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# Marrying Java & ColdFusion

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## Agenda

- **Considering Java as an alternative**
- **Integrating CF and Java Today**
  - CFOBJECT, CFX\_ Custom tags, CFSERVLET
- **Leveraging Different Approaches**
  - Java Language features
  - Existing Java classes
  - Using Java API to 3<sup>rd</sup> party tools
  - Existing Custom tags to solve problems
  - Creating your own classes, custom tags
  - CFServlet (and servlets, JSPs and EJBs)
- **Future integration possibilities for CF'ers**
- **Software Needed**
- **Learning More**

## Audience

- **Intended primarily for those with:**
  - ColdFusion experience
  - Aware of Java and its potential value to application developers
    - Or just curious
- **No Java experience expected**
- **Anyone interested in:**
  - Learning about Java integrating ColdFusion & Java
  - Extending ColdFusion capabilities via Java
  - Will likely come away capable of doing it immediately

## Our Goal

- **Goals**
  - Put Java in perspective for CF developers
  - Get a flavor for opportunities, challenges
  - Suggest ways to integrate the two today
  - Muse on where the future may lead for us
  - Point to resources for learning more

## Who Am I?

- **A programmer by trade, trainer at heart**
  - With nearly 20 years IT experience
    - 5 years ColdFusion, 1 year server-side Java
  - Monthly contributor to ColdFusion Developer Journal, bi-monthly columnist in Java Developer Journal
  - Speaker at user groups, conferences worldwide
  - Macromedia Certified Instructor & Developer
  - Course developer
- **Best practices, architectural consultant**
  - Contract mentor to development teams

## The Java Siren Song

- **Java: it's here & it's big**
  - As a platform and language used by thousands of orgs
  - CFMX (aka Neo) will run on a Java platform
    - But you need not learn Java to use CFMX
- **Still, may have been feeling pull**
  - Some orgs, developers DO want to leverage Java
    - Now, as well as in CFMX
  - May have been able to “fight” getting into it
  - Time has come to face the truth
    - A large market is demanding Enterprise java solutions
    - Also, many tools coming out on the market, built in Java

## Server vs. Client-side Java

- **Java's been known by many for use in applets**
  - Some even worry about CFMX and “java client security”
- **Our focus is on server-side java**
  - Not client-side
  - As with CF, we can just be generating HTML
- **Microsoft's pulling JVM out of Future Windows Operating Environments**
  - Is it a threat to Java's future?
    - May have more effect on client side
    - Not that big a deal for server-side developers

## Considering Java as an Alternative

- **Not really about caving in**
  - Learning how and when to best leverage Java as a CF developer
    - Not about leaving CF for Java
    - More about how to best marry the two
      - Getting easier all the time
- **Not even necessarily about learning java**
  - Just when and how to integrate java tools
    - Though certainly, to do much, will need to learn java
- **Free to get started**
  - Most platform tools are free, for developer level deployment
- **Much of what we cover should also apply in CFMX**
  - Because it's based on Java platform, should integrate even better

## Why Bother?

- **Benefits for current projects**
  - Leveraging java library functions for features
  - Accessing existing apps/modules within enterprise
    - Whether written as classes, EJB's, or Servlets
  - Creating new classes to extend functionality
- **Benefits as a professional developer or development firm**
  - Many tools available, written in java
    - Saves you having to build yourself
    - May be packaged for use with JSP/Servlets
      - Can easily figure out how to convert for use in CF

9

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## Ways To Use Java

- **To call existing things**
  - Native Java language offering richer environment
  - Classes, Servlets, CFX\_custom tags you or someone else has built
    - Can be a class that produces a result (like a subroutine)
      - Or perhaps a JavaBean
    - Or one whose methods, properties you manipulate within CF
  - Tools that have java API
    - Such as charting tools, PDF creation tools, etc.
      - may choose to use API rather than some custom tag
  - Or ...

10

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## Ways To Use Java

- **To call existing things (cont.)**
  - EJB's
    - Those built within company to support applications
    - Tools that have EJB interfaces
      - (NetCharts EJB, for example)
- **Or to create any of these new, for your apps**

11

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## What Can Java Give Us?

