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LAMBDA Boxes: CFML Applications on the Cheap

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Background

- Me
 - Started with ColdFusion 4.0 on Solaris
 - Actively running BlueDragon 6.2 on Linux
- Terminology
 - **CFML** – ColdFusion Markup Language
 - **CFMX** – Macromedia ColdFusion MX
 - **BD** – New Atlanta BlueDragon
- Assumptions
 - You have some background with Linux/Unix

Not LAMB, LAMBDA “λ”

- **L**inux (RedHat, SuSE, Gentoo)
- **A**pache (1.3.x or 2.0.x)
- **M**ySQL (4.x) or PostgreSQL (7.4)
- **B**lue**D**ragon Server 6.2
- **A**pplication

Why Use LAMBDA

- It's **FREE***
 - Works perfectly for departmental intranet or personal website
 - Can not redistribute it nor use it in a hosting or ASP environments
- Downsides
 - Minor chance you have to rewrite some code due to incompatibility
 - Have to live with some limitations

Flavors of BlueDragon 6.2

- Server (aka Free Server)
 - Database: MySQL or PostgreSQL
 - Webserver: Apache
 - Does not support HTTPS
- Server JX
 - Database: SQL Server, Oracle, JDBC
 - Webserver: Apache, iPlanet/SunOne
 - Encrypted distributable applications/templates
 - JSP Support, JSessionID
- J2EE and .NET

BlueDragon Installer

- BD Installer does not allow you to specify an Apache install directory
 - Need to create a symbolic link from your installation of Apache to **`/usr/local/apache`** before installing BD

```
# ln -s /opt/apache /usr/local/apache
```

- See BlueDragon 6.2 Server/Server JX Install Guide Section 3.7.7 for more details

BlueDragon Installer (cont'd)

- As of BD 6.2 it is possible to install as non-root user
 - Need to be sure the installation user can modify **httpd.conf** and install **mod_servletexec.so**
 - Does not create **/etc/init.d/BlueDragon_Server**

```
# ./BlueDragon_Server_62-Linux.sh -i console
```

- Still recommend installing as root then running **bd-postinstall.sh** to modify the installation
 - Make sure **httpd -v** can be run by the user

bd-postinstall.sh

```
#!/bin/sh
echo -e "\nBlueDragon Post Installation"
echo -e "-----\n"
echo -n "BlueDragon installation directory: "
read bdinstalldir

echo "Stopping BlueDragon Server..."
$bdinstalldir/bin/StopBlueDragon.sh

echo -n "Create a user account for BlueDragon [y/n]? "
read createaccount
echo -n "User Account to run BlueDragon as: "
read bduser

if [ $createaccount = "y" ]
then
    echo "Creating user: $bduser"
    useradd -d "$bdinstalldir" -c "BlueDragon CFML Server" \
        -s /bin/sh -M $bduser
    passwd -l $bduser
fi
echo "Changing ownership on $bdinstalldir"
chown -R $bduser.$bduser $bdinstalldir
exit 0
```


Startup Script

- Modify **/etc/init.d/BlueDragon_Server**

```
#!/bin/sh
# Startup script for the BlueDragon Server
. /etc/rc.d/init.d/functions

bdstart=/opt/bluedragon-6.2/bin/StartBlueDragon.sh
bdstop=/opt/bluedragon-6.2/bin/StopBlueDragon.sh
bduser=bdragon

prog="BlueDragon Server"
start() {      echo -n "Starting $prog: ";
               daemon --user=$bduser $bdstart ;
               echo ; RETVAL=$? ; return $RETVAL ; }
stop() {      echo -n "Stopping $prog: ";
               daemon --user=$bduser $bdstop ;
               echo ; RETVAL=$? ; return $RETVAL ; }

case "$1" in
  start) start& ;;
  stop) stop ;;
  restart) stop; start ;;
  *) echo $"Usage: $prog {start|stop|restart}"
     exit 1
esac
```

httpd.conf

- Lines added to **httpd.conf** by BlueDragon
 - See ServletExec 4.2 Install Guide Section 6.5.3

```
LoadModule servletexec_module libexec/mod_servletexec.so
AddModule mod_servletexec.c

ServletExecInstances default 127.0.0.1:9999
ServletExecAliases default /servlet .cfc .cfm .cfml

<Location /servlet>
    SetHandler servlet-exec
</Location>

AddHandler servlet-exec cfc
AddHandler servlet-exec cfm
AddHandler servlet-exec cfml
```

MySQL & BlueDragon

- BlueDragon does not ship with MySQL JDBC drivers, need to download them from MySQL
 - <http://dev.mysql.com/downloads/connector/j/3.0.html>
 - Copy and rename **mysql-connector-java-3.0.16-production-bin.jar** to **{bluedragon_install}/lib/mysql.jar**
 - Restart BlueDragon
- New Atlanta's FAQ entry on MySQL
 - http://www.newatlanta.com/c/products/bluedragon/self_help/faq/detail?faqId=216

Headless Server

- Tags that require graphics will fail since Java still needs access to system graphic libraries
- Several solutions are documented but not officially supported
 - Sun JDK 1.4 Headless Mode
 - Requires entire X11 install
 - Virtual X11 Framebuffer
 - Bit more complex to setup
 - Pure Java AWT
 - Most lightweight, but slowest to render

Pure Java AWT

- PJA Toolkit
 - <http://www.eteks.com/pja/en/>
- Eliminates nearly all dependencies on X11 libs
 - Still needed the following RPMs for RedHat
 - fontconfig, freetype, XFree86-libs-data, XFree86-Mesa-libGL, Xfree86-libs
 - Copy **pja.jar** to **{bluedragon_install}/lib/**
 - Edit **{bluedragon_install}/bin/StartBlueDragon.sh**
 - Restart BlueDragon

