IBM Software Group

# Securing the New World

*Global Business Transformation*

## EDIINT Solutions with WDI

Steve Nowland

WebSphere. software

e business software

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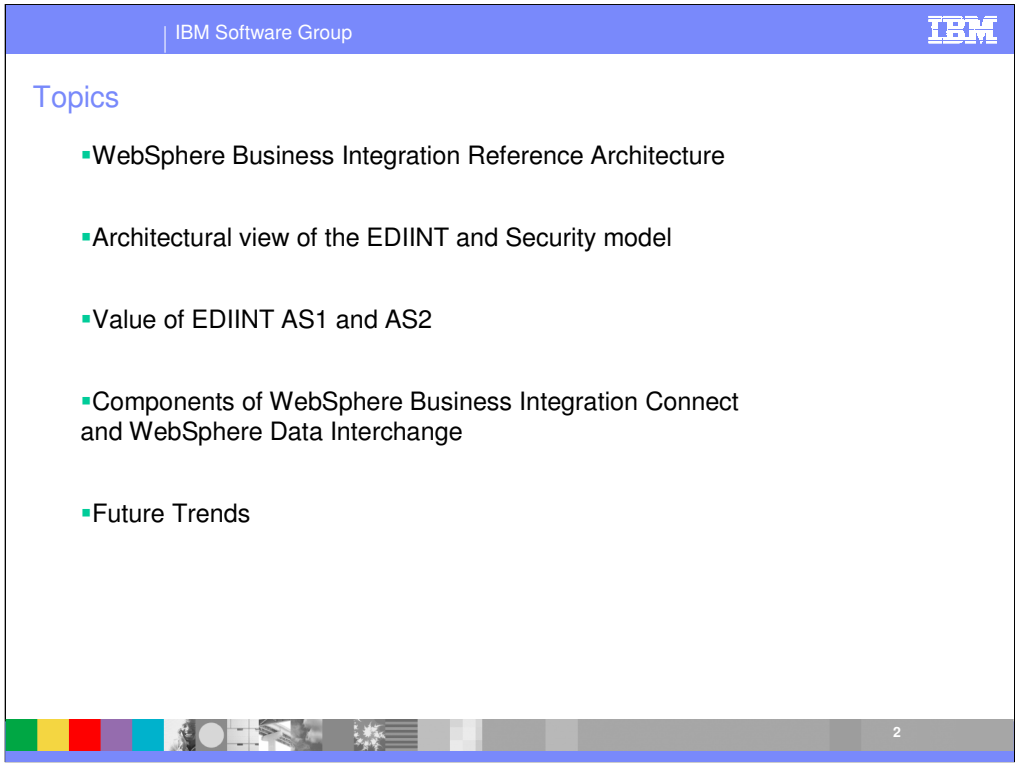
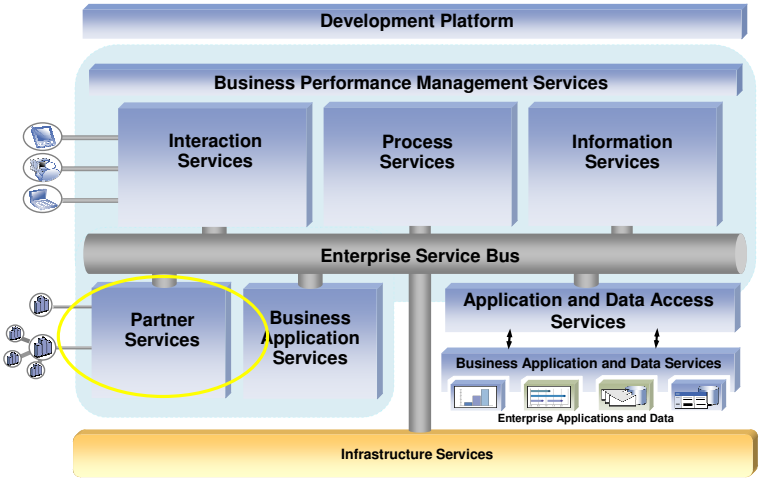


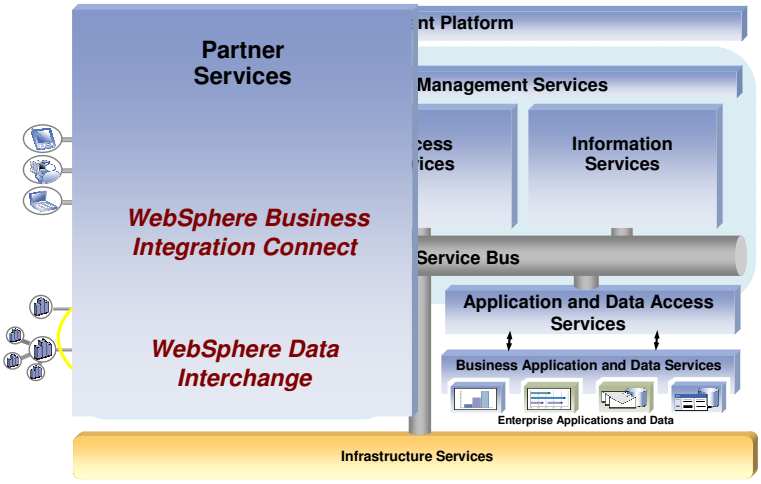

**Topics:**

The purpose of this session is to introduce you to the WebSphere Business Integration Connect enabling EDIINT for WebSphere Data Interchange.

# Business Integration Reference Architecture

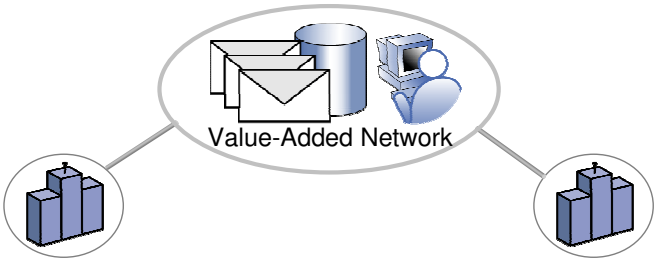


# Business Integration Reference Architecture



## Business-to-Business Models

- First generation Business-to-Business
  - Electronic Data Interchange (EDI), used to transmit business elements in an electronic form over VANs
    - EDI provides a way to normalize data into a form that represents business transactions such as Purchase Orders, Invoices and Advance Ship Notices
- Second generation Business-to-Business
  - VANs start selling translation software to customers cutting the translation cost and moved some business to software maintenance model.
  - Software had links to the VAN for connectivity to retain customers.

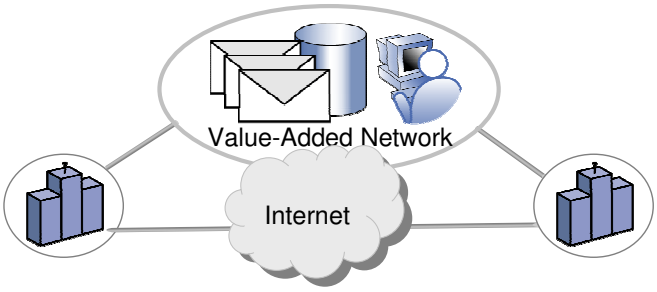





A value-added network (VAN) is a private network provider (sometimes called a turnkey communications line) that is hired by a company to facilitate electronic data interchange (EDI) or provide other network services. Before the arrival of the Internet, some companies hired value-added networks to move data from their company to other companies.

## Business-to-Business Models

- Third generation Business-to-Business (Hybrid)
  - Introduces the Internet using secure Internet protocols (EDIINT, SSL, SSH, VPN) or “extranets”.
  - Provides Peer-to-Peer communications eliminating the use of VAN connectivity
  - Translation software required on both ends
  - 80 percent of EDI Business-to-Business still transferred through VANs






With the arrival of the Internet, many companies found it more cost-efficient to move their data over the Internet instead of paying the minimum monthly fees and per-character charges found in typical VAN contracts. In response, contemporary value-added network providers now focus on offering EDI translation, encryption, secure e-mail, management reporting, and other extra services for their customers.

