### Get Smart! About RIA Security

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#### **About This Presentation**

- A. Originally submitted by Rob Gonda. I adhere to the general intent of his concept with a significant exception:
  - •There is no bullet-proof solution!

#### **B. Intended Audience: Intermediate Level**

- C. You should be familiar with building RIA's using either Ajax or Flex, though we will generally focus on Flex. June 18 - 21, 2008

# Who Am I? A.Adobe Community Expert B.Flex Champion C.Boston ColdFusion User Group Manager D.Organizer of Flex Camp Boston (Dec. 2007) E.Creator of the Illudium PU-36 Code Generator open-source F.Frequent author to publications including Fusion Authority Quarterly Update, Adobe Edge, Sitepoint, ColdFusion Weekly Podcast G.Blog - RemoteSynthesis.com H.ColdFusion Open-Source List I. Weekly ColdFusion Open-Source Update

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## A Multi-layer Approach to Security

- A. You, the developer, are a
- B. agent for CONTROL fight
- C. the agents of KAOS!
- D. Much like the entrance to
- E. CONTROL headquarters, you need to implement
- many secure doors. Your goal is to make it as
- G. difficult as possible to get in.

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# The Secure Doors (or Layers)

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- A.We will discuss 4 "layers" today for protecting RIAs:
- B. Roles-based security for remote methods
- C. Domain security for remote methods
- D. HTTPS
- E. Data encryption

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# Tools for Intercepting Data

#### A. Service Capture

- http://kevinlangdon.com/serviceCapture/
- Can deserialize and display all Flash Remoting or AMF traffic
- B. Charles
  - http://www.xk72.com/charles/
  - Can capture HTTP/SSL communication

# C. Firebug

- http://www.getfirebug.com/
- Integrates with Firefox
- Monitor network activity

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## Roles-based Security (Layer 1)

- A. The most basic layer and yet ofte
- B. overlooked.
- C. Create a list of core user roles
  - Not logged in could be just "user"
- D. Determine access to API based upon these roles
  - Err on the side of more restrictive

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# Implementing Roles-Based Security: ColdFusion Wrapper

A.Change the included template name B.Modify Eclipse/Flex Builder project settings C.Run Project > Clean...

D.Eclipse will generate a CFM that will work with your application.cfc to handle session-based logins.

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### Implementing Roles-Based Security: Remote Methods

- A. <cflogin>
- B. Manage user logins and roles.
- C. <cffunction>
- D. Remote proxy component
- E. Set allowable roles via the roles attribute

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# Domain-based Security (Layer 2)

- A. Flex
  - Crossdomain.xml and Cross Domain permissions
- B. Ajax
  - ColdFusion 8 Ajax Security

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#### Cross-domain Permissions in Flex

A. Specifies what domains are allowed to call data via a SWF

<?xml version="1.0"?><!-- <u>http://www.foo.com/crossdomain.xml</u> ->cross-domain-policy> <allow-access-from
domain="www.friendOfFoo.com"/> <allow-access-from</pre> domain="\*.foo.com"/> <allow-access-from domain="105.216.0.40"/></cross-domain-policy>

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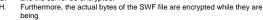
# ColdFusion 8 Ajax Security Tools

- A. VerifyClient
- B. function (verifyClient()) or attribute on <cffunction> (verifyclient="true")
- C. client or session management must be enabled
- D. JSON Prefixes
- E. global via ColdFusion Administrator setting
- F. via <cfapplication> or Application.cfc
- G. via <cffunction> attribute

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### HTTPS (Layer 3)

- "Because a SWF file running with browser uses the browser for alm
- of its communication with the ser
- can take advantage of the brow built-in SSL support. This lets
- communication between the SWI and the server be encrypted



- loaded into the browser. Thus, by playing a SWF file within an SSL-enabled browser through an HTTPS connection with the server, you can ensure that
- communication between Flash Player and the server is encrypted and secure.'

http://livedocs.adobe.com/flex/3/html/help.html?content=security2 14.html#141403

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## Data Encryption (Layer 4)

- - One-Way Encryption
    - § Corelib Library
  - Two-Way Encryption § as3Crypto
- B. Ajax
  - One-Way Encryption
    - § JavaScrypt
  - Two-Way Encryption
    - § RSA Library



### Implementing One-Way Data Encryption in Flex

- A. Encrypt protected passwords via AES using
- B. One-way hashing of data that you do not need to decrypt

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- C. To verify encrypted password
  - Encrypt the password
  - Pass encrypted password
  - Compare to stored version

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### Two-Way Encryption in Flex

- A. You can access RSA libraries via AS3Crypto open-source library
- B. As of the writing of this presentation I could not get data encrypted in Flex to decrypt in CF.

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#### Additional Resources

- ColdFusion 8 Ajax Security Functions http://www.adobe.com/devnet/coldfusion/articles/ajax\_security.html
- JavaScrypt http://www.fourmilab.ch/javascrypt/
- RSA Implementation http://home.versatel.nl/MAvanEverdingen/Code/ CF7 encryption additions : http://www.petefreitag.com/item/222.cfm
- AS3 cryptography library (RSA) http://crypto.hurlant.com/ AS3 Core Lib (SHA256) http://code.google.com/p/as3corelib/
- Issues with converting encryptions between cf and flex http://www.jeffryhouser.com/index.cfm/2007/12/6/Encrypt-in-Flex-and-Decrypt-in-ColdFusion
- Flex and Encryption <a href="http://blogs.oreilly.com/cgi-bin/mt/mt-search.cgi?tag=encryption&blog\_id=34&IncludeBlogs=34">http://blogs.oreilly.com/cgi-bin/mt/mt-search.cgi?tag=encryption&blog\_id=34&IncludeBlogs=34</a>
- Secure SWF http://www.adobe.com/devnet/flashplayer/articles/secure\_swf\_apps.html
- Public Key Encryption for Dummies http://www.networkworld.com/news/tech/0517tech.html
- SWF Decompilers http://www.decompiler-swf.com/ http://code.google.com/p/flash-decompiler/

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#### Questions?

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