Creating A Single Global Electronic Market

ebXML Technical Architecture

San Jose, CA USA

Wednesday, 9 August 2000

Initial Thoughts:

- Examine the differences between standards (vocabularies) and the EbXML Infrastructure
- Examine the differences between Core Components and Business Processes.
- Look at the overall architecture of ebXML

Goals:

- To provide a high level overview of how ebXML works
- Distinguish the run time viewpoints
- To show how different ebXML compliant Vocabularies can interoperate within the ebXML infrastructure.

Why XML

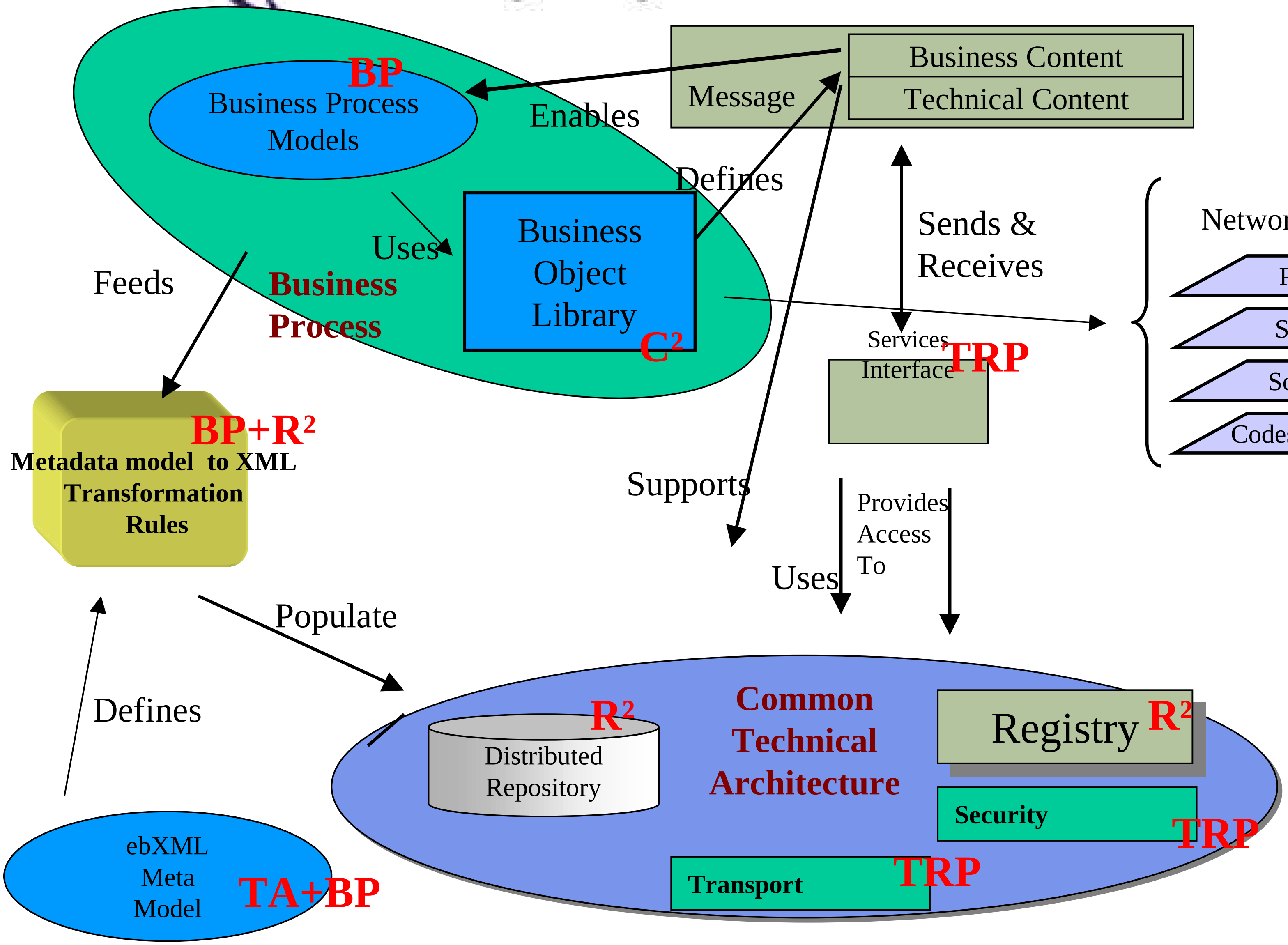
- Extensible Markup Language
- Not a fixed set of Elements (HTML)
- Allows data to be smart (declarative)
- Extensible (elements, namespaces)
- Widespread adoption & endorsement
- Interoperability is now possible

