

Tru64 UNIX Transition Strategies for BEA WebLogic Server (WLS)



Introduction	2
Tru64 UNIX WebLogic (WLS) transition plan	2
Review your business situation	3
Assess infrastructure stack and availability	3
Define technical requirements	5
Identify transition components	6
Define transition strategy	6
Overview of migration steps	8
Post migration activities	9
General performance monitoring	9
Testing and tuning the target system	9
Move to production	9
An example transition: Avitek MedRec	9
Step 1. Back up applications for move	11
Step 2. Set up the HP Integrity server	11
Step 3. Copy over tar files	11
Step 4. Install Java applications	11
Step 5. Modify shell environment variables	12
Step 6. Modify WebLogic configuration files	12
Step 7. Bring up application benchmark	12
Further information	13
Tru64 UNIX transition	13
WebLogic	13
Java subjects	14
Performance tuning	14

Introduction

In the coming years, HP will be phasing out Tru64 UNIX® and the AlphaServer enterprise system products in favor of the new HP Integrity servers based on Intel® Itanium® 2 processors. HP is also integrating leading technology from Tru64 UNIX, such as TruCluster Server and Advanced File System (AdvFS), into HP-UX 11i, the operating system for HP Integrity servers. For Tru64 UNIX-based BEA WebLogic Application Server (WLS) environments, Information Technology (IT) organizations should start considering when and how they should transition to the new platform.

HP is investing significant resources to help you transition easily and reliably to the new HP Integrity servers. Because transitions are easier when the same version is available on both the original and target platforms, HP has partnered with BEA Systems to make sure that the latest version of WebLogic Application Server for Tru64 UNIX is also available for HP-UX 11i v2 on HP Integrity servers.

HP will continue Tru64 UNIX operating system support through 2011. However, as more robust market-leading solutions become available, it will become increasingly compelling for you to consider higher performing, lower cost options, such as HP Integrity servers.

This document can assist you in planning and implementing your transition by presenting you with the transition strategy and details involved with moving the WLS to the HP Integrity server platform.

This document assumes:

- Working knowledge of WebLogic installation and administration
- Working knowledge of Tru64 UNIX and HP-UX 11i systems and network administration
- Working knowledge of Tru64 UNIX, HP-UX 11i, and WebLogic performance tuning
- Familiarity with project management methodologies

A WLS transition involves several steps, including gathering data, setting up the target HP Integrity WebLogic application server, copying applications over, testing, tuning, and turning the target environment over to production.

Fortunately, WebLogic and applications based on WebLogic are entirely or almost entirely written in Java™. One of the major benefits of Java is that applications are readily portable from one platform to another. The migration from Tru64 UNIX to HP-UX 11i v2 on HP Integrity is no exception.

Tru64 UNIX WebLogic (WLS) transition plan

Developing and documenting a plan is critical to a successful transition. Planning can help identify crucial decisions that are needed before beginning the transition process. Some of the steps that are essential in developing a Tru64 UNIX WLS transition plan are:

- Review your business situation
- Assess infrastructure stack and application availability
- Define technical requirements
- Identify transition components
- Define transition strategy:
 - Transition process
 - Test plan and acceptance criteria
 - Allowable production downtime
 - Contingency plan for unanticipated problems

Review your business situation

A transition to HP Integrity servers should be conducted with due consideration for factors that drive your business, and for resulting demands on your IT environment. Among the elements to be considered:

- Business demands on your IT environment may currently or potentially exceed its capacity, driving a need for additional computer resources
- Server consolidation to reduce cost and take advantage of HP technology to support the benefits of Adaptive Enterprise
- End-of-service dates on older versions of WLS, the operating system, or other infrastructure components may force the transition

You may find the *HP Transition Benefits Calculator* useful in analyzing and evaluating your transition. Visit the following website to use the calculator and get additional information:

<http://www.hp.com/go/artvalue>

You should make the transition to HP Integrity servers as soon as it makes business sense to do so. This transition may involve a WLS upgrade to the latest release. If you are happy with a version of WLS that does not support HP Integrity servers, and have no plans to perform a WLS upgrade in the immediate future, HP recommends that you continue using Tru64 UNIX. If more capacity is required, consider purchasing or leasing new AlphaServer systems. See your HP account representative or Solution Architect for information and see the section [Further information](#).

