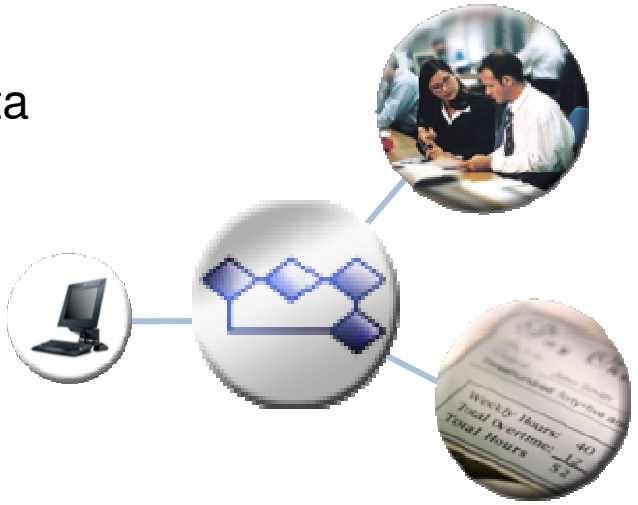
SOA

Enhance ESB and BPM solutions with complex data transformation and connectivity for System z

February 13 2008

Featuring

WebSphere Adapters
WebSphere Transformation Extender



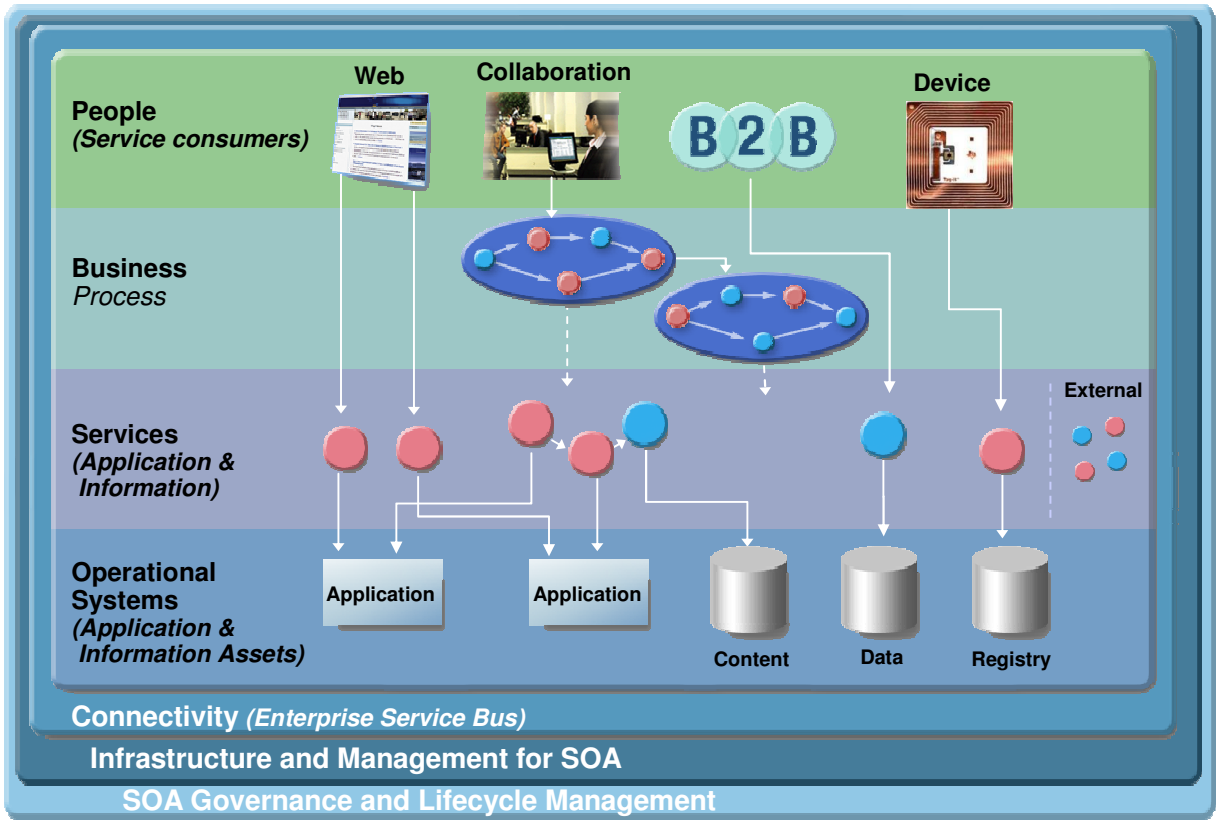
SOA on your terms and our expertise

ON DEMAND BUSINESS™

The SOA Solution Stack – Driven by BPM

Services are the "building blocks" for business processes

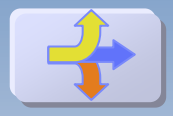
SOA improves how you design, manage, and optimize your business processes by enabling:



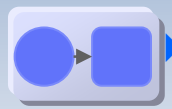
The Enterprise Service Bus

An Enterprise Service Bus (ESB) is a flexible connectivity infrastructure for integrating applications as services.

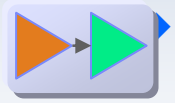
An ESB performs the following between requestor and service



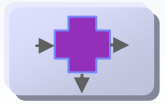
MATCHES & ROUTES
communications
between services



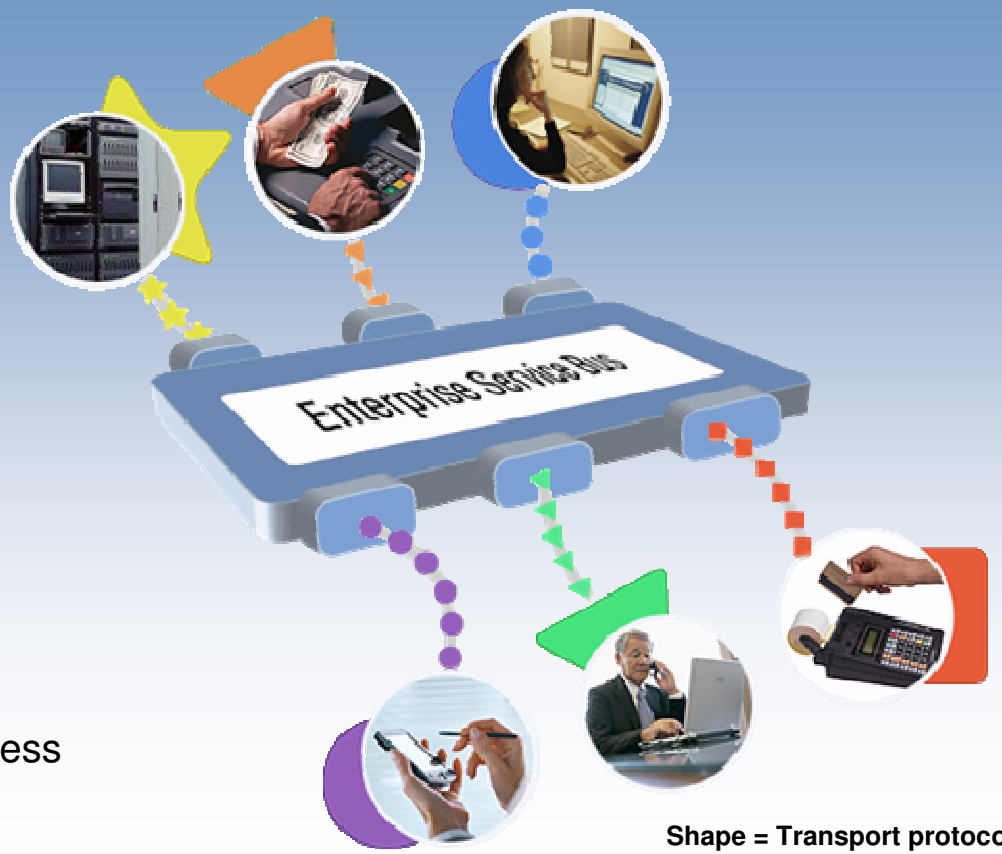
CONVERTS
between different
transport protocols



