

DATE: November 14-15, 2005
TO: Messaging Focus Group Participants
FROM: Thomas Clarke, Chairman, Messaging Focus Group
SUBJECT: Messaging Focus Group

1. Purpose

The U.S. Department of Justice (DOJ), Office of Justice Programs' Bureau of Justice Assistance (BJA), convened the Messaging Focus Group in Atlanta, Georgia, in partnership with the GJXDM Training and Technical Assistance Committee. The meeting purpose is to provide technical leadership and to develop a recommendation for the development of a unified strategy for the implementation of standards-based messaging profiles. A messaging profile is a standards-based delivery mechanism for a GJXDM message, for example, data exchange, transaction, and/or service. Justice and public safety business needs require an expandable set of standard messaging profiles that enable justice agencies to successfully share information and to promote interoperable justice transactions. The meeting mission is to recommend to BJA a series of tasks to develop reference message profiles for the justice and public safety community.

2. Preparation

The chairman estimates that approximately three meetings are necessary to provide a recommendation to BJA regarding the development of message profile(s). The third meeting is tentatively scheduled for Monday and Tuesday, January 9-10, 2006, in Phoenix, Arizona. During the second meeting, a small group will meet in Washington, DC, on Thursday, December 1, 2005.

In preparation for the January meeting, it is critical that participants submit any homework assignments and documentation prior to close of business on Monday, December 12, 2005. Please adhere to this deadline so that your colleagues will have enough time to review all work assignments and to provide input to the Messaging Focus Group's major issues prior to the end of the year. This schedule is necessary to provide adequate planning time for the January 9-10, 2006, meeting. Assignments should be posted to the traction collaboration tool "MSING" project at <http://forum.qjin.net>.

The following are project participants who have been identified to represent local, state, and federal justice and public safety domains:

Messaging Focus Group Member and Representation

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3. Meeting Minutes—November 14-15, 2005, Atlanta, Georgia

Mission Description. Mr. Tom Clarke, Message Focus Group chairman, briefly stated the mission of the focus group. The mission is to recommend to BJA a series of tasks to develop reference message profiles for the justice and public safety community.

Introductions. Mr. Clarke invited all attendees to introduce themselves and give an agency or association affiliation.

Global Justice Infrastructure/Standards Working Group (GISWG) Service-Oriented Architecture (SOA) Approach and Messaging Profiles. Mr. Scott Came provided an overview of the GISWG SOA approach and where messaging profiles fit into the larger architecture. He also defined nonfunctional requirements and messaging profiles.

OASIS Legal XML Messaging Profile. Mr. Jim Cabral explained the approach to nonfunctional requirements and messaging profiles used by the OASIS Legal XML Electronic Court Filing (ECF) 3.0 specification and also walked through the example of the Web services messaging Profile 1.0.

Nlets Messaging Profile. Mr. Bob Slaski laid out the strategy of Nlets – The International Justice and Public Safety Information Sharing Network, since much of it has not been adopted or implemented yet. It is asynchronous, brokers multiple formats, and is an interface specification only. He talked about the legacy constraints and that the “Web service” is really an attempt to standardize the transport mechanism, since there are not

differentiated services. Mr. Joe Mierwa mentioned the practical trade-offs that argue for this kind of strategy.

The stated target for Nlets is WS-I Basic Profile 1.0. They want to use Message Exchange Patterns (MEP) from WS-I to classify the exchanges/services. The plan is to align with WS-RM (only a committee draft) and WSDL 2.0. They are not sure yet about orchestration standards, but they will look at WS-Orchestration. They are working on supporting the exchange of images using Base64 encoding and DIME. However, they want to do it with WS-Attachment and then Message Transmission Optimization Mechanism (MTOM).

Nlets wants to consider replacing ORI routing with WS-Addressing. The legacy transaction access control is tied to the ORI, which is based on SNA. This introduced a recurring issue at the meeting concerning whether to or even how to do content-based routing in the justice SOA environment. Nlets is currently using session-level authentication with triple DES/AES link encryption on a frame relay network. The target is to use an appropriate WS-S subset.

