

Rich Internet Applications with Adobe Flex and Java

Java User Group Wellington

Kai Koenig, 21/02/2007

Agenda

- What are Rich Internet Applications?
- History of Flex and some basics
- MXML and ActionScript 3
- User Interface
- Remote Services and connecting to Java
- Flex Data Services
- The future: Apollo, FlashLite

My background

- Working with the Java technology since 1996 – on and off, with different APIs and in various fields
- Got pulled into web development in the late 1990s during the big dotcom-hype in Europe and got involved with Allaire/Macromedia/Adobe technologies such as ColdFusion, Flash, Connect, Flex etc.
- Today: Providing consulting, mentoring and development services around Adobe's RIA solution Flex and different server platforms such as ColdFusion and Java.

Rich Internet Applications

- Rich Internet applications (RIA) are web applications that have the features and functionality of traditional desktop applications.
- RIAs typically transfer the processing necessary for the user interface to the web client but keep the bulk of the data (i.e maintaining the state of the program, the data etc) back on the application server.
- RIAs typically:
 - run in a web browser, or do not require software installation
 - run locally in a secure environment called a sandbox
 - can be "occasionally connected" wandering in and out of hot-spots or from office to office.

Rich Internet Applications

- The term was introduced by Macromedia in 2002 as a description for their way of connecting Flash MX (=Flash 6) applications to server components via RPC.
- Before Flash MX: Sockets or loading data from text files (LoadVars)
- The concept of RIAs is not really new:
 - RemoteScripting, X Internet, Rich web clients, Rich web application etc.

RIAs – Benefits and Drawbacks

- Benefits:
 - Rich user interfaces
 - Better client/server balance
 - Asynchronous communication
- Restrictions/Drawbacks:
 - Security/Sandbox
 - Additional requirements (plugin, particular browser settings etc.)
 - Data control issues (who „owns“ the data of an application?)

History of Flex and products

- Macromedia Flex 1.0 was released in 2004, Flex 1.5 in 2005 and Adobe Flex 2.0 finally in June/July 2006
- The idea of the Flex platform is to allow developers to use an XML language (MXML) together with a programming language (ActionScript 3) to develop and deploy Flash-based Rich Internet Applications.

History of Flex and products

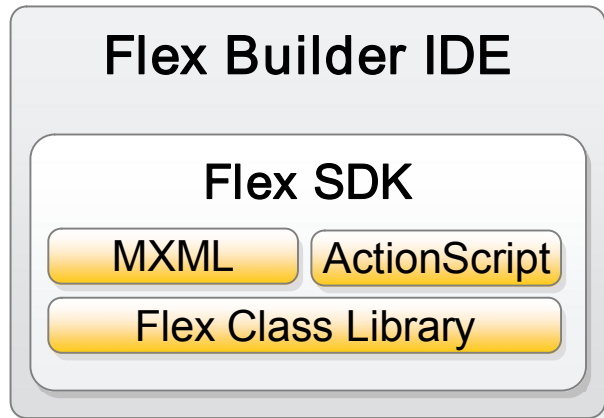
- Flash Player
 - Runtime environment for .swf applications
 - Available for Windows, MacOS, Linux, various devices (PSP, Nintendo Wii), PDAs and mobile phones, very good penetration rate
- Flash Authoring Environment
 - A „development“ environment to create .swf applications based on animation and movie metaphors
- Flex
 - „Flash for developers“ – a product line that allows developers to create Flash-based applications

