Implementing MISMO v3

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The MISMO Spring 2013 Summit is sponsored by:
eLynx Background

Services
- On-demand document distribution and collaboration services (SaaS) and software tools

Customers
- 25 of the top 50 U.S. banks use eLynx services
- Over 4,000 clients of all sizes worldwide

Market
- More than 50 million U.S. mortgages processed by eLynx
- More than 2.5 billion pages have been distributed electronically on eLynx’s Expedite® document collaboration network
- More than 1 million paper contracts have been processed through eLynx’s integrated print-and-mail fulfillment services

Recent Awards
- Recognized by Mortgage Technology as Top 50 Service Provider for 7 years running
- Progress in Lending 2013 Top Innovation Award
Harland Background

- Harland Financial Solutions Inc. (www.harlandfinancialsolutions.com) supplies software and services to thousands of financial institutions of all sizes, offering its solutions in both an in-house and service bureau environment. It is a leader in core systems, business intelligence, branch automation, payment processing, enterprise content management, lending solutions, risk management, compliance, financial accounting, mortgage solutions and self service solutions. The company is an indirect wholly-owned subsidiary of Harland Clarke Holdings Corp., which also owns Harland Clarke and Scantron.

- More than 3,200 lenders nationwide depend on LaserPro® for compliant loan documents. LaserPro® provides lenders of all sizes with the latest technology and the flexibility to produce compliant loan documentation for a wide variety of loan types. For more than 25 years, LaserPro® has continually evolved to support the thousands of financial institutions that rely on it to help them comply with state and federal laws, while providing true 50-state banking capability.
Project Overview

• Objectives
  - Integrate eLynx Expedite® electronic document delivery and electronic signature into Harland LaserPro® and DepositPro® products
  - Design the solution so it can be applied to future Harland products

• Major Integration Tasks
  - Transmit transaction data, documents, and signing locations from the Document Origination System (DOS) to Expedite®
  - Retrieve electronically signed documents from Expedite® and present them to the customer’s file repository

• Potential integration methods
  - Morse code
  - Complicated, one-time proprietary XML interface

✅ MISMO v3 MESSAGE
Why MISMO?

Using the MISMO v3 MESSAGE makes implementing mortgage (and other financial services) transactions easy

- How does the standard make implementation less complicated?
  - MISMO is an industry standard that many mortgage-related companies are already familiar with.
  - All loan-related data items, document structures, and electronic signature interface items are already defined.
  - Built-in extensibility and published engineering guidelines allow for uncomplicated, well-structured addition of required custom interface items.
- Using MISMO greatly reduced coordination time and effort on this project.
  - We originally scheduled daily, 30-minute calls to go over the interface.
  - The message prototype was finished during the 2nd phone call. Subsequent calls were spent resolving other project issues and discussing MISMO business, although most of them became a simple 5-minute update.
Why MISMO?

Supporting the choice of the MISMO interface over another partner’s/customer’s proprietary interface

- A proprietary interface (usually):
  - Is developed over a relatively short period of time.
  - Is written by architects with familiarity of the local product or service, but less familiar with data requirements for the entire industry.
  - Is changed with product feature updates, not necessarily following industry trends.
  - Has varying support for product or project specific data needs.
- The MISMO V3 interface:
  - Was developed over a period of 10 years (and counting).
  - Is written and revised using input from hundreds of mortgage industry data experts.
  - Is updated with new data and structures driven by business trends from the entire mortgage industry.
  - Has excellent extensibility for product or project specific data needs.
  - Is a recognized industry standard with growing acceptance in business and government.
Technical Details – Posting Request

- The initiating transaction is a web service post from the Harland DOS to eLynx Expedite®. This posting sends the documents and transaction data to eLynx, requesting an electronic delivery or electronic signature ceremony.

- All required general data items related to the loan transactions described were already in the data model:

<table>
<thead>
<tr>
<th>Loan Number</th>
<th>Loan Term</th>
<th>Amortization type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Address</td>
<td>Note Amount</td>
<td>Closing Date</td>
</tr>
<tr>
<td>Borrower Contact</td>
<td>Lender Information</td>
<td>Etc.</td>
</tr>
</tbody>
</table>
Technical Details – Posting Request

• //SERVICE/DOCUMENT_MANAGEMENT exists on the MISMO 3.1 model, but is only a stub put in for future use. We extended this to fit our purposes, but kept in mind the general needs of someone performing this sort of service.