TRANSFORMS
between different data formats



IDENTIFIES & DISTRIBUTES business events



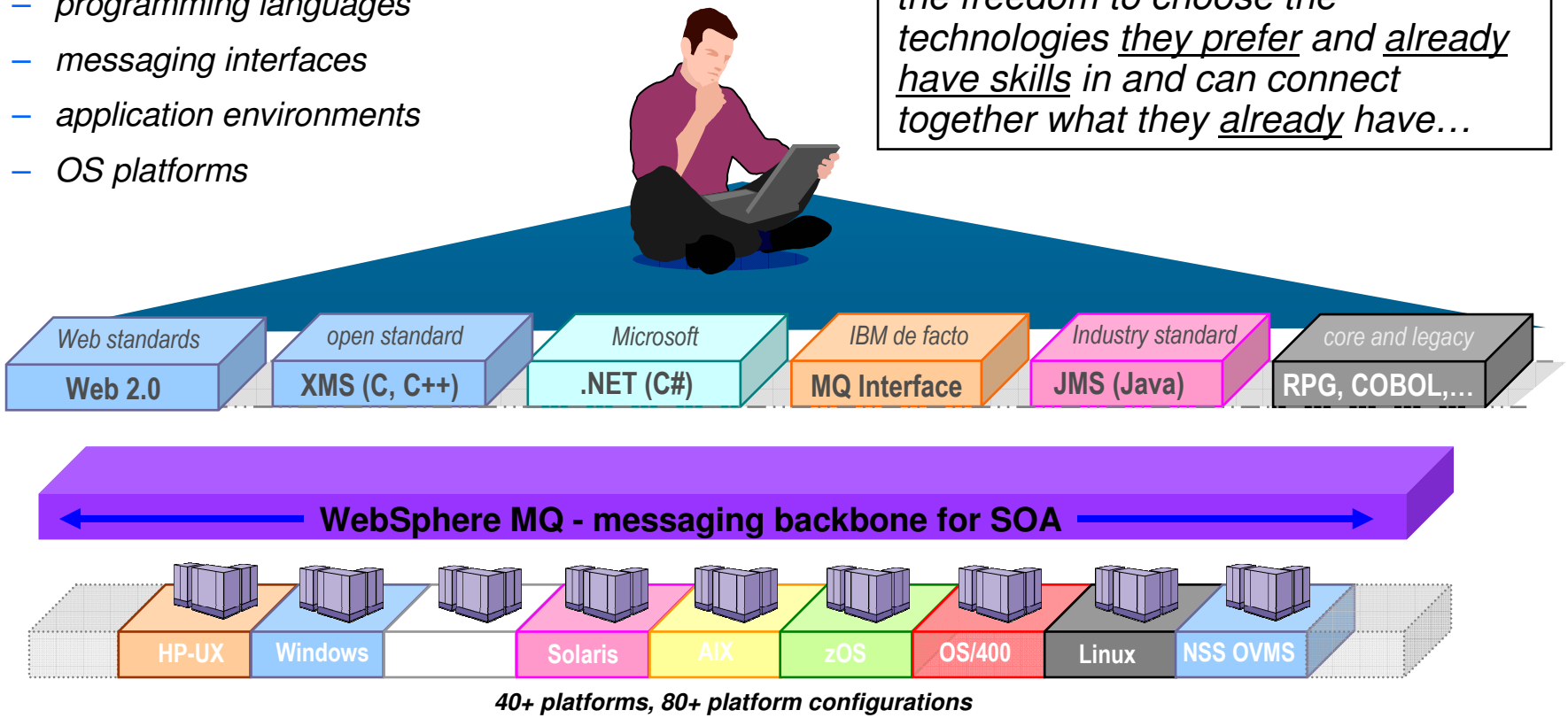
Shape = Transport protocol
Color = Data format

WebSphere MQ
Connects virtually any commercial IT system

Probably the software industry's broadest support for:

- *programming languages*
- *messaging interfaces*
- *application environments*
- *OS platforms*

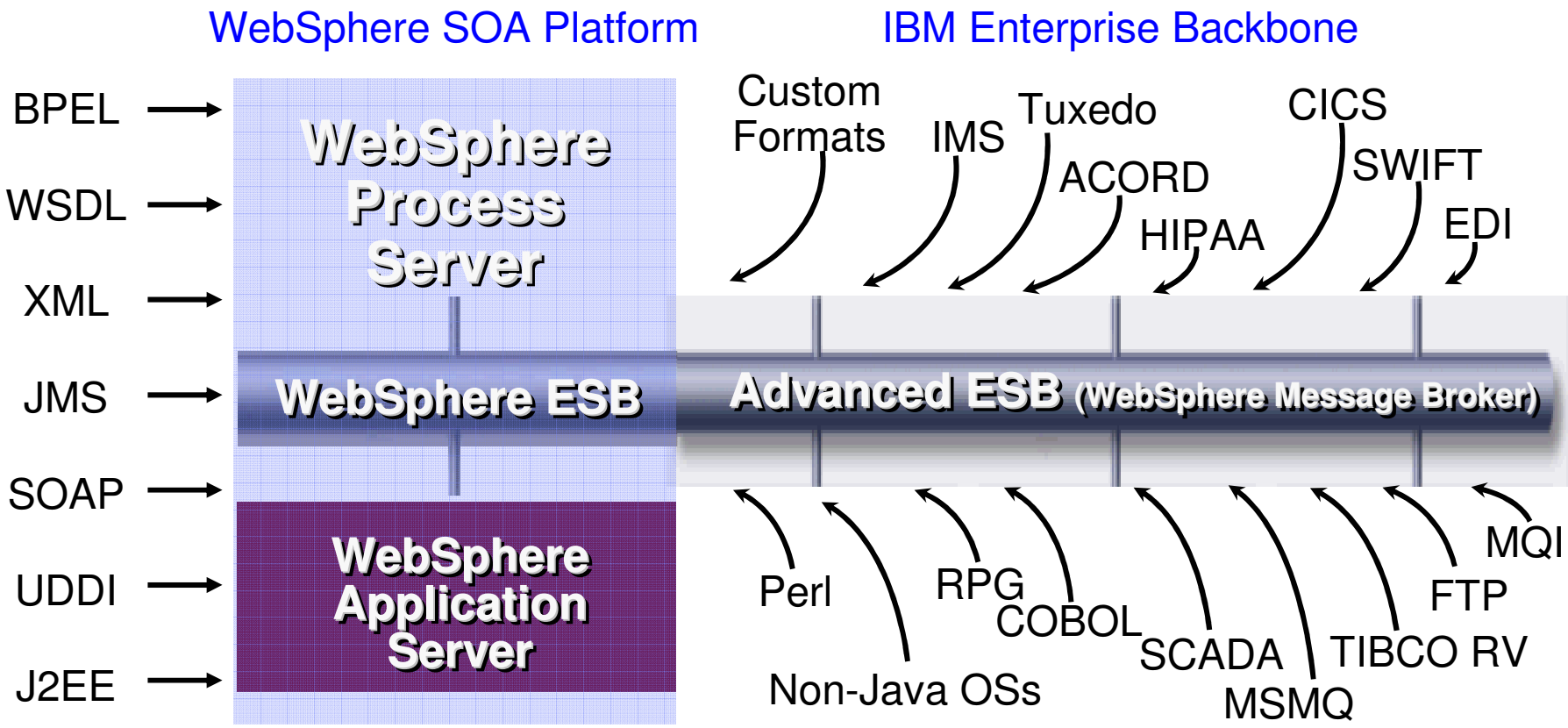
Ubiquity of support gives developers the freedom to choose the technologies they prefer and already have skills in and can connect together what they already have…



40+ platforms, 80+ platform configurations

WebSphere SOA

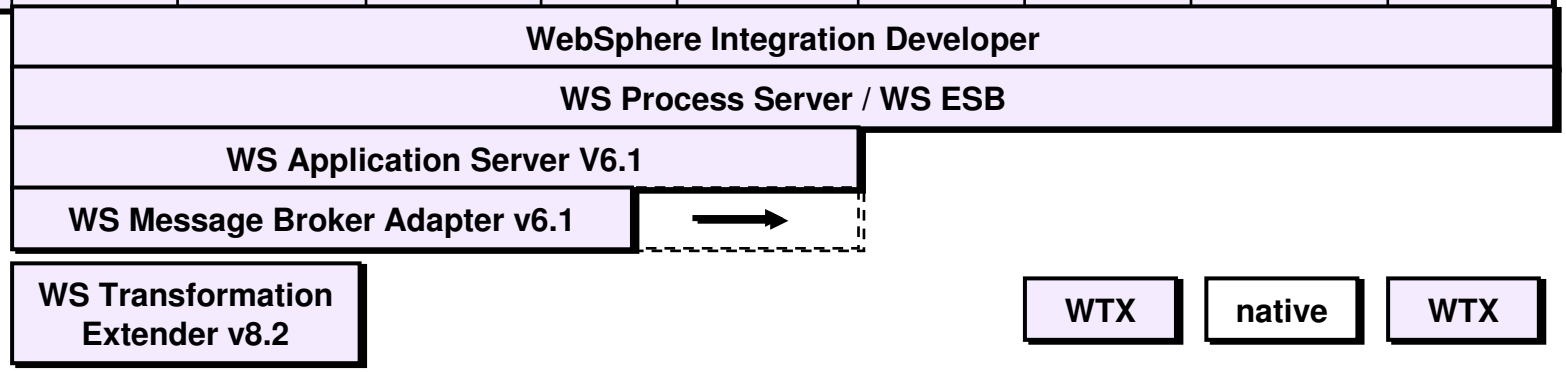
Unparalleled Connectivity for the Enterprise



WebSphere Adapters V6.1 on System Z

http://www.ibm.com/support/docview.wss?uid=swg27006249

	SAP	P/Soft	Siebel	JDE	Oracle	JDBC	Email	FlatFile	FTP
z/OS	●	X	X	X	●	●	●	●	●
RedHat Enterprise Linux	●	●	X	X	●	●	●	●	●
SUSE Linux	●	●	X	X	●	●	●	●	●



As at february 2008.

An adapter is the preferred method of connectivity when…

…an application has a large number of interfaces

- A single instance of an adapter provides one place to access multiple interfaces

…an application is not enabled for web services connectivity

- Even when applications are web-service enabled, this often covers only a subset of functionality

…customers are on multiple versions of the application which each have different interfaces

- Many applications have old versions that are still in use by customers and do not have the same degree of open connectivity as later versions
- Using an adapter to encapsulate the integration logic minimizes the impact of upgrading between application versions

…it is common for customers to customize the application's functionality

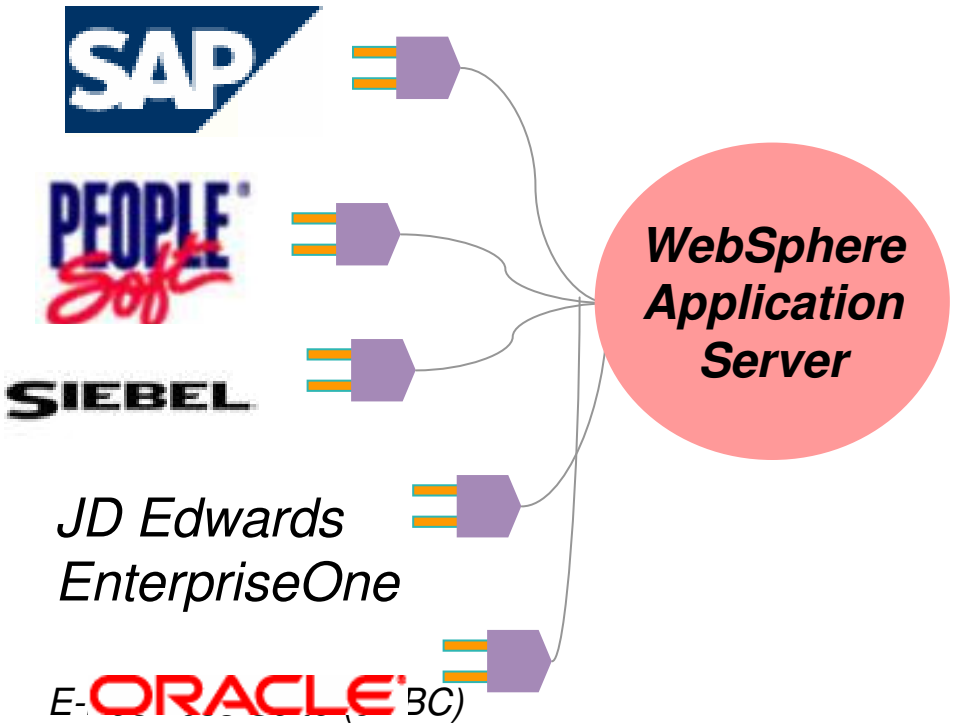
- A meta-data driven adapter helps customers to service-enable their custom functionality without having to also customize the adapter

