ebXML Messaging Version 3.0
Part 1, Part 2 and AS4

Pim van der Eijk
GS1 eCom SMG
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Agenda

- ebXML and ebXML Messaging version 2.0
- ebXML Messaging version 3.0
  Part 1: Core Specification
  - OASIS Standard (2007)
- AS4 Profile of ebMS 3.0
  - OASIS Committee Specification (2011)
- ebXML Messaging version 3.0
  Part 2: Advanced Features
  - OASIS Committee Specification (2011)
ebXML and the ebXML Messaging Service
ebXML

- Technical and semantic interoperability
- Modular, cohesive set of B2B standards developed from 1999
  - OASIS, ISO and UN/CEFACT
  - ISO 15000 standards since 2004
- OASIS ebXML standards support
  - Secure reliable messaging, rich metadata
  - Choreographed business collaborations
  - Partner agreements and management
  - Registry functionality
- One component is ebXML Messaging (ebMS)
High Level Capabilities

- Message Header with Business Metadata
  - Identifies Business Partners, Transaction Semantics, Context, Agreement, Properties, Payloads
- Reliable Message Delivery
  - At-Least-Once, At-Most-Once, In-Order delivery
- Security
  - Digital Signature and Payload Encryption
  - Support for Non-Repudiation of Origin & Receipt
- Leverages SOAP, MIME envelopes
  - XML, EDI, multimedia payloads
  - Multiple payloads per message
- Transport Protocol Mappings for HTTP and SMTP
- Composition with other eBusiness Components
ebXML Messaging Specifications

- ebXML Messaging version 2.0
- ebXML Messaging version 3.0
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  - OASIS Standard (2007)
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ebMS 2.0 Deployments

- eBusiness Asia Committee
  - 11 countries, 14 implementations certified, Hermes open source
- Agro-chemical industry
- Automotive
  - Volkswagen, General Motors
- Energy trading
  - European Federation of Energy Traders (EFET)
- Government
  - Sweden, Netherlands, many countries in Asia-Pacific
- Healthcare / health insurance
  - Canada, Germany, Korea, Norway, UK, US
- Paper & forest products
  - Papinet
- Steel
- Telecommunications
  - Telia Sonera, T-Mobile, British Telecommunications
ebXML Messaging Version 3.0
Part 1: Core Specification
New ebMS 3.0 Concepts & Features

- Builds on WS-* standards
- Processing Modes
  - Parameters for capturing and expressing agreed configuration choices
  - Message Exchange, Reliability, Security etc.
- Message Pull Feature
  - Message Receiver Polls the Message Sender
- Message Partition Channels
  - Messages assigned to channels
  - Supports priority handling
ebMS 3.0 Core Specification

- OASIS Standard (2007)
- Similar to ebMS 2.0 for interface and metadata
- ebMS processing as a SOAP pipeline module
- Leverages lower level WS-* protocols to provide reliability, security and other functionality
- New “pull mode” functionality
Message security
Message Pull Feature

- Receiver with restricted connectivity
  - Intermittent connection, firewalls, no static IP
- Getting messages “just in time”
  - Avoid liability of locally storing too long before processing
- Authorization
  - Only authorized endpoints can pull on a specific channel
AS4 Profile
AS4 – The lightweight solution

- Message packaging governed by ebMS 3.0
- Support for both push and pull message exchange choreographies
- Message security governed by WS-Security
- Added support for payload compression
- Support for an AS2-like business-level Non-Repudiation Receipt (MDN)
- Reception Awareness – “just enough” reliable messaging (similar to AS2 and ebMS 2.0)
- Suitable for SME/lightweight clients
AS4 compared to AS2

- AS4 has comparable features to AS2
  - Push message exchange patterns
  - Support for Non-Repudiation of Receipt signals
  - Support for “lightweight” reliable messaging
  - Support for common security aspects like digital signatures, encryption
  - Support for payload compression

- AS4 additionally supports the features not available in AS2
  - Message pull operation including support for secure access to Message Processing Channels
  - Native support for Web Services
  - Support for “lightweight” client implementations
AS4 Interoperability Demo
Scenario – Push and Pull

- Three HTTP requests
- Receipt for PO sent in the HTTP response
- Receipt for PO Acknowledgement sent in separate HTTP connection
Demo Scenario 2

- Push and Pull scenario
- Cisco as Buyer
- Flame Computing as Seller
Webinar Details

  - Recorded on Thursday, 25 August 2011
  - Duration: 63 min
- From [http://www.oasis-open.org/events/webinars/](http://www.oasis-open.org/events/webinars/)
ebXML Messaging 3.0 Part 2: Advanced Features
Extended Concepts & Features

- Multi-hop messaging
  - Route messages through a cloud of intermediaries

- Message Bundling
  - Send multiple user messages as one SOAP message
  - High volume, non real-time transactions involving small payloads

