How NikeiD™ Hurdled the Java™ Technology and Flash Barrier

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Nike, Inc.
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TS-9123

Goal

What You Will Gain

Know if building a solution that uses a Java™ based server and Flash client is right for you

Agenda

What We Do

Options for the Client

The Implementation

Lessons Learned

Q&A

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DEMO

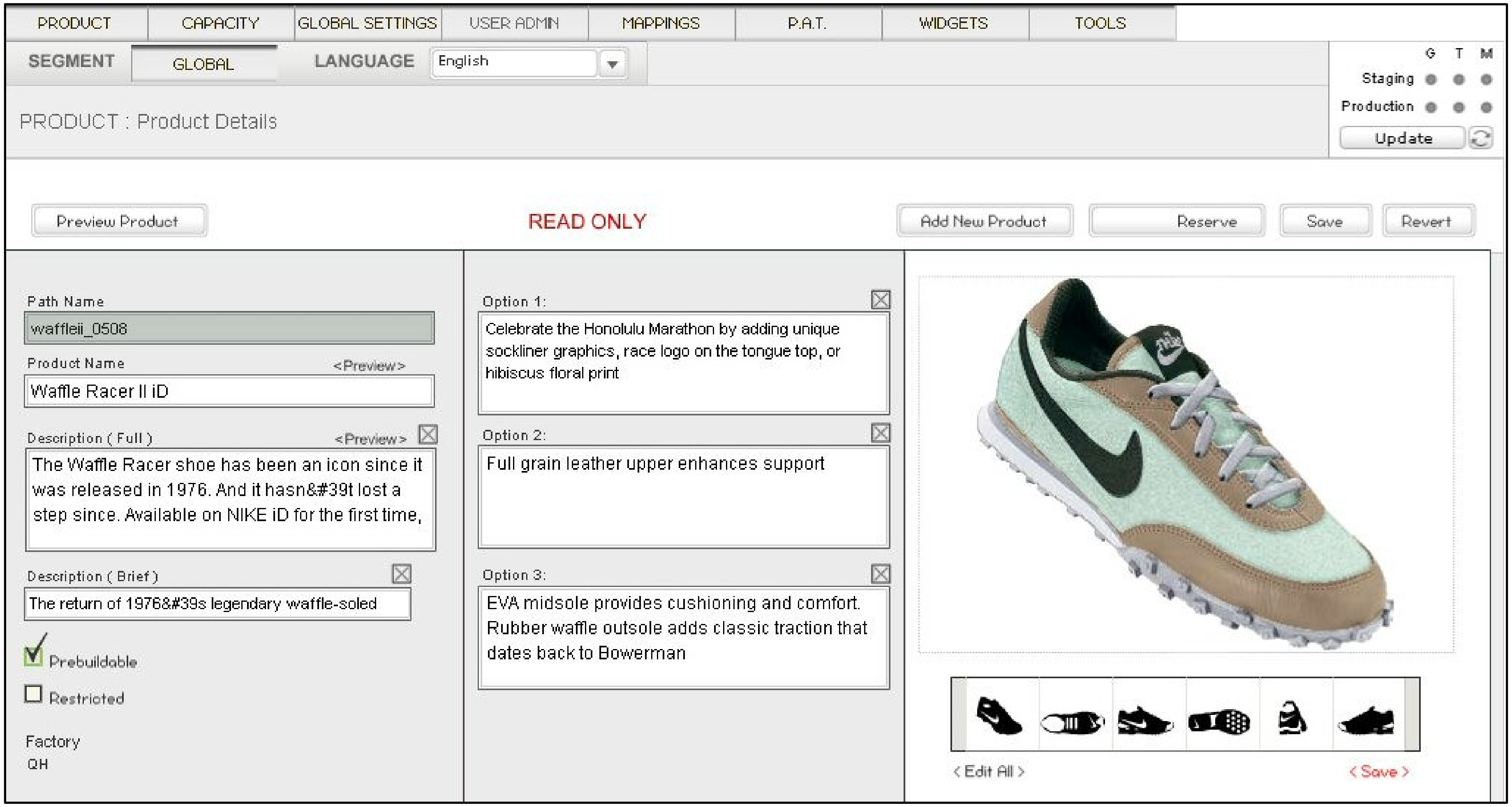
Site and Admin Tool

What We Do

And What Problems We Were Trying to Solve

- Content builder for customizable product that is global (i18n)
- Flash consumer website uses xml services
- Complex data that is visual