SAP is an example EIS where an adapter is the best approach to connectivity

- Single adapter supports multiple SAP interface styles
  - BAPI/RFC, IDOC/ALE, SQI
- Wizard based discovery decreases development time
  - Typical interfaces in SAP are extremely large and involve several layers of hierarchies
- Only the latest releases of SAP allow automatic Web service enablement of BAPI/RFCs
  - In typical SAP integration scenarios, only ~40% of the required functions are available as IDOC or BAPI
- Integrates with custom RFC enabled remote functions
- Can aggregate multiple BAPI calls into business-relevant services
  - creates larger grained services, satisfying more realistic interface needs
- Separating integration logic from application logic insulates against version-to-version upgrade impact

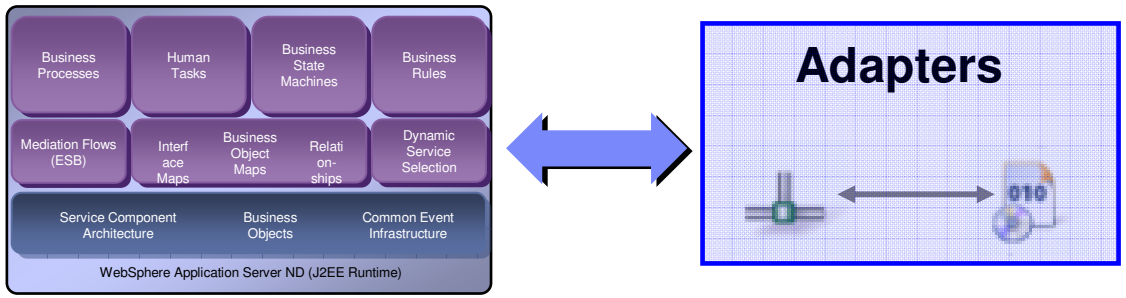
WebSphere Adapters on WebSphere Application Server V6.1

- Native interaction with major EIS systems
- WebSphere Adapters V6.1 technology
- Outbound Connection to EIS from
  - WAS V6.1
  - WAS ND V6.1
  - WAS for z/OS
- SAP and JD Edwards available on System I

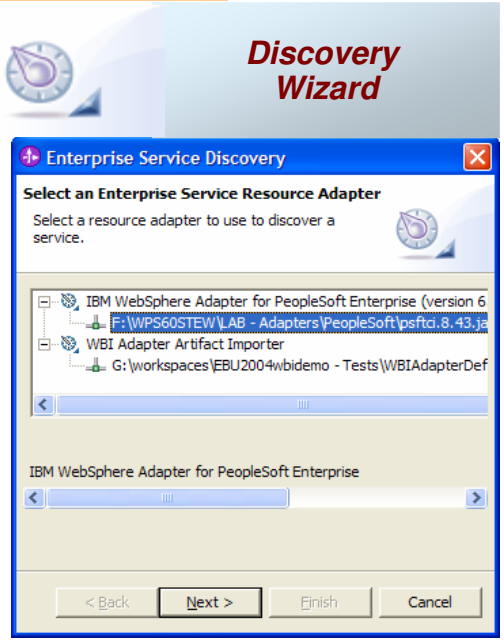


Adapters for WebSphere ESB / Process Server

- **Adapters are one of many ways to access non-SCA applications from WebSphere Process Server**



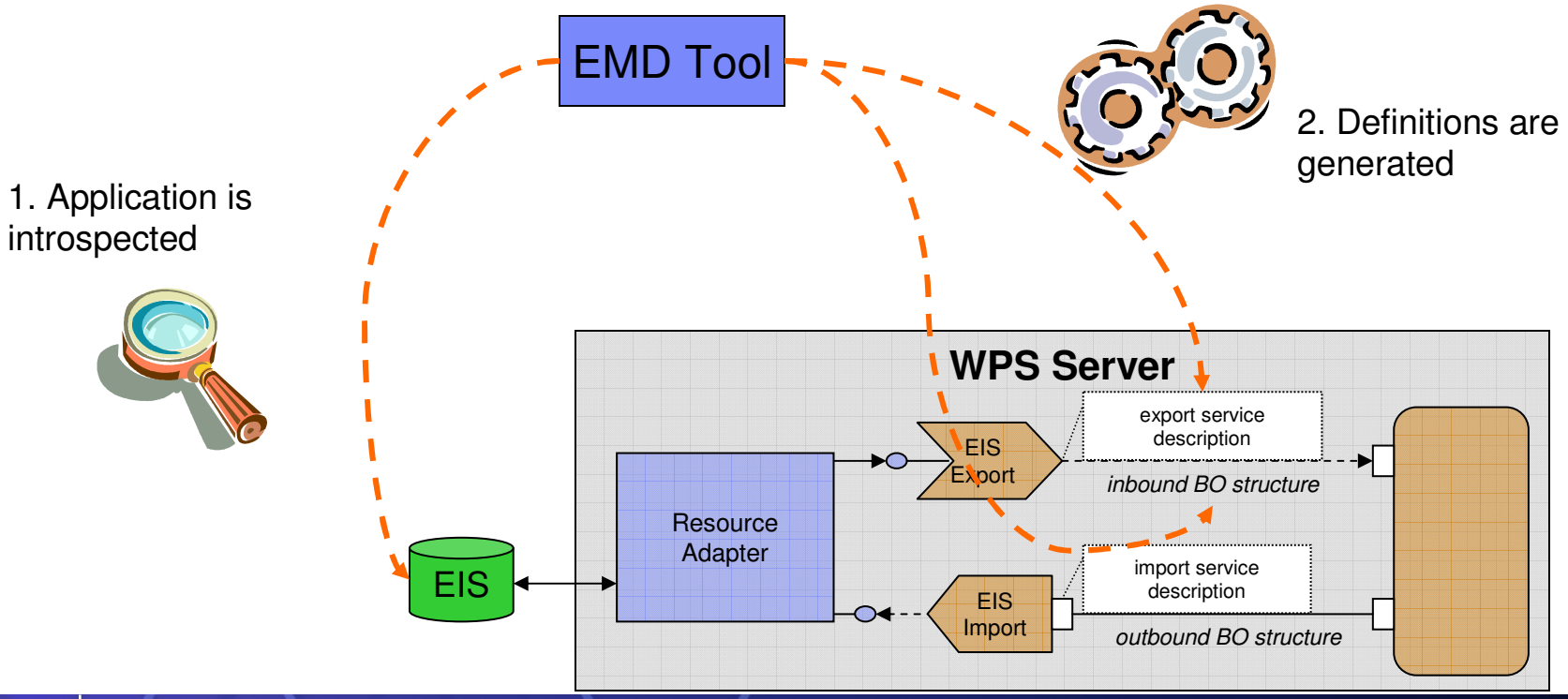
Seamless integration in WebSphere Process Server via GUI Wizard



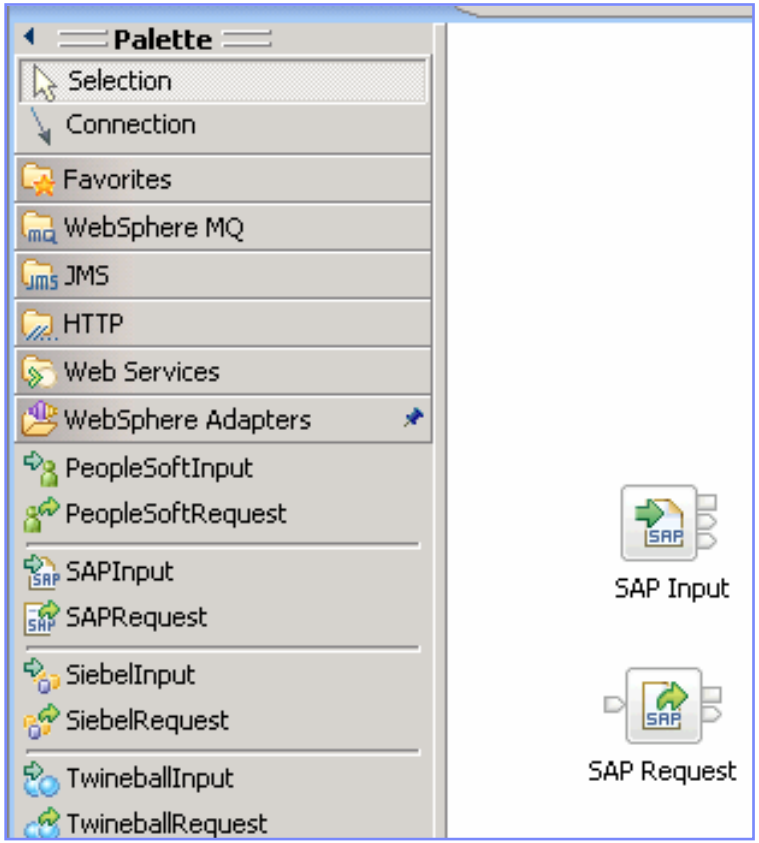
- **JCA-based adapter are included in WebSphere Integration Developer**
  - Development license for all 5 business application Adapters e.g. SAP
  - Development & Production license for Flat File, FTP, JDBC, Email

