

# Berner Fachhochschule

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Fachbereich Informatik

## ebXML presentation

February 14th, 2005 and  
February 17th, 2005

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# Presentation Overview

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# ebXML

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ebXML stands for "electronic business XML".

- ebXML provides an infrastructure for business to business electronic commerce.

Why do we need a standard for business 2 business electronic commerce?

"To achieve inter-operability, or to lower costs for inter-operability."

# ebXML

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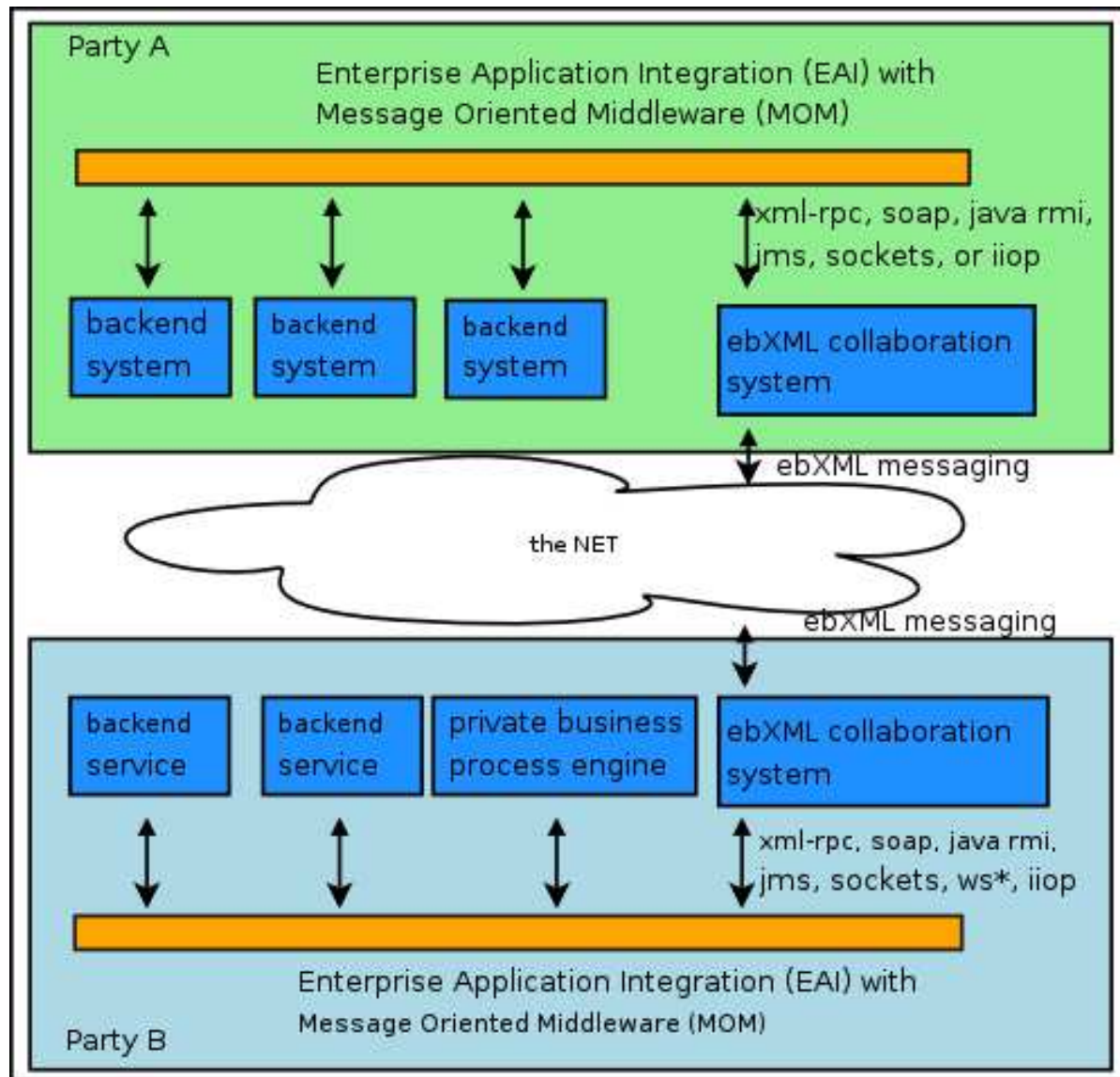
OASIS (Organisation for the Advancement of Structural Information Standards) and UN/CEFACT (United Nations Center For Trade Facilitation And Electronic Business) initiated ebXML.