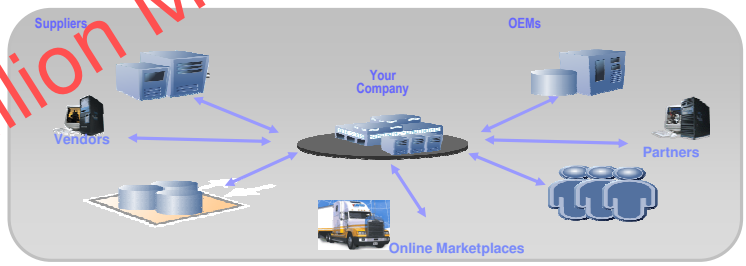
## Technical Challenges

- Platforms – AIX, Linux, Solaris, Windows, OS/400, z/OS…
- Integration – 3 Generations
  - ETL – Extract Transform and Load
  - EAI – Enterprise Application Integration
  - ESB – Enterprise Service Bus
- Security – PKI, Self-Sign Certificates, Firewall…
- Service Providers – VAN, Vertical Market Places

## Business Challenges

- Reduce Communication Costs
- Speed to Enable Partner Connections
- Management of Partners from a Single Gateway
- Reporting and Tracking

Million Moving Parts



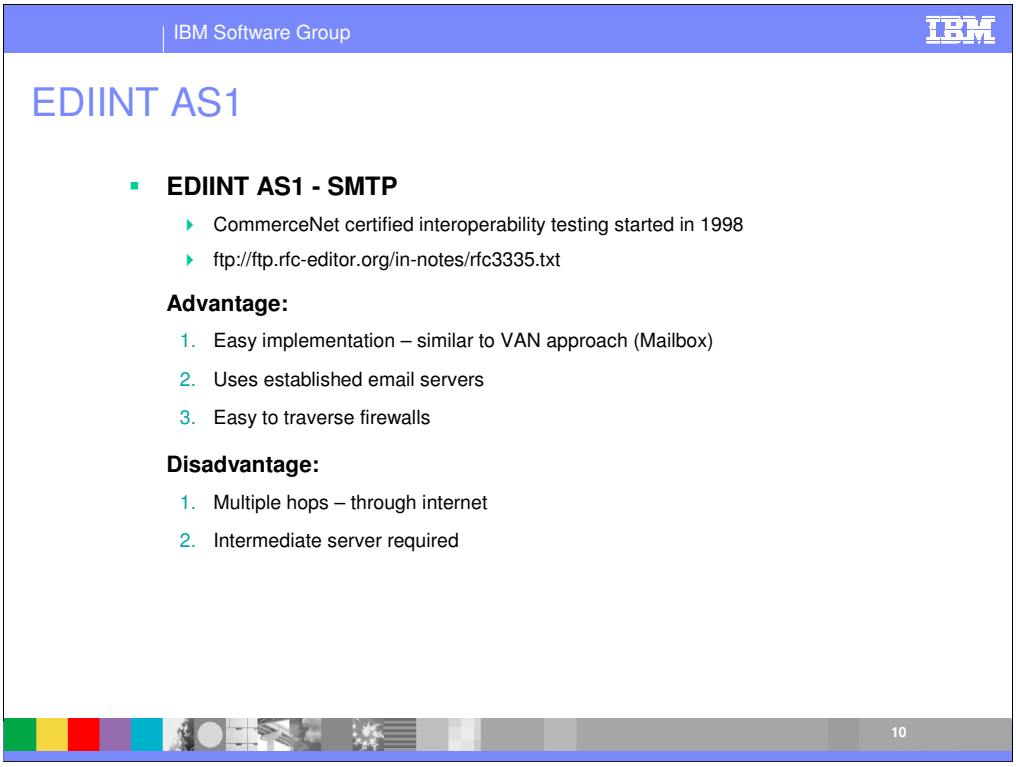
# Internet Business-to-Business Challenges

- Persistent Internet connectivity
  - An established connection to the corporate infrastructure
- Providing the necessary capabilities for secure, assured delivery of data to trading partners
  - **Confidentiality** – encryption so the intended recipient only views message
  - **Authentication** – message is sent and received to/from correct partner
  - **Integrity** – message has not been tampered with during transmission
  - **Non-repudiation** – assures delivery of tamperproof message

    * easy way to remember these services is through the acronym C.A.I.N
- Digital certificates are still a new concept to companies

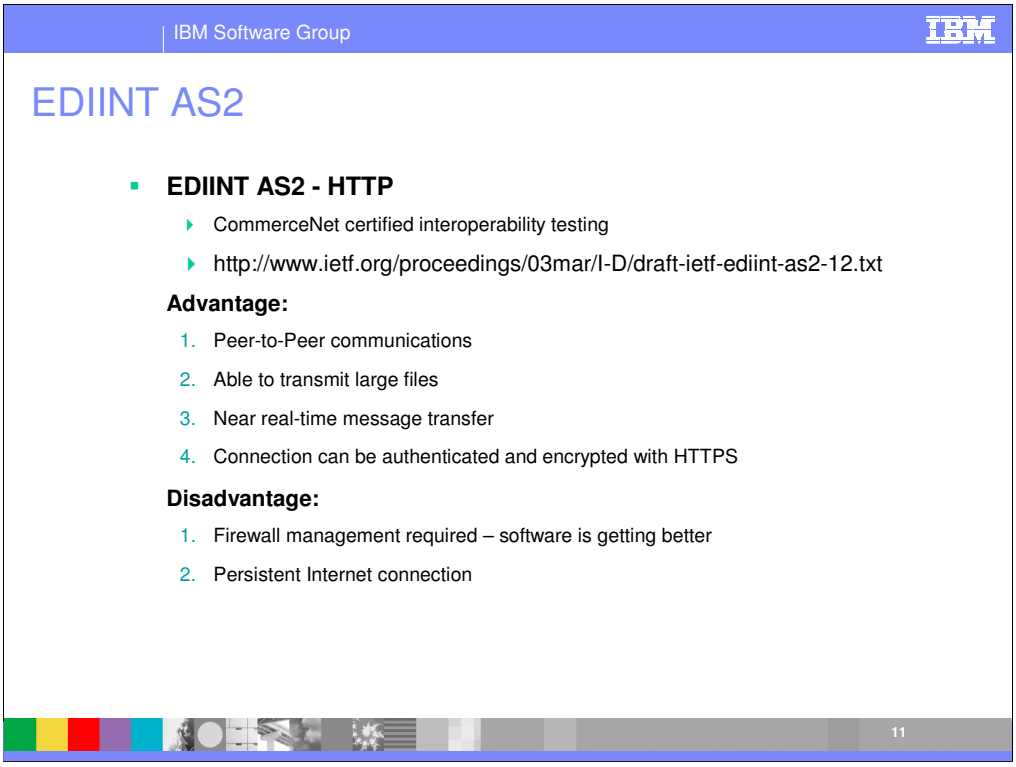
# Get connected to the future – What is EDIINT?

- Electronic Data Interchange – Internet Integration (EDIINT)
- Working Group of the Internet Engineering Task force (IETF) to provide for multi-vendor, inter-operable exchange of business documents among organizations over the Internet
- **EDIINT AS1 - SMTP**
  - eBusiness Ready Certified Interoperability www.ebusinessready.com
  - ftp://ftp.rfc-editor.org/in-notes/rfc3335.txt
- **EDIINT AS2 - HTTP**
  - eBusiness Ready Certified Interoperability www.ebusinessready.com
  - http://www.ietf.org/proceedings/03mar/I-D/draft-ietf-ediint-as2-12.txt