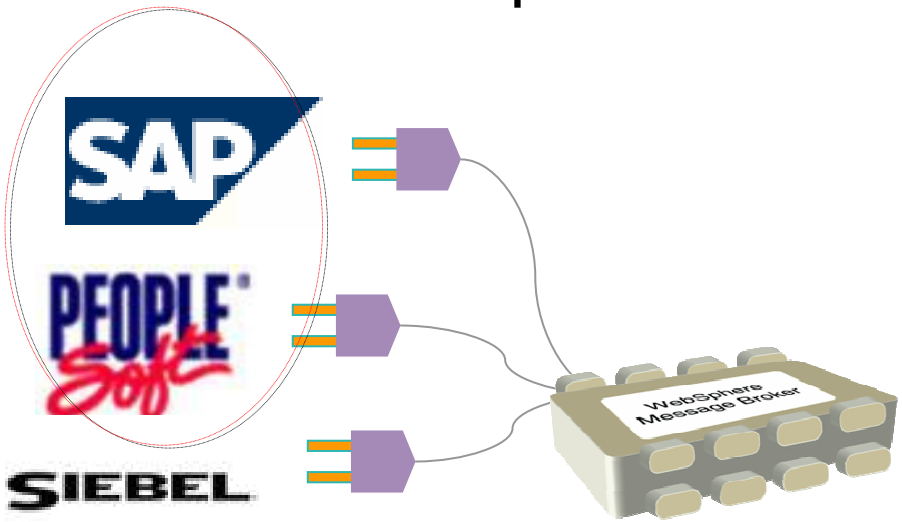
Discovery Wizards

- Automates business object and service definition generation
- Enterprise Metadata Discovery (EMD) plug-in
  - EMD tool introspects EIS
  - user selects entities of interest
  - definitions are generated and packaged for deployment



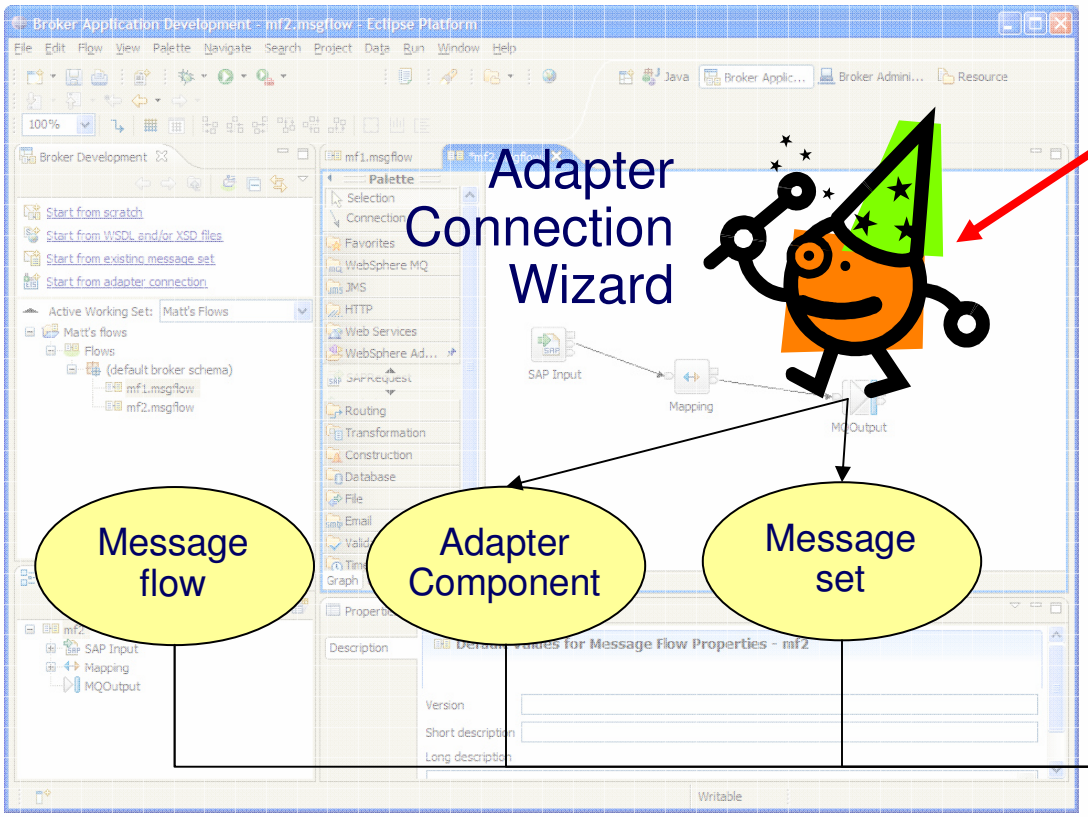
WebSphere Message Broker V6.1 EIS Adapter Nodes

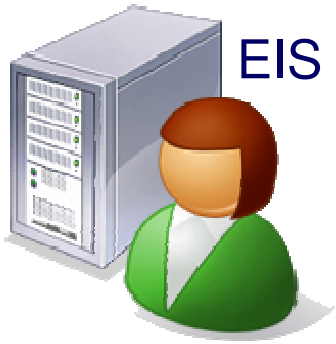




- Native, bi-directional interaction with major EIS systems
- Using WebSphere Adapters V6.1 technology packaged with WMB media
- Presented to Message Flow Designer as “Nodes”
- Configured with Message Broker 6.1 Adapter “Wizard”

Configuration Overview





WebSphere Adapters Configuration Summary

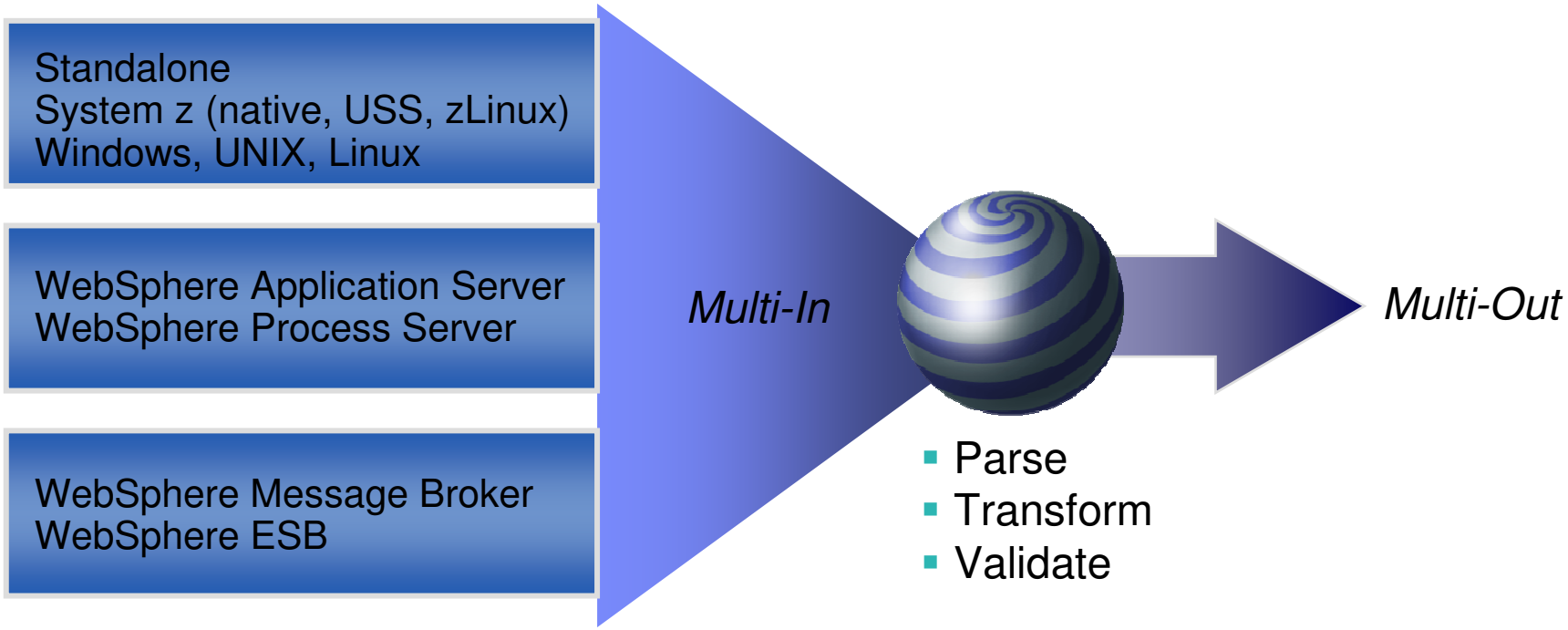
- **Discovery:** Discovering EIS metadata and automatic creation of components to access the EIS system
- **Development:** Creating message flows, business processes, or service provider applications which make use of the discovered components
- **Enablement:** Configuring the broker or server with the location of the EIS provider jars/native libraries
- **Administration:** Deploy all required components to the runtime, and administer them with the hosts console.