- Message Splitting
  - Send one large user message as multiple SOAP messages

- Large Message Compression
  - Payloads and message headers
Multi-hop – Intermediary Cloud

- No direct connection between endpoints
- End to end secure, reliable routing of messages across the Cloud
- Enables connections (store & forward) between two light clients
Multi-hop – Topologies

Hub and spoke

Inter-connected hubs
Bundle, Split, Compress

- Decouple “logical” from “physical” message
  - Many small messages with same destination, submitted in a short interval, are more efficiently sent as a single ebMS SOAP message bundle
  - A (very) large message is more effectively sent as a series of smaller message fragments

- Reduce data to send by using message compression
  - Applies to large messages and to bundles
  - Also covers message headers

- Composes with multi-hop intermediary feature
Bundling Requirements

- Reduce MSH processing overhead
  - Transport, security, reliable messaging
    - Both push and pull supported
- Consistent Interface
  - Units are still submitted and delivered individually
- Configurable
  - Agree on parameters for “compatibility” of units, max delay, size etc.
- SOAP pipeline stage
  - Bundling adds limited complexity to an ebMS 3.0 engine
  - Bundling composes with other advanced features
Large File Handling in ebMS 3

- AS2 Restart feature
  - HTTP feature rather than AS2 feature
  - Limited to “push”, no support for “pull” mode
- AS4 compression
  - Per payload compression
- Split, Join, Compress protocol
  - Large message is split by sending MSH and reassembled by (ultimate) receiving MSH
  - MSHs exchange “fragment” SOAP messages, controlled by new MessageFragment SOAP header
  - Optional full message compression feature
Compressed Bundles

- **GDSN Case Study:**
  - 23 sample GDSN 2.7 messages, total 306K
  - `ebMS3 eb3:UserMessage` header info added: adds 19K (6%)
  - Total after `bz2` compression: 13K, i.e. 4%

- **Other case studies**
  - eCom 2.6 order (11 docs, 83K), UBL 2.0 (13 docs, 11.8K), `bz2/zlib` compression: worst case 8%

- **Comparison with payload compression:**
  - Best case 14%; worst case 25%

- **Use bundle, split and compress to “optimize” message sizes**
ebMS 3.0 and AS4

- ebMS 3.0
  - WS-* based, WS-I profiles compliant
  - Functional superset of ebMS 2.0
  - Important extensions for Small and Medium-Size businesses
  - Advanced features in Part 2 not in other WS specs

- AS4
  - Profile of Core Specification
  - Functional superset of AS2
  - Adds payload compression, Non-Repudiation of Receipt, Reception Awareness
ebMS3/AS4 Implementations

- Implementations in OASIS TC demonstration:
  - Axway, Cisco, Flame Computing

- Other implementations:
  - Covast (Biztalk), Data Applications Limited, ENEA, Fujitsu, JEITA, NEC
  - Open Source: Holodeck
    http://holodeck-b2b.sourceforge.net/
  - More implementations exist, but are not yet publicly announced
Industry Endorsement (i)

- Aerospace industry in Europe
  - AS4 pilot
- Cisco
  - Uses AS4 with its B2B reseller partners
- EASEE-gas
  - European Association for the Streamlining of Energy Exchange – Gas considers migration to AS4
- Electronics and High Tech
  - RosettaNet Multiple Messaging Services (MSS)
- European E-Government
  - Common Infrastructure for all Cross-Border e-Government
Industry Endorsement (ii)

- Healthcare
  - HL7 Version 3 Standard: Transport Specification - ebXML
- Japan Electronics and Information Technologies Association (JEITA)
  - Multiple implementations, free JEITA EDI client
- OASIS Energy Interoperability TC
  - Planning an ebMS3 binding for smart grid communication
- Open Applications Group (OAGIS)
- Textile, Clothing, Footwear in Europe
  - ebMS3 using SMTP transport
GS1 and AS4

- GS1 eCom Technology Group (eTG) provided input into design of AS4
- GS1 AS4 white paper to spread awareness on AS4 in GS1 community
- Compares AS4 to the AS2 protocol and to the SBDH
- SME connectivity seen as main benefit
More Information

- ebMS Version 2.0
  - http://www.oasis-open.org/standards#ebxmlmsgv2

- ebMS Version 3.0 Part 1: Core Specification
  - http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/core/os/

- ebMS Version 3.0 Part 2: Advanced Features
  - http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/part2/201004/cs01/

- AS4 Profile
  - http://docs.oasis-open.org/ebxml-msg/ebms/v3.0/profiles/AS4-profile/v1.0/AS4-profile-v1.0.pdf

- TC public page
  - http://www.oasis-open.org/committees/ebxml-msg/
- OASIS International Cloud Symposium
- 10-13 October, Ditton Manor, Heathrow, UK
- AS4 interoperability session on Monday, 10th of October.
- [http://events.oasis-open.org/home/cloud/2011](http://events.oasis-open.org/home/cloud/2011)
Q & A