ebXML

UN/CEFACT

OASIS

Creating A Single Global Electronic Market



BP

Business Process Models

Enables

Message

Business Content

Technical Content

Defines

Uses

Business Object Library

C²

Business Process

Feeds

Sends & Receives

Network Economy

Process

Services

Schemata

Codes, Elements

Services Interface

TRP

BP+R²

Metadata model to XML Transformation Rules

Supports

Provides Access To

Uses

Populate

Defines

R²

Distributed Repository

Common Technical Architecture

Registry

R²

Security

TRP

Transport

TRP

ebXML Meta Model

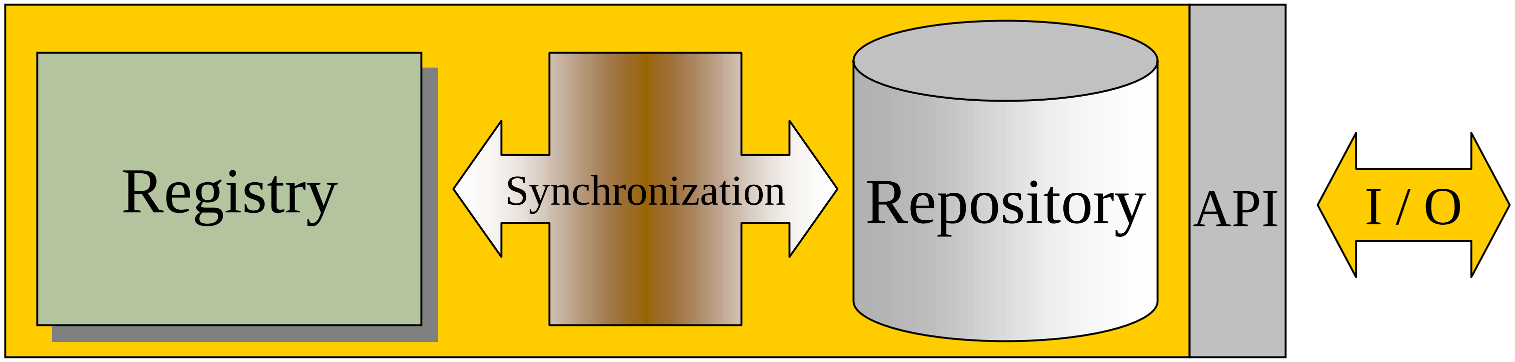
TA+BP

TA Philosophy

- Architect ebXML in Layers
- The first layer has to recognize the Repository Items that constitute core components (ie address, tel)
- The second Layer has to recognize the Business Process
- Third Layer is discovery of what partners require
- Current work focuses largely on Layer one!