Nlets wants to deploy WS firewall appliances. Nlets currently uses application level acknowledgement, but they want to use WS-RM and also still support legacy interface with MQ. Nlets wants to align its messaging architecture with FBI CJIS, NCIC, AAMVA, CANDLE, Global, NIEM, and industry standards (OASIS, WS-I) in that order of priority. Mr. Slaski raised a number of pragmatic implementation (deployment) and governance issues that need attention. In the next year, Mr. Slaski recommends that Nlets adopt WS-S, Attachments, and WS-RM.

Mr. Slaski sees the following problems with the current version of the OASIS ECF 3.0 specification:

- There is no intermediate system concept. He suggests possibly adopting the eGov recommendations for multihop addressing in the SOAP headers. That approach is based on eb-MS, which will replace the existing approach to reliable messaging in Version 2.0 with WS-R in eb-MS 3.0.
- He suggests that WS-RM should be used for reliable messaging instead of WS-R because of the wide vendor support. He asserts this advantage outweighs the fact that WS-R is a recommended standard, and WS-RM is only a committee draft.
- The specification does not explicitly use MEP 2.0, but it should.
- The specification uses WS-Attachment instead of MTOM.
- He suspects that there is a need to further restrict WS-S, since there are redundant substandards options within the security profile. This needs to be researched.

Nlets recommends that the Messaging Focus Group needs to tightly coordinate with AAMVA and FBI CJIS on messaging strategies. Also, Mr. Slaski said that Nlets would talk about the Messaging Focus Group at the Nlets Implementer's Conference on January 11-13, 2006.

ebXML Messaging Profile. Mr. John Ruegg summarized the status of eb-MS. The ebXML has an open source implementation of eb-MS that is being used quite a bit internationally. Mr. Ruegg is part of the ebXML Registry 3.0 group. The ebXML architecture is not supported by either Microsoft or IBM. The ebXML architecture is getting closer to WS-I with each version. Mr. Ruegg argues for an eb-MS messaging profile that organizations can use when they cannot afford to use Web services. With this approach, small organizations can implement preconfigured open-source applications. The ebXML has a complete architecture that is pretty mature, so there is likely to be support for all justice requirements.

CAP Briefing. Mr. Paul Embley talked about the difference between CAP and EDXL. CAP is an OASIS standard. EDXL was developed by a government group using a pretty complicated process that has not reached OASIS yet. EDXL is driven by DHS/FEMA. The Messaging Focus Group will review EDXL, even though it is mostly about message content. EDXL does contain a “distribution element” (DE) that sounds like a meta-messaging profile. Mr. Slaski noted that Nlets has talked about an EDXL/CAP gateway.

Mr. Bill Blondeau asked if certification was within the scope of the focus group to consider. The issue was put into the “parking lot” for later consideration.

EDXL Briefing. Mr. Tim Grapes and Mr. Lee Tincher gave a briefing on EDXL over the phone and answered questions from the focus group.

EDXL is part of the Disaster Management eGov initiative. It proposes to be the central access point for information and services related to first responders. EDXL plans to publish both public and private portals. Disaster Management Interoperability Services (DMIS) has two components: free tools and the interoperability services themselves. Disaster Management Standards Initiative is a **practitioner-driven** standards project. The federal leaders see themselves as facilitators. The goal is to share emergency and first responder incident information across all jurisdictions.

EDXL is an umbrella suite of XML messaging standards—not a new protocol. It is not domain specific within the first responder world. They work with representatives of fire, 911, transportation, health, justice, homeland security, etc. They try to be business process-driven and focus on specific mission tasks, such as requesting resources. Participating practitioners come from local, state, tribal, and federal levels. There are 100,000 emergency response agencies.

Their open messaging standards are based on use cases. Like Nlets, they noted the need for routing without knowing specific recipients. Their business strategy is to lower costs by building standards once and leveraging existing protocols. Their process includes steps that go through a standards organization (OASIS). Again, they start by identifying practitioner-driven requirements. The standard describes interfaces.