WebSphere Adapters Business Value

- **IT**
  - **Adapter Connection wizardry**
  - **Browse and generate business object interfaces graphically**
  - **Reduce time and cost – New interfaces**
  - **Reduced time and cost – Maintaining interfaces**
- **Business**
  - **Time to Market**
  - **Business Agility**
  - **Fewer IT backlogs**
  - **Return on investment - reusing business applications with new business services.**
- **Connect multiple EIS instances - Yes**
- **Connect multiple EJB applications to a single EIS instance – yes**

IBM WebSphere Transformation Extender

- *Transform, validate, and enrich document files and, messages, containing complex and variable data structures*
- *Deliver trustworthy information for critical business initiatives*
- *Help Meet regulatory compliance requirements*



WebSphere Transformation Extender Adapters

- Archive (Tar)
- Archive (Zip)
- Base64
- Batch File and Shell Script
- CICS (3270 bridge)
- COM Automation
- CORBA
- DB2
- WebSphere E-mail Adapter
- File
- WebSphere FTP Adapter
- GZIP/ZLIB
- HTTP
- IBM WebSphere MQ
- Informix
- Java Class
- Java Message Service (JMS)
- JNDI
- Microsoft SQL Server
- MIME
- MSMQ
- ODBC
- OLE DB
- Oracle CLI
- Oracle AQ
- Quoted-Printable
- Shell Script
- SOAP
- Socket
- Sybase SQL Server
- TIBCO Rendezvous
- VAN

Native z/OS support for File (Sequential file and VSAM), DB2, WebSphere MQ and FTP

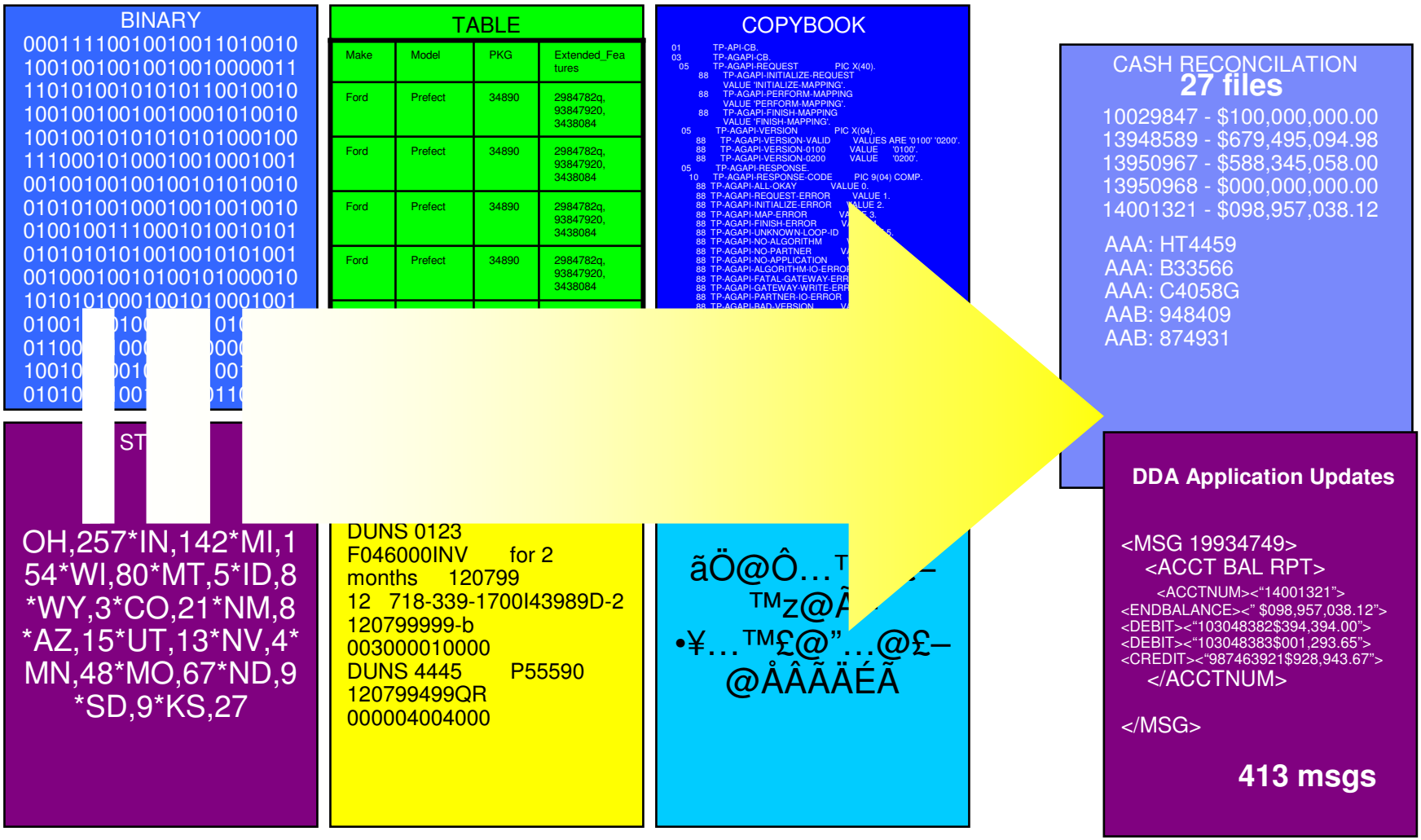
Secure Adapter Collection and SNMP option Packs

Enterprise Application Packs:

WebSphere Adapter for SAP(QISS), WebSphere PeopleSoft Adapter, WebSphere Siebel Adapter , SAP BAPI, SAP ALE, SAP BW, SAP BDC

The Data Challenge

Processing Information with all the business rules and usage mechanisms intact…



EDI – mature but still relevant today – not handled by XSLT

- "X12 provides the same looping and hierarchical functionality that XML does, but rather handles it semantically; in many cases, special purpose segments are used to declare the nesting and looping characteristics of the document. "
- "[X12 has] ..proven itself thanks to years of industry-wide use and reliability, and which continues, today, to be a mature choice for data interchange"

"X12 EDI: It's Not Dead Yet", http://www.devx.com/opinion/Article/26665

- STX=ANAA:1+1234567890123:Sending Company PLC+9876543210987:Receiving Company+000528:154952+4+ +ORDHDR+' MHD=1+ORDHDR:9' TYP=0430+ORDHDR' SDT=9876543210987+Receiving Company Ltd.' CDT=1234567890123+Sending Company Plc.' FIL=4+1+000530' MTR=6' MHD=2+ORDERS:9' CLO=1111222233334:APLACE+Customer Info' ORD=000199::000530' DIN=+++DELIVERY 06/10/00:Please Telephone our Goods In:on (01751) 313224 to arrange delivery.:TO-FOLLOWS Allowed.' OLD=1+1234567890123+5555555555555+:20-25246+1+140+111111+++Product 1:50' OLD=2+1234567890321+6666666666666+:23-25427+1+120+122222+++Product 2:50' OLD=3+1111111111111+7777777777777+:12-39161+1+202+22223+++Product 3:50' OLD=4+2222222222222+8888888888888+:12-12345+1+120+33332+++Product 4:220' OTR=4' MTR=10' MHD=3+ORDTLR:9' OFT=1' MTR=3' MHD=4+RSGRSG:2' RSG=4+1234567890123' MTR=3' END=4'

TRADACOMS

- ISA*00* *00* *01*123454321 *01(Continued) *012341234 *031016*2359*U*00401*987600111*0*P*: \GS*RA*123454321*012341234*031016*2359*987600111*X*004010 \ST*820*987600111 \BPR*C*77.77*C*ACH*CTX*01*234056789*DA*0099109999*(Continued) *123454321*01*045678099*DA*1008973899*031016 \TRN*1*0310162359 \REF*AA*EDI6 \N1*PR*WHIZCO OF AMERICA INC \N3*55 MEGAPLEASANT ROAD*SUITE 999 \N4*SUPERVILLE*NY*10954 \N1*PE*YOWZACO \ENT*1 \RMR*AP*1111111111111111*PO*11.11 \RMR*AP*2222222222222222*PO*22.22 \RMR*AP*4444444444444444*PO*44.44 \DTM*055*031016 \SE*000000014*987600111 \GE*1*987600111 \IEA*1*987600111\

X12

Examples maybe fragments ;Linefeeds and "(Continued)" notes inserted for clarity

WebSphere Transformation Extender versatility with EDI Packs

- **Industry Subset Type Trees**
  - Trim the Type Tree to contain only needed transaction types
  - Improves performance and development times
- **Multi-Version Type Trees**
  - Combine multiple ANSI version trees together for specific transactions
  - All mappings for a single transaction can use same Type Tree
- **Multi-Partner Type Trees**
  - Handle Multiple Partner Transmissions based on Partner Information
  - Allows mapping of individual partners
- **Multi-Standard Type Trees**
  - Combine multiple EDI standards in one Type Tree (e.g., x12 & EDIFACT)

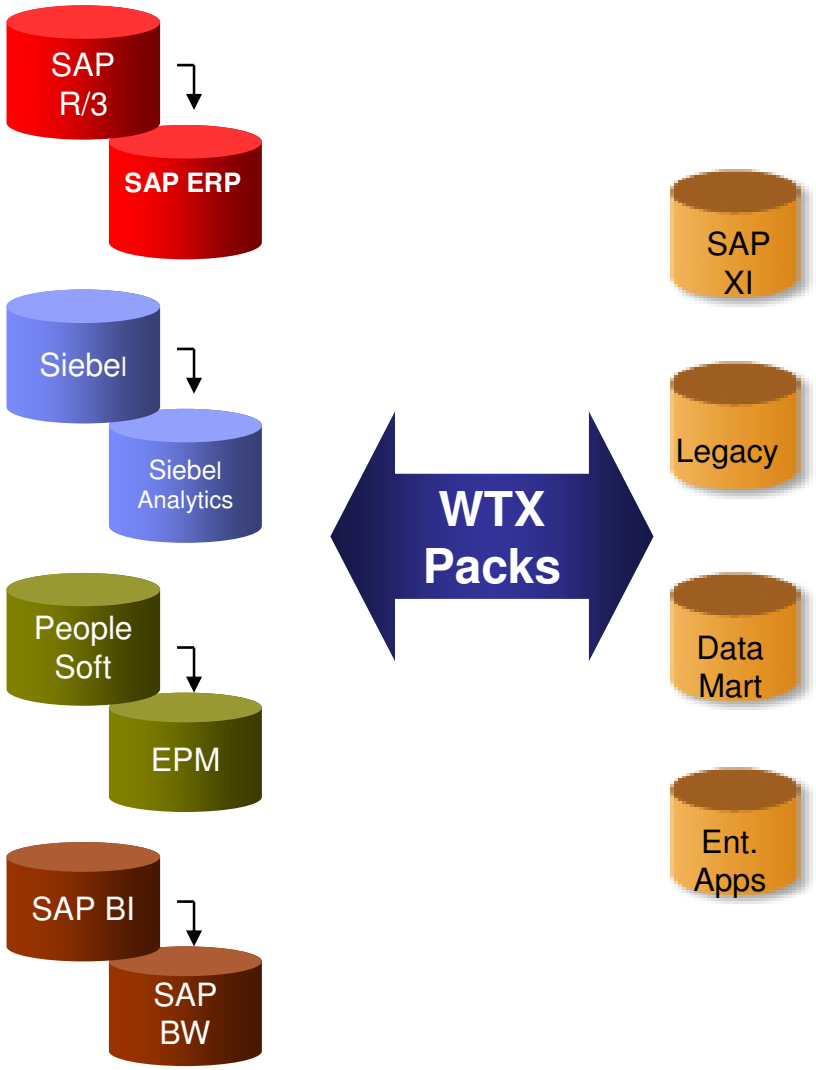
Importance of Validation with Complex Data