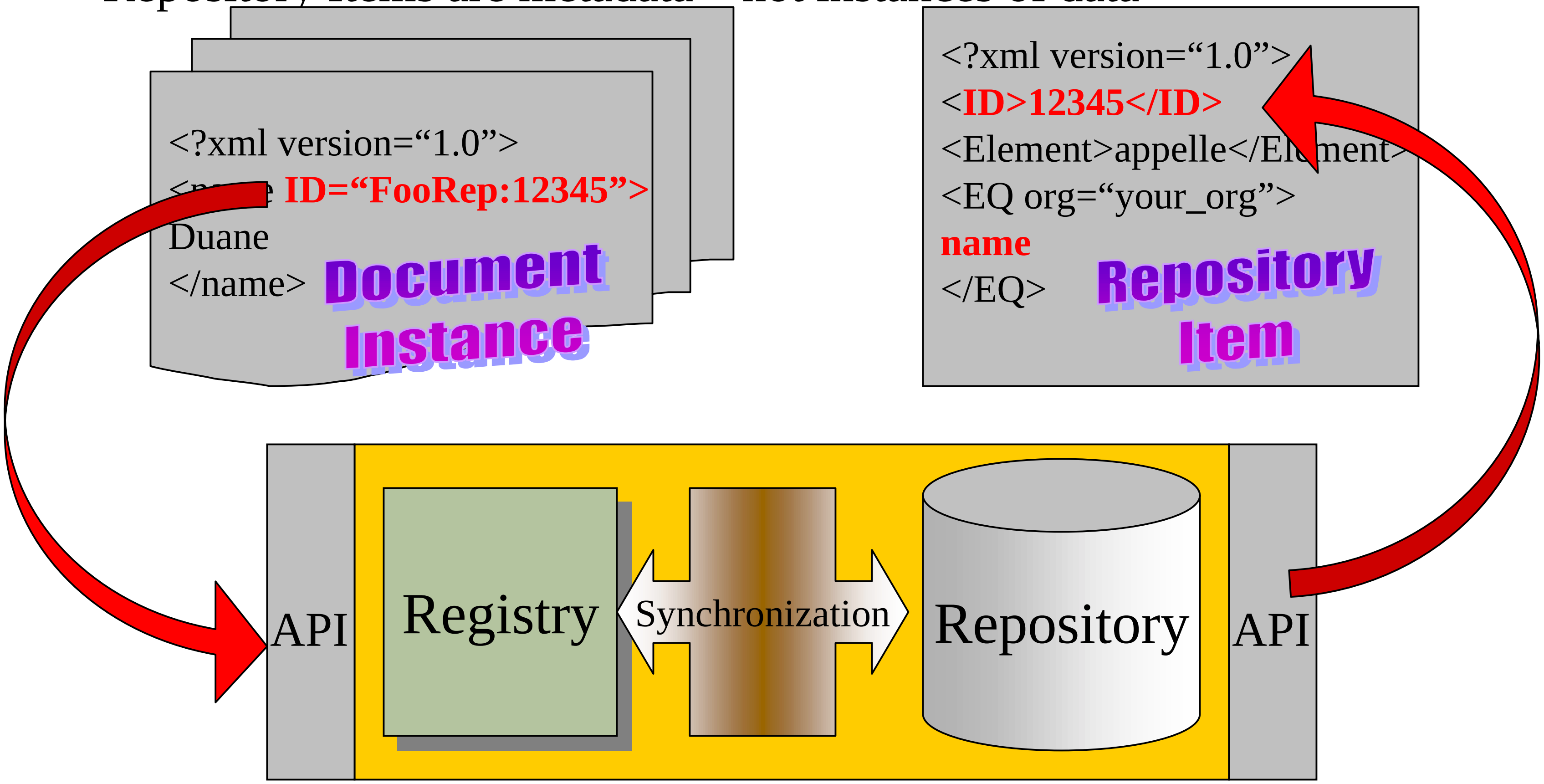
ebXML Architecture

- At the heart of ebXML is a powerful system of Registries and Distributed Repositories.
- Some repositories contain Core Components and some contain Syntax describing Business Process.
- It is important that we can reference Items (CC) from Business Process Layer at the Element Level.



ebXML Architecture

- XML Elements in document instances contain pointers to RI’s
- Repository Items are metadata – not instances of data



```
<?xml version=“1.0”>
<name ID=“FooRep:12345”>
Duane
</name>
```

```
<?xml version=“1.0”>
<ID>12345</ID>
<Element>appelle</Element>
<EQ org=“your_org”>
name
</EQ>
```

ebXML Metadata and Items

Two basic types:

- Core Components – (nouns)
- Business Processes – (verbs)

This is over simplified

Core Components are:

- A Core Component captures information about a real world (business) concept, and relationships between that concept and other business concepts.

- A Core Component can be either an individual piece of business information, or a natural 'go-together' family of business information pieces.

  - It is ‘Core’ because it occurs in many different areas of industry/business information exchange.

ebXML Core Components

- Vocabularies (eg. xCBL 2.0) contain elements that may be semantically identical to some of the common core components. Examples can be an <address> element on a xCBL invoice and the <partyAddress> on a Visa XML Invoice.
- Core Components must have contextual identity at run time
  - **i.e. PurchaseOrder.sendParty(name) != PurchaseOrder.sendParty(name)**

ebXML Business Process

- BP describe document choreography and overall process interfaces.
- Identify which data needs to be present to ensure requirements of both parties are being met.
- Examples can be “Deliver a service” or “Purchase a product”

Repository Item Examples

- XML elements in business messages can reference items in a repository.

- Examples:
  - <nameofperson>
  - <nomdelapersonne>
  - <name>
  - <TheThingICallYou>

All are the same item (semantically)!!!

The Process Layer Example

- Examples:
  - <name_of_person>
  - <nom_du_personne>
  - <name>
  - <The_thing_I_call_you>
- Are all XML elements that may be part of a process called “Purchase a Product”

The Layers operate in Parallel

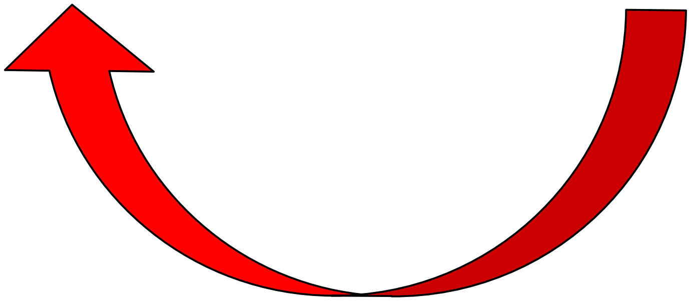
- XML Elements:
  - <name_of_person GUID="12345">
  - <nom_du_personne GUID="12345">
  - <name **GUID="12345"**>