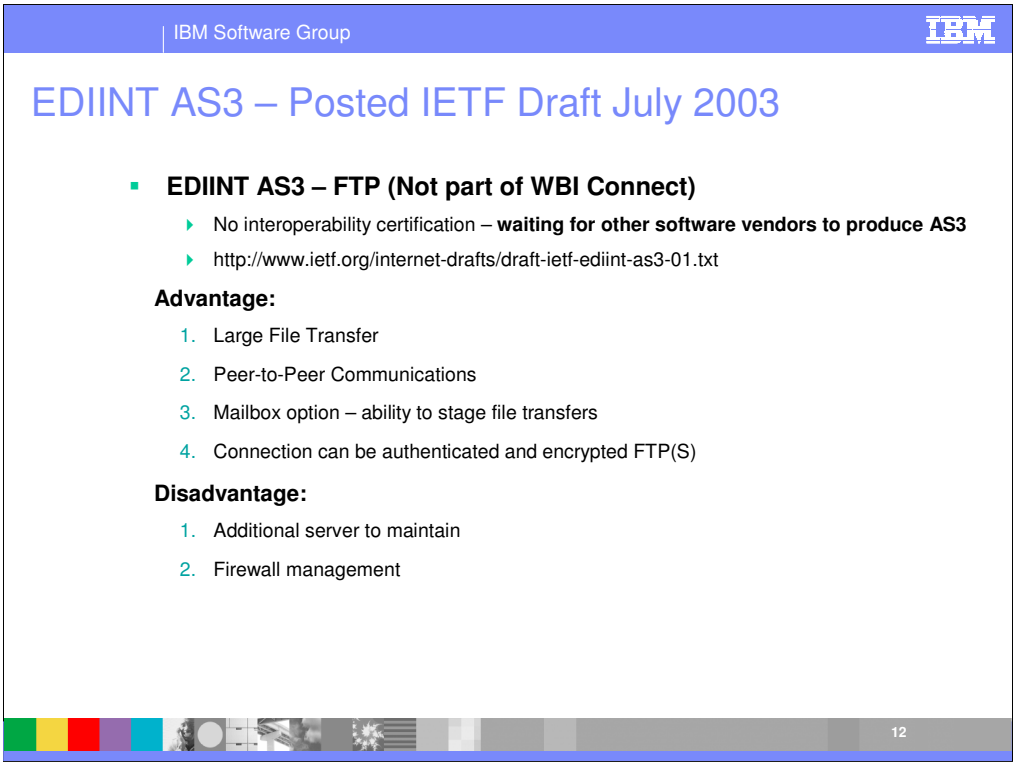

Advantage and Disadvantage

Use AS1 when there is a need for simple implementation through existing infrastructure.




Advantage and Disadvantage

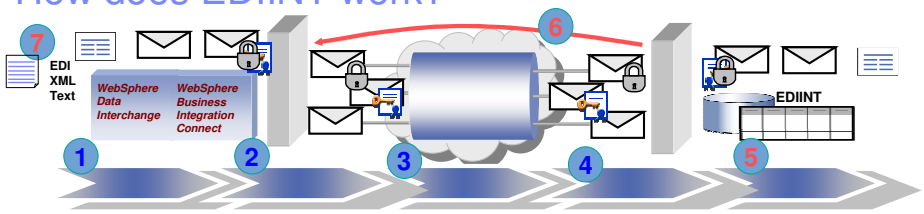
Use AS2 when there is a need for FIFO and/or Synchronous acknowledgements.




Advantage and Disadvantage

Use AS3 (not available in WBIC 4.x) when there is a need for interoperable FTP with S/MIME and non-repudiation.

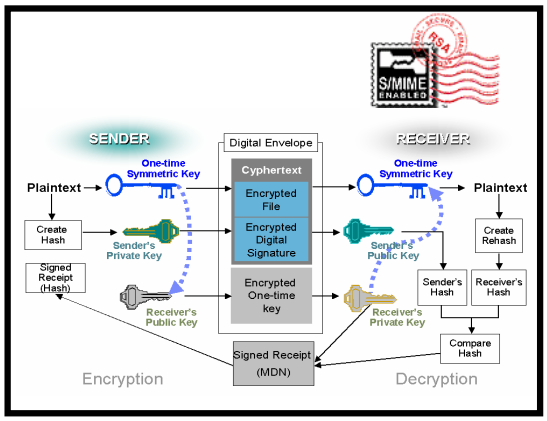
# How does EDIINT work?




1. Translate a document
2. Apply Profile Management & Security
3. Communication Management
4. Authentication
5. Decryption / Validation
6. Non-repudiation of receipt
   Message Disposition Notification (MDN)
7. Message Signals, Events and Reporting to applications

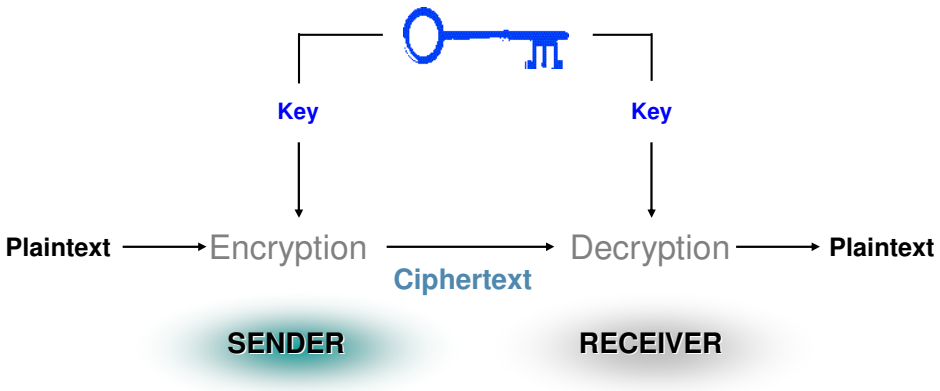
# EDIINT Provides Secure Packaging

- **Basic S/MIME packaging**
- **Provides standards based security**
  - Privacy/Confidentiality
  - Authentication
  - Integrity
- **EDI-INT added:**
  - Non-Repudiation (Digital Receipt)
    - aka - Message Disposition Notification (MDN)
  - Tested for Interoperability
- **Uses Digital Certificates**



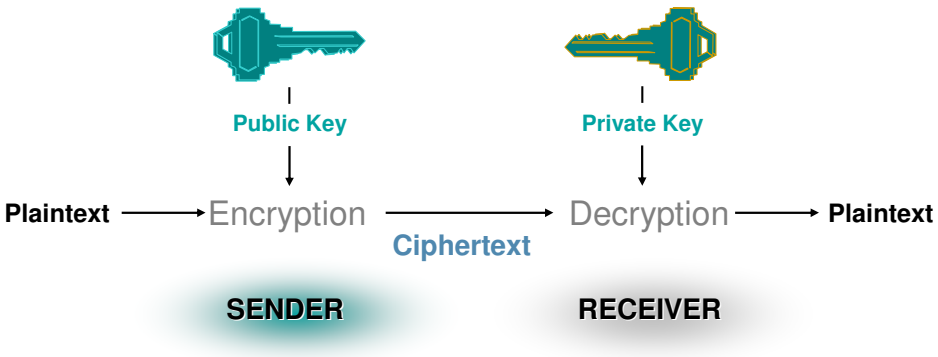
# Security Overview

Symmetric Key Encryption



# Security Overview

Asymmetric Key Encryption



# Comparison of Encryption Techniques

## Symmetric Keys

- Advantages
  - Fast
  - Simple
- Disadvantages
  - More difficult to manage*
  - Multiple parties have keys
  - Smaller key lengths

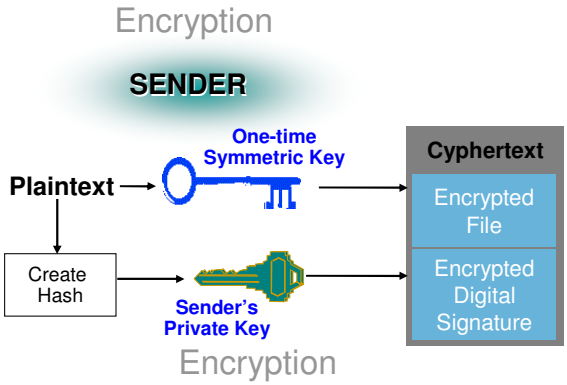
## Asymmetric (Public-Private) Keys

- Advantages
  - Less vulnerable to compromise
  - Longer key lengths
- Disadvantages
  - Slower

# Encryption Algorithms

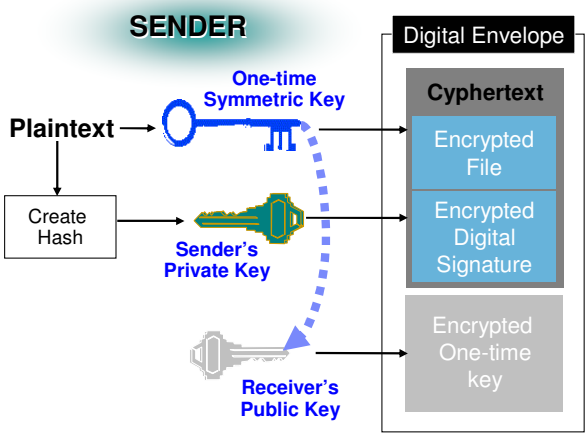
| Algorithm | | Key Length |
|---|---|---|
| Symmetric (Secret) | RC2<br>RC4<br>RC5 | 40, 64, 128 |
| | DES | 56 |
| | Triple DES | 168 |
| Asymmetric (Public/Private) | RSA | 512, 1024, 2048 |