Assess infrastructure stack and availability

Availability of particular Tru64 UNIX, HP-UX 11i, and WLS versions will play a major role in deciding when to start the transition. End-of-support dates and general availability dates create time windows during which transition opportunities present themselves.

To see the WebLogic compatibility statement between hardware and operating system platforms (for example, Tru64 UNIX and HP-UX 11i), go to:

<http://e-docs.bea.com/wls/docs81/compatibility/compatibility.html>

The following information about product roadmaps can help you with transition planning. Note however, that roadmap plans may change; be sure to check the links provided in the [Further information](#) section for up-to-date information or see your HP account representative or Solution Architect.

Tru64 UNIX

HP plans to deliver updates to its Tru64 UNIX operating system until at least 2006 with standard support at least until 2011. Information about the Tru64 UNIX roadmap can be found at

http://www.tru64unix.compaq.com/unix/downloads/tru64_unix_roadmap.ppt

End-of-life dates for current Tru64 UNIX versions are listed in the following table. Only versions that have not already reached their end-of-life date are shown.

Table 1. End-of-life dates for Tru64 UNIX versions

Tru64 UNIX version	End-of-life date
4.0F	9/30/07
4.0G	9/30/07
5.1A	2/28/07
5.1B	Has not been determined yet
5.1B-1	Has not been determined yet

Since Tru64 UNIX end-of-life dates might change, you should check the following HP website for the latest information:

http://www.hp.com/hps/os/os_pvs_amap.html/

HP-UX 11i v2 on the Intel Itanium 2 architecture

HP-UX 11i v2 is now supported on the Intel Itanium 2 architecture. In the future, common-code versions will support both PA-RISC (HP 9000) and Intel Itanium 2-based (HP Integrity) system architectures, and will incorporate Tru64 UNIX features like TruCluster Server and AdvFS. See the section [Further Information](#) for additional resources.

WebLogic Server (WLS)

The latest version of WLS (8.1) is supported on both Tru64 UNIX and HP-UX 11i (HP 9000 and HP Integrity) operating systems. The next version, WLS 9.0, will be supported on both HP-UX 11i operating systems but is not expected to be supported on Tru64 UNIX. The following table summarizes the support matrix for WLS on Tru64 UNIX and HP-UX 11i UNIX operating systems.

Table2. WLS support matrix for Tru64 UNIX and HP-UX 11i operating systems

WLS version	Tru64 UNIX	HP-UX 11i	
		11i v1 (HP 9000))	11i v2 (HP Integrity))
4.X or 5.X			
6.0 and earlier	Retired	retired	
6.1	✓	✓	
7.0	✓	✓	✓ (SP4 only)
8.1	✓	✓	✓

WebLogic plans may change. See the section [Further information](#) to find links to the latest information.

Because migrations are usually easier and more successful when the version is the same on both the source and the target system environments, it is advisable to conduct any upgrades needed to achieve this condition. A WLS upgrade is necessary only if your current version of WLS is not also supported on HP Integrity servers (for example, WLS 6.1). The WLS upgrade must be performed on an operating system that supports both the current and intended WLS version. Therefore, HP recommends that you perform upgrades on your source Tru64 UNIX WLS server until you reach a version of WLS that is supported on your target HP Integrity server.

BEA WebLogic upgrade information can be found at

<http://www.bea.com>

At this site, search for *upgrade weblogic version*. You will see a number of porting papers that BEA has written for specific ports. BEA support or consulting may be appropriate to assist you with WebLogic version upgrades.

For performance and supportability reasons, it may be advisable to port to WebLogic 8.1. Also, WebLogic 8.1 will have a much longer life than WebLogic 7.0 is known to have significantly better performance than WebLogic 7.0. In addition, only one port is needed instead of a port first to HP Integrity and then to WebLogic 8.1.

Other products and applications

While porting Java applications should be easy, thanks to their platform and operating system independence, the same cannot always be said for other applications or modules that interface or plug in to Java applications and that may be written in C, C++, and other languages. The [Further information](#) section provides links for papers on porting such applications and modules (for example, the Custom Code Transition Module or TM).

