ebXML for Implementers

OASIS Symposium,
San Francisco 2006
Pim van der Eijk

Agenda

- Introductions
- B2B Integration Reference Models
- ebXML initiative and history
- B2B architecture patterns and ebXML
- ebXML Specifications
  - Business Process
  - ebXML Collaboration Protocol Agreements
  - ebXML Messaging
  - ebXML Registry
- Case Studies
- Conclusion
**Scope and Goal**

- Provide overall understanding of infrastructure specifications in ebXML framework
  - Using real-life (detailed, working) examples
- Show how layers work together to provide complete working solutions
  - From Business Process down to ebXML messages
- All infrastructure specifications (not Core Components)
- Describe how ebXML is used for large-scale, real-life problems today
- Hopefully, encourage adoption

**Audience and Tutorial Objectives**

- (Potential) users of ebXML for eCommerce, eGovernment or eHealth integration
- High-level technical people
  - Architects, designers, project managers
- After this tutorial, you should know enough about ebXML to be dangerous…
**Speaker Introduction**

- Pim van der Eijk
  - OASIS European Representative (2001-..)

- ebXML experience
  - Worked for B2B integration software company around 2000
  - Interoperability Pilot Project (XML Europe 2003)
    - Four vendors, steel industry B2B scenario
  - UK Connecting for Health (two projects, 2004)
  - Netherlands Criminal Justice System (2004-2006)
  - Netherlands e-Health infrastructure project (2004)
  - Other Netherlands eGovernment projects (2006)

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**Reference Models for B2B integration**
Why a reference model?

- Support requirements specification for **complete solutions**
- Describe purpose of individual specifications and standards
- Understand layering (“protocol stack”)
- Identify relationships and “missing pieces”
- Compare frameworks

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Open EDI reference model

Business Internet Consortium

Business Conceptual Model
(Definitions, format, structure, and choreography)

Technical Conceptual Model
(Standards, protocols and tools)

Business Content Instance
Specialized Business Content
Universal Business Content
Business Content Format Definition
Directory / Registry
Core XML Standards
Network Transport
Service Oriented Architectures
Backend Integration

Process Description Language
Service Description Language
Messaging
Core XML Standards
Trading Partner Agreement
Business Content Format Definition
Universal Business Content
Specialized Business Processes
Universal Business Processes
Business Process Instance
Business Conceptual Model

The ebXML initiative
Founding organizations

- UN/CEFACT
  - United Nations Centre for Trade Facilitation and Electronic Business
  - Created and maintains the UN/EDIFACT standards for Electronic Data Interchange (EDI)
  - Made assessment in 1998/1999:
    - EDI widely used ... in (very) large companies

- OASIS
  - Organization for Advancement of Structured Information Standards
  - Creates and maintains XML interoperability specifications, broad industry support

The ebXML initiative

- Joint initiative by OASIS and UN/CEFACT
  - 9/1999 open invitation to e-business community to join
  - Series of plenary meetings
    - Between 11/1999 and 5/2001
    - Specifications delivered on schedule in 5/2001

- Goals:
  - “Create a single global electronic marketplace where enterprises of any size and in any geographical location can meet and conduct business with each other”
  - Provide a “modular, yet complete electronic business framework”

- Approach
  - Semantic interoperability
  - Modular framework
  - Leverage EDI experience, XML, Internet, Web technology
ebXML modules

- Messaging
  - Transport, routing and packaging
- Collaboration Protocols and Agreements
  - Bilateral trading configuration agreements
- Business Process
  - Technical Framework and Library
- Registry
  - Information Model and Services
- Core Components
  - Technical Framework and Library

ebXML “phase 2”

- Transitional phase, from May 2001 to August 2003
- Continued technical development in OASIS and UN/CEFACT
  - Joint Coordinating Committee
- Updated v2.0 versions became OASIS standards
  - ebXML Messaging Service (ebMS; 2002/04)
  - Registry Information Model (ebRIM; 2002/04)
  - Registry Services (ebRS; 2002/04)
  - Collaboration Protocols & Agreements (CPPA; 2002/11)
- UN/CEFACT plenary endorses all ebXML OASIS standards
- Emerging implementations and software support
ebXML “phase 3”