Both organisations are not for profit organisations with rather low marketing budgets.

ebXML is an "open" standard, created through a transparent standardisation process.

ebXML and can be implemented royalty free.

# Setup of a party



# Electronic business requirements

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what is necessary for business to business electronic commerce?

- common business transactions
- common data-interchange formats
- description of a party's capability
- negotiation on business terms; results in an agreement
- registry to store and discover business transactions, formats and party's
- common messaging

adopted from Web Services Architect, Romin Irani

# ebXML Specifications

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The ebXML framework is described in a series of specifications and technical reports.

- ebXML Business Process Specification Schema
- ebXML Core Components (\*)
- ebXML Collaboration Protocol-Profile and Agreement Specification (\*)
- ebXML Registry Information Model (\*)
- ebXML Registry Service Specification (\*)
- ebXML Message Service Specification (\*)

\* ISO Certified as ISO 15'000 Parts 1 through 5

# ebXML alternatives

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ebXML is currently going through the adoption phase.

Alternatives are:

- X.12 / EDIFACT (\*)
- EDIINT(AS1, AS2, AS3)(\*)
- RosettaNet(\*)
- WebServices (also adoption phase)
- Custom and proprietary

\* asynchronous messaging domain

# ebXML Business Process Specification Schema (1)

The Business Process Specification Schema provides the means to define neutral collaborative business processes.

The collaboration defines the choreography of business transactions "between" parties.

Business document exchange is part of a business transaction.

# ebXML Core Components (1)

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The Core Components provide the mean to define business documents based on common core components and aggregations of them.

The OASIS Universal Business Language (UBL) Technical Committee is an implementation of the ebXML Core Components.

# ebXML Collaboration Protocol Profile and Agreement (1)

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For electronic business we further need to provide the electronic information.

A Collaboration Protocol Profile (CPP) describes the technical capabilities of ONE party.

A Collaboration Protocol Agreement (CPA) is the agreement between TWO parties how to technically execute the collaborative business process.

# ebXML Registry/Repository

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The registry can be used to store ebXML artifacts.

One idea is to have a public registry where parties can store and reuse common collaborative business processes and common business documents.

For future ad-hoc and spontaneous b2b scenarios the registry allows to query for potential new business partners.

# ebXML Message Service

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Finally during the execution of the collaborative business process the business documents have to be exchanged between trading partners.

The ebXML messages have to be delivered in a secure and reliable manner.

# Summary

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- collaborative business processes
  - neutral
  - payload agonistic
- business documents
- (registry/repository)
- collaboration protocol agreement
- messaging
  - secure
  - reliable

- o ebXML is about what is happening between the B's of B2B
- o Just a framework, a suite of specifications
- o Backend integration is not part of ebXML

# ebXML resources

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- <http://www.ebXML.org>
- <http://www.ebXMLForum.org>
- <http://www.freebxml.org>
- <http://www.ebusinessready.com>

# Example XML code or demo

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Example XML available of

- Universal Business Language (UBL) and
- CPA.