Define technical requirements

While this paper's focus is WLS, remember that WLS supports a collection of applications and other infrastructure elements that together advance your business. Because these work together, you must consider all of them in the conduct of your transition. Technical requirements for both hardware and software must be reviewed to ensure all requirements are met. Since all of these requirements cannot be anticipated in the context of this paper, HP recommends that you consult the following resources:

- Environmental requirements for HP Integrity servers—under *Servers/Specifications* at the following link:

<http://www.hp.com> » Servers

- Software release notes, kernel parameters, patches, and similar information for WebLogic—available at:

<http://e-docs.bea.com/wlibc/docs81/install/requirements.html#1031630>

Review this website to acquire the latest information regarding technical requirements.

- Transition component and technical requirement topics addressed in the TMs available at:

<http://www.hp.com/go/transition-modules/>

The TMs discuss such issues as platform, custom code, database, and application migration.

HP recommends that you try out your transition processes on a *prototype* environment before you commit the result to production use. The TMs contain useful guidance on establishing such environments. The type of prototype environment you will need depends on the nature of your business, your IT environment, and the complexity of your transition (the latter affects the amount of testing you may need to do). Most of the impact will come from your applications and the databases they might use. WLS does not impose particularly severe requirements—Java platform-to-platform compatibility helps in this area.

Identify transition components

You need to determine which components in your current environment need to be transitioned and/or upgraded and which new components need to be introduced with the transition.

The current Tru64 UNIX components that you need to transition to HP-UX 11i v2 on HP Integrity servers are:

- Operating system information — memory and disk utilization, system parameters, performance data, and so on
- WebLogic configuration files — `config.xml` and startup files like `startWebLogic.sh` or `startManagedWebLogic.sh` (need system name/IP address updated)
- Client applications — any application that is associated with WLS
- Java infrastructure — the Java-related elements and components on both the source and target platforms
- Additional products — other BEA or third-party products executing on the Tru64 UNIX server that need to be transitioned (for example, Tuxedo, BMQ, and so on)
- Technical skills — if your organization is unfamiliar with HP-UX 11i, refer to *Transitioning Technical Skills from Tru64 UNIX to HP-UX*. This white paper is an evaluation for system administrators and value added resellers and is available at:

http://h30097.www3.hp.com/pdf/dhbrown_transitioning_tech_skills.pdf

Many of the transition component and technical requirement topics are addressed in the TMs available at:

<http://www.hp.com/go/transition-modules/>

The TMs discuss such issues as platform, custom code, and application migration; they are a good source of ideas and things to watch for and to do.

As part of your preparation, check compatibility of Java and additional product elements across the source and target platforms. Resolve differences by starting your migration using compatible versions on both platforms, even if the target is earlier than you want (you can update the target after you migrate). Note that Java version numbers may differ between the platforms; the JVMs are platform-specific.

Define transition strategy

Your transition strategy encompasses defining and detailing the path you plan to take in moving your infrastructure stack from your source environment to your target HP Integrity server environment. As noted before, much depends on the applications you run in your environment. Although some applications may be “pure” Java, some may use other languages and support tools, and some may use databases, all of the ingredients will probably need to be established on your target environment. Main components of the transition strategy are

- Transition process
- Test and acceptance criteria
- Allowable production downtime

Transition process

Here, you decide what you will move, how you will move it, and when you will move it.

Files that are not affected by endian¹ issues can usually be copied directly to the target environment. Note that endian issues are unlikely to be of concern for WebLogic-related files. They may arise with respect to files used by applications, but this would depend on the applications themselves. Some files may require editing before use (application configuration files are possible examples).

Your IT environment may be three-tiered, which provides you the opportunity to conduct your transition in phases. For example, you might move your applications first, leaving their databases for later. Because HP Integrity WebLogic application servers can be added to the production environment without removing Tru64 UNIX WebLogic application servers, both types of servers can operate in the environment simultaneously. Because they can be run side-by-side, there is less risk for the migration. In any case, you will probably want to move WLS early in the transition because many of your applications depend on it.

Test plan and acceptance criteria

The objective of a test plan is to prescribe tests that simulate your production environment sufficiently to provide reasonable confidence in the reliability of the transition. You may want to check the performance of your target system and perform scalability tests. Make sure that the functionality of all your critical business processes is tested. Do not forget to test any customizations that may have been implemented.