- ISO standardization 15000-1 to 5
  - CPA, Messaging, Registry (2004/05)
  - Core Components (2005/09)
- Reaffirmed OASIS and UN/CEFACT cooperation commitment
- Large scale deployments starting
  - UK/Norway Healthcare, US Automotive
- Updated OASIS specifications
  - ebXML registry v3 (2005/05)
  - ebXML Business Process v2.0 (2006/??)
  - ebXML Messaging v3 (2006/??)
  - ebXML CPA v2.1/3 (2006/??)
- New OASIS ebSOA TC
  - “Advancing architectural patterns for using Service Oriented Architecture in electronic business”
  - http://www.oasis-open.org/committees/ebsoa/

E-Business Architecture Patterns for “extended enterprise”
IBM patterns for e-business

- Classification of successful e-business architectures into a series of patterns:
  - Business patterns
    - Self service
    - Collaboration
    - Information aggregation
    - *Extended enterprise*
  - Integration patterns
    - Access integration
  - Composite patterns
    - Application integration


Extended enterprise

- *Business pattern* addressing the interactions and collaborations between business processes in separate enterprises.
- Five *application patterns* for business-to-business integration
  1. Document exchange
  2. Exposed Application
  3. *Exposed Business Services*
  4. *Managed Public Processes*
  5. Managed Public and Private Processes
**Common Drivers**

- **Common Business Drivers:**
  - Improve organizational efficiency
  - Reduce latency of business events
  - Support Structured Exchange with business partners

- **Common IT Drivers:**
  - Leverage existing skills
  - Leverage legacy systems
  - Backend application integration
  - Minimize application complexity

**Business Service Interface**

- Provide access to *services* instead of *applications*
  - Partner doesn't need to know application specifics
  - Service may invoke multiple applications in sequence or combination
  - Service may perform (intelligent) routing, transformation
  - Allows legacy systems to be upgraded or replaced without disrupting external users
  - Implemented using Message Oriented Middleware (JMS, MQ) or Web Services
Public Processes and Agreements

- **Standardized Public Processes**
  - Avoid dominant-partner mandated interactions and infrastructure
    - Enable a supplier to use a single business process with multiple customers
    - Enable a buyer to use same process with multiple suppliers
  - Long-running business interactions
    - Quote > Order > Ship > Invoice > Pay …
  - May use a **Business Service Interface** for implementation

- Trading partner agreements
  - Bilateral configuration
  - Service level agreements

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**Business document exchanges express business transactions between two business partners, possibly in a long-running multiparty collaboration**

URL: [http://www.unece.org/trade/itt/](http://www.unece.org/trade/itt/)
How does ebXML fit in?

- Managed public processes is what ebXML is designed to support:
  - Real life business interactions are long running and complex
    - Even though their implementation may use business services as building blocks
  - Industry standard collaborations are in the interest of companies large and small
    - Thirty million SMEs (Small and Medium Size Enterprises) in Europe alone … the engine for economic growth, prosperity, jobs … many not using EDI today
  - Trading Partner Agreements express bilateral configuration and business agreements
  - Real life business requires sophisticated security and reliability requirements

**PIP 3C3: Notify of Invoice**

Preconditions: 244 claim done

- Process Invoice
- If Invoice not yet prepared?
  - Yes
  - Perform PIP 3SC Notify of Invoiced Invoice (see EDIFACT)
  - Payment may be scheduled for delivery or store payment. Quality of Remittance Advice?
- No

- Send message
- Create invoice

ebXML Business Process

- XML representation for public business processes (collaborations)
  - Independent of business partner’s internal processes
  - Separate from binding to a particular (set/pair of) partner(s)
  - Key concepts from UMM (UN/CEFACT Modelling Methodology)
- Provides definitions for:
  - Partner Roles
  - Business Documents
  - Signals
  - Business Transactions
  - Business Collaborations
  - Choreography: (conditions on) transitions between transactions
- Application scenarios
  - Support automatic configuration of ebXML e-business monitoring tools
    (Business Activity Monitoring)
  - Simulation
  - Generation of CPA templates
**UBL and UBP**

- **Universal Business Language**
  - OASIS TC creating a set of XML business documents for e-Commerce
  - Small Business Subset (SBS)

- **Universal Business Processes**
  - Public Processes for UBL document exchange
  - Designed for UBL SBS 1.0 by Stephen Green and Sacha Schlegel
    - Toolset for ebBP to CPA generation
Logical Business Document Definitions

ebBP Business Collaboration and BTA
“Create Order” Business Transaction

Buyer

Requesting Activity “Send Order”