• The items in DOCUMENT_MANAGEMENT_REQUEST_DETAIL have been submitted for inclusion in a future release of the MISMO model.
Technical Details – Posting Request

- //DEAL/EXTENSION//DEPOSIT_ACCOUNTS provided a way to describe financial institution accounts that weren’t mortgages, or even loans! This extension is of no interest to MISMO, but is very useful to our interface.
• **DOCUMENT_SET_USAGE:** In the MISMO model, //DOCUMENT_USAGE is a structure that defines properties of a single document. After some discussion, we realized that there could be a similar set of descriptive properties for a DOCUMENT_SET, specifically:
  - `DocumentSetUsageCode` to provide a partner-specific code for addressing the document set
  - `DocumentSetUsageDescription` as a brief description of the doc set
  - `DocumentSetUsageType` to classify the doc set (e.g. ‘3-day disclosure’, ‘Final Closing’)

![Diagram of ELYNX_DOCUMENT_SET_USAGE_EXTENSION with attributes: DocumentSetUsageCode, DocumentSetUsageDescription, DocumentSetUsageType]
Technical Details – Posting Request

- //DOCUMENT/VIEWS/VIEW elements contain the PDF document images and all the document signing information.
  - PDF document images are stored as a Base 64 encoded FOREIGN_OBJECT.
  - //MESSAGE/RELATIONSHIPS are used to tie /PARTY/ROLE to views and signature fields (more about this in Lessons Learned):
    - Related to VIEW objects to designate a VIEW that the party is allowed to see
    - Related to FIELD objects to designate a FIELD that the party is supposed to sign
  - To our knowledge the signing location information has not yet been implemented in production anywhere, but we required only three extensions:
    - Addition of Points as a Measurement Unit Type for placing signature blocks on the page.
    - Addition of Page Height and Page Width to the VIEW.
We did NOT implement full SMARTDocs, which would entail putting all the data contained on the form into each of the DOCUMENT elements. However, when we do, the data structure for the interface is all there.

- It becomes strictly a programming exercise to deliver and consume the necessary data. All the interface work has already been done.
- Either side of this partnership can decide, independently, to start supporting SMARTDoc data in their implementation as the business defines the need for this. The interface will not break; the additional data will simply be ignored by the other partner.
Technical Details – Signed Doc Response

- One of the major drivers for the format of the returned signed documents was easy portability into a variety of file and data formats for consumption by the major file repository vendors.
- Instead of Base 64 Encoding the signed documents back into the MESSAGE, we followed the recently-released ZIP Implementation Guide to reference the signed PDF documents from within the MESSAGE structure, but include the PDF images as independent files in a ZIP archive along with an XML file containing the MESSAGE element.
Lessons Learned

• Extending the Model
  – Make sure the data item you are extending doesn’t already exist! We had proposed adding an extension to one of the DOCUMENT elements to specify whether the document was electronically signable, but AcceptableSignatureType was already in the model.
  – Follow the MEGs. This helps make your extensions logical and easy to follow, especially for those familiar with MISMO.
  – Use EXTENSION/OTHER and reference use your own namespace for your data structure. This guarantees that no other organization will conflict with your implementation.
‘Identifier’ vs. ‘Code’: There are several MISMO element names that end in ‘Identifier’ or ‘Code’. These both provide the opportunity to insert partner specific data into the model.