The test plan should also include the following important concepts:

- Type of tests needed (for example, system, performance, data types, acceptance, and so on)
- Method of testing (manual or with scripts)
- Number of simulated users
- Response times for certain transactions

Allowable production downtime

Those who depend on your IT system to do their work have a critical interest in how long it will take to conduct the transition. Whether it is necessary to set aside a block of time for the complete transition, conduct it in phases, or conduct it (after some preparation) in *real time* are all questions you need to study and answer. Interestingly enough, you may find that database transition is a major part of the effort and that migrating WLS and its Java applications are straightforward. However, you may still need to conduct some tuning before turning the environment over to production.

With good planning and testing, you can reduce the amount of production downtime. Downtime usually begins when data is transferred from a production system.

Testing and tuning the WebLogic port can involve some downtime. You may want to consider performing some kind of test run using the prototype environment. This can help you estimate the amount of downtime and expose testing and tuning problems you may have. It will also help you discover effective performance tuning settings beforehand, so that your users do not have to wait.

¹ "Endian" refers to the way in which data is stored and defines how bytes are addressed in multi-byte data types. Tru64 UNIX is least significant first (little-endian) while HP-UX 11i is most significant first (big-endian). A file that contains multibyte binary data created on a machine that is of a different endianism will have different results. Therefore, moving binary data from Tru64 UNIX to HP-UX 11i is not allowed unless the move is endian neutral.

Downtime might be avoided altogether if HP Integrity servers are added to the environment without removing the production Tru64 UNIX application servers, as suggested above. This can be done if the WebLogic versions of both the Tru64 UNIX and HP-UX 11i servers are the same (another reason to upgrade to achieve common version levels). Based on the WebLogic compatibility statement, you can add HP-UX 11i servers to the WebLogic cluster and then remove the Tru64 UNIX servers when you are 100% satisfied. Once the environment appears stable, you can remove the Tru64 UNIX application servers. The WebLogic compatibility statement is available at:

<http://e-docs.bea.com/wls/docs81/compatibility/compatibility.html>

Overview of migration steps

Typical migration steps are described briefly in the following sections. Later, an example migration is described, using a sample application that is included with WebLogic 8.1. Not all of the steps listed below will necessarily apply to your organization's situation or environment.

1. **Gather files, applications, and components**

In this step, you ensure that everything you need is located and collected to make for an orderly file move operation. Here, for example, is where you might `tar` and `gzip` directories and files to make copying easier and faster.

2. **Set up HP Integrity server**

Prepare the HP Integrity target server system—set up storage, operating system and infrastructure components, performance and tuning aids, and so on.

3. **Copy files and components**

Conduct the actual copying and moving, and extract the individual components and files from the `tar` and `gzip` files. In this transition step, databases will normally require special attention. Since this is outside the scope of this paper, refer to the Database for Oracle® TM. The TM on Oracle is worth a look even if you do not use Oracle because it contains a lot of information on planning and organizing a transition that is generally applicable to many different cases.

4. **Install components and Java applications**

Go through the procedures prescribed for the components to install them and conduct preliminary readiness checks.

5. **Install Java applications**

Go through the procedures prescribed for installing the Java applications. Make any necessary adjustments to shell environment variables and WebLogic configuration files for the target system (for example, to accommodate changes in file system layout, paths, and other possible target environment differences).

6. **Bring up application benchmarks or other tests to confirm the transition**

Conduct preliminary readiness checks. Where application benchmarks and other tests are available, use them to observe whether proper levels of performance are being achieved. Remember, you have not yet conducted serious performance tuning yet—that comes later (see the section [Tuning the target system](#)). In this step, you are principally interested in ensuring that files and components have been copied and correctly installed.

7. **Take backups**

It is normally prudent to make sets of backups of critical files and components in which you have invested significant effort. Do this from time to time during the transition. This can save time and effort in the event of some unexpected occurrence during the transition.

Post migration activities

After you have copied or transferred applications and data to the target system, there are still a couple of things to do before turning the new target environment over to your users.

General performance monitoring

Monitor the memory, CPU, and I/O performance of your new configuration. Make sure your application is performing optimally. Tune your system, application, database, and/or application server, if necessary. The speed of the database and network can have a major effect on how well WebLogic performs. You should obtain certain transaction or query response times from the Tru64 UNIX WebLogic application server. You can use these response times to determine if there is a performance problem with the newly created HP-UX 11i application server.