UBL 1.0 SBS Order

Acceptance Acknowledgement

UBL 1.0 SBS Order Denied

Acceptance Acknowledgement

UBL 1.0 SBS Order Accepted

Acceptance Acknowledgement

Responding Activity “Firm Order”

Seller


Commercial Transaction “Create Order”

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<CommercialTransaction name="Create Order" nameID="CreateOrder_UBL1.0OrderWithSimpleResponse_CT" referenceID="Order">  
  <RequestingBusinessActivity name="Send Order" nameID="SendOrder_UBL1.0OrderWithSimpleResponse_RA">  
    <UBL 1.0 SBS Order>  
      <ReceiptAcknowledgement>  
        <AcceptanceAcknowledgement>  
      </AcceptanceAcknowledgement>  
    </UBL 1.0 SBS Order>  
  </RequestingBusinessActivity>

  <RespondingBusinessActivity name="Firm Order" nameID="FirmOrder_UBL1.0OrderWithSimpleResponse_FA">  
    <UBL 1.0 SBS Order Denied>  
      <ReceiptAcknowledgement>  
        <AcceptanceAcknowledgement>  
      </AcceptanceAcknowledgement>  
    </UBL 1.0 SBS Order Denied>  
  </RespondingBusinessActivity>

  <UBL 1.0 SBS Order Accepted>  
    <ReceiptAcknowledgement>  
      <AcceptanceAcknowledgement>  
    </AcceptanceAcknowledgement>  
  </UBL 1.0 SBS Order Accepted>  
</CommercialTransaction>
Business Transactions (1)

- Business Transaction Patterns (from UMM)
  - Four BTPs with Response document:
    - Commercial Transaction, Query-Response, Request-Confirm, Request-Response
  - Two BTPs without response document:
    - Notification, Information Distribution
  - Determine use of “Signals”
- Requesting Business Activity
- Responding Business Activity (optional)
- Associated Document Envelopes:
  - Logical business documents and/or attachments
  - business semantics (positive response or “business failure”)
  - Instruct ebXML middleware to mark document as
    - having validated source (authenticated)
    - being confidential (to be encrypted)
    - and/or tamper proof (signed message digest)

Business Transactions (2)

- For requesting and responding Business Activity, specify requirements:
  - (and available time) for acknowledgements of receipt or acceptance
  - to use intelligibility checks
  - to use of a transport protocol that guarantees delivery
  - to digitally sign messages (non-repudiation of sender)
  - to digitally sign message receipts (non-repudiation of recipient)
  - to verify sender is authorized to perform activity
"Create Order" Choreography

Choreography in ebBP
Collaboration Protocol
Profiles and Agreements

CPP, CPA and ebBP

- Two layers:
  - ebBP defines business partner-independent information and configuration
    - Partners referenced using Role labels
  - CPP/CPA defines partner-dependent information and configuration binding
    - Partners and partner systems identified
- Collaboration Protocol
  - Profiles (CPP): one partner’s e-business capabilities
  - Agreements (CPA): specific bilaterally agreed configuration
  - In practice CPA are often created from scratch (without ebBP and without CPPs)
Anatomy of a CPA

- CPA Metadata (validity, ID)
- Per Party
  - Messages Party can Send (Action Bindings)
  - Messages Party can Receive (Action Bindings)
  - Certificates (if used) for signing, encrypting and/or SSL
  - Delivery channels
  - Transport Bindings
  - Document Exchange
- Packaging

PartyInfo
Channel, Transport, DocExchange (minimalistic)

- Channel
- Transport
- DocExchange (minimalistic)

A more complex example

- Channel uses Reliable Messaging
- Channel uses Digital Signatures for Non-Repudiation
ebXML Messaging

Messaging in ebXML

- Message Structure
  - Header information
  - Payload enveloping (Business Documents)
- Messaging Protocol
  - Basic behavior of Message Service
    - Basic functionality, like routing, correlation
  - Reliable Messaging
    - Sending Acknowledgments; retrying messages when not acknowledged (in time)
  - Security
    - Setting/verifying digital signatures; encrypting payloads
- Key to retrieve configuration information from CPA:
  - From, To, Service, Action, CPAId
**ebXML Messaging**

- Version 2
  - OASIS Standard
  - ISO 15000-2
  - Multiple interoperable software implementations
  - Open Source implementation available
  - In production today
- Version 3
  - Under development in ebXML Messaging TC
  - Provides alignment with Web Services, functional extensions