- **Among the things Java can offer CF developers include:**
  - XML manipulation
  - Mail handling
  - Networking
  - Compression
  - Encryption
  - Graphics generation
  - Image creation and manipulation
  - PDF creation and formatting
  - Spell checking
  - And much much more
- **Enterprise integration**

12

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## Finding Existing Examples

- **Macromedia Tag Gallery offer downloadable examples of CFX's, objects usable by CFOBJECT**
  - See separate "java" link on left in taggallery
  - Also, dozens of things found based on search of "java" at taggallery
    - Search criteria used
      - java not applet not "java script" not "no java" not "java tree"
      - This ignores applets, other extraneous things not relevant to this topic
  - Examples:
    - CFX\_zipbrowser, CFX\_html2pdf, More later
- **Also third party sites, like CFDev.com**
  - Free and commercially available java custom tags
- **As well as javasoft.com (Sun Microsystems)**
  - for general interest Java resources, examples, etc

## Going Outside of CF Entirely

- **Could consider working outside of CF entirely**
  - Java Servlets
  - JavaServer Pages
  - Enterprise JavaBeans
  - And more
- **Will discuss this more later**
  - Would be entire other discussion
  - Focus for now is on just integrating CF and Java

## Integrating CF and Java Today

- **CFOBJECT for Java**
  - Used to call upon java classes available on the same server running CF
    - leverage java language
    - access existing tools, business objects, including EJB's
- **CFX\_ Java Custom tags**
  - Used to call upon Java classes on same server
    - leverage CF integration within the Java class (accessing/updating CF variables, queries, etc.)
    - Many existing CFX\_ tags in Macromedia Taggallery, elsewhere
- **CFServlet**
  - Used to integrate with Servlets on same or other server
    - Either obtaining the output of the servlet
      - pass data to/from servlet

15

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## Installation Support for Java Integration

- **To leverage CFOBJECT and CFXs for Java**
  - Must have at least 4.5.1 of ColdFusion
  - Must have Java Runtime Environment 1.2+
  - Must configure CF server Admin to setup classpath and other parameters
    - Critical points are
      - JVM path: where JVM is installed (and jvm's name)
        - » Mine is: D:\jdk1.3\jre\bin\classic\jvm.dll
      - Classpath: where your classes will be stored
        - » Must restart CF server after changing
      - CFX\_jar path: where cfx.jar used by CFX's will be stored
- **See later slide “Software Needed”**
  - how to obtain related software, versions, etc.
- **See “A Cold Cup O’ Joe” Part 1, by Guy Rish**
  - Jan 01 CFDJ (<http://www.sys-con.com/coldfusion/article.cfm?id=202>)
  - Great discussion of config, setup issues, challenges

16

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## CFOBJECT for Java

- New support as of 4.5 for CFOBJECT Type="Java"

```
<CFOBJECT ACTION="CREATE" TYPE="Java"
CLASS="classname" NAME="classref">
```

- Also createobject() function for use in CFSCRIPT

```
<CFSCRIPT>
classref = createobject("java", "classname");
classref.methodname(parameter);
</CFSCRIPT>
```

- Allows call to java objects

- Either native java language objects or custom ones
- Just need to know methods and attributes

## Calling Java for Extended Functionality

- If there's something Java can do, call it
- Example:

```
<!-- // Create a java.util.GregorianCalendar Object // -->
<CFOBJECT ACTION="CREATE" TYPE="Java" CLASS="java.util.GregorianCalendar"
NAME="myCalendar">

<!-- Default Constructor is being called implicitly --->

<!-- Check if 2001 is a leap-year --->
<CFSET is2001LeapYear = myCalendar.isLeapYear(2001)>

<!-- Retrieve current date --->
<CFSET theYear = myCalendar.get(myCalendar.YEAR)>
<CFSET theMonth = myCalendar.get(myCalendar.MONTH) + 1>
<CFSET theDay = myCalendar.get(myCalendar.DATE)>

<cfoutput>
<html>
<body>
  Is 2001 a leap-year? <b>#is2001LeapYear#</b>
  <p>
    Today is the <b>#theMonth# / #theDay# / #theYear#</b>
  </body>
</html>
</cfoutput>
```

## Extending with Java (cont)

- **Notice that that involved no compilation of any java classes**
  - Was leveraging Java libraries from within CF
    - Converted from code offered in a java book
    - Just need to see how to convert to CFOBJECT
      - Invoke methods like functions
      - Get/set properties like normal variable use
  - No need to even add any classpath to CF Admin
- **Can only really benefit if you understand Java**
  - More to the point, know the various capabilities of the language libraries
  - See <http://java.sun.com/j2se/1.3/docs/API/index.html>
    - For online documentation of libraries