EDXL looked at NIMS/ICS, GJXDM, IEEE1512, ARMS (a FEMA effort), ROSS, NIEM, and EIC (vendors). They have a draft specification for a message structure. They have also developed scenarios or use examples to validate message structures. They are working with vendors to do test implementations. It sounds like the **Distribution Element** (which was submitted to the OASIS process and just completed the public comment period) is the closest part of their architecture to messaging profiles. Their architecture also includes CAP (which EDXL did not develop but did adopt), Resource, Hospital (COMCARE was involved), etc.

Distribution Element is a standard messaging distribution framework that can be used with any data transmission system, including, but not limited to, a Web services binding. It is a routing mechanism. It can support many different criteria for routing, including a geographical area. DE includes within it information about confidentiality, security, roles-based rights, and other nonfunctional requirements. DE seems to be a kind of meta-messaging profile that is possibly incomplete. DE 1.0 can be found on the public OASIS Web site. The DE will not “work” without several managed lists for different kinds of key information. Examples include types of resources and roles.

COMCARE Briefing. Mr. David Aylward briefly described the COMCARE work. He will send us a paper that further describes the project. It focuses on the problem from a primarily institutional level at this point, because other domains lack the necessary governance processes that Justice has developed. Mr. Aylward described several institutional requirements that would provide useful input to the GISWG Management and Policy Committee. COMCARE is also looking at what tools (facilitation services) are needed. The strategy is to share a directory to a set of federated registries. Agencies would register services that they produce and/or want to consume. This really supports the new paradigm where the service producer does not know or need to know who the service consumer is. To do this in real life, you need a parallel rights management system. COMCARE looked at and decided on a couple of commercial products (including the Oblix tool that Oracle now owns). Most of this work appears to be conceptual at this point with some partial test implementations. It was noted that it also needs network management, security, and information discovery services (i.e., registry). Mr. Aylward noted that the biggest interoperability problem is the absence of institutions. Mr. Aylward suggested that we might share a DE CAP alert message as a pilot across domains.

Discussion of Presentations. Mr. Slaski suggested that Nlets might provide some defined service discovery until real registries are stood up.

Mr. Boris Shur discussed the issues of the extensibility and list compatibility of DE. How do you ensure that the roles are compatibly defined? Mr. Aylward responded that nonjustice domains need to create the necessary institutions and products. Mr. Aylward does not agree with the definition of use case requirements as functional requirements that live outside the messaging profile. The DE raises again the “intermediate system” problem first posed by Mr. Slaski for Nlets.

Mr. Shur described the Global Data Synchronization (GDS) project, which is a pretty robust standard from retail industry. It has a global registry for organizations and products. The organization that manages the registry is called GS1. GDS separately defines message payload and message transmission using a newer version of the classic EDI structure. This is called AS2 and runs over HTTP.

The point is that there are two layers with intermediate bodies between the users and the registry. Messages to the registry or between data pools must strictly follow the standards. Messages within data pools (intermediaries) can be more flexible. Everyone worldwide gets assigned a number for organizational identification. Once an organization is certified and a connection is established with the registry, the messages can proceed “point to point”—that is, through the intermediary (or literally point to point by being its own data pool) without going through the registry. Mr. Shur suggested that we might want to look at the overall architecture for messaging and then let domains define their interfaces to that architecture. At a minimum, this represents one fairly mature approach to a messaging architecture that supports intermediaries.

Mr. Blondeau suggested that content-based routing may not fall neatly into either the functional or nonfunctional categories as Mr. Cabral defines them. Mr. Cabral responded that a content-based approach sounds like a Layer 7 switch (routing based on payload information) and argued against it.

Mr. Came suggested that there may be two kinds of addressing: the intermediate address and the final address. How does the intermediate address decide how to route? The DE might be useful for that purpose. This could become a common vocabulary. This approach does blur the line a little between the parts of the architecture that support functional and

nonfunctional requirements, but they remain decoupled if the necessary information is repeated in appropriate parts of the message (message content and message profile, respectively). Efficiency is trumped, in this case, by a desire to decouple message content from the delivery mechanism.