- Process

  <Process GUID="678">Purchase a Product</Process>

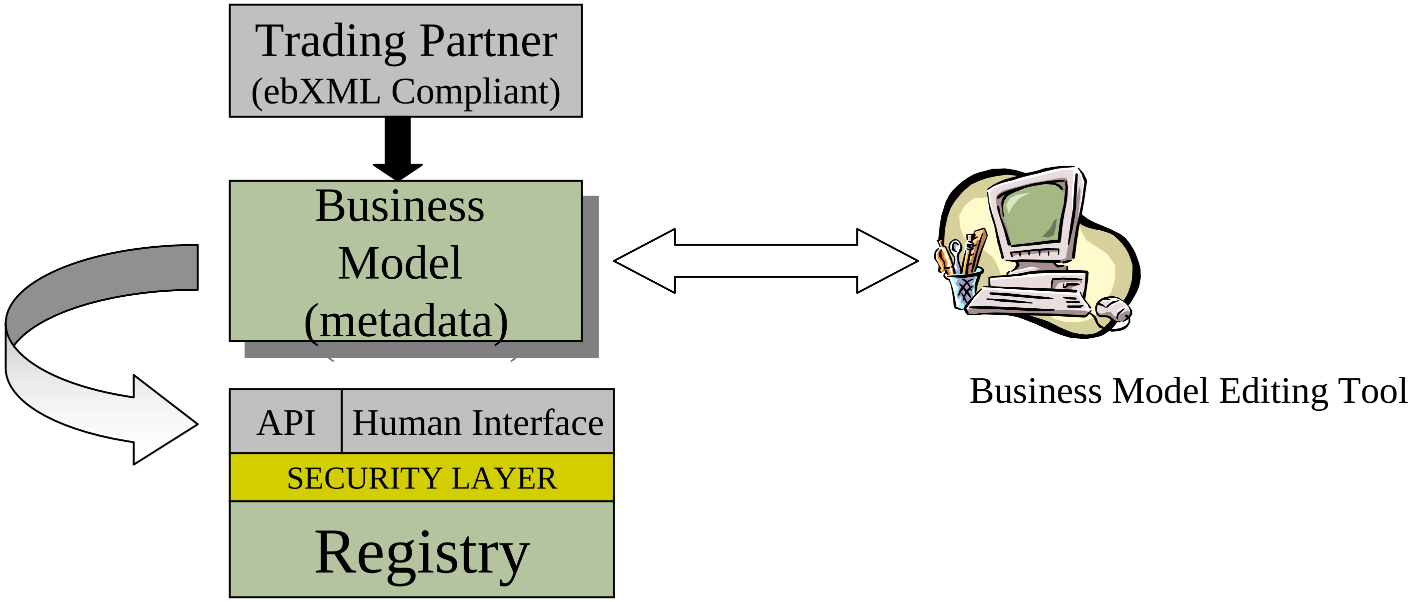
  <Step_1>

  <Item sentBy="party_1" to="party_2" **GUID="12345"**>name</Item>



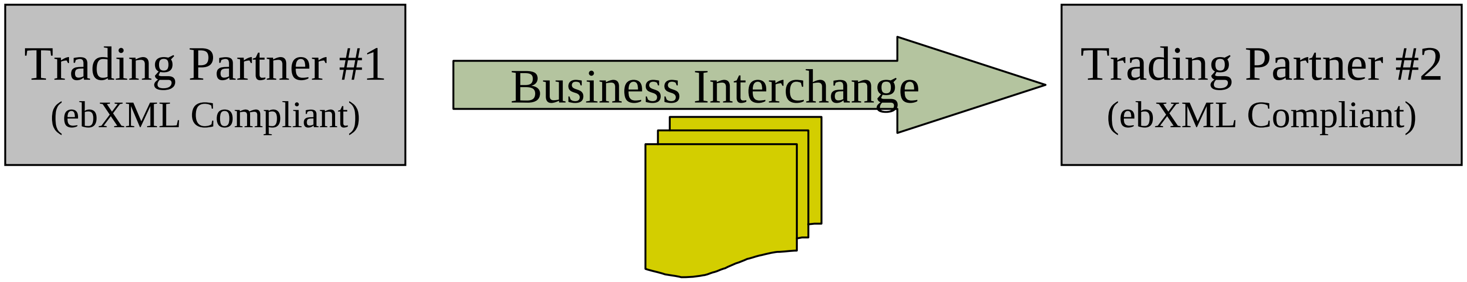
How ebXML Trading Partners interact

- A Trading Partner can create a model of its business and business items. Isn't always necessary – ie. SME's can buy packages from ASP's which will likely use existing vocabularies (xCBL, cXML, Visa XML et al).
- A Trading Partner can also identify and use components/processes used by its partners.



