th>DEPT</th><th>NAME</th><th>EMPNO</th>
    <th>JOB_TITLE</th><th>EMAIL</th><th>VOICE</th>
</tr>
<tr><td>10</td>
    <td nowrap><A HREF="editme.html?empno=3298">STANTON, DENISE</A></td>
    <td>3298</td>
    <td>BOOKKEEPER</td>
    <td><A HREF="mailto:dstanton@.mbm.com">dstanton@.mbm.com</A></td>
    <td>713-555-8911</td>
    <tr><td>20</td>
    <td nowrap><A HREF="editme.html?empno=1292">BEDLAM, ARCHIE</A></td>
    <td>1292</td>
    <td>ENGINEER</td>
    <td><A HREF="mailto:abedlam@harpo.mbm.com">abedlam@harpo.mbm.com</A></td>
    <td>713-555-1425</td>
...snip...
</TABLE>

</BODY>
</HTML>
```
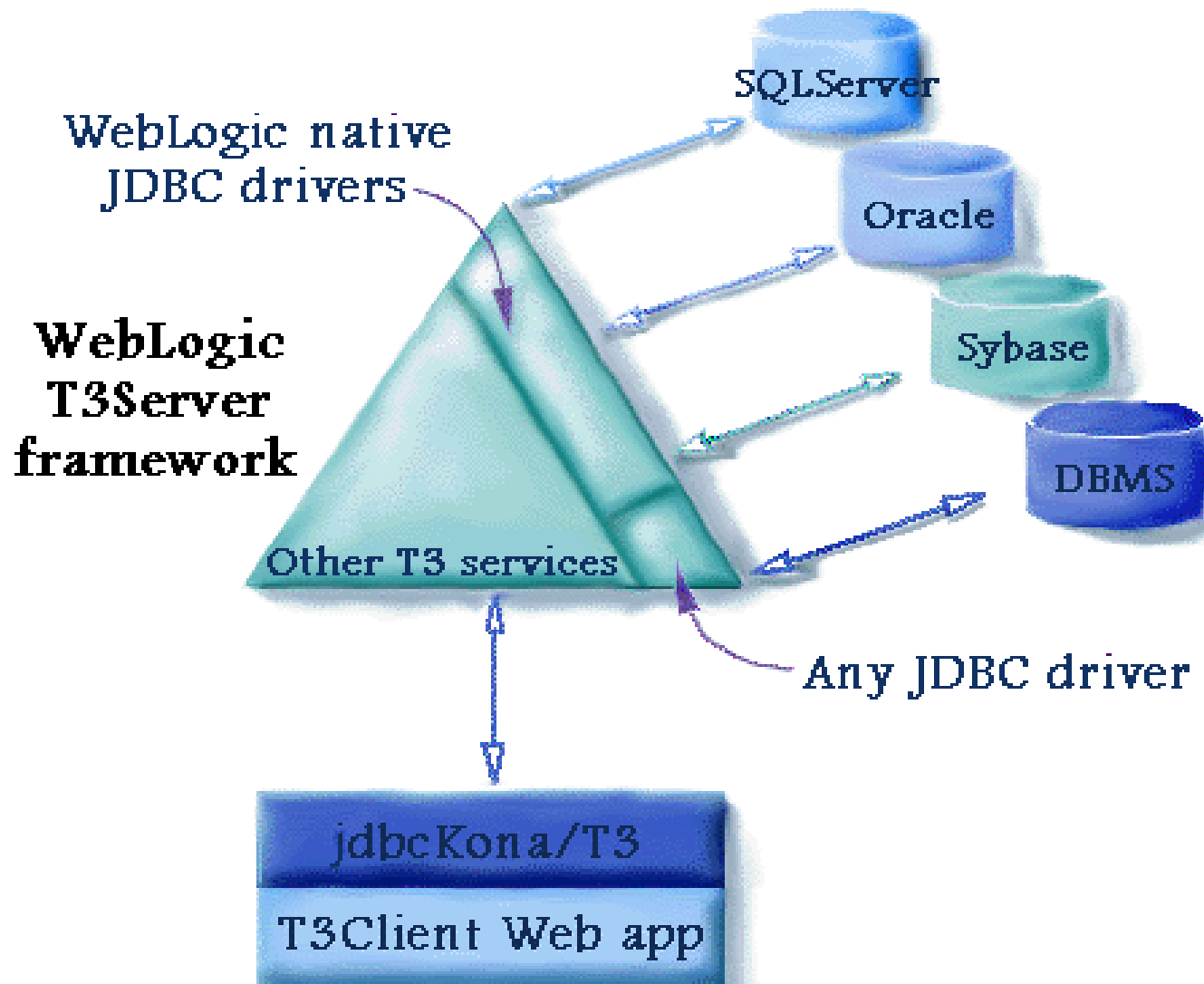
WebLogic Code Fragment

Defines and calls Oracle stored procedure

```java
Statement stmt1 = conn.createStatement();
stmt1.execute("CREATE OR REPLACE PROCEDURE proc_squareInt " +
          "(field1 IN OUT INTEGER, field2 OUT INTEGER) IS " +
          "BEGIN field2 := field1 * field1; " +
          "field1 := field1 * field1; END proc_squareInt");
stmt1.close();

CallableStatement cstmt1 = conn.prepareCall("BEGIN proc_squareInt(?, ?); END;");

cstmt1.registerOutParameter(2, Types.INTEGER);
for (int k = 0; k < 100; k++) {
   cstmt1.setInt(1, k);
   cstmt1.execute();
   System.out.println(k + " " + cstmt1.getInt(1) + " " + cstmt1.getInt(2));
}
cstmt1.close();
```

Cool

- **+** Database independent
- **+** Standards-based
- **+** Manages state (middle tier)
- **+** No client-side extensions
- **+** Priced per server, not per user

Not so hot

- **–** Slow (but only in beta)
- **–** No development environment other than Java
- **–** Nobody's heard of it

What About the 800-Pound Gorilla?

▶ **Internet Information Server with IDC**

File-happy approach

Optimized for SQL Server

Could not get it to work properly with Oracle

Not industrial strength

▶ **dbWeb**

Jet-based administration tool...yuk

▶ **Watch out for "Denali"**

Procrastination is just vision turned sideways

− *me*