**Message Structure**

- SOAP-with-attachments
  - Message is a single MIME container
  - SOAP 1.1 envelope in first MIME part
  - Other MIME parts for payload
- Extra ebXML info, namespace-qualified
  - Signatures
  - Reliable Messaging
ebXML Message Header

- Standard Header Information
  - SOAP envelope with ebXML extensions
  - Party Identification of From and To Party
  - Collaboration Information (CPA used)
  - Service and Action (links to CPA to BP)
  - Message Identification and Correlation information

- Reliable Messaging Header elements
  - (Requests for) Acknowledgments

- Security Header Elements
  - Signatures of signed payloads

Sample Messages (1)

- CPA with no reliable messaging and no digital signatures
- UBL Order
  - From Buyer to Seller
- UBL Order Response Simple
  - From Seller to Buyer
- Structures
  - MIME Container
  - ebXML SOAP header
POST http://SonyVaio.lan:4082/exchange/Seller HTTP/1.1
Content-Type: multipart/related; type="text/xml"; boundary="----

SOAPAction: "ebXML"
Host: SonyVaio.lan:4082
Connection: close
Content-Length: 9812

----- Part_0_23594703.1145557140122
Content-Type: text/xml
Content-Transfer-Encoding: binary

<?xml version="1.0" encoding="UTF-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
  ... Stuff deleted ...
</soap:Envelope>

----- Part_0_23594703.1145557140122
Content-Type: application/xml
Content-Transfer-Encoding: binary
Content-Disposition: attachment; filename=Order.xml
Content-Id: <A1145557139942.4491@SonyVaio>

<Order xmlns="urn:oasis:names:specification:ubl:schema:xsd:Order-1.0"
  ... Stuff deleted ...
</Order>

----- Part_0_23594703.1145557140122--
Order Response SOAP Header

- Reliable Messaging with standalone toParty acknowledgments and duplicate elimination
- No Digital Signatures

Sample Messages (2)

- CPA with:
  - (Receipt of Order Response omitted)
Order Message

Order Message Receipt

Acknowledgment

Order Message Acknowledgment

Built-in ebMS Service

Acknowledged Message

Order Message

Order Message Receipt

Acknowledgment

Order Message Acknowledgment

Built-in ebMS Service

Acknowledged Message
Order Response Message

```
<OrderResponse xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/1.0">
  <ns0:Header xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Header/1.0">
    <xmlns ref="http://www.oasis-open.org/ebxml-msg/OrderResponse/Header/1.0">
      <ns0:OrderResponseID xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/OrderResponseID/1.0">123456</ns0:OrderResponseID>
      <ns0:OrderID xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/OrderID/1.0">789012</ns0:OrderID>
      <ns0:OrderType xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/OrderType/1.0">Retail</ns0:OrderType>
      <ns0:OrderStatus xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/OrderStatus/1.0">Completed</ns0:OrderStatus>
    </xmlns>
  </ns0:Header>
  <ns0:Body xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Body/1.0">
    <ns0:OrderDetails xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/OrderDetails/1.0">
      <ns0:Item xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Item/1.0">
        <ns0:ItemID xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/ItemID/1.0">123</ns0:ItemID>
        <ns0:ItemDescription xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/ItemDescription/1.0">Product A</ns0:ItemDescription>
        <ns0:Quantity xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Quantity/1.0">10</ns0:Quantity>
        <ns0:UnitPrice xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/UnitPrice/1.0">20.00</ns0:UnitPrice>
      </ns0:Item>
      <ns0:Item xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Item/1.0">
        <ns0:ItemID xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/ItemID/1.0">456</ns0:ItemID>
        <ns0:ItemDescription xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/ItemDescription/1.0">Product B</ns0:ItemDescription>
        <ns0:Quantity xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/Quantity/1.0">5</ns0:Quantity>
        <ns0:UnitPrice xmlns="http://www.oasis-open.org/ebxml-msg/OrderResponse/UnitPrice/1.0">30.00</ns0:UnitPrice>
      </ns0:Item>
    </ns0:OrderDetails>
  </ns0:Body>
</OrderResponse>
```
OASIS Implementation, Interoperability & Conformance TC

- Conformance and Interoperability
  - Conformance Test Set for ebXML Messaging 2.0
  - Basis Interoperability Test Set for ebXML Messaging 2.0
  - Test Framework
- Current focus on Deployment templates