What We Do



SEGMENT: GLOBAL
LANGUAGE: English

PRODUCT : Product Details

READ ONLY

Path Name
wafflei_0508

Product Name <Preview>
Waffle Racer II iD

Description (Full) <Preview>
The Waffle Racer shoe has been an icon since it was released in 1976. And it hasn&#39t lost a step since. Available on NIKE iD for the first time,

Description (Brief)
The return of 1976&#39s legendary waffle-soled

✓ Prebuildable

☐ Restricted

Factory
QH

Option 1:
Celebrate the Honolulu Marathon by adding unique sockliner graphics, race logo on the tongue top, or hibiscus floral print

Option 2:
Full grain leather upper enhances support

Option 3:
EVA midsole provides cushioning and comfort. Rubber waffle outsole adds classic traction that dates back to Bowerman

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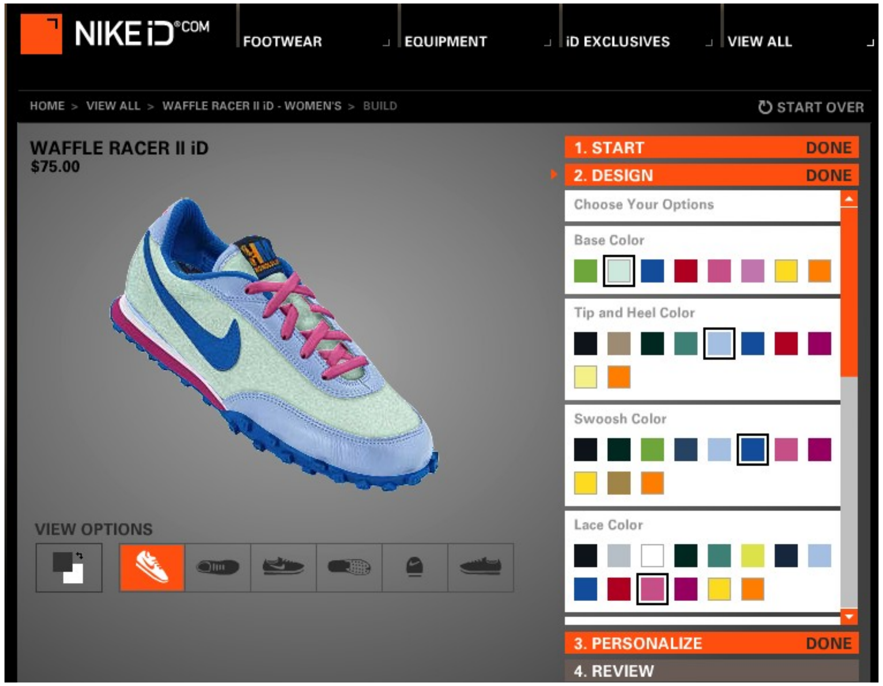
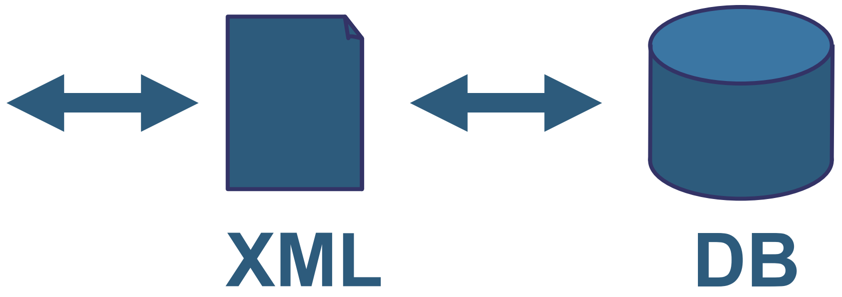

NIKEiD.COM
FOOTWEAR
EQUIPMENT
iD EXCLUSIVES
VIEW ALL
HOME > VIEW ALL > WAFFLE RACER II iD - WOMEN'S > BUILD
START OVER
WAFFLE RACER II iD
$75.00
1. START DONE
2. DESIGN DONE
Choose Your Options
Base Color
Tip and Heel Color
Swoosh Color
Lace Color
3. PERSONALIZE DONE
4. REVIEW
VIEW OPTIONS