## Calling a Class to Execute Some Tool

- **Many tools now provided as java classes**
- **May be able to call upon them from within CF**
  - With no java coding, per se, required
  - See next slide's example, calling
    - Popchart from corda.com
      - Java-based dynamic server-side charts
      - Relatively inexpensive
      - also supports CF w/out Java (using URL's to pass data)

## Using a Tool's Java API

- **If tools offers Java API, review docs and convert to calls within CF**
  - Here is an example of calling PopChart from Corda
- **Example:**

```
<cfscript>
graphImage=createobject("java","com.corda.pcis.PCISEmbedder");
graphImage.setServerInfo("http://localhost:81");
graphImage.setWidth(540);
graphImage.setHeight(330);
graphImage.setAppearanceFile("apfiles/bargraph1.bin");
graphImage.setPCScript("textbox.settext>Hello graph.categories(Math,
Science, English) graph.series(Fred, 16, 87, 76; Gus, 68, 77, 85)");
eHTML = graphImage.getEmbeddingHTML();
writeoutput(ehtml);
</cfscript>
```

## Using a Tool's Java API (cont)

- **Converted from code offered in their docs**
  - Again, just need to see how to convert to CFOBJECT
    - invoke methods like functions
    - Get/set properties like normal variable use
- **Must set classpath in CF admin to wherever that code (like the PopChart product code library) is stored**
  - For me, I added:
    - D:\ProgramFiles\Corda\image\_server\Java\_API\_Framework\PCISEmbedder.jar;D:\ProgramFiles\Corda\image\_server\pcis\_classes\PopChartServer.jar
  - Then restart CF server

## Calling a Java Class You Build

- **Can treat the opportunity like a subroutine, calling a java class you've created**
  - May provide business rule functionality
- **Examples**
  - See next slide for example
- **Need to build and compile the java class**
  - Put it somewhere in the defined classpath, or modify the classpath, as defined in the CF admin
  - Need to know how to write java
    - More in a moment
- **When creating own Java classes, beware:**
  - Must restart CF server after recompile of any class instantiated via CFOBJECT (or change of classpath)
    - Fixed in CF5 with new dynamic class load path

23

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## Calling a Java Class You Build (cont.)

- **Java program, grades.java**

```
public class grades {

    public static char letterGrade(int numGrade) {
        // Returns the letter grade corresponding to numerical grade, numGrade
        if (numGrade >= 90)
            return 'A'; // 90 or above gets an A
        else if (numGrade >= 80)
            return 'B'; // 80 to 89 gets a B
        else if (numGrade >= 65)
            return 'C'; // 65 to 79 gets a C
        else if (numGrade >= 50)
            return 'D'; // 50 to 64 gets a D
        else
            return 'f'; // anything else gets an F
    } // end of function letterGrade()
}
```

- **Compiled as grades.class, in classpath**
- **CF Code to call that:**

```
<cfscript>
<cfobject action="CREATE" type="JAVA" name="x" class="grades">
<cfset ret = x.letterGrade(40)>
<cfoutput>#chr(ret)#</cfoutput>
```

24

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## More Elaborate Example

- **See Allaire article, “Leveraging Java Classes from ColdFusion”**
  - at <http://www.allaire.com/handlers/index.cfm?ID=22250>
- **Shows how to use a java class to read in a text file**
- **Better than using CFFILE for very large files**
  - extends Java library BufferedReader class
  - Handles problem with CF not being able to detect null at end of file
- **Let’s see it run!**

25

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## Building Java Classes

- **To build your own classes, need to know how to write java**
  - More than just learning language
    - On simple level, must also learn how to create java code
      - Various issues such as class name, case sensitivity
      - Compilation: how, where
    - On larger level, should learn java language concepts
      - Object-oriented programming, inheritance, polymorphism
      - Constructors, packages, interfaces, inner classes, etc.
      - Many concepts foreign to procedural programmers
  - Plenty of good books on Java
    - More on “reading list” later