OASIS IIC Deployment Template

- OASIS ebXML Implementation, Interoperability and Conformance TC
  - http://www.oasis-open.org/committees/ebxml-iic/
- Community often wants to document how they use a spec to promote interoperability
  - ebXML Messaging contains many optional features and parameters
  - Not restricted to CPA information
- Deployment Guide documents:
  - The exact use of ebMS in a community
  - Additional profiling on message content and format
- Deployment Profile Template is a pre-structured guide, ready to be instantiated
- Recently generalized to other ebXML modules
Examples

- EAN-UCC Deployment Guide
- HL-7 ebMS transport binding (concept)
- Netherlands Government
  - Hierarchy of profiles

ebMS Interoperability

- Asia
  - [http://www.ebxmlasia.org/](http://www.ebxmlasia.org/)
- Europe
  - CEN ISSS with OASIS
- Drummond Group
  - [http://www.ebusinessready.org/ebxml.html](http://www.ebusinessready.org/ebxml.html)
- STAR
  - [http://www.starstandard.org/sigs/infrastructure/default.htm](http://www.starstandard.org/sigs/infrastructure/default.htm)
ebXML Registry

Input from ebRR TC webinar slides

Registry vision in ebXML, anno 2001

- ebBP, CPA, Messaging provide modeling, configuration and execution of business transactions
- Vision of *dynamic e-business*: discovery of partners and negotiation of agreements
  - *Registry/Repository* provides registry/repository functions
  - CPP and negotiation protocol for CPA formation
What is ebXML Registry?
Answer from 2005 ebRR webinar

- A Service Oriented Architecture registry as well as a repository
  - Classification of any type of information
  - Managing relationships between information
  - Taxonomy hosting, browsing and validation
  - File/folder organization of information
What is ebXML Registry? (2)

- A content management system for secure, federated information
  - Provides services for sharing content and metadata between entities in a federated environment
  - Lifecycle Management (LCM) actions logged in an audit trail
  - Supports automatic versioning of objects

Use Cases

- SOA registry repository
  - ebXML or Web Services
- Web content management
- Controlled vocabulary
- Business process catalog
- Electronic forms
- ebXML core components catalog
- Domain-specific use cases
  - Electronic medical records (IHE-XDS)
  - Geological information systems (Open GIS)
  - Metadata store for grid computing
Federated Information Management

- Multiple ebXML registries may be federated together to appear as a single virtual registry/repository
  - Seamless information integration and sharing
  - Allows local autonomy over data
- ebXML registry relies on SAML – the federated identity management standard

The Specifications

- ebXML Registry Information Model
  - Defines what metadata and content can be stored in the registry
- ebXML Registry Services and Protocols
  - Defines the services and service interfaces provided by the registry
  - Defines the API for accessing the registry
- ISO 15000 Standard, Part 3 and 4
Profiles Implement Business Context

- Enable interoperability within and across domains
- Define restriction/extension requirements of usage
- Current examples of profiles include
  - Web Services Profile
  - WSRP (Remote Portlets) Profile
  - Open GIS Profile
  - HL7 Profile
  - IHE Cross-Enterprise Document Sharing (XDS)
  - ebXML Core Components Profile

Key ebXML Registry Features at a Glance

- Federated Architecture
- Secure Architecture
- Federated SQL & XML Queries
- DSig, Role-Based Access Control, Audit Trail
- Cataloging, Validation of Content, Version Control
- Publish, Discover, Manage/ Govern Web Services
- Web Services Registry
- Content Management
- Standard Metadata
- Events
- Classification, Associations, Taxonomies
- Content-Based Event Notification
Key Benefits of ebXML Registry

- Provides standard way to manage information assets
- Manages user-defined organization of and relationships among content and metadata
- Enforces user-defined standards for content
- Includes capabilities for managing and governance of information asset lifecycles

Key Benefits (2)

- Provides flexible mechanisms for content discovery
- Manages secure access to information assets
- Facilitates event-based delivery of information to appropriate personnel or systems
- Enables integration of information assets across organizational boundaries
Case Studies of ebXML deployments

Norway e-Health infrastructure

- National Insurance Scheme is cornerstone of Norwegian Welfare system
  - Provides benefits through the National Insurance Service (Trygdeetaten).
- Business case for e-health infrastructure:
  - Secure and reliable messaging
  - Better service at same or lower cost
  - Faster turnaround in claims processing
- Upgrade of the existing infrastructure
  - Support modern technology and standards
  - Connect more organizations, including General Practitioners' offices
  - Enable new services, including electronic transmission of prescriptions
Applications (early 2006)