How ebXML Trading Partners Interact

- The Trading Partner sends a business message instance to another ebXML capable trading partner.
- The business message is part of a Business Process



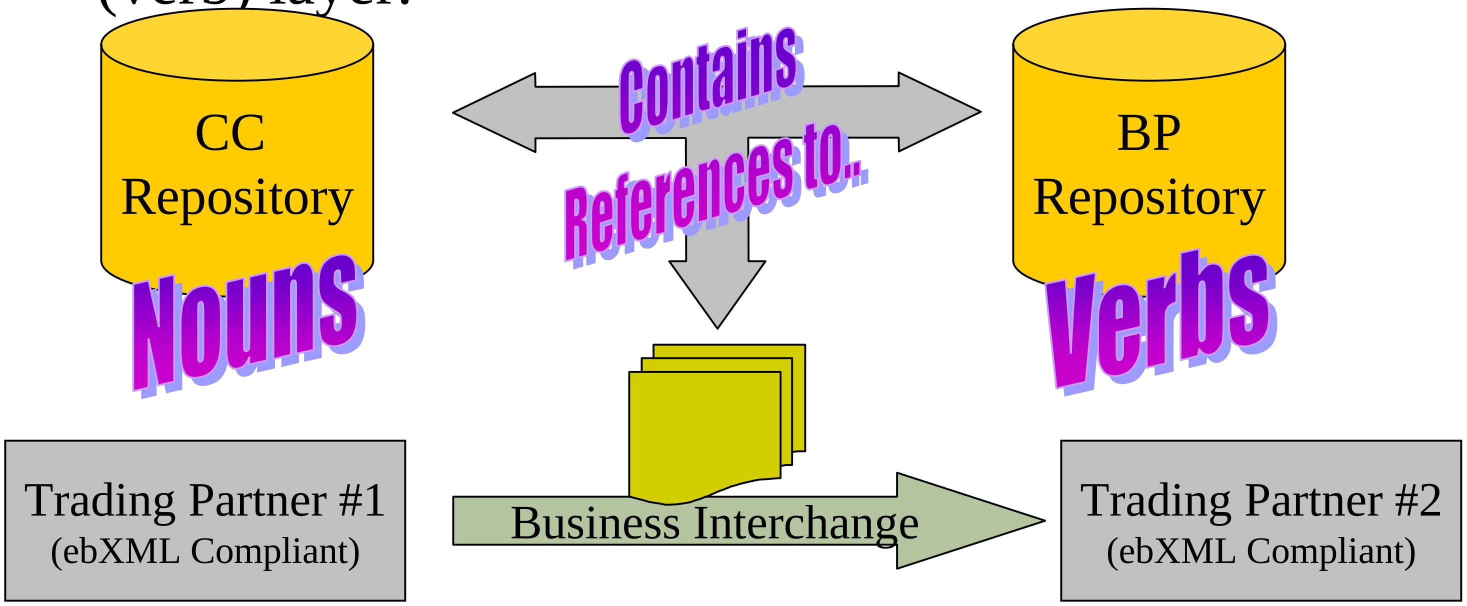
Trading Partner #1 (ebXML Compliant)