XML
DB

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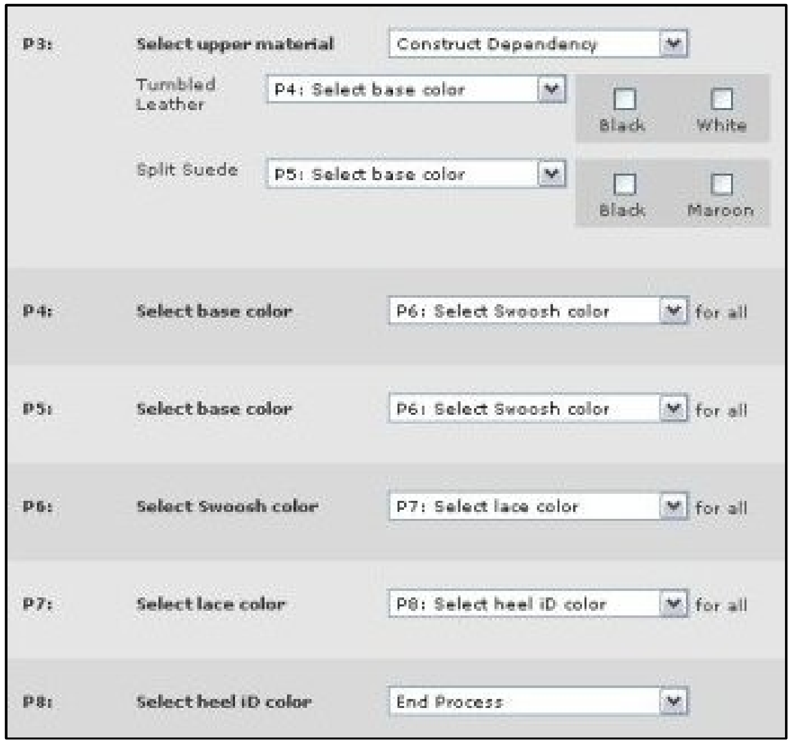
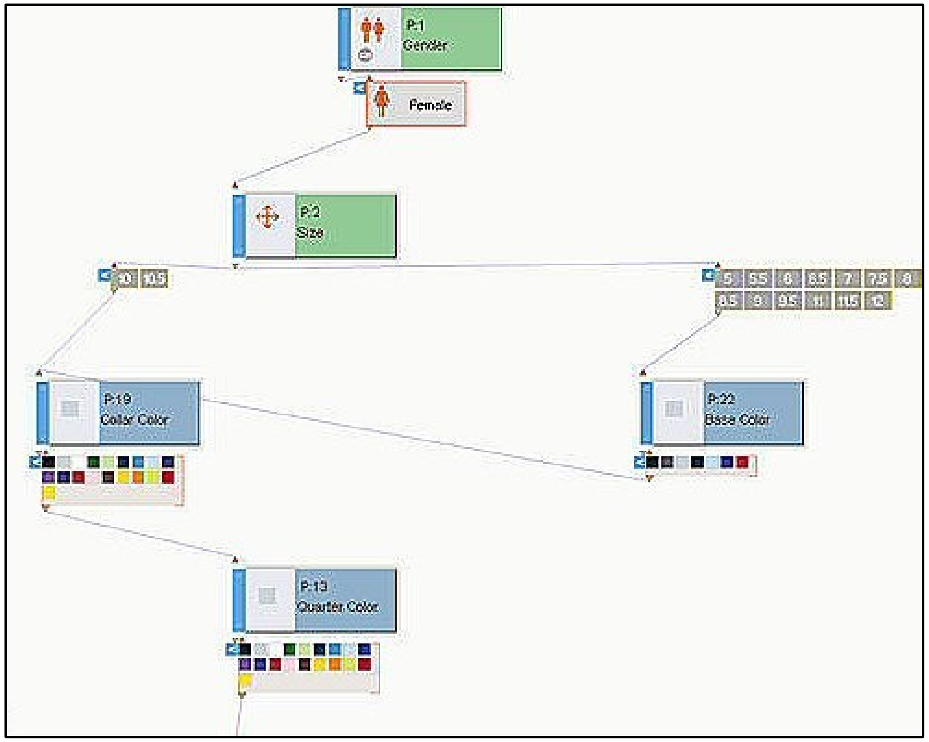
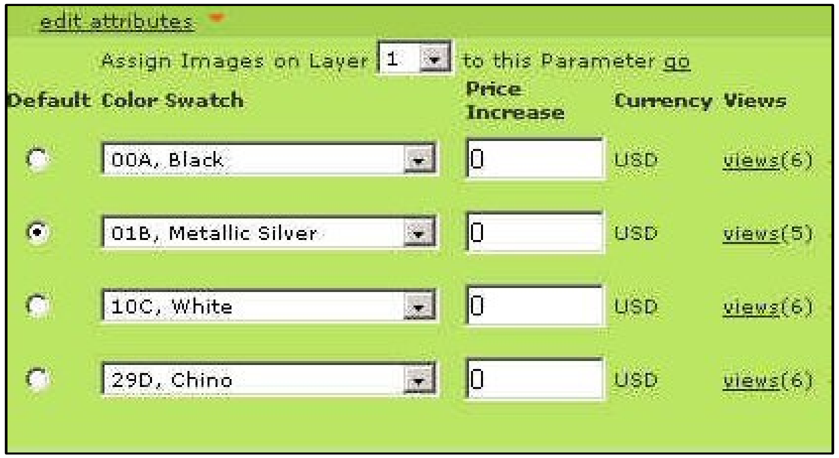