26

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## Compiling Java Classes

- **Need to know how to execute compiler**
  - Need Java SDK, not just Java Run-time
  - Need to find javac.exe
    - Mine is in: D:\jdk1.3.1\_02\bin
  - Need to execute the compiler
    - Either from command line
      - Start>Programs>Accessories>Command prompt in Win2k
    - Or from within Java Editor
      - such as Jrun Studio, discussed later
  - Likely need to define location of compiler on system path
    - So that you can execute it from any directory on workstation
    - In win2k, use Start>Settings>Control Panel>System>Advanced>Environment Variables>System Variables
      - Add compiler location to PATH variable
  - Typically run compiler from location of .java files
    - Typically will just want the resulting .class files placed there as well

27

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## Some Challenges

- **For more complex uses**
  - Need to understand calling an object's default constructor or overloaded constructors
    - Does not currently support overload by attribute datatype
    - Available javacast function to control type passed to java
  - “Cold Cup O’ Joe” Part 3 discusses much of this
    - April 01 CFDJ
  - Release 5 adds new GetException() function
    - To manage java exceptions from CFOBJECT more effectively

28

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## Calling EJB's

- **CFOBJECT can also be used to call Enterprise JavaBeans**
  - Demonstrated in Macromedia “Developing Applications with JRun”, chapter 42
  - EJB's run in an EJB container (JRun is one such)
  - Some tools now available as EJB's
    - NetCharts EJB from visualmining.com
  - Currently, it may be better to call EJB's via Custom Tags
    - Current approach in CFOBJECT calling EJB's has high overhead
    - KB 21977 explains how use of “custom class loader” is the solution

29

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## CFOBJECT Summary

- **4 approaches to using CFOBJECT**
  - Call on core java language APIs
  - Call on a 3<sup>rd</sup> party tool's API
  - Create your own classes
    - Or perhaps call upon your own organizational objects
  - Create or call EJBs
    - Though better to call these (for now) in custom tags

30

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## CFX\_ Java Custom Tags

- **Similar to calling upon objects, but ...**
  - Class can read/manipulate CF elements
    - Variables, queries
  - Can also pass it attributes
    - Processed with request.getAttribute in class
  - Can also generate output that will be shown within stream of output from the calling CF template
    - Just like regular custom tags
  - Will see simple example
- **Must be registered in the CF administrator**
  - Then called as <cfx\_objectname>

31

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## CFX Example

- **HelloColdFusion.java**

```
import com.allaire.cfx.* ;
public class HelloColdFusion implements CustomTag
{
    public void processRequest( Request request, Response
    response )
        throws Exception
    {
        String strName = request.getAttribute( "NAME" ) ;
        response.write( "Hello " + strName ) ;
    }
}
```

- Compiled as HelloColdFusion.class, in CF Admin classpath
- Registered in Admin as CFX\_HelloColdFusion
- **CF Code to call that:**

```
<CFX_HelloColdFusion NAME="Bob">
```

32

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## Compiling CFX's

- **3 steps: compile, define in admin, call**
- **In compiling CFX's**
  - Make sure system classpath includes full path to `\cfusion\java\classes\cfx.jar`
    - Not just the path, but the jar itself
    - Note this is for compiling
      - refers to classpath set in OS, not in CF Admin
  - Or, specify in javac command, as in:
 

```
javac -classpath c:\Cfusion\Java\classes\cfx.jar compileme.java
```
  - **Prior to CF5**
    - Must restart CF server after any recompile of CFX
      - If it's been executed since start of CF server
    - CF5's new dynamic Java classpath feature does not seem to apply

33

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## Defining CFX's in CF Admin

- **In server>java section**
  - Provide name, choose type, enter classname
    - Do not provide “.class” extension
  - If misspelled, or not found on classpath
    - Error will be ClassNotFoundException
  - Case is sensitive
    - Error will be NoClassDefFoundError
  - No need to restart based on these changes
    - But will need to restart if class itself is changed after being called
      - Except if new CF5 dynamic classpath feature is set

34

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## Calling CFX's

- **In calling <cfx\_> tag**
  - Portion of name after cfx\_ is not case sensitive
    - <cfx\_test> is same as <CFX\_TEST> or <cfx\_Test>
      - At least on Windows platform

35

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## Admin Classpath Traps

- **May sometimes have difficulty due to failure in classpath set in CF**

- May not be what you think it should be

- Create simple custom tag to report it

```
import com.allaire.cfx.* ;
public class show_classpath_via_cfx implements CustomTag
{
    public void processRequest( Request request, Response response )
    throws Exception
    {
        response.write(System.getProperty("java.class.path")) ;
    }
}
```