The amount of available memory, CPU, and I/O can affect bottlenecks that cause performance degradation. They can be monitored using utilities like GPM, `glance`, `sar`, `vmstat`, and `iostat`.

The differences in I/O disk layouts, memory, and kernel design of Tru64 UNIX and HP-UX 11i can cause performance differences. Both operating system configuration and database configuration parameters may need tuning as well as JVM tuning parameters and `config.xml` parameters. Just because these parameters worked a certain way of Tru64 UNIX, they may behave differently on HP-UX 11i.

Testing and tuning the target system

It is strongly recommended that you test and tune your newly created WebLogic application server before moving it to production. Testing is very important in determining that critical business processes are working properly. Tuning is very important for optimal performance of your WebLogic application server.

You should consider tuning your newly created WLS HP Integrity application server after finishing most of the testing. There are not many Java options for Tru64 UNIX FastJVM as there are for HP-UX 11i HotSpot Java. Since tuning Java applications is beyond the scope of this paper, see [Further information](#) for links that will help you tune your ported application.

Move to production

You can move your new WLS HP Integrity server environment to production when you have completed all tests and are satisfied with the performance. As noted earlier, you can reduce risk and manage downtime by running some Tru64 UNIX servers and some HP Integrity application servers at the same time; you can remove the Tru64 UNIX application servers once you are confident in the new production environment.

An example transition: Avitek MedRec

In this example, the Avitek MedRec sample application that comes with WebLogic 8.1 was ported from Tru64 UNIX to HP-UX 11i v2 for HP Integrity server. The application was tested with a Mercury Interactive LoadRunner benchmark test harness (that is not distributed). The goal of this transition was to move this application to an HP Integrity server with as few changes as possible and to then run the test harness with the benchmark to check performance.

You can read about this capacity planning benchmark at:

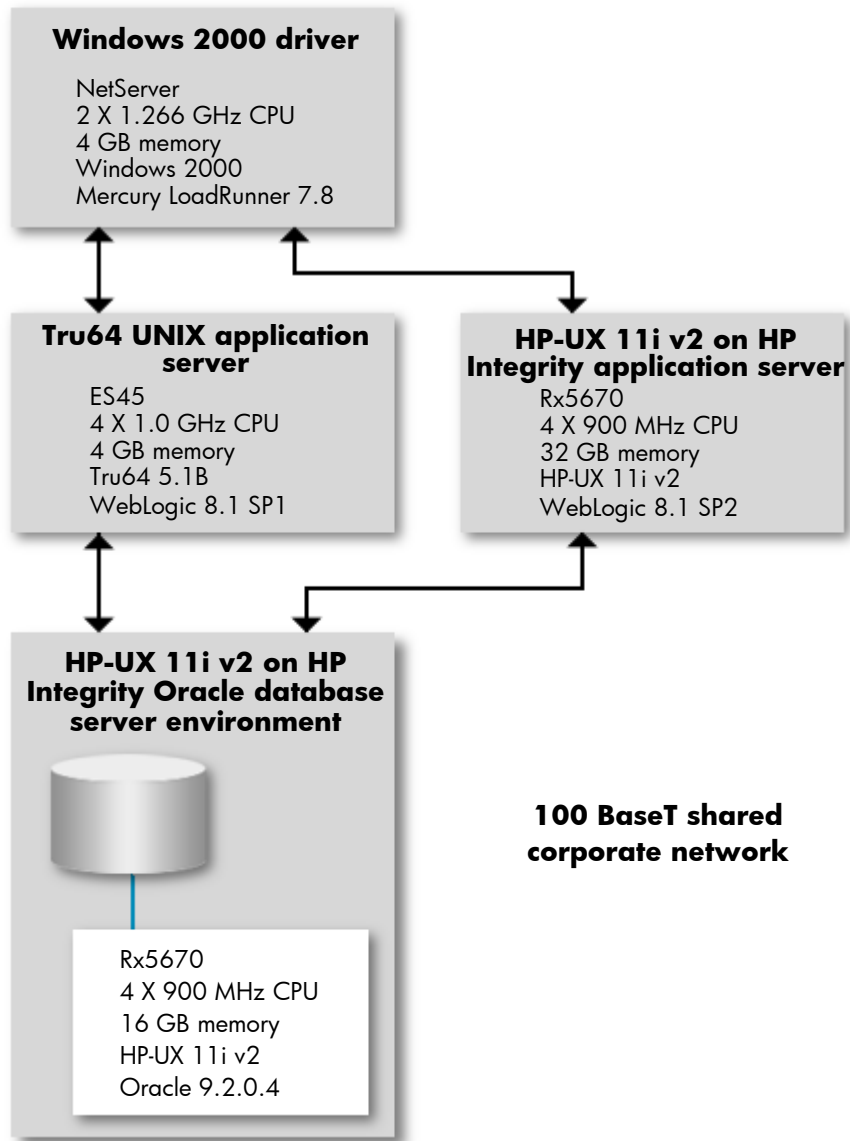
<http://e-docs.bea.com/wls/docs81/capplan/index.html>