P3:	Select upper material	Construct Dependency	
	Tumbled Leather	P4: Select base color	☐ Black ☐ White
	Split Suede	P5: Select base color	☐ Black ☐ Maroon
P4:	Select base color	P6: Select Swoosh color	for all
P5:	Select base color	P6: Select Swoosh color	for all
P6:	Select Swoosh color	P7: Select lace color	for all
P7:	Select lace color	P8: Select heel iD color	for all
P8:	Select heel iD color	End Process	



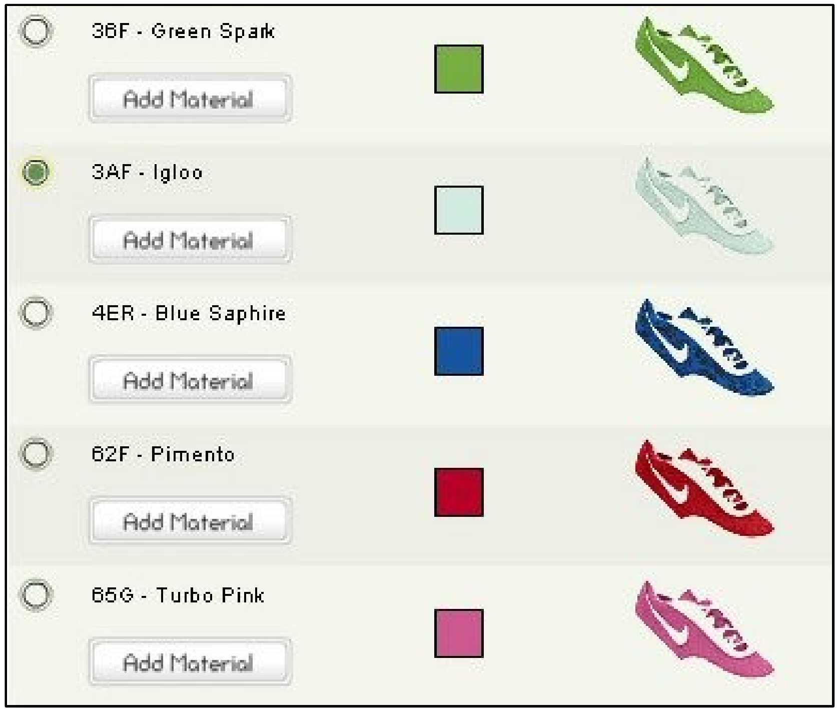
What We Do



edit attributes

Assign Images on Layer 1 to this Parameter go

Default	Color Swatch	Price Increase	Currency	Views
○	00A, Black	0	USD	views(6)
●	01B, Metallic Silver	0	USD	views(5)
○	10C, White	0	USD	views(6)
○	29D, Chino	0	USD	views(6)