- Medical Certificate
  - 900 general practitioners at 350 offices (out of a total of 1850 offices) are using this application, covering access to 20% out of a total of 3.5 million medical records

- Doctors Request for Payment
  - Used by 500 doctors at 200 offices

- Pharmacies Request for Payment
  - All pharmacies in Norway are using this application, and transactions totaling 10 billion Norwegian Kroner (equivalent to 1.2 billion EURO, or 1.5 billion USD) annually are transacted using this application

- European Health Insurance Card (EHIC)
  - Two million cards have been produced

- Next project is electronic transmission of prescriptions
UK NHS Connecting for Health

- Formerly known as “National Programme for IT” of the National Health Service
- Wanless Report April 2002
  - “A better use of information and communication technology within the NHS would improve efficiency and cut costs”
- NHS Care Records to enable details of the key events of a person’s healthcare history throughout their life to be:
  - collected, stored & retrieved
  - made available at all times
  - across the whole country
  - to those with authority to view
- NHS CRS Data Spine
  - hosted by National Application Service Provider (NASP)
  - accessed from multiple Local Service Providers (LSP)

http://www.primis.nhs.uk/pages/2004_Presentations/NHS%20CRS%2012.00%20Rm%203.ppt

Total number of messages annually through Transaction Messaging Service

- Year 2004: No messages
- Year 2005: No messages
- Year 2006: No messages
- Year 2007: No messages
- Year 2008: No messages
- Year 2009: No messages
- Year 2010: No messages

No. of Messages

- PMIP
- EBS
- NHS CRS
- ETP

Netherlands Government

- Criminal Justice System
  - Joint initiative of Police, Prosecution, Courts, Ministry of Interior and Kingdom Relations, Ministry of Justice in the Netherlands to improve efficiency and quality by exchanging information electronically

- System of national government registries
ebXML in Criminal Justice System

- ebMS and CPA used for
  - Secure and reliable messaging based on open standards
  - Support of (multiple) heterogeneous payloads
  - Standard header/routing information
  - (Fast) Asynchronous messaging across multiple “hops” (intermediaries)
  - Flexible security options

- ebBP supports complex choreographies among large numbers of partners

More information

- Trygdeetaten

- UK NHS

- Netherlands government
Energy Trade (Europe)

- European Transmission System Operators (ETSO) http://www.etso.org/
- IEC 62325 (TC 57), Framework for deregulated electricity market communications
- ebXML used in production for Electronic Confirmation Matching

Automotive industry (North America)

- Automotive Industry Action Group (AIAG)
- Standards for Technology in Automotive Retail (STAR)
- “[Volkswagen] can cut $1 million […] using […] ebXML-compliant collaborative-commerce software”
- “As ebXML becomes standardized, it will become the de facto way everyone does business”
  - Tony Scott, chief technology officer at GM.
- “By the end of 2007, GM expects to have its approximately 8,000 U.S. and Canadian dealers using its Retail Inventory Management (RIM) system […] GM […] has adopted Electronic Business XML (ebXML) as its communications protocol.”
**IHE XDS (1)**

- Integrating the Health Enterprise (IHE)
- Cross-Enterprise Document Sharing (XDS)
  - Registration, distribution and access across health enterprises of clinical documents forming a patient HER
  - Supports storage in existing applications
  - Supports indexing, query, retrieval

**IHE XDS (2)**

- Standards used
  - HL7, DICOM ..
  - SQL, SOAP with Attachments
  - ebXML Registry v2
    - Online Binding using SOAP
  - ebXML Messaging v2
    - Offline Binding Using SMTP
Summary and Status

**ebXML Today**

- Advanced framework for B2B
  - State-of-the-art
  - Complete
  - Addresses complex choreographed interactions
  - Interoperable secure and reliable messaging
  - Advanced registry functionality
- Adoption steadily increasing
  - Large strategic projects
- Lacking visibility
Implementation Support

- Software
  - Open source implementations
  - Multiple large platform companies
  - Specialized B2B integration companies
  - Adapter suppliers
- Consulting
  - Many (of the larger international) consulting companies have references

More information

- ebXML portal
- ebXML-Dev mailing list
- Business Process
- Registry
  - [http://www.oasis-open.org/committees/registrep/](http://www.oasis-open.org/committees/registrep/)
- Messaging
- CPPA
- Implementation, Interoperability and Conformance
- ebSOA
Q&A

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