"After you receive the electronic remittance advice from the primary payers, send the other payers' claim information to xxxxx using the 837 version 4010 format. For MSP claims, place the primary payer paid amounts, in loop 2300, qualifier HIXX-1 = BE. Place the value codes in HIXX-2 and the (value code) monetary amounts in HIXX-5. NOTE: In regard to Value Code 44, Obligated to Accept as Payment in Full (OTAF) amount, indicate a value of "Y" in loop 2320, segment OI03. This will inform xxxxx that an OTAF amount is present on the claim and the amount can be found in the 2300 loop HI segment."

- Room for human error interpreting and coding guidance.
- Flexibility for users in standard formats can equate to complexity for maintenance.
- WebSphere Transformation Extender is a solution that can quickly adapt to changing requirements and minimize the impact and cost of change on your business applications.

Enterprise Application Packs

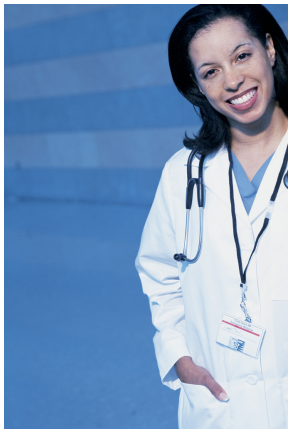
- *Provide packaged connectivity to enterprise applications for ERP, CRM, EPP, and BW*
- *Packs minimize the need for specific application knowledge for transformation mapping development*
- *And expedite the time to value of your enterprise integration project, control and manage metadata*
- *Extract from and Load enterprise application data into any target*
  - *databases*
  - *datamarts & warehouses*
  - *other enterprise applications*
  - *Enterprise Service Bus*
  - *Process Management Server*



Industry Packs

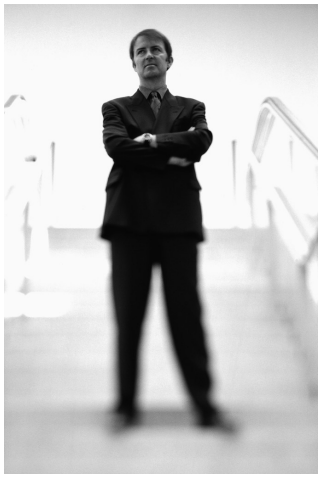
- *Accelerate solution delivery when integrating industry standard formats for exchanging information*
- *Pack templates can dramatically reduce the time to create validation rules based on industry guidelines and rulebooks*
- *Independent of in-house connectivity, applications and data stores, templates are easily customized for in-house needs*
- *On-going maintenance reduced with periodic updates as standards evolve*
  - *Migration to XML*
  - *Version updates*

Insurance



Healthcare

Financial Services



Commerce

New Pack: ACORD

- Introduced December 2007
  - Association for Cooperative Operations Research and Development www.acord.org
  - ACORD standards are in use with insurance and reinsurance companies, agents and brokers, financial services organizations, and software providers.
- Life & Annuity
  - includes Life Reinsurance and Saving vehicles Versions 2.15.00, 2.15.02, 2.16.90 supported in Pack
- Property & Casualty/Surety
  - Versions 1.3.1,1.4.1,1.5.0,1.6.1,1.7.0,1.8.0,1.9.1,1.10.1 supported in Pack; (not V2.x)
- AL3 Conversion Map to PC/S 1.x
- Sample map for TXLife 2.15.02 to X12 EDI 267 message (267 is an individual life annuity & disability application)

ACORD

Insurance Data Standards

Example AL3 format

```
1MHG176 6 IBM312ASTEST2     IBM312ASTEST2
     APPPAC00710000020310210000000000          700                                    20031021
2TRG212 6 70FIM71    3P PAUTO FMGIR3B
     MARSDO3C-1              09050310210905    0307271NBS                  A2003102120030727
2TCG135   3024032040920519221043020
5BIS172 1 B10001             CDoyal E Marshall
     MARSDO3C-1
9BIS168 1 B10001             10189 Ridge Road                                Downingtown
     VA2271296535409615287                Lauquier
5ISI183 7 B200015BISB10001                                                              04
5GNA300 1 B300015ISIB20001          17
5GNA300 1 B300025ISIB20001          04  C
5GNA300 1 B300035ISIB20001          07  C
5BPI285 9 F100015BISB10001    5345  082036                  23787 AUTOP 030727040127
     00000124730              P
     2007072720080127
5GIG098 3 F200015BPIF10001    ACORD90FL 020101        NN                  20070101
```

Example of ACORD XML

PC&S

```
<?ACORD version="1.3.0"?>
<ACORD>
    …
    <InsuranceSvcRq>
      <RqUID>C10C1547-D7E0-4DDE-90F3-9443DA218AC6</RqUID>
        <PersAutoPolicyQuoteInqRq>
            <RqUID>D6CD84B6-1B01-48C5-8FB5-D6BB2EFA1A40</RqUID>
            <TransactionRequestDt>2006-03-22T15:03:00</TransactionRequestDt>
            <TransactionEffectiveDt>2006-01-01</TransactionEffectiveDt>
            <CurCd>USD</CurCd>
            <Producer>
              <GeneralPartyInfo>
```

TXLife

```
<?xml version="1.0" encoding="UTF-8" ?>
 <n:TXLife xmlns:n="http://ACORD.org/Standards/Life/2">
 <n:UserAuthRequest>
      <n:UserLoginName>DEMO</n:UserLoginName>
       <n:UserPswd>
            <n:CryptType>NONE</n:CryptType>
            <n:Pswd>DEMO</n:Pswd>
    </n:UserPswd>
     <n:UserDomain>forc=YES,verb=YES,genprefix=APDMO
      </n:UserDomain>
     <n:VendorApp>
        <n:VendorName VendorCode="35">abc Life
      Demo</n:VendorName>
        <n:AppName>abc Life Demo</n:AppName>
        <n:AppVer>1.00</n:AppVer>
    </n:VendorApp>
   </n:UserAuthRequest>
   <n:TXLifeRequest id="TXLifeRequest10">
    <n:TransRefGUID>2004-1217-141016-
      000020</n:TransRefGUID>
    <n:TransType tc="103">New Business
      Submission</n:TransType>
```

(These are fragments)

Integration Challenges of SEPA

- Single Euro Payments Area - Pack enhanced December 2007
  - SEPA's data set (ISO 20022, a.k.a. UNIFI) is large, complex, and requires more than basic XML schema handling
  - SEPA's rulebooks require not only format level compliance, but message content validation and implementation rule logic
  - Anticipated changes and updates to the SEPA Schema and Implementation Guidelines introduce risk to bespoke solutions
    - June 2007 guidance now implemented.
    - SEPA to MT 101,102,103 conversion map samples
- WebSphere TX is used to mediate between existing applications and the SEPA Message Service provider
  - SWIFT payments
  - Local country domestic formats (eg DTAUS, BACS, MINOS)
  - Internal business applications - Mainframe or UNIX
  - Internal Extended SWIFT and Domestic Formats.

New Pack - NACHA

- Pack available from December 2007
- NACHA is the National Automated Clearing House Association (www.nacha.org) in the USA
- NACHA is a not-for-profit organisation of financial institutions and payment institutions that develops operating rules and governance practices for the Automated Clearing House (ACH) network
- NACHA is used by more than 15,000 participating financial institutions and over 750,000 corporations
- Primarily has been used in a store-and-forward approach to integration.