Business Interchange

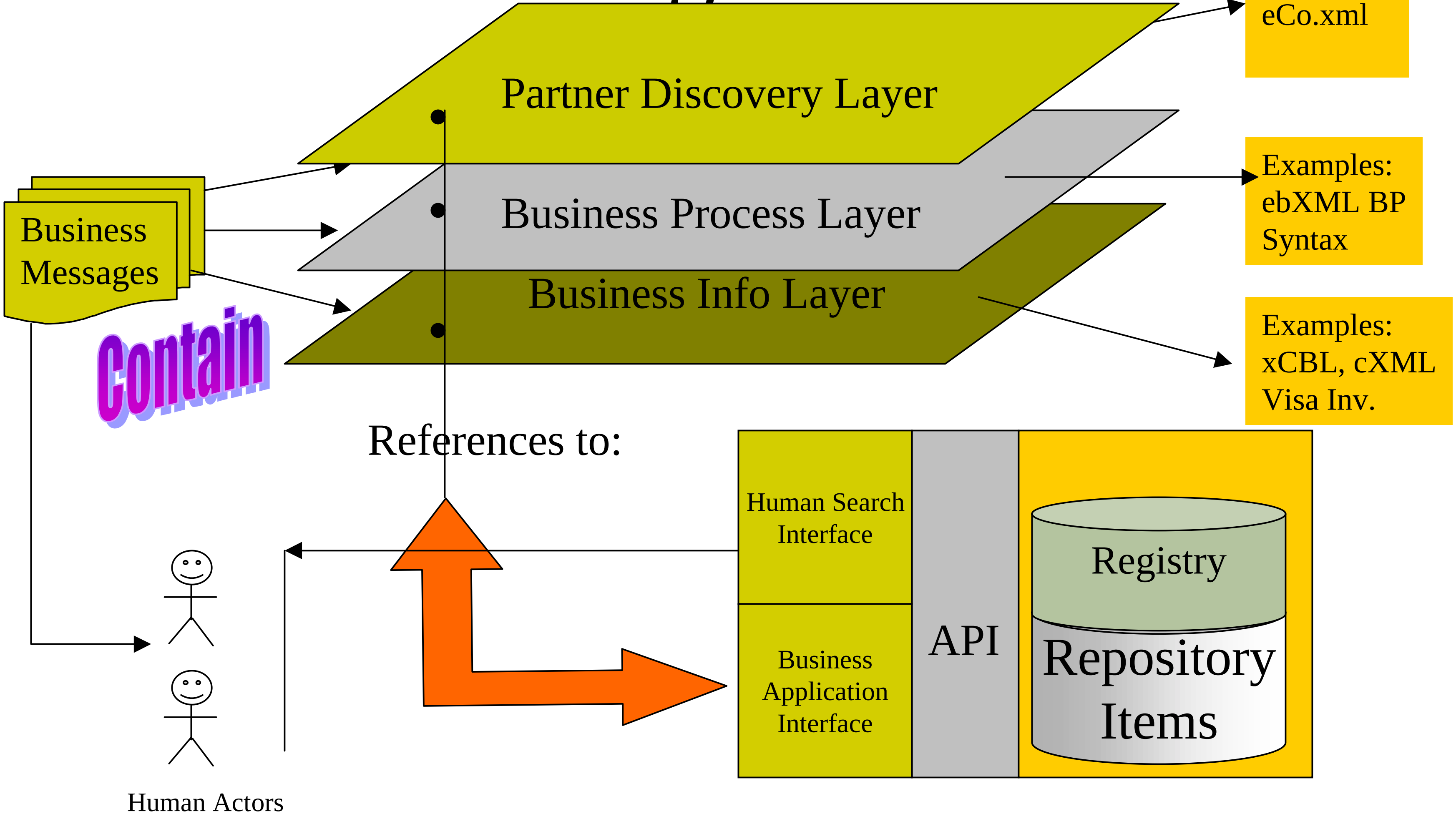
Trading Partner #2 (ebXML Compliant)

How ebXML Trading Partners Interact (2)

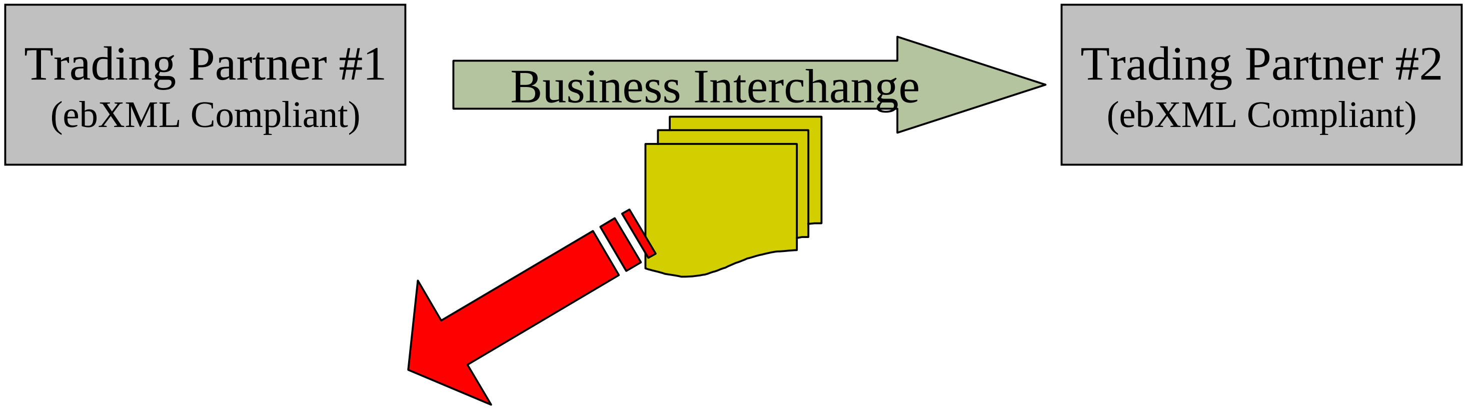
- The transaction contains abstractions of two layers – the Core Components (noun) layer and the Business Process (verb) layer.