To read about the MedRec application, go to:

<http://e-docs.bea.com/wls/docs81/capplan/capbase.html#1054891>

This test started with an HP Integrity Oracle database server that was previously migrated from Tru64 UNIX. In addition, there is a Tru64 UNIX ES45 BEA WebLogic 8.1 SP1 application server and a Windows® 2000 Mercury Interactive LoadRunner driver system. Figure 1 illustrates the organization of the overall system.

Figure 1. Sample Tru64 UNIX to HP-UX 11i transition test environment with MedRec



The following sections describe the steps and commands used in the example transition. Note that this is a simple porting case; no custom code or database migration is performed.

Step 1. Back up applications for move

On the Tru64 UNIX application server, log in as root and bring over the application.

Just in case the application is large, it may be worthwhile to `gzip` it while backing it up with `tar`. In this way, it will save disk space and time in the file transfer. For the `tar` options, the `h` option will follow softlinks. Otherwise, `tar` will just store the softlinks as files.

```
mkfifo /tmp/pipe
gzip < /tmp/pipe > /tmp/bea.tar.gz &
cd /usr/local
tar cfhv /tmp/pipe ./bea/user_projects /home/bea
rm /tmp/pipe
```

You may have multiple `tar` files to create and you might bring over additional files, if certain files are found to be missing.

Step 2. Set up the HP Integrity server

On the HP Integrity application server, log in as root and do the following:

1. Install HP-UX 11i v2.
2. Install JVM 1.4.2.01 into the default directory of `/opt/java1.4`.
3. Install WebLogic 8.1 SP2 in `/opt/bea` with the necessary BEA license.
4. Write down the `bea` user id (`uid`) and group id (`gid`) from the Tru64 UNIX system. This user owns the files and runs the applications. If you have multiple users, note all of them and recreate them on the HP Integrity server with the same user and group (that is, same `uid` and `gid` in `/etc/passwd` and `/etc/group`).

Step 3. Copy over tar files

From the HP Integrity server, `ftp` to the Tru64 UNIX system and get `bea.tar.gz` (or all of the archive files that were saved).

```
cd /var/tmp
ftp <Tru64 UNIX system>
```

In `ftp`, log in as root:

```
cd /tmp
bin ← (binary mode)
get bea.tar.gz
bye
```

Step 4. Install Java applications

```
cd /opt ← (directory to put some files in)
gzcat /var/tmp/bea.tar.gz | tar xfv -
```

The `tar` command restores `./bea/user_projects` and `/home/bea`, while `gzcat` decompresses the zipped file.

Step 5. Modify shell environment variables

1. `cd /home/bea`
2. Make basic home directory modifications to `.profile` with the vi editor.

For this example transition, the following environmental variables were changed:

```
WL_HOME=/usr/local/bea/weblogic81 (WL_HOME=/opt/bea/weblogic81)
JAVA_HOME=/usr/opt/java141 (JAVA_HOME=/opt/java1.4)
```

You may have different and/or additional environment variables that need changing.

Step 6. Modify WebLogic configuration files

1. `cd /opt/bea/user_projects/domains/medrec`
2. Make BEA configuration file changes to `config.xml`, `startMedRecServer.sh`, `startM1.sh`, and `startM2.sh` using the vi editor.

These are the standard `config.xml` files used by all WebLogic instances, and the WebLogic instance startup scripts for the admin server and the two managed servers, respectively.