○	36F - Green Spark Add Material	🟩	
●	3AF - Igloo Add Material	⬜	
○	4ER - Blue Saphire Add Material	🟦	
○	62F - Pimento Add Material	🟥	
○	65G - Turbo Pink Add Material	🟪	

Agenda

What We Do

Options for the Client

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Options for the Client

Choosing the Right Solution

- JavaServer Pages™ technology
- Swing or SWT
- Flash

JSP™ Technology

All in Favour Say “Aye”

- Had an existing JSP based application
- Available resources familiar with technology

JSP Technology

All Opposed Say "Nay"

- A lot of the code was in pages
- Implemented new data layer—We couldn't reuse the existing code that wasn't in the JSP software (Data Transfer Objects and Data Access Objects)
- Web is not conducive to data entry
- Web is not conducive to manipulating graphs

Options for the Client

Choosing the Right Solution

- JSP Technology
- Swing or SWT
- Flash

Swing or SWT

All in Favour Say “Aye”

- Great for data entry
- Could leverage large number of Java based libraries
- Powerful enough to do everything
- Framework available for updating client

Swing or SWT

All Opposed Say “Nay”

- No one to champion the technology
- Additional work to display existing web content (.swf)

Options for the Client

Choosing the Right Solution

- JSP Technology
- Swing or SWT
- Flash

Why We Chose Flash

- Could leverage consumer website to display web content
- Full featured application
- Transparent remoting
- Available Flash expert

Why We Almost Didn’t Choose Flash

- Could the developers learn Flash?
- Would two data models be needed?
- Would Flash handle a large data-driven application?
- How would server (Java technology) and client (Flash) communicate?

Agenda

What We Do

Options for the Client

The Implementation

- The Server
- The Client
- Synchronizing Data Models

Lessons Learned

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- **The Server**
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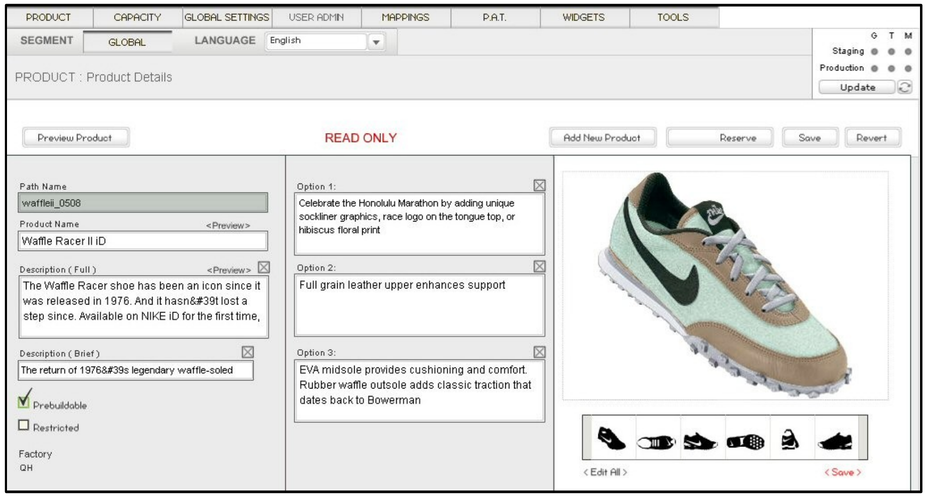
The Implementation



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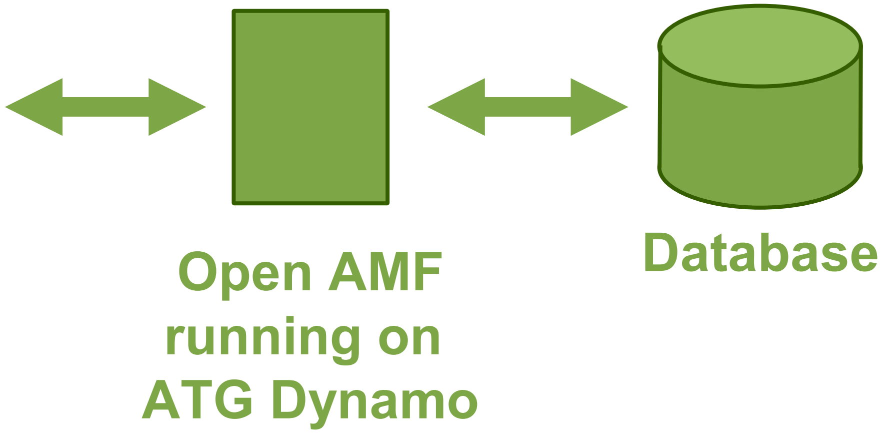