Business Message References



Business Message Interchanges

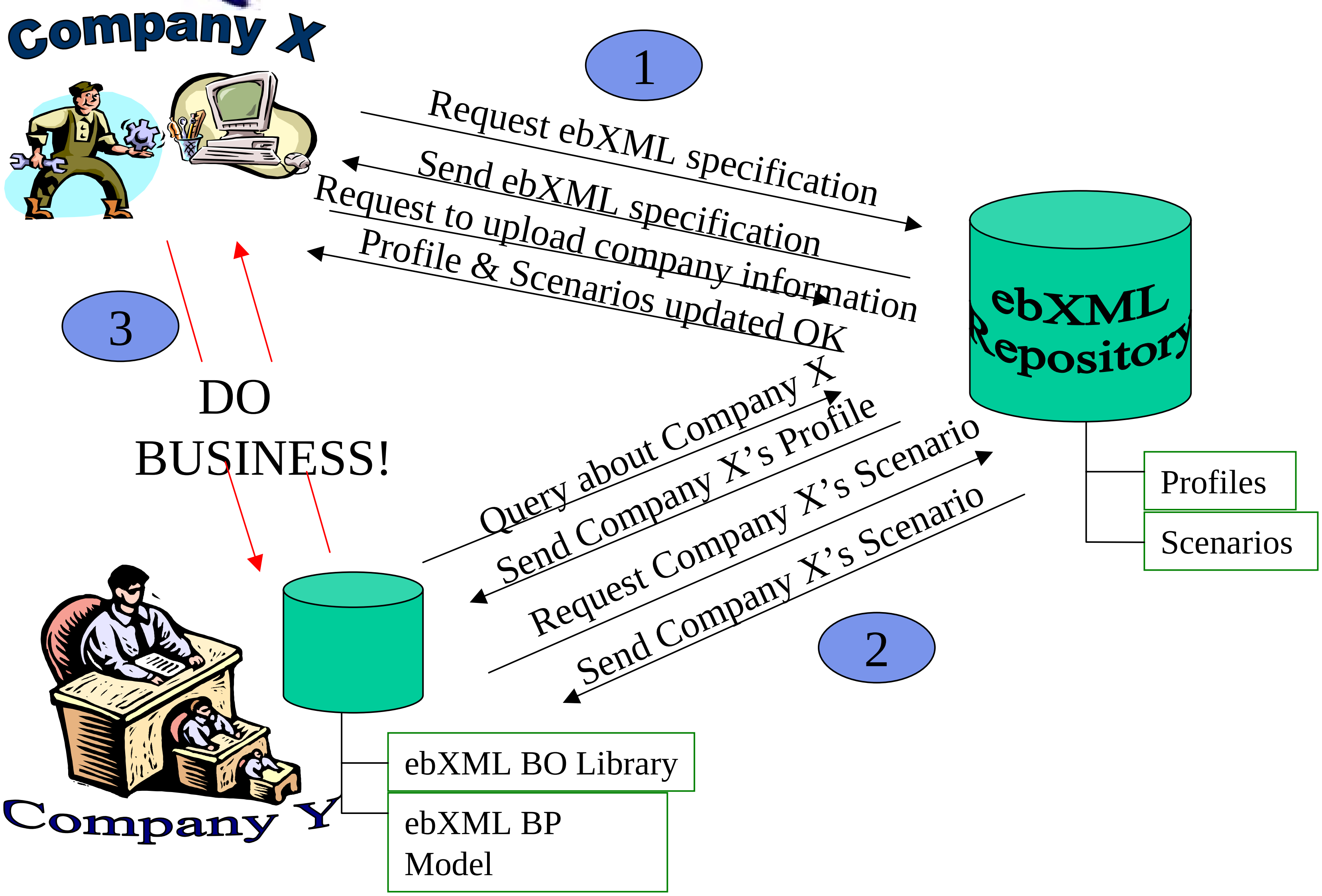


Trading Partner #1
(ebXML Compliant)

Business Interchange

Trading Partner #2
(ebXML Compliant)

```
<?xml version=“1.0”?>
<purchase_a_product GUID=“678”>
<Name GUID=“12345”>Duane</Name>
…
```



Company X

1

Request ebXML specification

Send ebXML specification

Request to upload company information

Profile & Scenarios updated OK

ebXML Repository

Profiles

Scenarios

3

DO BUSINESS!