# Security Overview



# Security Overview

## Encryption



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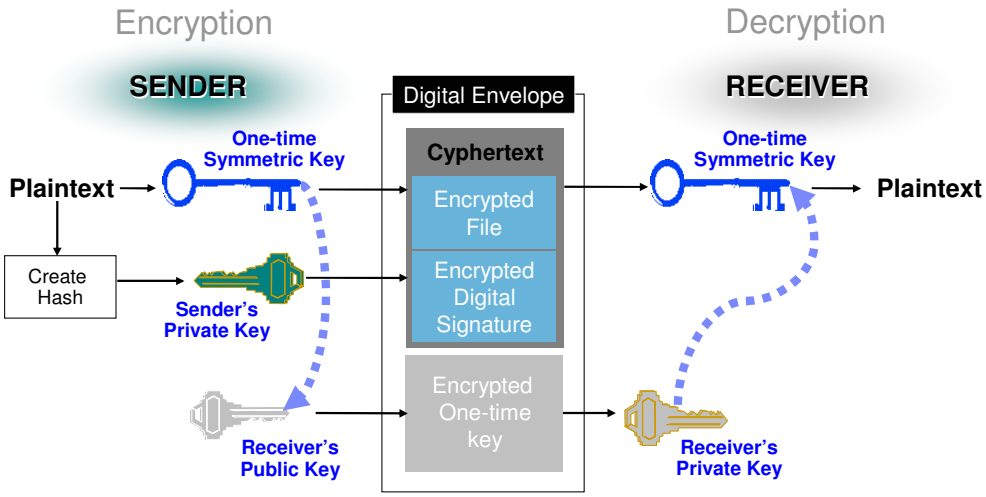

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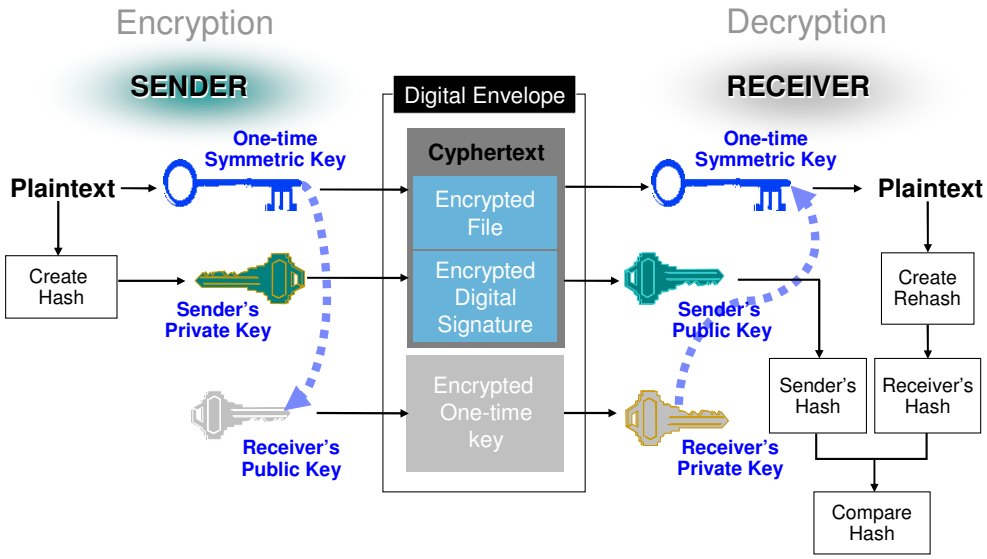

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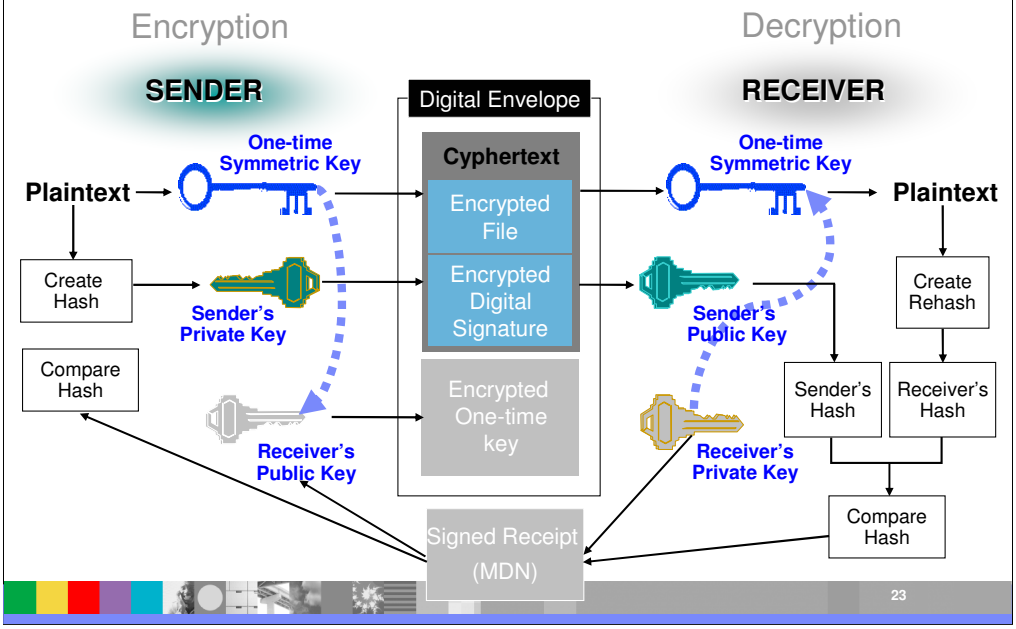


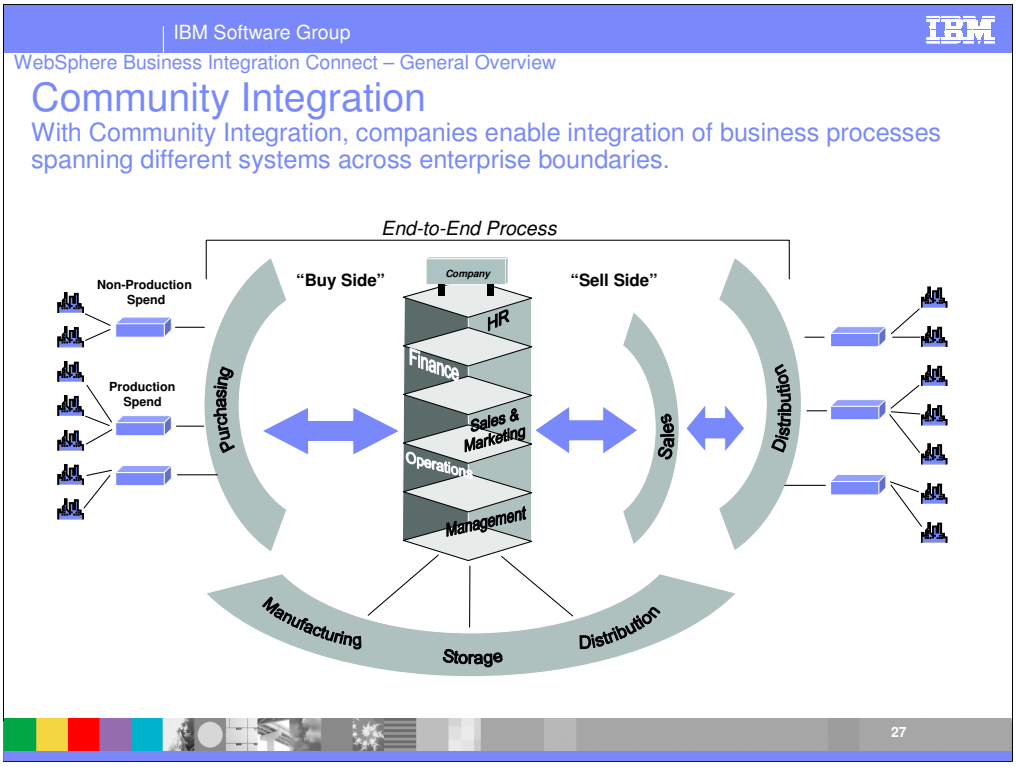
# EDIINT AS1 and AS2 brings value to your trading community.