# Universal Business Language (UBL) (1)

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UBL is an implementation of the ebXML Core Components.

web = http + html

e-biz = ebXML + UBL

# Universal Business Language (UBL) (2)

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example Universal Business Language (UBL) Order based on

```
<Order>
  <cbc:IssueDate>2003-01-23</cbc:IssueDate>
  <cbc:LineExtensionTotalAmount amountCurrencyCodeListVersionID="0.3"
    amountCurrencyID="USD">438.50</cbc:LineExtensionTotalAmount>
  <cac:BuyerParty>
    <cac:Party>
      <cac:PartyName>
        <cbc:Name>Bills Microdevices</cbc:Name>
      </cac:PartyName>
      <cac:Address>
        <cbc:StreetName>413 Spring St</cbc:StreetName>
        <cbc:CityName>Elgin</cbc:CityName>
        <cbc:PostalZone>60123</cbc:PostalZone>
        <cac:CountrySubentityCode>IL</cac:CountrySubentityCode>
      </cac:Address>
    </cac:Party>
  </cac:BuyerParty>
  ...
</Order>
```

# ebXML CPA (1)

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```
<tp:CollaborationProtocolAgreement tp:version="2_0a">  
  <tp:Status tp:value="proposed"/>  
  <tp:Start>2001-05-20T07:21:00Z</tp:Start>  
  <tp:End>2002-05-20T07:21:00Z</tp:End>
```

```
<tp:PartyInfo>  
  tp:partyName="CompanyA"  
  <tp:CollaborationRole>  
    <tp:ProcessSpecification tp:version="2.0"  
      tp:name="PIP3A4RequestPurchaseOrder"  
    <tp:Role tp:name="Buyer"  
    <tp:ServiceBinding>  
      <tp:Service>bpid:icann:rosettanet.org:3A4$2.0</tp:Service>
```

# ebXML CPA (2)

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```
<tp:CanSend>
  <tp:ThisPartyActionBinding tp:id="companyA_ABID1"
    tp:action="Purchase Order Request Action"
    tp:packageId="CompanyA_Packaging">
    <tp:ChannelId>asyncChannelA1</tp:ChannelId>
  </tp:ThisPartyActionBinding>
  <tp:OtherPartyActionBinding>
    companyB_ABID1
  </tp:OtherPartyActionBinding>
</tp:CanSend>
<tp:CanReceive>
  <tp:ThisPartyActionBinding tp:id="companyA_ABID7"
    tp:action="Purchase Order Confirmation Action"
    tp:packageId="CompanyA_Packaging">
    ...
  </tp:CanReceive>
</tp:ServiceBinding>
</tp:CollaborationRole>
```

# ebXML CPA (3)

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```
<tp:Certificate tp:certId="CompanyA_AppCert">  
  ...  
</tp:Certificate>
```

# ebXML CPA (4)

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```
<tp:DeliveryChannel
  tp:channelId="asyncChannelA1"
  tp:transportId="transportA1"
  tp:docExchangeId="docExchangeA1">
  <tp:MessagingCharacteristics tp:syncReplyMode="none"
    tp:ackRequested="always" tp:ackSignatureRequested="always"
    tp:duplicateElimination="always"/>
</tp:DeliveryChannel>
```

# ebXML CPA (5)

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```
<tp:Transport tp:transportId="transportA1">
  <tp:TransportSender>
    <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
    <tp:AccessAuthentication>basic</tp:AccessAuthentication>
    <tp:TransportClientSecurity>
      <tp:TransportSecurityProtocol
        tp:version="3.0">SSL</tp:TransportSecurityProtocol>
      <tp:ClientCertificateRef tp:certId="CompanyA_ClientCert"/>
      <tp:ServerSecurityDetailsRef
        tp:securityId="CompanyA_TransportSecurity"/>
    </tp:TransportClientSecurity>
  </tp:TransportSender>
  <tp:TransportReceiver>
    <tp:TransportProtocol tp:version="1.1">HTTP</tp:TransportProtocol>
    <tp:AccessAuthentication>basic</tp:AccessAuthentication>
    <tp:Endpoint
      tp:uri="https://www.CompanyA.com/servlets/ebxmlhandler/async"
      tp:type="allPurpose"/>
    <tp:TransportServerSecurity> ... </tp:TransportServerSecurity>
  </tp:TransportReceiver>
</tp:Transport>
```

# ebXML CPA (6)

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```
<tp:DocExchange tp:docExchangeId="docExchangeA1">  
  <tp:ebXMLSenderBinding tp:version="2.0">  
    <tp:ReliableMessaging>  
      <tp:Retries>3</tp:Retries>  
      <tp:RetryInterval>PT2H</tp:RetryInterval>  
      <tp:MessageOrderSemantics>Guaranteed</tp:MessageOrderSemantics>  
    </tp:ReliableMessaging>  
    <tp:PersistDuration>P1D</tp:PersistDuration>
```