- Register it as a CFX, call it

- Will display classpath

- May not be what you think it should be

- CF seems to manipulate what's placed in the admin

- Automatically places cfx\_jar path there

36

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## Admin Classpath Traps (cont)

- **Be sure to restart CF server after any recompile of CFX or CFOBJECT called class**
  - And be sure to restart CF server (not exec or RDS)
- **Also restart after changing Classpath in admin**
  - Be sure to use correct slashes in paths in classpath
- **Be aware that jar files in a given directory are not searched unless on path by name (.jar)**
  - When errors occur, can use file text search feature to find jar that may contain needed class
- **CF Admin screen has 500 char limit on width of Classpath input field**

37

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## More about Java CFXs

- **Several available methods, attributes for developing java Custom Tags**
  - Query interface
  - Request Interface
  - Response Interface
- **See “Developing Web Apps” for details**
  - Chapter 18
- **May hear of old way of doing Java CFX’s, CFX\_J**
- **Open debate about performance of CFX versus CFOBJECT**

38

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## Summary of CFOBJECT/CFX

- **4 approaches to using CFOBJECT**
  - Call on core java language APIs
  - Call on a 3<sup>rd</sup> party tool's API
  - Create your own classes
    - Or perhaps call upon your own organizational objects
  - Create or call EJBs
    - though better for now to do in custom tags
- **2 approaches to using CFX Java Custom tags**
  - Call on 3<sup>rd</sup> party CFX's to add application functionality
  - Create/call on own CFX's to perform some processing in Java
    - Remember that main point of CFX's is to read/write CF variables/queries and/or generate response output

39

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## JRun and Java Application Servers

- **JRun is a J2EE Java Application Server**
  - And a very well respected one, at that
  - Reasonably priced, free developer edition
- **Others include**
  - IBM Websphere
  - BEA Weblogic
  - Apache TomCat
- **Enables execution of JavaServer Pages, Servlets**
  - JRUN also includes features to run EJBs, and more

40

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## About J2EE

- **Alternative for web application development**
  - JSPs
  - Servlets
  - EJBs
  - And more
- **JSP's ease entry into Java world**
  - Work similarly to CF, scripted web app development
- **See “Learning more”**

41

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## Why Consider JSP/Servlets?

- **Lots more clients clamoring for JSP/Servlets than CF**
  - Still plenty of market for CF, just larger for JSP/Servlets
- **“Learn once/Run Anywhere”**
  - Skills learned in working with JRun migrate for the most part to other java application servers
    - IBM Websphere, BEA WebLogic, Apache TomCat, etc
- **What can JSP/Servlets do that CF can't?**
  - On a simple-to-intermediate level, not much
    - More the integration possibilities
    - May promote better design, separation of implementation/interface
  - But now, knowing how CF can integrate Java, maybe not as critical
    - Choose the best platform for each task

42

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## Integrating CF and JRUN: CFServlet

- **Allows call to servlet running under JRun**
  - Also allows sharing of data between them
  - Output of servlet can be shown within calling template
  - Only works with JRun
- **Need only know**
  1. Server's IP address, if not same as CF server
  2. JRun JCP Port (JRun and other app servers use unique ports to distinguish from web server)
    - Use value of jcp.endpoint.main.port in server's local.properties file
  3. Servlet name
    - `<CFSERVLET code="SimpleServlet" jrunproxy="127.0.0.1:51001">`
- **Let's see an example**
  - See "CFServlet Issues" for problems calling "demo app" servlets

## Passing Data to/from CFServlet

- **Allows passing data by value or reference**
  - By value:
    - `<cfservletparam name="servletparm" value="value">`
    - Available to servlet as "parameter"
    - Changing parameter in servlet has no effect on CF variable
  - By reference:
    - `<cfservletparam name="servletattr" variable="CFVarname">`
    - Optional "type" attribute to help CF tell java the datatype
    - Available to servlet as "attribute"
    - Changing attribute value in servlet **will** change CF variable
- **Optional WriteOutput="yes/no" attribute**
  - If no, output of servlet is written to CF output stream
  - If yes, written to Cfservlet.output variable