- **Identifier:** Unique index assigned to whatever you are describing. Generally, an Identifier won’t be repeated across several records, but inherently refers to only one item. For example:

```
<AboutVersionIdentifier IdentifierOwnerURI="urn:elynx:transmission:id">6a01bc5b-48b2-4d63-8908-0d85b66e9d98</AboutVersionIdentifier>
```

- **Code:** Non-unique data item that is a custom code, perhaps something that requests a certain action be performed on the data. For example:

```
```

- Remember to use IdentifierOwnerURI and CodeOwnerURI to specify to partners that this is your code/identifier in your context.
Lessons Learned

- **Repeating parameters vs. Defining an extension structure:** On this project, we used repeating instances of //DOCUMENT_USAGE/DocumentUsageCode with various CodeOwnerURI’s to pass document-specific data through the system, resulting in XML that looks like this:

```
<DOCUMENT_USAGE>
</DOCUMENT_USAGE>
```

- After further consideration, this may not have been the best route to take.
  - Parsing of the data by the recipient is now more complicated.
  - It is impossible to enforce meaningful schema checking on this structure.
  - It is difficult to control how future extensions may make use of this.

- In a future version of the interface, we will most likely agree to replace this with a properly defined EXTENSION structure with a specific element for each data item.
Lessons Learned

• **Namespaces:** Understand and embrace the use of namespaces in XML! Using these in your extensions allows you to interface with multiple partners without having data conflicts. This *does* require some additional diligence on the part of the software developers, but the effort is well worth it.
RELATIONSHIPS between DEAL_SETS children and DOCUMENT_SETS children:

These are necessary in order to link PARTY/ROLE nodes that represent signers to VIEW_FIELD nodes that are signatures and VIEW nodes that are viewable documents. No easy answer here!

Initial solution: Use \MESSAGE\RELATIONSHIPS.

Pros:
- Every linked node exists one time with no repetition.
- Coding is straightforward for sending and receiving a complete document set.

Cons:
- Violates MEG 36 regarding RELATIONSHIP scope.
- DOCUMENT nodes can’t exist by themselves because they link to a RELATIONSHIP node elsewhere.
Lessons Learned

Solution 2: Repeat linked PARTY information inside each DOCUMENT container.

Pros:
• Every DOCUMENT is self-sufficient and can be delivered separately if needed.

Cons:
• Repeated data swells the message size.
• Introduces the risk of conflicting data between DOCUMENT instances.
Lessons Learned

Solution 3: Use REFERENCE mechanism to link the PARTY inside the DOCUMENT to the PARTY in the DEAL.

Pros:
• Both DOCUMENT nodes and DEAL nodes have RELATIONSHIPS in the proper scope.

Cons:
• Complex implementation.
RELATIONSHIPS inside DOCUMENTS don’t work until the REFERENCE is replaced with a copy of the referenced PARTY.

Step 1: Replace reference with copy of the referenced PARTY

Step 2: Execute the RELATIONSHIPS under //DOCUMENT
Jim! Mark! This is the *greatest* thing since packet routing!
How can I learn this excellent interface?
How can I teach it to my colleagues?
How do I get involved?
Participate in the standards setting process. Workgroups are where the standards are made. Join any of the 20+ workgroups focused on specific functional areas across the mortgage loan lifecycle.

What does a business person do in a workgroup?
- Provide subject matter expertise to on-going projects and work
- Provide organization to workgroup activities
- Tether workgroup aims to the practical business applications

What does a technical person do in a workgroup?
- Provide subject matter expertise on technical aspects of model development including: data modeling standards; data architecture standards; reference model structures
- Lead Workgroups
- Recommend more efficient technical structures

Remember that the activities reflect the contribution of the members! If you think there is something more to be added, participate!

Attend an Educational Summit & Workshop. Learn more about MISMO, participate in face-to-face standard setting sessions with Workgroups, and engage in implementation “how to” sessions with expert practitioners at MISMO events.

The Fall 2013 Summit & Workshop is in Crystal City, VA September 23-27!

Get Your Business and Technical Partners Involved! Crafting and implementing a data standard is a multi-disciplinary project. We need ideas and feedback from everyone.

Volunteer Your Time and Services! The MISMO organization as a whole needs business and technical professionals to lead and assist in workgroup activities as well as a host of other activities to support the organization including communications, training development, release planning and supporting model releases such as providing business QC of model releases.

Become a subscriber. Support MISMO, play an integral role in standards development, and access a variety of additional benefits by having your organization join MISMO as a subscriber. MISMO depends on subscriber support to administer and advance its work and resources.
Questions?

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