# ebXML CPA (7)

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```
<tp:SenderNonRepudiation>  
  <tp:NonRepudiationProtocol>  
    http://www.w3.org/2000/09/xmldsig#  
  </tp:NonRepudiationProtocol>  
  <tp:HashFunction>  
    http://www.w3.org/2000/09/xmldsig#sha1  
  </tp:HashFunction>  
  <tp:SignatureAlgorithm>  
    http://www.w3.org/2000/09/xmldsig#dsa-sha1  
  </tp:SignatureAlgorithm>  
  <tp:SigningCertificateRef tp:certId="CompanyA_SigningCert"/>  
</tp:SenderNonRepudiation>
```

# ebXML CPA (8)

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```
<tp:SenderDigitalEnvelope>  
  <tp:DigitalEnvelopeProtocol  
    tp:version="2.0">S/MIME</tp:DigitalEnvelopeProtocol>  
  <tp:EncryptionAlgorithm>DES-CBC</tp:EncryptionAlgorithm>  
  <tp:EncryptionSecurityDetailsRef tp:securityId="CompanyA_MessageSecurity"/>  
</tp:SenderDigitalEnvelope>  
</tp:ebXMLSenderBinding>  
<tp:ebXMLReceiverBinding> ... </tp:ebXMLReceiverBinding>  
</tp:DocExchange>
```

# ebXML CPA (9)

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</tp:PartyInfo>

<!-- second party -->

<tp:PartyInfo>

...

</tp:PartyInfo>

# ebXML CPA (10)

---

```
<tp:SimplePart
  tp:id="CompanyA_MsgHdr"
  tp:mimetype="text/xml">
  <tp:NamespaceSupported
    tp:location="http://www.oasis-open.org/ ... /msg-header-2_0.xsd"
    tp:version="2.0">
    http://www.oasis-open.org/committees/ebxml-msg/schema/msg-header-2_0.xsd
  </tp:NamespaceSupported>
</tp:SimplePart>
<tp:SimplePart
  tp:id="CompanyA_Request"
  tp:mimetype="application/xml">
  <tp:NamespaceSupported
    tp:location="http://www.rosettanet.org/schemas/PIP3A4RequestPurchaseOrder.xsd"
    tp:version="1.0">
    http://www.rosettanet.org/schemas/PIP3A4RequestPurchaseOrder.xsd
  </tp:NamespaceSupported>
</tp:SimplePart>
```

# ebXML CPA (11)

---

```
<tp:Packaging tp:id="CompanyA_RequestPackage">
  <tp:ProcessingCapabilities
    tp:parse="true"
    tp:generate="true"/>
  <tp:CompositeList>
    <tp:Composite
      tp:id="CompanyA_RequestMsg"
      tp:mimetype="multipart/related"
      tp:mimeparameters="type=text/xml">
      <tp:Constituent tp:idref="CompanyA_MsgHdr"/>
      <tp:Constituent tp:idref="CompanyA_Request"/>
    </tp:Composite>
  </tp:CompositeList>
</tp:Packaging>
```

# Demo

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Demo with the usage of a commercial B2B software system called Cyclone Interchange version 5.3

.the end.