- Standards for community enablement
- Secure solutions
- Common gateway for business
- Business–to-Business process integration
- EDI over the Internet
- Reduce VAN cost
- Provide a Point-to-Point communication

# WebSphere Business Integration Connect

# IBM's WebSphere Business Integration Connect Value

1. Reduce EDI VAN costs and RosettaNet investments
   - Eliminate EDI VAN costs through direct EDIINT connections
   - Avoid RosettaNet compliancy investment of >$1M
2. Reduce Costs of Manual Order Entry
   - Significantly reduce manual paper, phone, and fax order entry
   - Proven costs savings per order of 50-70%
3. Drive Incremental Sales
   - Improve on-time delivery by 5-10%
   - Pager based alerts for supplier issues or rejected orders
4. Reduce Inventory – Collaborative Supply Chain Planning
   - Rapid trading partner enablement for more collaborative forecasting
   - Increase inventory turns
5. Automate Intelligent Logistics
   - Automate collaboration between 3PL and 4PL providers
   - Reduce unnecessary shipments between manufacturers and warehouses

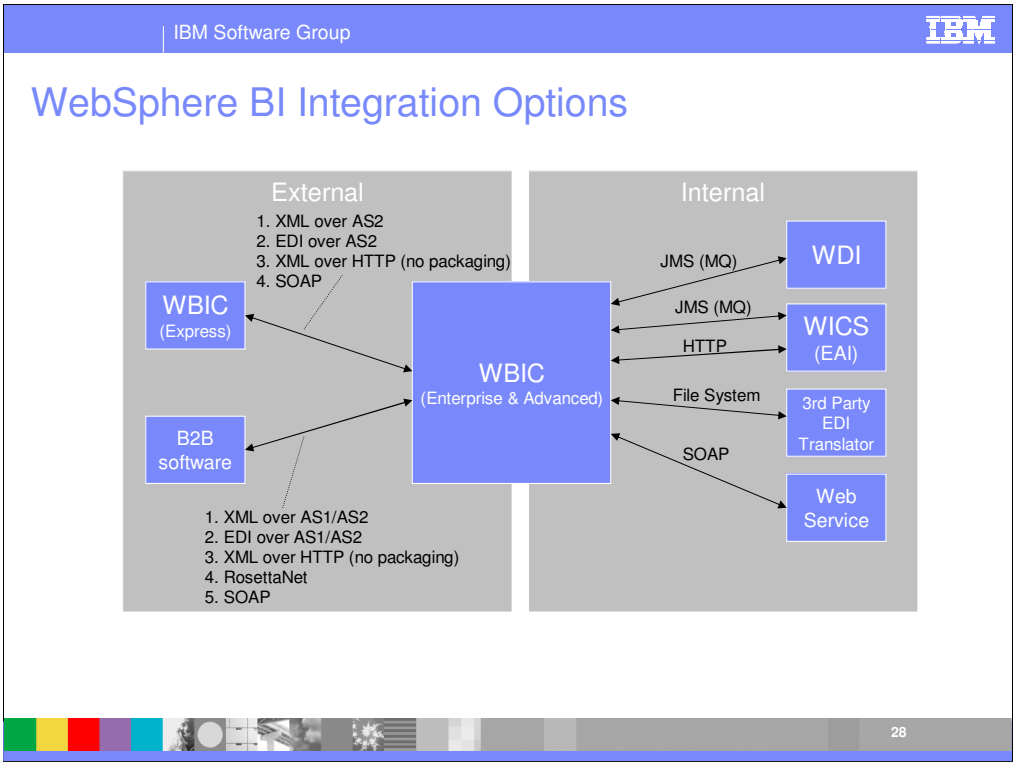



As the line between buy side and supply side becomes more difficult to determine, and partner relationships become more complicated, companies must have a way to remain in control. Each side of the business organisation will have a number of trading partners in the extended, integrated value chain. WBIC 4.2 enables visibility across this entire value chain, irrespective of the partner, wherever they are, and how they are involved. Moreover, this visibility enables the incorporation of people, devices and other more esoteric applications into your business processes, which themselves may span many different departments or business divisions.

Those partners may themselves be part of a separate community and it is at this point that we begin to see the extent to which integrated trading communities are not isolated entities, that they can in fact mean one company having a variety of roles in a variety of different communities.

Community participants can assume a variety of roles within an ecosystem. A community manager is likely to concern itself only with those partners which are directly connected to it, it's first tier suppliers and partners. Many times the community manager will sit at the top of a value chain, and have enough control over its constituents to require their integration participation.

The peer participant, is the largest and most fluid of all. Peer participants will, at different times and according to their business circumstances, assume all the roles possible in an integration community. They will have many relationships both as buyers and suppliers and require high levels of visibility into whichever community they are trading. They need to be able to respond to the conditions in real time in order to maximise their returns




Why is EDI so important?

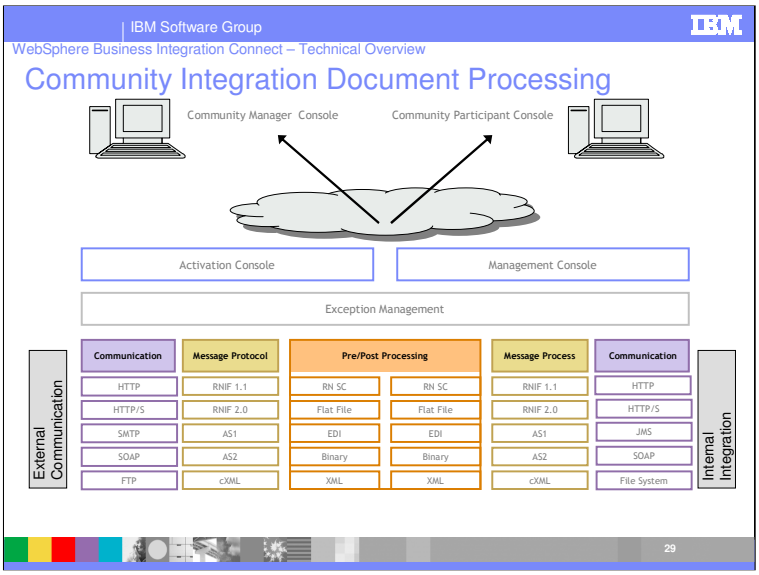
EDI has been in use by companies for over 20 years. Major investments have been made integrating it into their business process and EDI continues to be a mission critical part of B2B strategies.

And, while XML is now in use by many companies, EDI has not been replaced but coexists with XML.

EDI continues to evolve in response to new requirements from the enterprise, competitive pressures and industry initiatives i.e. HIPAA, an implementation of X12 standards and EDI over the Internet using protocols i.e. AS1 and AS2.