Query about Company X

Send Company X's Profile

Request Company X's Scenario

Send Company X's Scenario

2

Company Y

ebXML BO Library

ebXML BP Model

ebXML

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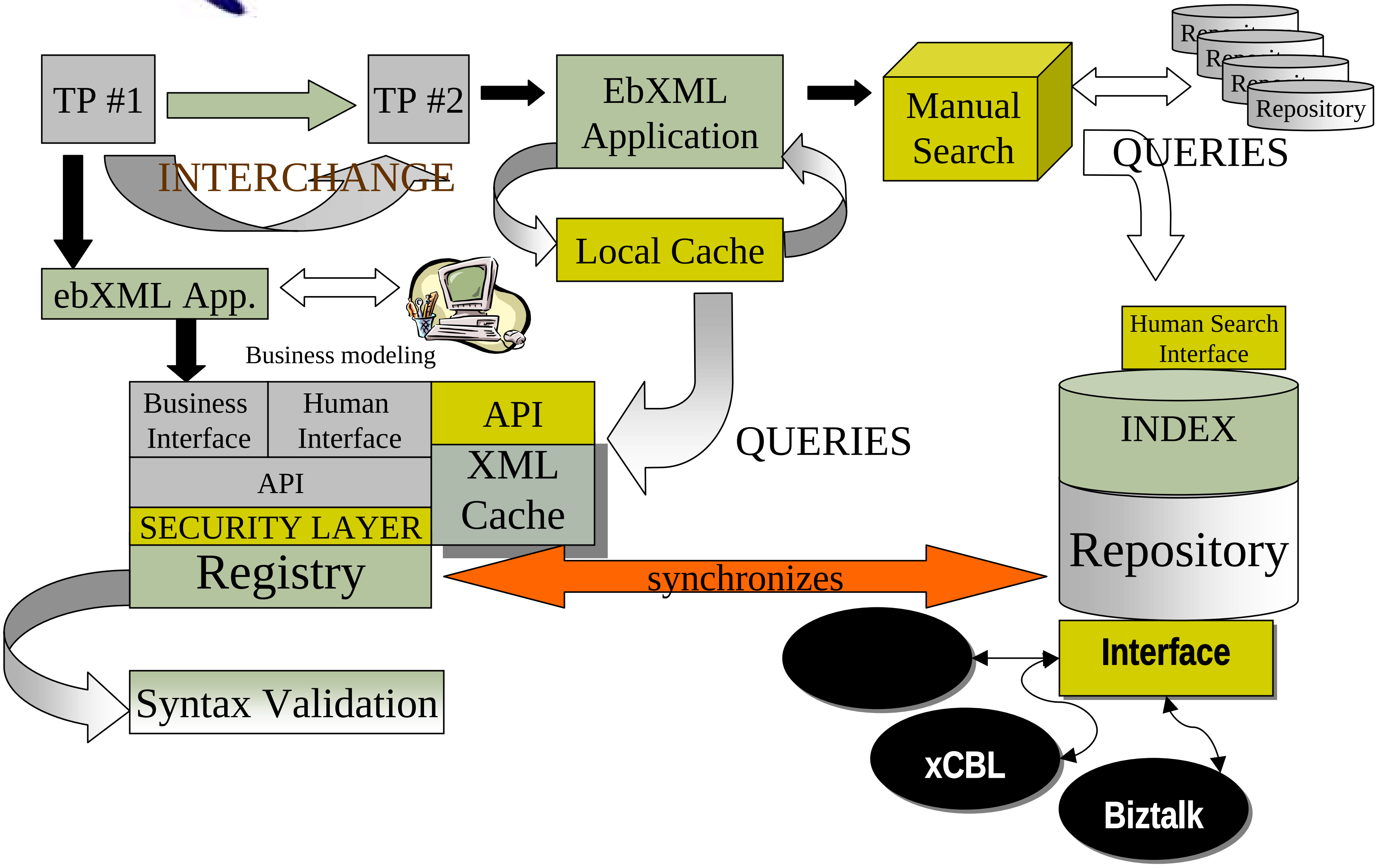

Some Final Thoughts..

- ebXML to build an open architecture, not a “Standard”
- Truly interoperable and Extensible (Global)
- Includes everyone from SME’s to Fortune 1000

Thank you!

Duane Nickull