Leveraging ColdFusion with Adobe Integrated Runtime (AIR) Applications

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Agenda

- Introduction to AIR
- Where ColdFusion fits in
- ColdFusion as Data-Provider
- Flex with ColdFusion in AIR
- HTML/Ajax with ColdFusion in AIR
- ColdFusion as Presentation Layer
- Future Directions
- Q&A

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Introduction to AIR

Adobe® Integrated Runtime (AIR™) is a cross-platform runtime that allows you to leverage your existing web development skills to build and deploy Rich Internet Applications (RIAs) to the desktop

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What it provides

- Flash runtime + WebKit + pdf renderer
  - No browser dependency
- Leverages existing web development skills
  - HTML, Javascript, Ajax, Flex, Flash
  - Much easier than traditional desktop application development
- Application like any other desktop application
- Cross platform installer
- Rich Set of API to work with File, Network, local database, window, menu etc.
- Much more responsive than web application as UI is already present
- Ability to go offline and then sync data when it goes online.
  - Local storage on disk or local database SQLite

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AIR application structure

- Its a zip file !
- Application Contents
  - HTML, javascript, css, images, swf, configuration files etc..
- Application descriptor

```
<?xml version="1.0" encoding="UTF-8"?>
<application xmlns="http://ns.adobe.com/air/application/1.0.M4"
      appId="samples.ScorpioMail" version="0.1">

      <name>Demo</name>
      <rootContent systemChrome="standard" visible="true“
         width="1024" height="800">helloworld.htm
      </rootContent>
</application>
```

- Packaged together as .air file
- A simple AIR application

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Type of AIR Applications

- Flash only applications
- Flash based with HTML content
- HTML/Javascript only
- HTML/Javascript with flash content

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Where does ColdFusion Fit in

- AIR does not have CFML engine
  - cfm/cfc can not be packaged inside AIR applications.
- Traditionally ColdFusion application generates the UI
- In AIR application, generally the UI is pre-designed and packaged

- How can it use ColdFusion then??
  - Use ColdFusion applications directly
  - ColdFusion as data provider
  - ColdFusion as data provider as well as UI provider

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Use Web Applications directly

- ColdFusion is the fastest and easiest way to develop web application.
- Use web application directly without any modification.
- The root content of the AIR application points to online app's URL.

```
<html>
  <frameset cols="100%">
   <frame
      src=http://localhost:8500/CFIDE/administrator/index.cfm
      frameborder="0">
   </frameset>
</html>
```

```
<mx:HTML id="html" width="100%" height="100%"
  location="http://www.adobe.com/" />
```