NACHA
The Electronic Payments Association™

FInancial eXchange Protocol (FIX)

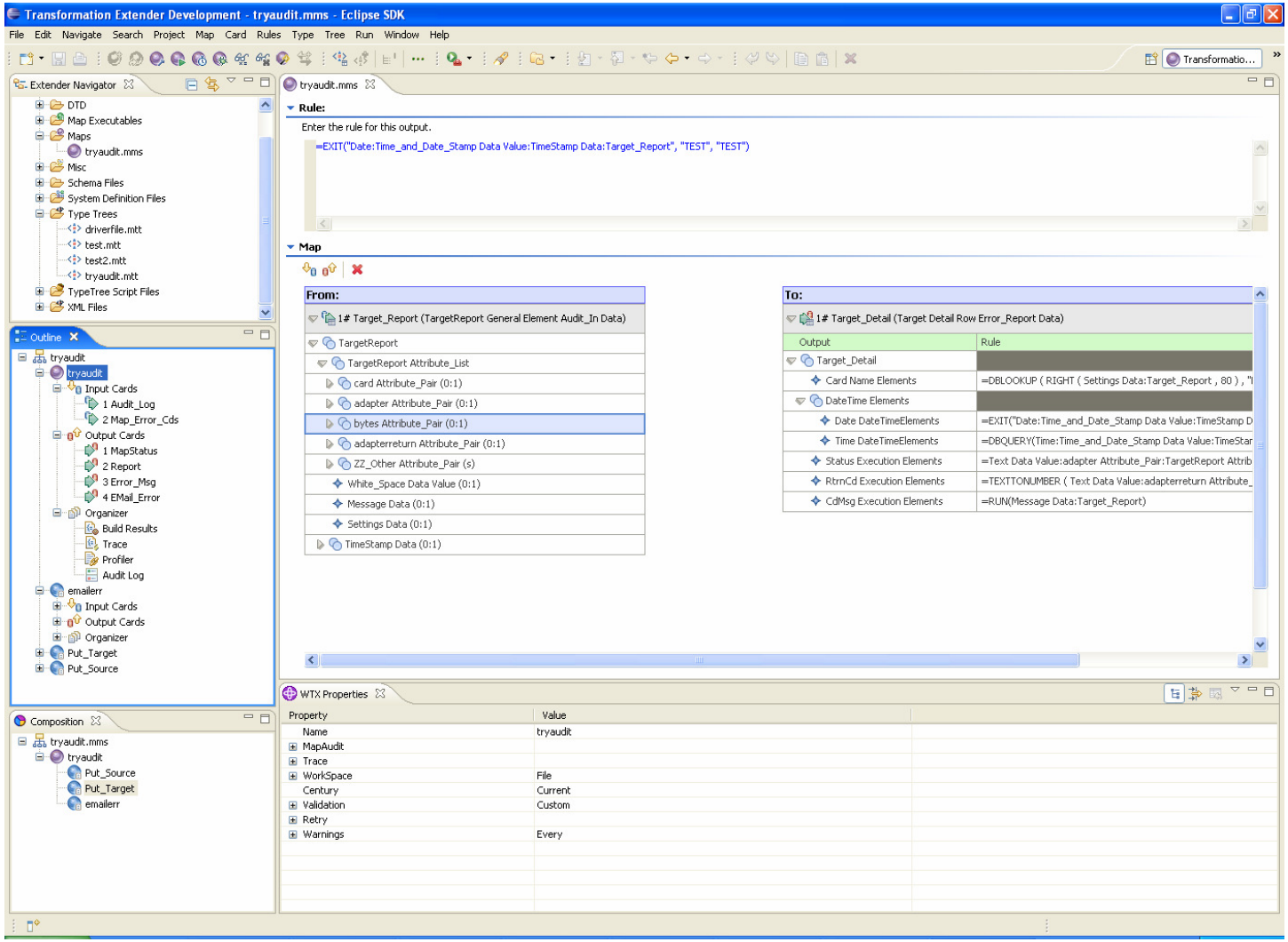
- New Pack being readied for Q1 2008
- A message standard developed to facilitate the electronic exchange of information related to securities transactions. www.fixprotocol.org/specifications/
- an open standard that can be structured to match the business requirements of each firm.
  - (e.g. bilateral agreed customizations)
- The syntactic formats supported by different versions of FIX include:
  - **Tag=Value**
    - 8=FIX.4.19=11235=049=BRKR56=INVMGR34=23552=19980604-07:58:28112=19980604-07:58:2810=157
    - FIX 4.0, 4.1, 4.2, 4.3, 4.4, 5.0
    - FIXT 1.1 (session layer of FIX 5.0)
  - **XML**
    - DTD based FIXML 4.1, 4.2, 4.3, 4.4
    - Schema based FIXML 4.4, 5.0

Note: Forward looking statements from IBM are subject to change without notice

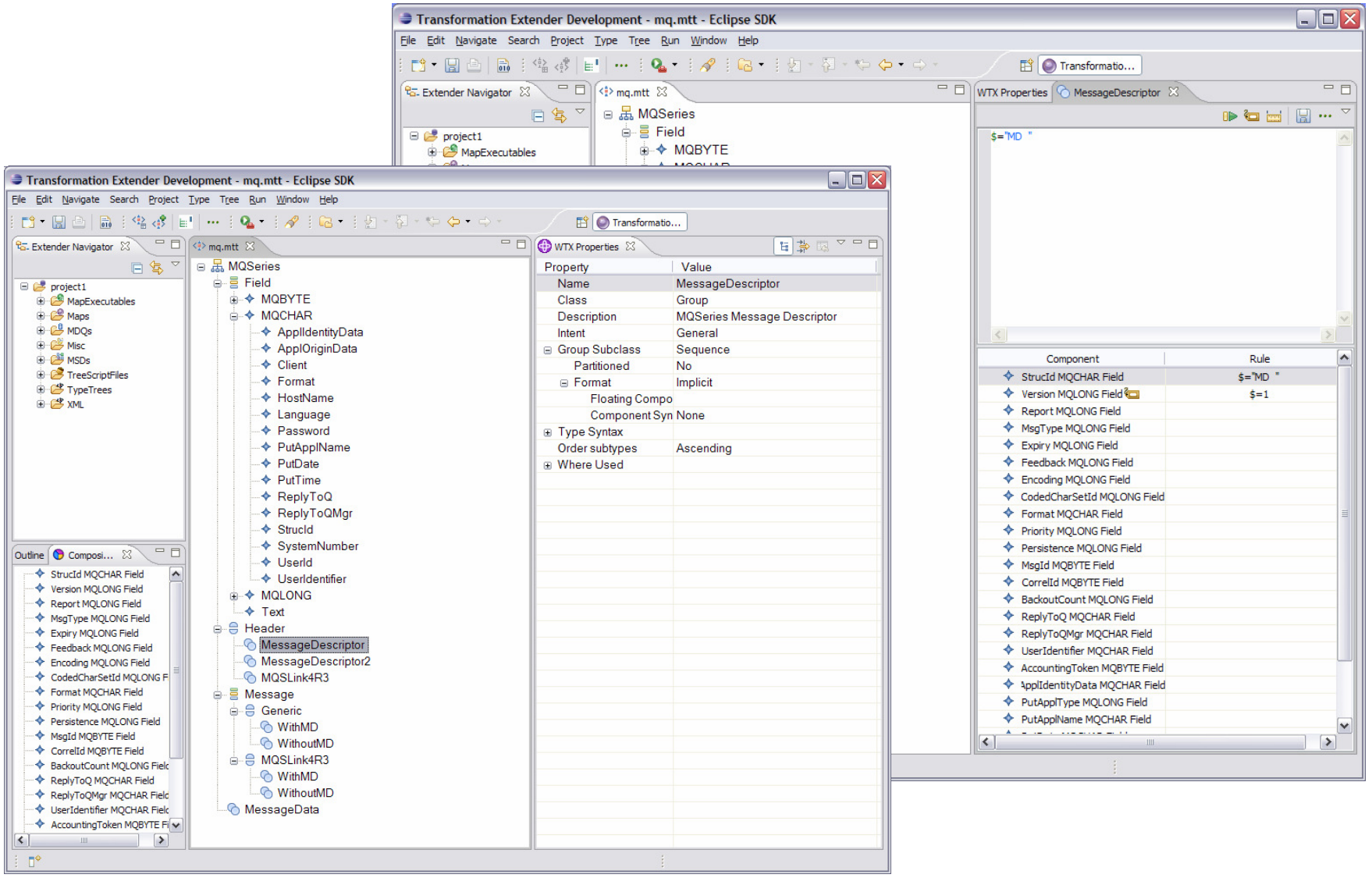
WebSphere TX v8.2 Release Features — Platforms

- **Development**
  - Windows
- **Run time 32 bit**
  - Windows
  - IBM AIX®
  - Red Hat Enterprise Linux™ for x86 platforms
  - SUSE Linux Enterprise
  - HP-UX 11i (PA-RISC) or 11i V2, V3 (Itanium)
  - Sun Solaris
  - z/OS 1.4 or later (batch, USS, IMS, CICS)
- **Run time 64 bit tolerance "*new*"**
  - IBM AIX®
  - Red Hat Enterprise Linux™ for x86 platforms
  - SUSE Linux Enterprise
  - HP-UX 11i (PA-RISC) or 11i V2, V3 (Itanium)
  - Sun Solaris
  - Linux on System z **"new"**