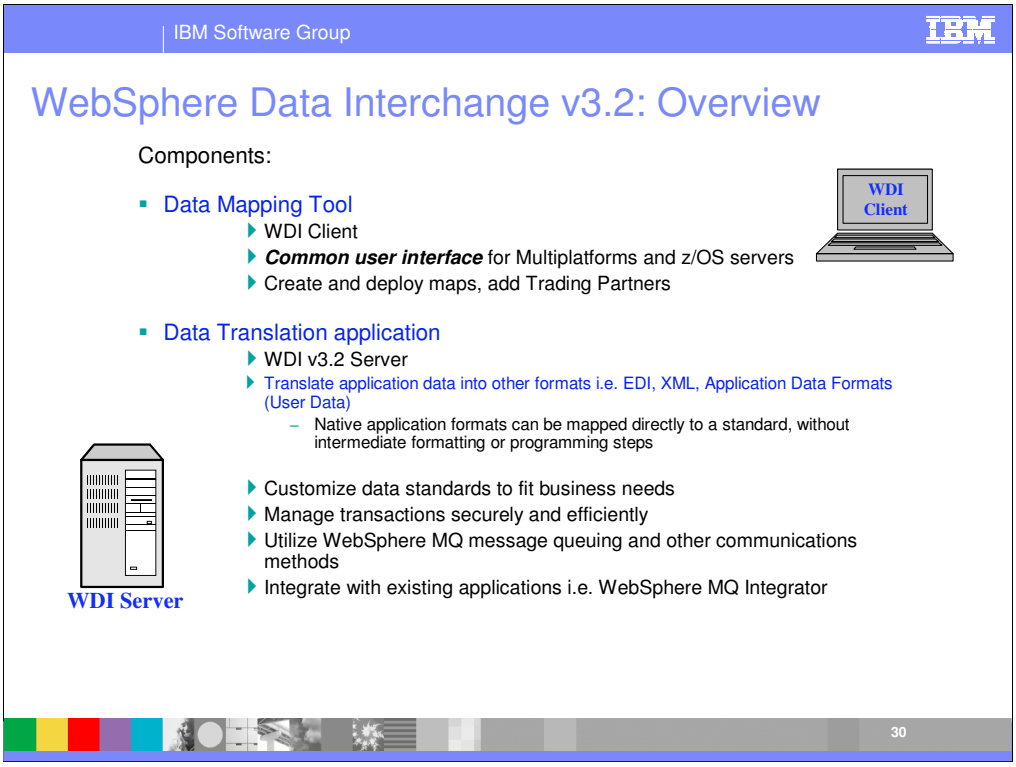
In addition, EDI is being bundled into “integration” type products i.e. WebSphere MQ Integrator.

In terms of integrating with EDI solution offerings (including WDI) the above diagram shows the basic document flow into and out of the EDI transformation engine. In the use of WebSphere BI Connect with non-WDI EDI transformation offerings which may already be installed at a customer site, the technology could interface to WebSphere BI Connect either via JMS/MQ or via Files.



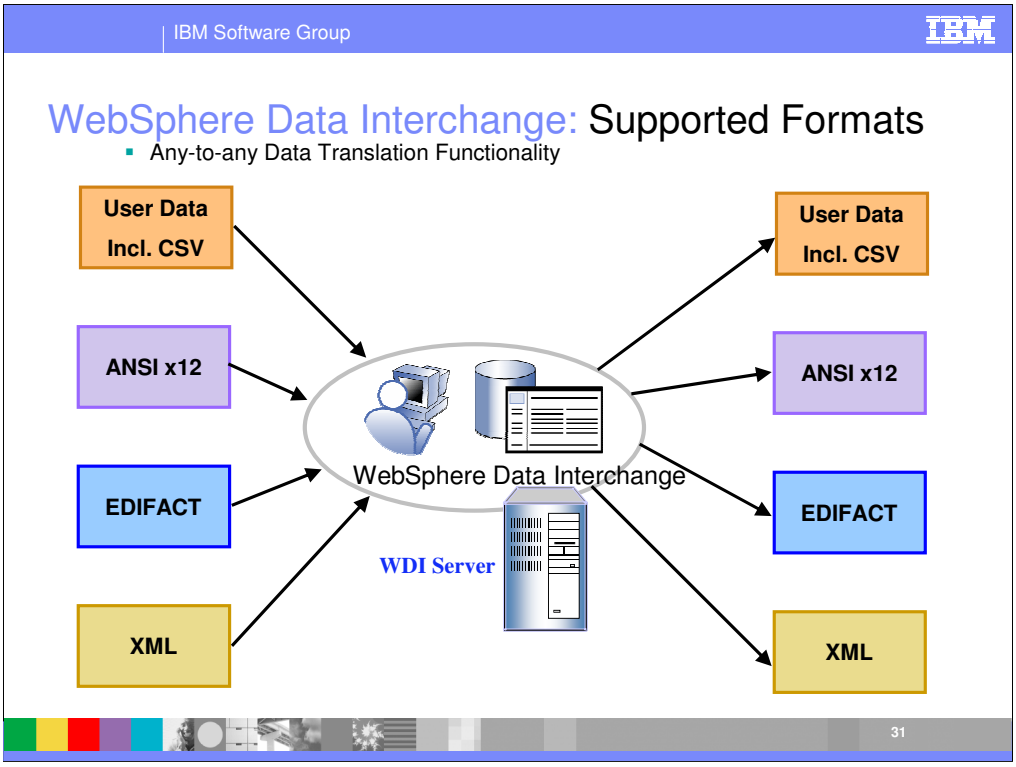

With WBIC 4.2, you can create multiple document flows for a participant so you can build and manage a high number of distinct connections to a single trading partner.

This approach delivers unprecedented flexibility in the creation of a highly focused, process level integration so it can derive the most possible value from its SLAs – rather than simply conduct business with a trading partner, you can have a far more granular trading relationship that identifies the profitable parts of the B2B exchange and maximises them for mutual benefit. The visibility of the integrated community you get from implementing WBIC 4.2 is the key to being able to identify where the profit lies but it is also true to say that the partner readiness and assessment services play a significant part in this analysis.

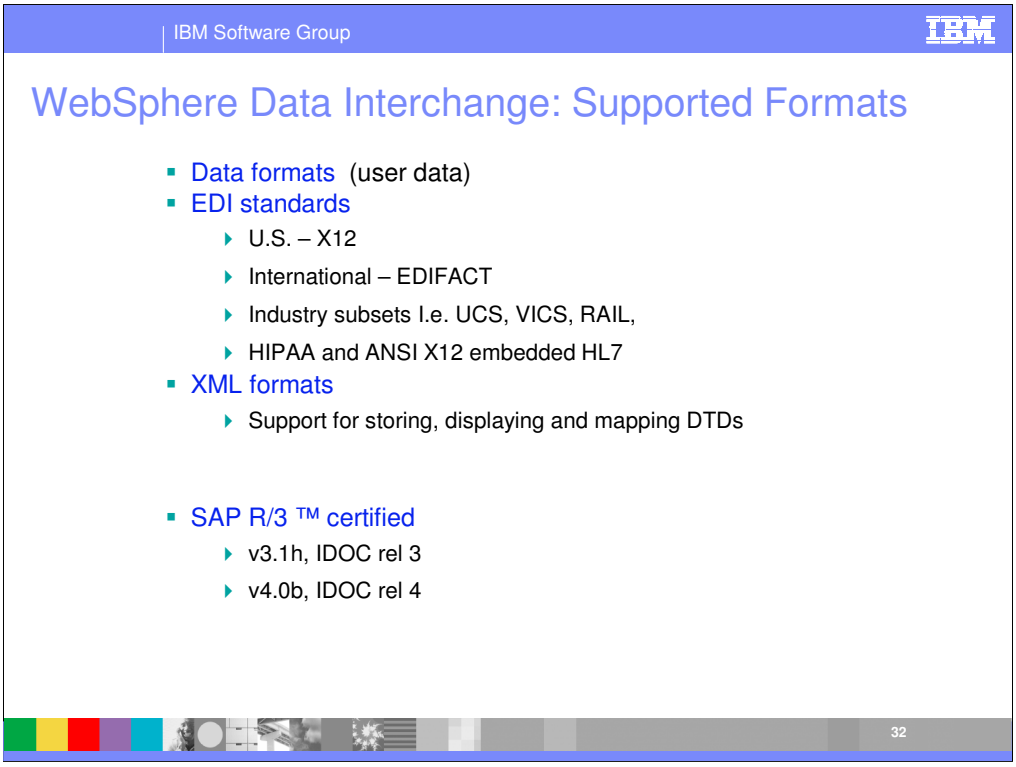



Data Translation application: WDI operates on multiple platforms including Windows 2000, AIX, OS/390 and z/OS.