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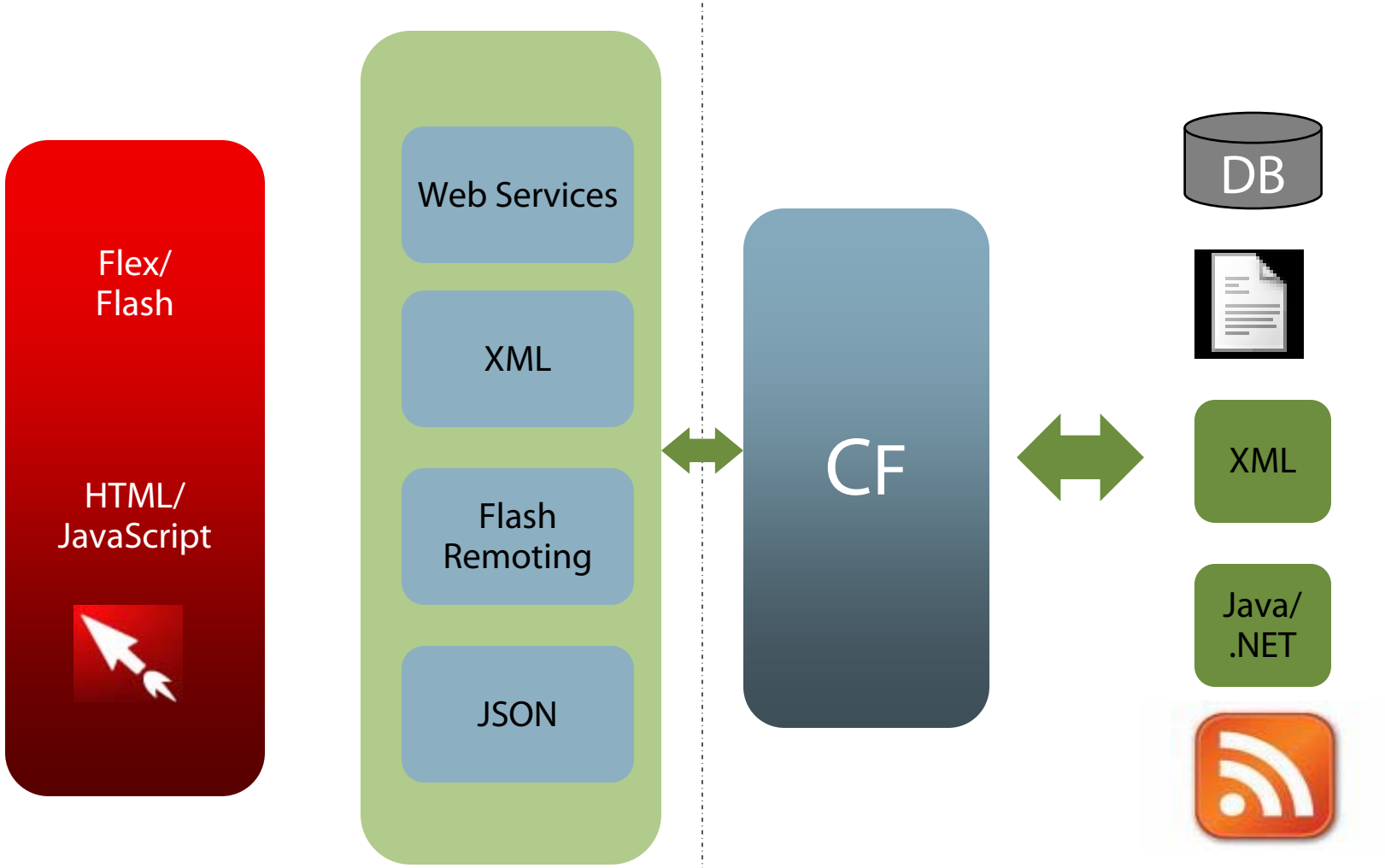
ColdFusion as data provider



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Flex Applications in AIR

Interaction with ColdFusion can happen through

- Flash Remoting
- Web Service
- HTTP Service

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Flex-CF in AIR – Flash Remoting

```
<mx:RemoteObject id="userRequest"
      destination="ColdFusion"
      source="flex.users">
  <mx:method name="returnRecords"
      result="returnCFCHandler(event)"
      fault="mx.controls.Alert.show(event.fault.faultString)"
  />

  <mx:method name="insertRecord" result="insertCFCHandler()“
      fault="mx.controls.Alert.show(event.fault.faultString)“
  />

</mx:RemoteObject>
```