3. Change IP address of Tru64 UNIX appserver to that of HP-UX 11i appserver
4. Change java directory from `/usr/opt/java141` to `/opt/java1.4`
5. Change bea installation directory from `/usr/local/bea` to `/opt/bea`
6. Change `JAVA_VENDOR="OSF1"` to `JAVA_VENDOR="HP"`
7. Edit `$WL_HOME/common/bin/commEnv.sh` and change the `BEA_HOME` and `WL_HOME` environment variables so that `/usr/local/bea` is changed to `/opt/bea`

Step 7. Bring up application benchmark

The application benchmark ran right away without any other changes. There was no need to modify `JAVA_OPTIONS` to improve performance. For this particular application, performance on the HP Integrity server was significantly faster. It was not clear why this was the case, but if you have a higher performing HP Integrity and an older Tru64 UNIX system, you should see a significant performance difference. If your application will now use Hotspot Java, it may be valuable for you to tune to improve Java performance. See [Further information](#) for pointers on how to tune your HP Integrity HotSpot application.

Further information

Tru64 UNIX transition

For additional information and assistance, contact:

transition.modules@hp.com

For information about the Alpha RetainTrust program and other sources of support:

<http://www.hp.com/go/alpha-retaintrust>

For technical and planning information about transition subjects:

<http://www.hp.com/go/tru64transition>

<http://www.hp.com/go/transition-modules>

<http://h30097.www3.hp.com/transition>

For information regarding the Tru64 UNIX roadmap:

http://www.tru64unix.compaq.com/unix/downloads/tru64_unix_roadmap.ppt

For information on porting C and C++ applications:

http://h30097.www3.hp.com/transition/app_tools.html

http://h30097.www3.hp.com/transition/apps/porting_guide.html

WebLogic

For the WebLogic compatibility statement:

<http://e-docs.bea.com/wls/docs81/compatibility/compatibility.html>

For WLS system requirements:

<http://e-docs.bea.com/wlibc/docs81/install/requirements.html#1031559>

For WLS end-of-service dates:

<http://e-docs.bea.com/platform/suppconfigs/configs/mature.html>

For *WebLogic Server 8.1 Supported Configurations Overview*:

http://e-docs.bea.com/platform/suppconfigs/configs81/81_over/overview.html

For *WebLogic Server 7.0 Supported Configurations Overview*:

http://e-docs.bea.com/platform/suppconfigs/configs70/70_over/overview.html

For WebLogic Server 8.1 documentation:

<http://edocs.bea.com/wls/docs81/index.html>

For Enterprise Java Beans (EJBs) with WebLogic 8.1:

<http://edocs.bea.com/wls/docs81/ejb/index.html>

For information about installing WebLogic 8.1:

<http://e-docs.bea.com/wls/docs81/install>

For information about installing WebLogic 7.0:

<http://e-docs.bea.com/wls/docs70/install>

Java subjects

For the Sun Java learning website (a very good link to start with for all Java-related topics such as JVMs and java programming):

<http://java.sun.com>

For the *HP-UX Programmer's Guide for Java 2*:

http://www.hp.com/products1/unix/java/infolibrary/prog_guide/index.html

To obtain the latest version of Java for the HP-UX 11i platform:

<http://www.hp.com/go/java>

To obtain the latest version of Java for the Tru64 UNIX platform:

<http://h18012.www1.hp.com/java/alpha>

Performance tuning

For information on WebLogic performance tuning:

<http://edocs.bea.com/wls/docs81/perform/index.html>

For the *BEA WebLogic Server Performance and Tuning Guide*:

<http://e-docs.bea.com/wls/docs81/perform>

For information about the *BEA WebLogic Server 8.1: System Administration* class (it includes performance tuning):

http://education.bea.com/education/sales/course_detail.jsp?CourseID=790

© 2004 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Intel and Itanium are registered trademarks of Intel Corporation in the U.S. and other countries and are used under license. Oracle is a registered trademark of Oracle Corporation, Redwood City, California. Windows is a U.S. registered trademark of Microsoft Corporation. UNIX is a trademark of The Open Group in the U.S. and/or other countries. Java is a US trademark of Sun Microsystems, Inc.

5982-6123EN, 6/2004