Mr. Shur pointed out that decisions about what you route on have implications for what information you have to register. Mr. Blondeau noted that the same kinds of issues arise with privacy and public access requirements. Mr. Came responded that he thinks XML encryption will handle those types of requirements. Mr. Blondeau contested that suggestion as a proper solution to the requirement. You may want the intermediary to apply the business rules (privacy and data aggregation). Mr. Slaski commented that Nlets would agree with the need for that requirement.

Mr. Cabral listed intermediary value-adds as routing, "security," aggregation, enrichment (per the definition provided by Mr. Aylward), and transformation. Mr. Came called these "just" additional services. Mr. Ruegg suggested adding auditing to the list of potential intermediary services. These are all distribution services. At this point, Mr. Blondeau thinks the definitions of functional and nonfunctional requirements are not clear. Mr. Embley suggested SMPT as a model to start from for a solution to this issue. Another participant then suggested that ATM might also play that role. Mr. Shur had already suggested a similar idea for GS1. Mr. Cabral said that nobody can do reliable messaging with SMPT because there are no appropriate bindings. Mr. Ruegg thought there might be one.

Scope. The scope of the messaging profile is defined by the comprehensive list of technical (nonfunctional) requirements to be developed as a task for this focus group. The following technical requirements were identified as a baseline list during this session.

Technical requirements must

- Transport Protocol
- Message Handler/Endpoint
- Service Operation Invocation
- MEP (WSDL 2.0)
 - Sync/Async
- Message/Attachment Delimiters
- Messaging Packaging
- Message Identifiers

Nonfunctional requirements should

- Message Nonrepudiation
- Message Integrity
- Message Confidentiality
- Message Authentication
- Message Reliability
- Transmission Auditing

Candidate Profiles. The following messaging profiles were identified as priorities.

- MQ Series (old)
- REST (http lite)
- ebMS
- Classic Web Services WSI

Schedule

- | | |
|---------------------------------------|--------------------|
| ▪ Second Focus Group Meeting (DC) | December 1, 2005 |
| ▪ Assigned Tasks Due (Traction) | December 12, 2005 |
| ▪ Third Focus Group Meeting (Phoenix) | January 9-10, 2006 |

Proposed Additions to the Focus Group. Several suggestions were made to broaden the focus group appropriately. These names included:

- Ms. Linda Dodge, FHWA
- Mr. Philippe Guiot, AAMVA
- Mr. Gary Ham, Disaster Management Interoperability Services Program
- Mr. Andy Herberger, FBI

4. Results

- A. Reviewed existing messaging profiles and candidate profiles.
- B. Developed a list of messaging profiles issues.
- C. Reached consensus on using the OASIS Legal XML Messaging Profile as an initial baseline for the comprehensive list of technical requirements for the recommended messaging profile(s).
- D. Established the initial scope of the messaging profile (to be further developed), "parking lot" issues, and a starter list of candidate profiles.

5. Messaging Focus Group Action Items Summary

The focus group identified a number of issues and tasks that require resolution. To do so, several task assignments were made. The first name indicates the lead person for that task.

- A. Create a set of use cases for messaging intermediaries (Mr. Slaski and Mr. Blondeau).
- B. Elaborate the SOA Reference Architecture for messaging intermediaries (Mr. Slaski, Mr. Ruegg, and Mr. Came).
- C. Identify an appropriate set of WSDL 2.0 Messaging Patterns (Mr. Cabral and Mr. Clarke).
- D. Develop a comprehensive list of technical (nonfunctional) requirements for messaging profiles (Mr. Came, Mr. Mierwa, Mr. Tincher, and Mr. Grapes).
- E. Determine if the service description should be included in the messaging profile (Mr. Shur, Mr. Mierwa, and Mr. Cabral).
- F. Determine if appliances are transparent to the architecture (Mr. Ruegg and Mr. Slaski).
- G. Develop ORI mitigation and migration strategies for the target architecture (Mr. Ruegg, Mr. Ford, and Mr. Slaski).
- H. Identify the appropriate facilitation services (Mr. Aylward, Mr. Blondeau, and Mr. Slaski).
- I. Evaluate the REST protocol as a candidate messaging profile (Mr. Blondeau).