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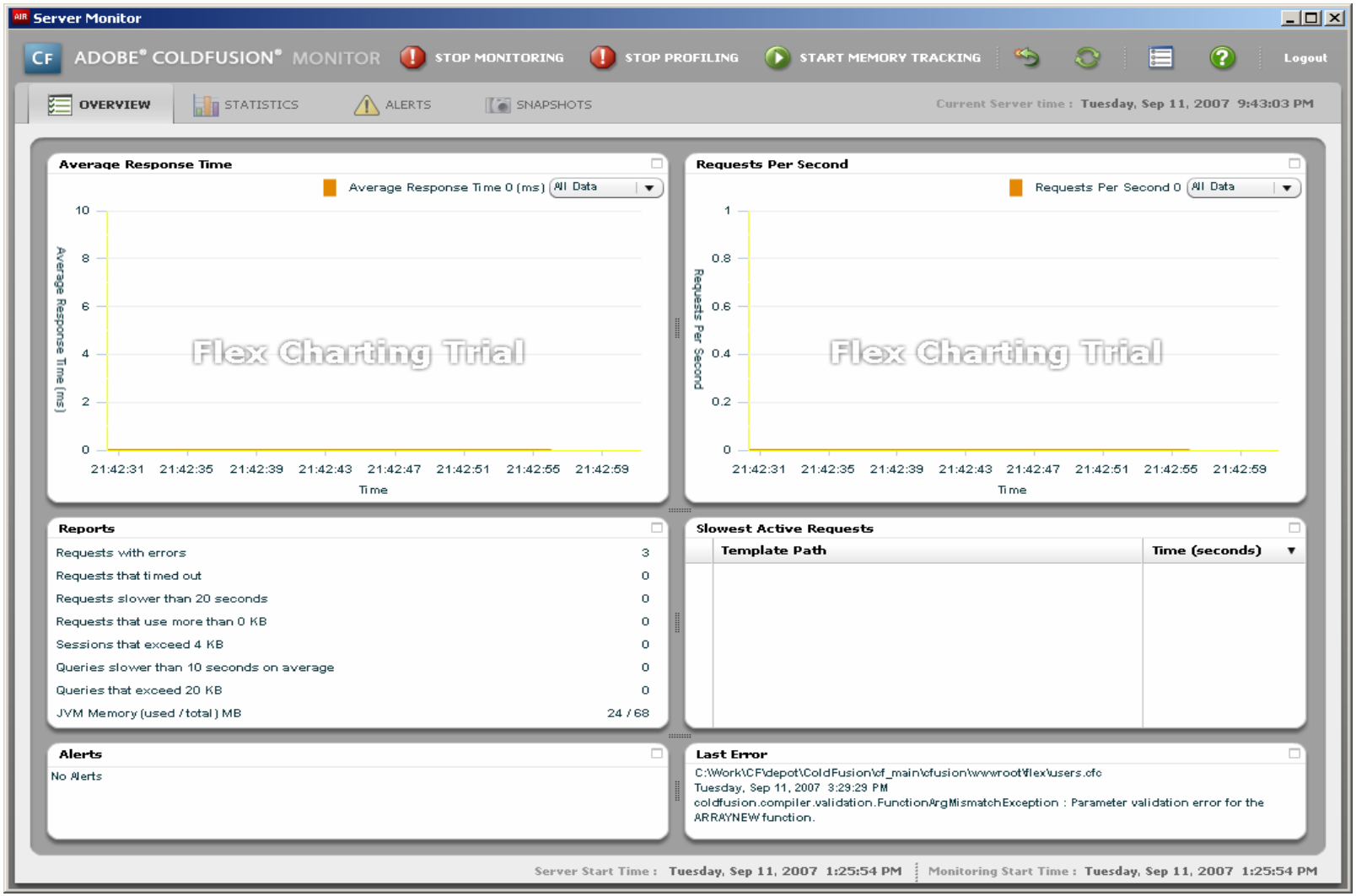
Example : Server Monitor in AIR



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Flex-CF in AIR – Web Service

```
<mx:WebService id="userRequest"
      wsdl="http://localhost:8500/flex/users.cfc?wsdl">

  <mx:operation name="returnRecords" resultFormat="object"
     fault="mx.controls.Alert.show(event.fault.faultString)"
     result="remotingCFCHandler(event)"/>

  <mx:operation name="insertRecord"
     result="insertCFCHandler()"
     fault="mx.controls.Alert.show(event.fault.faultString)"
  />

</mx:WebService>
```

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Flex-CF in AIR – HttpService

```
<mx:HTTPService id="userRequest"
  url="http://localhost:8500/flex/flexapp.cfm"
  useProxy="false" method="GET">
</mx:HTTPService>

<mx:DataGrid id="dgUserRequest" x="22" y="128"
dataProvider="{userRequest.lastResult.users.user}">

   <mx:columns>
      <mx:DataGridColumn headerText="Mail ID"
                         dataField="emailaddress"/>
      <mx:DataGridColumn headerText="User Name"
                         dataField="username"/>
  </mx:columns>

</mx:DataGrid>
```

- Result coming in XML.

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HTML/JavaScript (AJAX) in AIR

- Most of the UI packaged inside AIR app.
- Uses ColdFusion as data provider
  - CFAjaxProxy
  - XMLHttpRequest
  - Plain HTTP (cfm returning the data in XML, JSON, text format)
- Data formats
  - Plain Text
  - XML
  - JSON
    - Var aNames = [“Benjamin”, “Micheal”, “Scott”];
    - Var aCar = {“color” : “red”,“doors” : 4};
- Example – SerializeJSON()