StartBlueDragon.sh

```
#!/bin/sh
cd /opt/bluedragon-6.2
JAVA_HOME=/opt/bluedragon-6.2/jre

AWT_LIB="-Xbootclasspath/a:/opt/bluedragon-6.2/lib/pja.jar"
AWT_OPTS="-Dawt.toolkit=com.eteks.awt.PJAToolkit \
-Djava.awt.graphicsenv=com.eteks.java2d.PJAGraphicsEnvironment \
-Djava2d.font.usePlatformFont=false \
-Djava.awt.fonts=$JAVA_HOME/lib/fonts"

NEW_CLASSPATH=/opt/bluedragon-6.2/lib/BlueDragonServer.jar: \
/opt/bluedragon-6.2/lib/BlueDragon.jar:
NEW_CLASSPATH=$NEW_CLASSPATH:/opt/bluedragon-6.2/classes:
HEAPSIZES="-Xms16384k -Xmx131072k"
OPTIONS=-XX:+UseParallelGC
"$JAVA_HOME/bin/java" -server $HEAPSIZES $AWT_LIB $AWT_OPTS $OPTIONS \
-classpath "$NEW_CLASSPATH" com.newatlanta.webserver.BlueDragon &
NEW_CLASSPATH=
JAVA_HOME=
```

- If you change Java VM Settings in BD Admin, it will **OVERWRITE** the changes to the script

Getting Updates

- New Atlanta releases hotfixes via their website
 - <http://www.newatlanta.com/c/products/bluedragon/download/hotfix/showHotfixes>
- Hotfixes are cumulative and generally released by date (e.g. November 2004 HotFix)
- Be sure to follow **ReadMe.txt**

Uninstalling BlueDragon

- Uninstaller removes everything
 - It will back up **classes**, **customtags**, **wwwroot** by adding **.save** to the directory name when they have been modified

```
# sh ./opt/bluedragon-6.2/uninstall/Uninstall_BlueDragon_Server_6.2
```

- It might be necessary to remove **/usr/local/NewAtlanta/.registry** to reinstall, if you installed to a path other than default

Compatibility

- BlueDragon is designed to be highly compatible with CFMX
- BD 6.2 improved compatibility greatly
- Differences are documented in BlueDragon 6.2 CFML Compatibility Guide

New Tags

- These aren't necessarily “new” tags, but ones that CFMX doesn't have or are implemented as customtags or CFXs
 - <cfassert>
 - <cfbase>
 - <cfcachecontent>
 - <cfcontinue>
 - <cfdebugger>
 - <cfforward>
 - <cfimage>
 - <cfimap>
 - <cfpause>
 - <cfthrottle>
 - <cfxmlrpc>
 - <cfzip>/<cfzipparam>
- See BlueDragon 6.2 CFML Enhancements Guide

Undocumented Tags

- `<cfmp3>`
 - Reads MP3 ID Tag into struct called MP3
 - Attributes: File, URIDirectory
- `<cfcaptcha>`
 - Generate a simple captcha image
 - Attributes: Width, Height, DisplayString
- `<cfadmin>`
 - Ability to modify **bluedragon.xml** server settings
 - Attributes: Password, Action

Things to look out for

- Dynamically Named Variables

- BD will produce an error with this code

```
<cfset hold = "firstName" />  
<cfset "#hold#" = "Dilbert" />  
<cfoutput>#firstName#</cfoutput>
```

- Fix

```
<cfset hold = "firstName" />  
<cfset "variables.#hold#" = "Dilbert" />  
<cfoutput>#firstName#</cfoutput>
```

- Whitespace Compression

- BD is much more gung-ho about eliminating whitespace

Things to look out for (cont'd)

- Client Variables
 - Using a datasource, previous versions of BD created a table bdclientdata, BD 6.2 will create two tables bddata and bdglobal
 - cfdata column is not plain text
- Application.cfm
 - BlueDragon will only look up to the web root
 - Will be run first even for missing templates
- CGI.Path_Info
 - BD properly implemented the CGI gateway, should use **CGI.Script_Name**

Frameworks & BD

- Fusebox
 - 3.0 - Works without modification
 - 4.0 - Corefiles 4.0.4+, contain patches to run on BD
 - 4.1 - Works without modification
- Mach-II
- Model-Glue

BlueDragon's Future

- New Atlanta's stance on features is that they will implement features their customers want and what the CF Community adopts for use
- My speculations:
 - More focus on BlueDragon .NET
 - CFMX 7 features they could add
 - `<cfdocument>` for PDF generation
 - Flash Forms using Laszlo

Resources

- BlueDragon Interest List Archive
 - http://www.newatlanta.com/products/bluedragon/self_help/archive_search/
- BlueDragon Bug Tracking
 - <http://www.newatlanta.com/c/support/bluedragon/bugtracking/home>
- BlueDragon-Blog – Charlie Arehart
 - <http://bluedragon.blog-city.com/>
- Vince Bonfanti's Weblog
 - <http://blog.newatlanta.com/index.cfm>

Resources (cont'd)

- Headless Configuration
 - <http://products.davisor.com/chart/doc/headless.html>
- Securing Apache Step by Step
 - http://www.cgisecurity.com/lib/ryan_barnett_gcux_practical.html
- Practical PostgreSQL
 - <http://www.commandprompt.com/ppbook/>

Thanks

- Q & A
- Please fill out your evaluations
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