Design Studio facelift with Eclipse *Tooling*



Type Designer

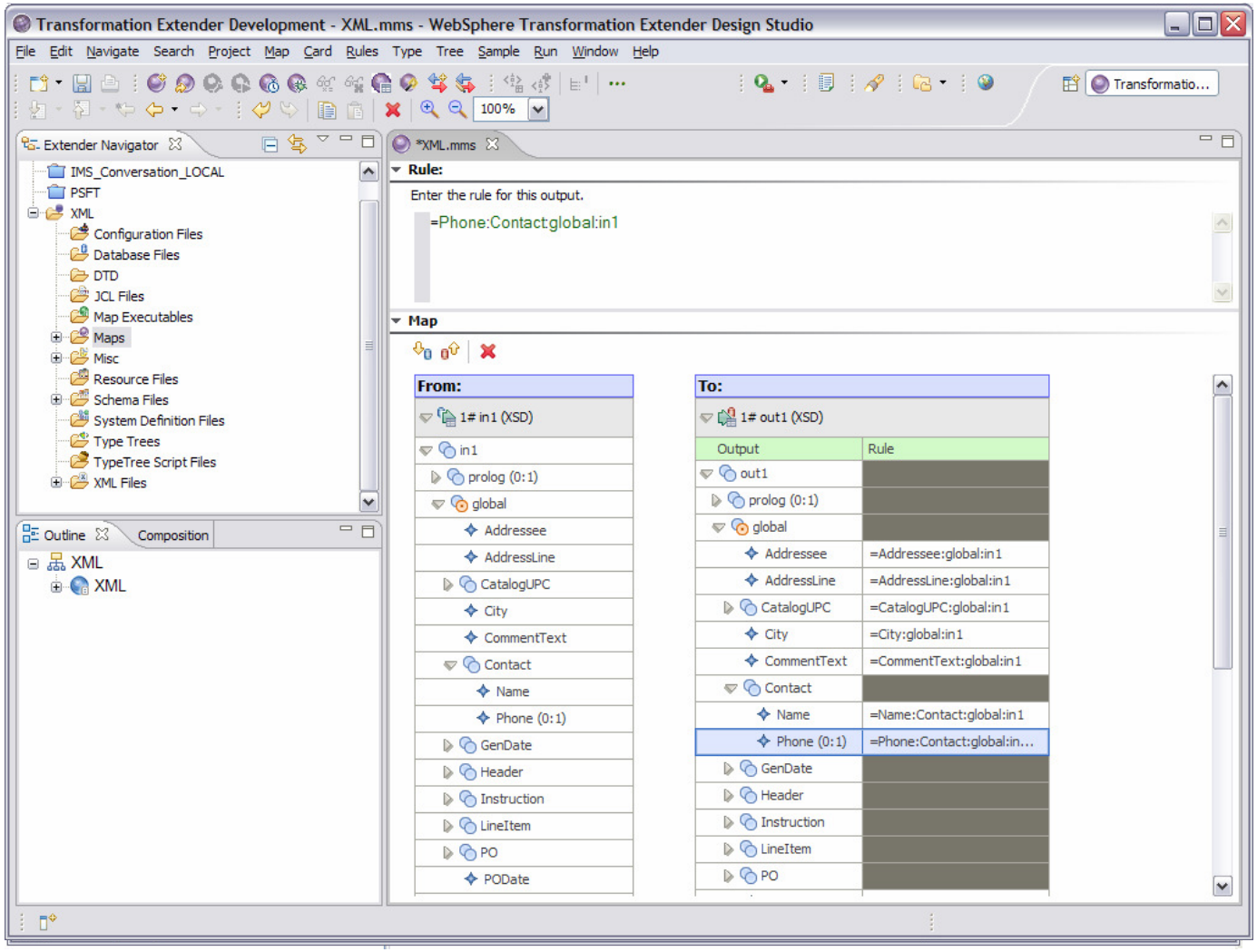


WebSphere TX v8.2 Release Features — XML

- Native support added for XML Schemas
  - Restart and reject logic is added for XML Type Trees
  - With restart enabled, the XML validation log file now reports all validation errors, it doesn't stop at the first error.
- Schema location setting for Cards
  - Card Metadata Location parameter
  - Allows you to specify the location of your schema (as a file or url)
  - Prior to v8.2 the information was only in XML Type Trees (Intent/Validate As/Location on the 'Doc' group)
- Schema validation can be disabled on a per Card basis
  - via a new Card property option
  - Document Verification / Well Formed

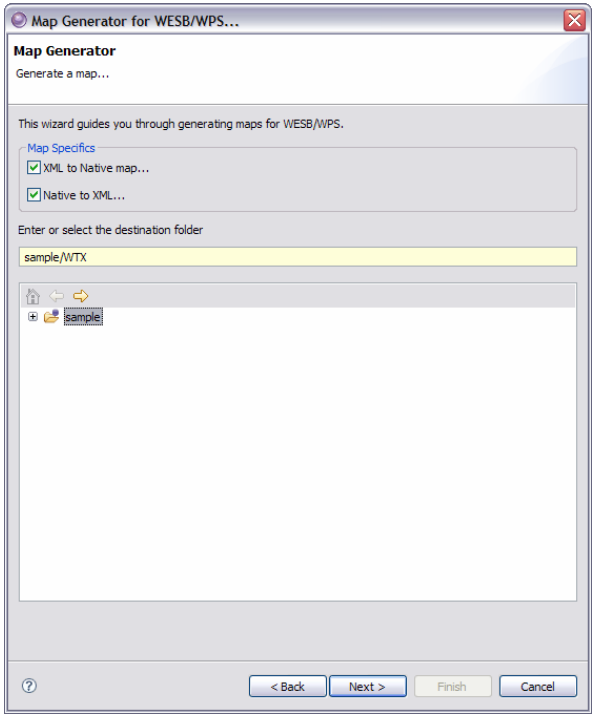
Native XML Schema Usage

- Create a map
- Create a card
- Choose a schema
- Choose a root
- It looks like a Type Tree
- Output cards work too
- Map away !



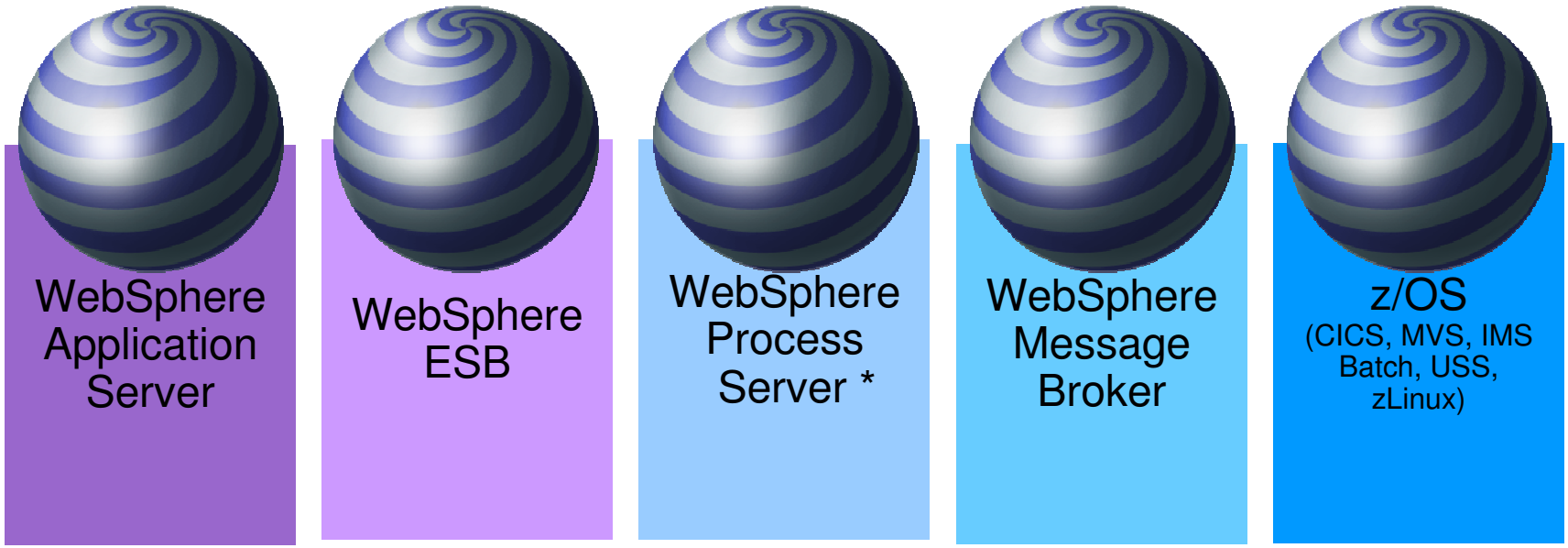
WebSphere TX for Integration Servers Editions

- 2 Extenders
  - **WebSphere Message Broker**
    - available as TX Node for use in Message Flows
    - executes Maps designed with WTX Studio.
    - Rule based alterative to Compute Node.
  - **WebSphere Process Server /WebSphere ESB**
    - WebSphere TX can be selected as a Data Binding on JMS, MQ, HTTP or EIS Imports or Exports
    - Maps typically convert between external data formats and Business Objects
    - Map Generator a new Eclipse based Wizard
    - Simplifies development of maps
    - Business Objects are converted to 'Type Trees' (technically 'schemas')
    - Projects (including their maps) are easily deployable using standard WPS and WID mechanisms
    - The Wizard integrates WTX Design Studio with WebSphere Integration Developer



WebSphere Transformation Extender extending the IBM Platform on System z

Leveraging common tooling and runtime, for multiple, interoperable, deployment options



* Included in WebSphere Business Services Fabric

Complex Data requires Powerful Capabilities

- ***Code-Free Design and Deployment***
  - *There is no "language" to TX, the transforms and data process are all maintained within the spreadsheet-like GUI, and you never need to drop down to writing code to handle complex transforms. You create portable "transformation objects".*
- ***Self-describing Data Model***
  - *WebSphere TX uses data in its native format, and has a unique mechanism for describing data in its native form. WebSphere TX is able to handle complex and mixed data types using one design environment*
- ***Data Validation as part of the transformation process***
  - *data is validated to content rules and context usages as part of the transformation process. You do not need to write separate logic or have separate executions in order to provide extremely rich data validation*
- ***High-Throughput of Complex Transforms and Enhancements***
  - *WebSphere TX has a unique many-to-many model of transforming and processing data, which allows it to execute all transforms, lookups and data enrichments with only one pass at the data, making it one of the most performing transformation engines on the market*
- ***One Engine – Mature – with Multiple Deployment Options including Z***
  - *Using the same design environment, you can deploy transformation to a number of runtime environments including ,embedded, standalone batch and event driven scenarios across a number of OS platforms.*

WebSphere Transformation Extender Business Value

- **IT**
  - **Eliminate custom integration programming for transforming data**
  - **Avoid costly changes to applications written to older industry standard**
  - **Improve quality assurance by validating information exchanges outside applications.**
  - **Reduced time and cost – Maintaining interfaces to evolving standards**
  - **Fewer IT backlogs with code free maintenance**

- **Business**
  - **Time to Market**
  - **Business Agility**
  - **Meet Regulatory Compliance obligation**
  - **Meet SLAs with trading partners**
  - **Maximise return on investment year on year**

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For additional resources visit:

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  www.ibm.com/software/integration/wbiadapters
- Adapter requirements
  http://www-1.ibm.com/support/docview.wss?uid=swg27006249
- Download WebSphere Adapter Toolkit
  http://www-306.ibm.com/software/integration/wbiadapters/toolkit/
- IBM Partner Adapters in IBM SOA Business Catalog
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- WebSphere Transformation Extender website
  www.ibm.com/software/integration/wtx

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