History of Flex and products

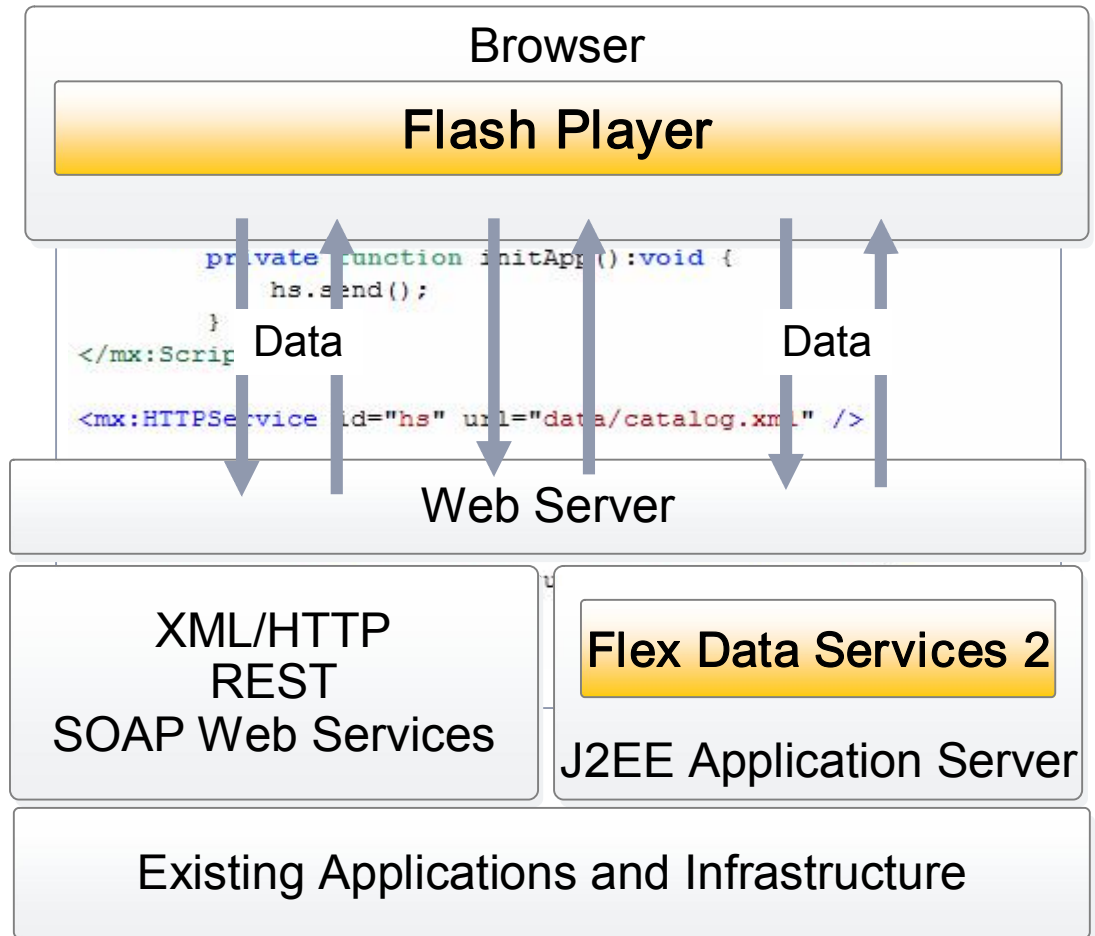
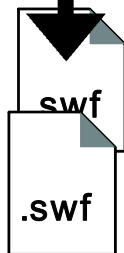
- Flex 2 is an umbrella term for various products:
 - Flex 2 SDK
 - Free SDK, consisting of the Flex 2 class library and command-line tools to work with. The free SDK allows to start developing Flex 2-based Rich Internet Applications without any costs or license fees.
 - Flex Builder 2
 - Eclipse-based IDE for Flex 2 development – provides features such as syntax highlighting, code completion, built-in compiler, code and design mode, built-in debugger etc.
 - Flex 2 Charting Components
 - Additional class library containing UI components for charting purpose and building data dashboard applications
 - Flex 2 Data Services
 - FDS add enterprise messaging support and an enhanced data services architecture to the Flex 2 SDK

How Flex works

MXML and ActionScript



Compile



MXML and ActionScript

- MXML is a XML language that is used to describe user interfaces, services definitions etc.
- ActionScript 3 is used to develop control flow, event handling, client-side business logic etc.
- Compilation has technically 2 steps (transparent for the user):
 - MXML to ActionScript – MXML tags are just an abstraction layer on top of the ActionScript class library
 - ActionScript to .swf

User Interface

- Demos:
 - Hello World
 - Some UI controls and their interaction
 - Data binding

Remote Services

- `<mx:HTTPService>` - connects to HTTP-based URLs to load data (via XML)
- `<mx:WebService>` - connects to SOAP Web Services
- `<mx:RemoteObject>` - connects to Java objects or ColdFusion components (currently) – some open source remoting gateways are on their ways...