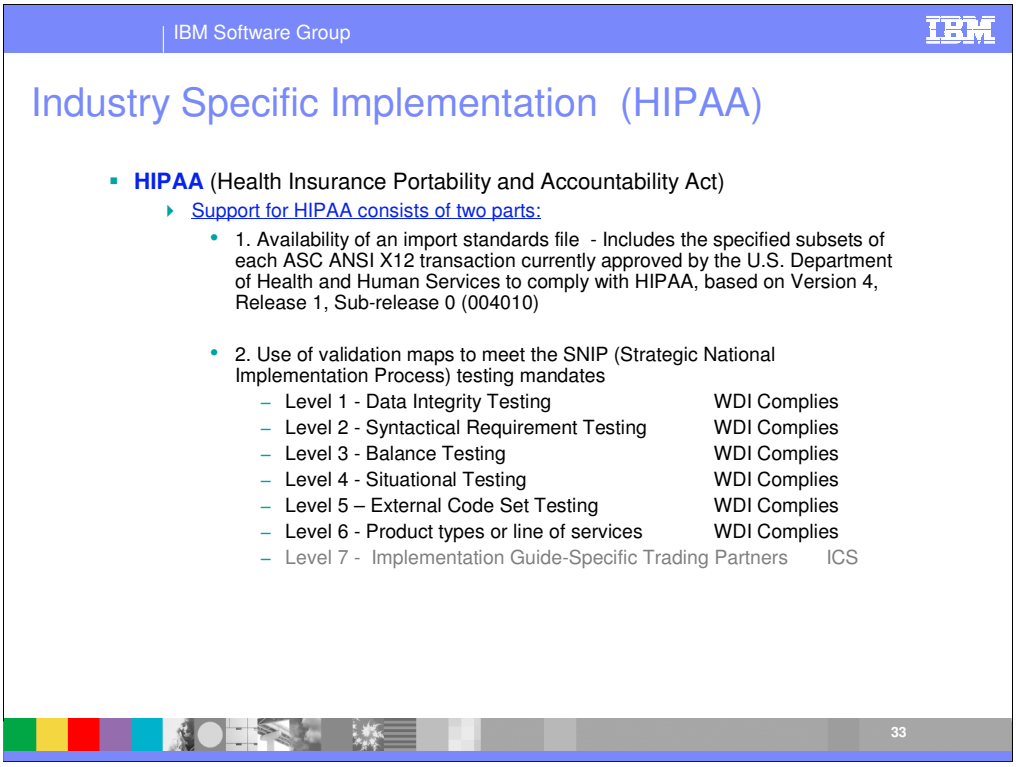
Data Mapping Tool: WDI Client operates on Windows platforms including WIN 98, 2000 and NT.



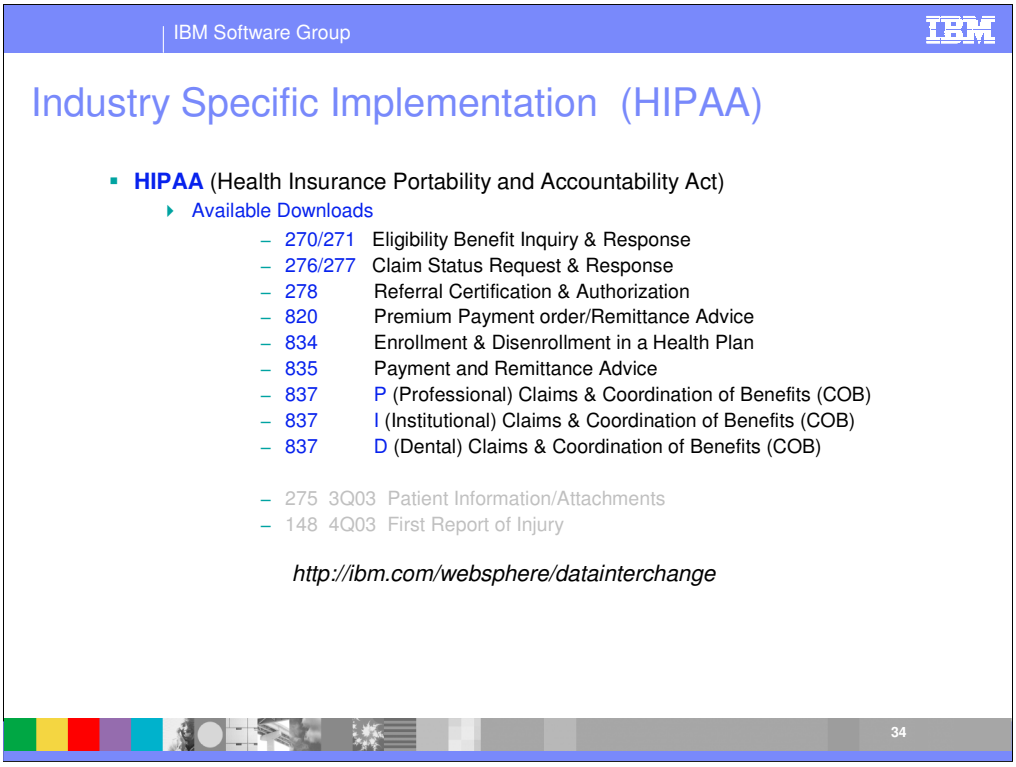

DataInterchange v4.1 (OS/390 and z/OS only) provides Any-to-Any data transformation. The DI Client v4.1 interface includes a new Create Map Wizard and new mapping screens to support Any-to-Any.




Supported formats including SAP IDOC (intermediate document). To improve productivity, WDI Client can import Cobol copy books from business applications including SAP.



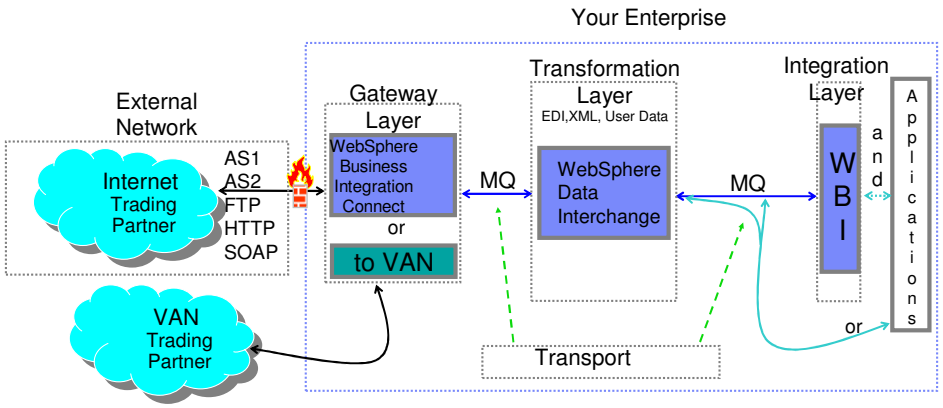

HIPAA: represents an industry implementation (subset) of the X12 standards. WDI support includes availability of HIPAA transactions (subsets) and validation maps which comply to SNIP level 5.




HIPAA: represents an industry implementation (subset) of the X12 standards. WDI support includes availability of HIPAA transactions (subsets) and validation maps which comply to SNIP level 5.

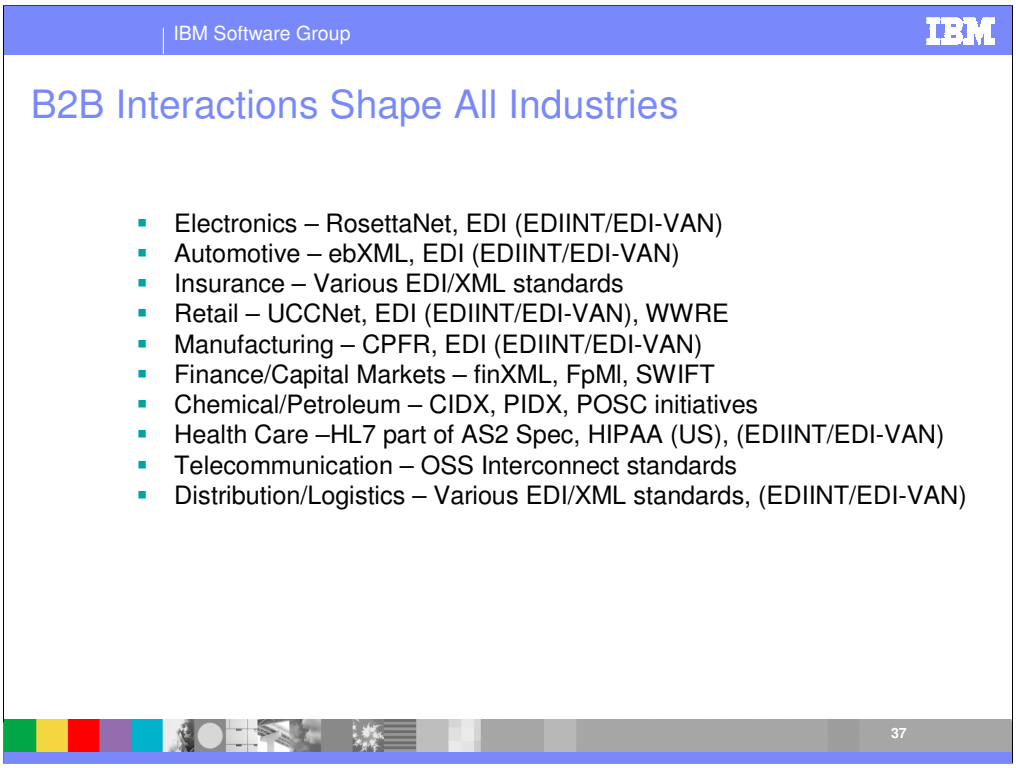
# How do things fit together?