## Message Passing

- **One last thought on integration issues**
- **When considering communications between CF and java components, consider XML**
  - XML provides powerful means to pass structured data between disparate systems
  - Need not be Macromedia's WDDX format
    - If you control the two systems talking to each other, you can create your own meaning in the XML
  - See "Online Ticket Store" in Jan 2000 CFDJ

45

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## CFSERVLET Issues

- **May hear of old way of doing this: CF\_Servlet**
- **Always passes any value of CGI.Query\_String**
- **Remember, can read/write CF variables/queries**
  - Can optionally show servlet output within calling CF template's output
- **Could also just use CFHTTP**
  - If no need to read/write CF variables/queries from within servlet
  - And if wanting to include output from non-JRun servlet

46

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## CFSERVLET Issues

- **By default, can only run servlets in Default-App**
  - Means it won't work with JRun demo apps
  - Unless you add the path for that class directory (for me, {jrun.rootdir}/servers/default/demo-app/WEB-INF/classes) to the other locations listed in JMC under JRun Default Server>Java Settings>ClassPath
    - Restart Jrun default server
- **May need to modify Jrun Server's local.properties file**
  - May need to add ",jcp" to end of servlet.services, as in:
    - servlet.services=jndi,mail,url,{servlet.webapps },web,jcp
  - If "web connector" is run, it may change the value of the jcp.endpoint.main.port
  - Some changes in JMC may also cause loss of jcp on list of services
    - If attempt to use CFServlet fails, look into that

47

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## Simpler Forms of Integration

- **Keep in mind that Servlets (and JSPs) can also be called from within CF templates just as regular HTML pages could:**
  - <A href>
  - <cflocation>
  - <cfhttp>
  - <form action=>
  - <img src>
  - Etc.
- **So can "integrate" them into your application without need to use CFServlet**

48

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## Future integration possibilities for CF'ers

- **ColdFusion MX, a.k.a Neo**
  - Changing CF from running on a C++ platform to running on a Java platform
  - Does NOT propose to change CF developers into Java developers
    - CF templates will run unchanged
    - Under the cover, will be turned into Java Servlets (it's said)
  - Will open further integration possibilities
  - More important for Macromedia
    - Allows them to leverage the Java platform in building CF components (underlying CF tags)
      - they currently must build many things from scratch that are available as Java libraries
    - Will allow them to focus energy on creating new features

49

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## Software Needed for Java

- **To do any java integration, need Java Runtime Engine on server**
  - Can obtain free from [javasoft.com](http://javasoft.com)
- **To run JRun or do JSP/servlet integration, will need a Java application server**
  - Macromedia offers free 3 person developer edition
  - Will need Java 2 EE (J2EE) SDK on top of that
    - Available on install, also free from [javasoft.com](http://javasoft.com)
  - Other java app servers from IBM, BEA ([beasys.com](http://beasys.com)), Apache Tomcat ([apache.org](http://apache.org)), and more

50

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## Software Needed (cont.)

- **To do EJB integration, need EJB server**
  - JRun Enterprise provides that, as do other products
- **ColdFusion 4.5.1 +**
  - added java custom tags and CXObject support for java
- **Pre 4.5.1**
  - Cfx\_j custom tag
  - Cf\_servlet custom tag

## Java Editors

- **Editing JSP is like editing CF (mix HTML and java)**
  - Java classes, CFX Custom tags, Servlet are pure java
  - CF Studio can act as JSP editor
    - Knows about JSP tags, etc.
  - Kawa is a real Java editor that Macromedia acquired
    - Can compile things, debug, etc.
    - Was dropped recently
  - JRun Studio is a hybrid
    - Adds ability to compile to CF Studio interface
    - Not reallyt a true Java IDE
  - Dreamweaver Ultradev
    - Includes features to build/edit CF, JSP, ASP code
  - Other Java editors have support JSP's/Servlets
    - IDEs: JBuilder (Borland), Forte (Sun), Visual Age (IBM)
    - Editors: JPadPro, UltraEdit-32, many others are shareware

## More on Things at TagGallery

- **CFX\_HTML2PDF**
  - Interesting idea, messy implementation, hard to use as-is
- **CFX\_Query2PDF**
  - Better (but narrower focus). Many formatting options
- **Internet Source Control (remote SCC)**
- **Java2html (display java source nicely)**
- **CFX\_ZipBrowser (zip files on server)**
- **CFX\_JAVA (?)**
- **XS (XML/XSL transformations)**
  - Requires lotusXSL (<http://www-106.ibm.com/developerworks/library/java-xml-toolkit/index.html>)
- **Simple JavaBean Wizard**
- **KavaChart**
- **Other sources:**
  - CFDev.com, various java-oriented component repositories