Data Model

Java code

```
public class History
{
  private String id;
  private String who;
  private String info;
  private Date when;
   …
}
```

Flash

```
class model.HistoryDTO {

     public var id:String;
     public var who:String;
     public var info:String;
     public var when:Date;
   …
}
```

Data Model and Concurrency

- Data model on the server and client
- Generated the Flash data model and configuration file
- Server responsible for concurrent modifications (optimistic locking)

Add Mapping to Config

```
 <custom-class-mapping>
   <java-class>
      package.History
   </java-class>
   <custom-class>
      model.HistoryDTO
   </custom-class>
</custom-class-mapping>
```

Implement Server Code

```
//
public class HistoryService
{
  public History getHistory(String historyId)
  {
     //implementation
  }
}
```

Add Service to Config

```
<service>
   <name>HistoryService</name>
   <service-location>
      package.HistoryService
   </service-location>
   <invoker-ref>Java</invoker-ref>
   <method>
      <name>getHistory</name>
      <parameter>
         <type>*</type>
      </parameter>
   </method>
</service>
```

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Options for the Client

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- The Server
- **The Client**
- Synchronizing Data Models

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Call the Service (Flash)

```
var rr:RelayResponder = new RelayResponder(
     this, "history_Result", "history_Fault"
);
var historyService:Service = new Service(
   "http://localhost:8810/openAMF/gateway",
   null,
   "HistoryService",
   null,
   rr
);

// call the method
historyService.getHistory(); //asynchronous
```

Process the Service Results (Flash)

```
function history_Result(r:ResultEvent)
{
 //"model.HistoryDTO" need to be
 // registered before using it.
 Object.registerClass(
    "model.HistoryDTO", HistoryDTO
 );

 //cast to the expected type
 var history:HistoryDTO = HistoryDTO(r.result);

 //use the object
 info_txt.text = history.getInfo();
}
```

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- The Server
- The Client
- **Synchronizing Data Models**

Lessons Learned

Q&A

Synchronizing Data Models

- Server technology tracked delta to minimize SQL executed
- Delete and replace was not adequate
- Chose to calculate delta on server
- Alternative—track changes on client

Synchronizing Data Models

```
//get server's object
//get object caller wants saved

//iterate over object's properties.

   //if list, set, or map
      //synchronize their contents

   //if property values are not .equal
      //set server’s object property
      //to new value
```

Synchronizing Data Models

```
public static void synchronize
  (Set originalSet, Set detachedSet)
{
      //iterate over the original set to remove
      //everything not found in the detached Set.
      for (Iterator iterator = originalSet.iterator();
              iterator.hasNext();)
      {
        Object originalValue = iterator.next();
        if (!detachedSet.contains(originalValue))
        {
          iterator.remove();
        }
      }
      …
}
```

Synchronizing Data Models

```
public static void synchronize
 (Set originalSet, Set detachedSet)
{
    …
    //iterate over the detached set and add
    //everything not found in the original set.
    for (Iterator iterator = detachedSet.iterator();
         iterator.hasNext();)
    {
      Object newValue = iterator.next();

      if (!originalSet.contains(newValue))
      {
        originalSet.add(newValue);
      }
    }
  }
```

DEMO

Admin Tool

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Lessons Learned

- Decreased IT support for deploying data
- Decreased time to enter data
- Allowed business to increase products on site
- Increased data deployment frequency
- More capable of adding functionality

Lessons Learned (Cont.)

- Client-server issues still have to be solved
- Not appropriate for small projects
- Plan to buy third-party Flash components
- Consider Flex 2.0 platform

Summary

- Integrating Flash to Java technology is simple
- It was the right tool for this application
- But it is not a silver bullet

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What we do

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Kirk Jones
Travis Davison

For More Information

List

- www.openamf.net
- www.macromedia.com/software/flash/flashpro/
- www.macromedia.com/devnet/flex/
- www.nikeid.com
- http://labs.adobe.com

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