## Example




WBI = WebSphere Business Integrator
WDI = WebSphere Data Interchange
WBI-C = WebSphere Business Integration-Connect
VAN = Value Added Network

Retail Case Study




If we look at industry verticals in general – each industry has B2B trends/technologies which are becoming standards. This compliments our industry based approach for WBI. Every day the list grows longer and … by the way … standards never get retired – the inventory just continues to grow.

Some of there standards and affiliated organizations include:

Finance: FpMl - Financial Products Mark-up Language, EFP - Electronic Payment Forum, FINXML - Financial Markets XML, FIXML - Financial Information eXchange Markup Language, FSTC - Financial Services Technology Consortium, GSTPA - Global Straight Thru. Processing Association, SET - Secure Electronic Transactions

Insurance: Acord - Insurance Industry Standards Group

Electronics: CompTIA - Computer Technology Industry Association, EIDX - Electronics Industry Data Exchange, EIA - Electronic Industries Alliance, EICX - Electronic Component Information Exchange, IPC - Institute for Packaging Electronic Circuits, SMDX - Semiconductor Manufacturing Data Exchange Standard

Petro/Chemical: PIDX - Petroleum Industry Data Exchange, API - American Petroleum Institute, GISB - Gas Industry Standards Board, CIDX - Chemical Industry Data Exchange

Heavy Manufacturing: AIAG - Automotive Industry Action Group, AIA - Aerospace

Pharmaceuticals: LPA - Lab Products Association, NWDA - National Wholesale Druggists

Healthcare: HL-7 - Health Level 7, HIBCC - Health Industry Business Comm Council

Consumer Packaged Goods: Supply Chain Efforts, NRF-ARTS - Nat'l Retail Federation Association for Retail, Technology Standards

Gov't & Education: DOD's Joint Electronic Commerce Program Office

CPFR/VICS - Collaboration, Planning, Forecasting, and Replenishment

CommerceNet

OBI - Open Buying on the Internet

DISA - Data Interchange Standards Association

UCCNet - Uniform Code Council Network

EISC - Enterprise Integration Standards Council

HR-XML

ICE - Information and Content Exchange

MDC - Meta Data Coalition

NAPM - National Association of Purchasing Management

OAGI - Open Applications Group

OASIS/XML.org - Organization for Advancement of Structured Information Standards

OMG - Object Management Group

Ontology.org

SCOR - Supply chain council

XML/EDI Group

# Future Directions

# Movement to Process Driven Documents

## Message-centric

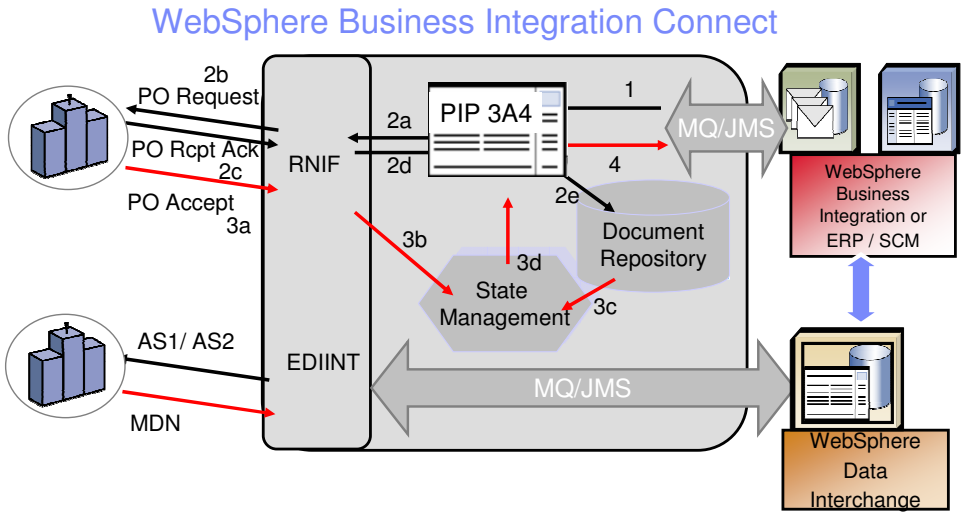
- Batch
- 10% of B2B processes
- VAN-enabled
- EDI X12/EDIFACT/JECALS
- Regional – NA / EMEA / AP
- Large businesses
- Custom industry dictionaries

## Process-centric

- Real-time
- 100% of B2B processes
- Internet-enabled
- XML
- Global
- All businesses
- Standard industry dictionaries

RosettaNet
Lingua franca for eBusiness

# WebSphere Business Integration Connect Flow Overview



## UCCNet and RosettaNet

UCC and RosettaNet have had a common vision regarding convergence and interoperability to provide value for their respective industries.

- The two organizations plan to work jointly on a collaborative B2B architecture to support multiple industry domains, leveraging best practices and standards that both organizations have developed to date.
- UCC/RosettaNet merger has been well received by community in general.
- Supply Chain Implementations across all Industry Segments like manufacturing, distribution, OEM, Logistics (focused on material location and movement) continue to accelerate particularly in Asia.
- Private networks with Decision Support Structures (HUBs) that aggregate responses to forecast changes and generate dislocations are gaining momentum in North America



Why is this important? Because UCCNet, a subset of the UCC, now governs the document standards and communication standards. The UCS Uniform Communication Standards endorsed EDIINT and will drop Bi-Synch communication in the Retail industry for EDI documents. This creates an interesting future for EDI as RosettaNet provides more industry PIPs.

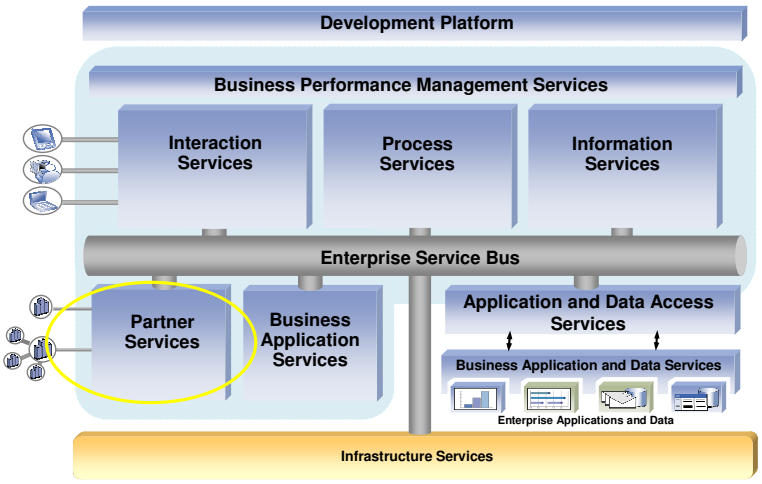
## Why Customers Choose WebSphere Business Integration Connect?

- Works with industry standards such as EDIINT
- Ready to assist customers moving from batch models to process driven
- Support for multiple trust models; Entrust, Verisign, Thawt, Baltimore, Self Signed Certificates
- Supports any data type, EDI, XML, Binary, Custom
- Enables Non-Repudiation, and PKI Encryption
- Open Standard, Java Based, Distributed Architecture
- Leverages WebSphere MQ investment for application Connectivity



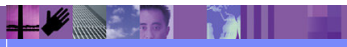
Next Slide

# Business Integration Reference Architecture



# Summary

- WebSphere Reference Architecture
  - Business-to-Business
- EDIINT and Security model
  - What is EDIINT
- EDIINT AS1 and AS2
- WebSphere Business Integration Connect and WebSphere Data Interchange
- Future Trends

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# Questions