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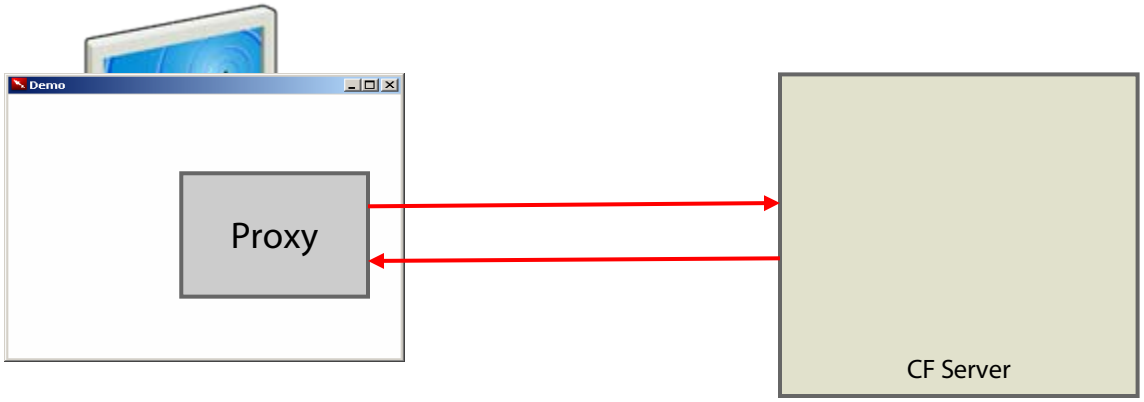
CFAjaxProxy in AIR

- Makes cfc available inside AIR application
- Creates a JavaScript proxy for a ColdFusion component
- Generates a proxy function for every remote function on the cfc




```
<cfajaxproxy cfc = “books" jsclassname = “jsbooks“>
<script>
	var b = new jsbooks();
	var details = b.getBookDetails();
</script>
```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Using CFAjaxProxy

```
ColdFusion.Ajax.importTag('CFAJAXPROXY');
 var _cf_states=ColdFusion.AjaxProxy.init(
      'http://localhost:8500/ajax/ajaxproxy/states.cfc','states');

_cf_states.prototype.getCities=function(state)
  { return ColdFusion.AjaxProxy.invoke(
              this, "getCities", {state:state});
  };

_cf_states.prototype.getStates=function()
  { return ColdFusion.AjaxProxy.invoke(this, "getStates", {});};



function getStates(){
     var s = new states();
     s.setCallbackHandler(fillStates);
     s.setErrorHandler(errorHandler);
     s.getStates();
}
```

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Using ColdFusion AJAX for AIR

- Use ColdFusion AJAX Tags to generate the UI
- Helps in developing Ajax application without writing much Javascript
- Readymade controls like layout, panels, pods, window, grid, tree.

- Write the cfm using CF ajax tags.
  - Can also use the CF-Ajax wizard
  - Should not have any business logic in it
- Execute the page and save the htm
- In this htm, change the bind urls to absolute URLs
  - Relative URLs are treated as local to AIR app
- Add the custom code required
- Package this htm along with the ajax scripts shipped with CF in AIR application

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Taking Applications offline

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Taking applications offline

- Identify features of application that can be made offline
- Identify what data and how much data should be made available offline
- Storing offline data
  - File system
  - Local DB (SQLite)
- Modality
  - Modal – Distinct offline/online mode. User driven. Simple to implement.
  - Modeless – Seamless offline/online. Most of the data stored locally. Better user experience.
- Synchronization
  - Manual Synch
  - Background client driven synch
  - Server driven synch
    - LiveCycle Data Services

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Using SQLite

Checking application status

```
var request = new air.URLRequest("http://localhost:8500/");
var loader = new air.URLLoader();
loader.addEventListener(air.Event.COMPLETE, online);
loader.addEventListener(air.IOErrorEvent.IO_ERROR,
offline);
```

Populate data

```
if(online){
    var mailcfc = new MailCFC();
    fillGrid(mailcfc.getInboxMails());
}else{
    stmt = new air.SQLStatement();
    stmt.addEventListener( air.SQLEvent.RESULT, fillGridDB);
    stmt.addEventListener(air.SQLErrorEvent.ERROR,
handleErr);
    stmt.sqlConnection = db;
    stmt.text = "SELECT * FROM mail";
    stmt.execute();
}
```

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Taking Applications offline…

More at Sneak Peek

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Future Possibilities ?

- Some random thoughts !!!
- Application to be written using CFAjax tags with different binds.
- Either a wizard or utility
- Can take user inputs as in
  - which cfms to include, which files to include
  - What data to persist locally and how to synch it.
  - User's implementation of persistence and synching.
  - Application name and configuration
- Smartly generate the appropriate code for AIR.
- Standard javascript files that CF uses can be made part of AIR runtime.
- Wizard for creating CRUD application with offline capabilities.
- Ideas/Suggestions??

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Q&A

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