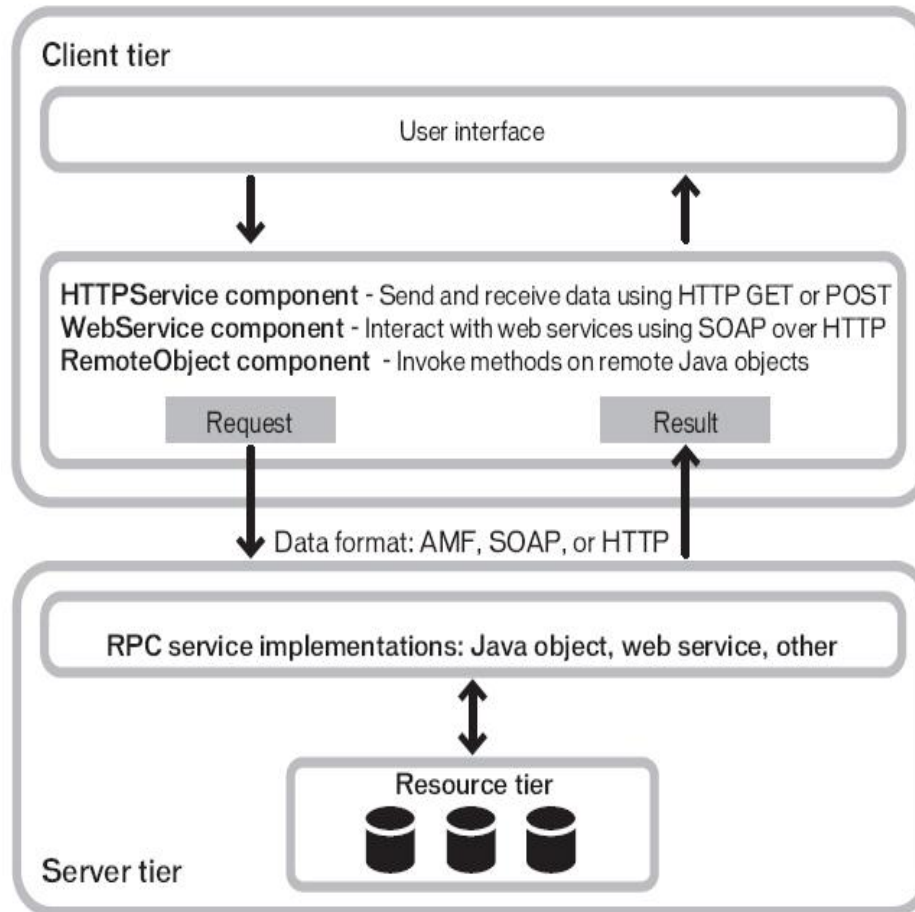
Flex Data Services

- FDS add enterprise messaging support and an enhanced data services architecture to the Flex 2 SDK.
- License fees depend on your infrastructure, licensed per machine/CPU/clients, but there is the free Flex Data Services 2 Express (restrictions: 1 physical server, 1 CPU, no clustering), even for commercial installations.
- Flex Data Services 2 provide
 - Access to remote objects (POJOs, JavaBeans, EJBs and ColdFusion Components)
 - Data sharing among multiple clients
 - Support for client-to-client data communications
 - Automated server data push
 - Authentication of client access to server resources
 - Logging
- Execute on Java application server or Java servlet container
 - JRun 4 SP 6, Apache Tomcat, BEA WebLogic, IBM WebSphere, JBoss – check Adobe site for currently supported versions/builds.

Flex Data Services

- Some RPC services can be implemented without Flex Data Services 2, particularly:
 - HTTP services
 - Web services
- There are good reasons though, why to use Flex Data Services 2, even if not necessary:
 - Ease of data management
 - Security and sandboxing

Flex Data Services



Adobe Apollo

- A non-browser runtime environment for rich internet applications – allows HTML/Ajax/Flash/Flex applications to make the leap into the desktop application environment

FlashLite

- A Flash player profile for PDAs and mobile phones
- Extremely huge market in Asia, in 2005 Nokia adopted FlashLite as a pre-installed technology on their series40 and series60 phones
- FlashLite 2.1 supports Flash 7, so no Flex apps on mobile phones (yet!).

Some links

- Flex 2 – Java test drive: <http://coenraets.org/blog/2007/01/flex-test-drive-server-for-java-developers-tomcat-based/> (also showing the Hibernate and Spring integration)
- Adobe Apollo on Labs: <http://labs.adobe.com/wiki/index.php/Apollo>
- OpenSource Flash/Flex: <http://osflash.org/>
- Flex 2 Remoting for PHP:
http://www.adobe.com/devnet/flex/articles/flex2_amfphp.html
- AS 3 libs:
http://labs.adobe.com/wiki/index.php/ActionScript_3:resources:apis:libraries
- Flex 2 tag lib for JSP integration:
http://labs.adobe.com/wiki/index.php/Flex_2_Tag_Library_for_JSP
- Flex 2 Ant tasks: http://labs.adobe.com/wiki/index.php/Flex_Ant_Tasks
- Flex Stress Test framework:
http://labs.adobe.com/wiki/index.php/Flex_Stress_Testing_Framework
- Flex-AJAX Bridge: http://labs.adobe.com/wiki/index.php/Flex-Ajax_Bridge

Books

- Advanced ActionScript 3 and Design Patterns:
http://www.amazon.com/Advanced-ActionScript-3-Design-Patterns/dp/0321426568/ref=pd_sim_b_3/103-5839103-1720608
- Programming Flex 2.0 (to be published early March):
<http://www.amazon.com/Programming-Flex-2-0-Comprehensive-Applications/dp/059652689X>
- For very beginners – look for a book of Adobe’s “Training From The Source” series.

Contact

Kai Koenig
Director, Software Solutions Architect
Ventego Creative Ltd, Wellington

email:

kai@ventego-creative.co.nz

mobile:

+64 (0)21 928 365

blog:

<http://www.bloginblack.de>