53

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## A Reading List

- **Macromedia CF documentation**
  - CFOobject, CFX\_ custom tags, CFServlet
  - Language Reference and “Developing Web Apps”
  - Administering CF (for admin setup)
- **Macromedia JRUN documentation**
  - Even without java experience, they make using understanding JSPs/servlets rather easy

54

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## A Reading List

- **JavaServer Pages Application Development**
  - Ben Forta, Scott Stirling, and company
- **JavaServer Pages (O'Reilly, Hans Bergsten)**
- **Beginning Java Objects**
  - Great book for fundamentals of java/objects/design
- **Other good J2EE Books**
  - Core Servlets and JSP
  - Professional Java Server Programming (J2EE Ed.)
  - Enterprise JavaBeans
- **Other good foundational Java books**
  - Core Java2; Beginning Java2; Thinking in Java

55

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## Beware of Some Books

- **Servlet/JSP books often teach to java developers**
  - Focus more on showing them how to do web application development (stateless programming, passing data from URL's and forms, etc.)
  - Presume that reader already knows Java
    - Core Servlets and JSP (Hall), Professional Java Server Programming (Patzner)
  - Some presume no Java experience
    - JavaServer Pages (Bergsten), Java Server Pages App Dev (Forta)
- **Java books often focus too much on client-side Java (applets, Swing)**
  - Not as relevant to us interested in server-side java
  - But important to consider for their core java content

56

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## Learning More

- **Many CFDJ articles**
  - Especially current 8 part “Cold Cup O’ Joe” series by Guy Rish
  - Matching ColdFusion with Server-side Java, by Christian Schneider
  - 3 part “Java for CF’ers” series by Ben Forta
  - 6 part “Online Ticket Store” series by Ajit Sagar
    - 4 parts of which were in Java Dev. Journal
- **Java Developers Journal**
  - Many interesting ones
  - My bi-monthly Journeyman J2EE series
    - September 01, November 01, January 02

## Learning More

- **Excellent Macromedia JRun documentation**
  - Download the Macromedia JRun 3-user demo
  - No time expiration
- **Macromedia now offering several Java classes**
  - Java for Web Developers (3 day)
  - FastTrack to JSP (2 day)
  - Building J2EE Apps
  - These all replace former ‘Servlets, Java and JSP’ class
- **I’m planning a class on Integrating CF & Java**
  - Will expand on many of today’s topics, walkthroughs, tips & tricks, more substantial applications
  - See last slide for contact info

## Topics Covered Further in My Forthcoming Class

- **My class would cover more, and w/ walkthrus**
  - Actual tools for integrating CF/Java
  - Setting up the environment/challenges
  - Solving nasty classpath problems, compile tricks
  - Some Java programming fundamentals
  - Finding, leveraging other libraries, classes
  - Trying different database integration alternatives
  - Integration with more products/services
    - XML/XSL, PDF, Graphing engines, Servlets etc.
  - Converting Java, Servlet code to CFOBJECT/CFX
  - Performance implications of calling objects
  - Solving nasty classpath problems, compile tricks
  - Introduction to Java programming language
  - Comparing Java to other object-oriented CF approaches (Spectra, FuseBox, CFOjects)
  - More about Neo, tagfusion
  - And more

\* Topics are tentative and subject to change

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## For Further Questions

- **For follow-up questions**
  - Or more information on Java or ColdFusion consulting, training, or presentations
- **Please contact:**
  - Charlie Arehart, CTO, Systemmanage
  - [carehart@systemmanage.com](mailto:carehart@systemmanage.com)
  - (voice) 301 604 8399
  - <http://www.systemmanage.com>
- **Available for training, mentoring, short-term consulting (1-5 days):**
  - All manner of CF topics, beginner-adv
    - Maximizing developer productivity
    - Best practices, performance tuning
  - J2EE (JSP/Servlets/EJBs), Integrating CF/Java
  - Database design, Int/Adv SQL topics
  - Testing, Graphing, Source Code Control, and more
  - Wireless applications

60 Marrying ColdFusion and Java

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