B2B Integration with SAP NetWeaver Process Orchestration and SAP HANA Cloud Integration

Sindhu Gangadharan, Piyush Gakhar, Gunther Stuhec

October, 2013
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Agenda

- Introduction
- Solution Overview
- Customer Use Cases
- Solution Details
- Outlook
- Innovation
The B2B integration challenge
More partners, more dynamic, more complex processes

Global business networks
Rising costs
Outsourcing and offshoring
More demanding customers
Ever changing regulations
Are you facing any of these issues?
Many B2B integration solutions don’t meet today’s needs anymore

- Only few B2B partners integrated
- Inability to quickly adapt B2B processes
- Lack of process transparency
- Poor data quality
- Long processing cycle times
- Still to many manual B2B processes
Solution Overview
B2B with SAP NetWeaver Process Orchestration
Exploit the benefits of using a comprehensive integration solution

“”

73% rate a single suite to handle B2B, EAI, SOA and BPM as (extremely) important.

Key areas for improvements of current B2B integration approach according an independent research reveals priorities and strategies of B2B Leaders, Forrester Consulting, August 2010.

Extend internal processes to include B2B collaboration
Tightly integrate applications with B2B processes
Manage B2B collaboration through SOA design and runtime governance
Integrate the interaction with business users into B2B processes
Integrate with any partner through broad industry document and protocol support
Gain process & business network visibility
B2B Add-On for SAP NetWeaver Process Orchestration
ONE component for EDI based B2B communication

- A single component for all of your EDI based integration needs
- Out of the box support of more than 8,000 EDI message types
- Ability to process custom B2B formats

**B2B Add-On**

**B2B Infrastructure Services**
- Security
- EDI Splitting
- Numbering
- Acknowledgments
- Archiving
- Mapping functions

**B2B Technical Adapters**
- AS2
- X.400
- OFTP

**Converter Modules**
- ANSI ASC X12
- EDIFACT
- TRADACOMS
- Odette
- VDA
- Plain Text

**Secure Connectivity Add-On**

**Technical Adapter**
- SFTP

**Adapter Module**
- PGP encryption
Quick Delivery Timelines

Roadmap: Teched October, 2012

- Quick Partner Onboarding/Partner Management
- Certificate RollOver Mechanism
- Enhanced EDI Message support
- Enhanced UI for converters
- Enhanced VAN Access
- Drummond Certification
- Specialized Industry standard content

Delivered with B2B AddOn SP2 (October, 2013)

- Trading Partner Management
- Automatic Certificate RollOver
- EANCOM Standard support
- VAN connectivity tests
- Drummond certification*

* In Process as of September, 2013
Customer Use Cases
Implementation use cases for B2B add-on
Global B2B integration platform for production related processes
Car Manufacturer (Germany)

Implementation highlights
- ~5,000 integration scenarios configured
- Throughput of ~30,000 msg per day
- Efficient migration towards B2B add-on

Business processes
- Production related processes incl. call off, detailed call-off just-in-time, call off just-in-sequence, delivery forecast

Technical details
- Usage of OFTP 1.x adapter with ISDN based connectivity, number range object module, EDI converter modules
- Phased rollout approach towards suppliers (< 3 months in total)

Planned next steps
- Change to OFTP 2.0 for selected partners
- Change towards EDIFACT messages according to the recommendation from VDA*
- Integrate with a marketplace

Key benefits
- Ability to integrate with a multitude of different B2B integration solutions as used by suppliers
- Robust integration platform with stable & reliable operations
- B2B add-on meets organization’s current and future EDI based integration needs

*German Association of the Automotive Industry
Implementation use cases for B2B add-on
Global Data Synchronization of product and price data
Beverage Company (US)

Implementation highlights
• Synchronization of GS1 compliant product and pricing data via the Global Data Synchronization Network (GDSN) for supporting data consistency, quality, and distribution between trading partners
• Accelerated implementation through prepackaged integration content from SAP

Business processes
• Exchange of trade item registrations, publication requests, related confirmations and status updates with data pools belonging to GDSN
• Receive confirmation/rejection messages from trading partners for published trade item

Technical details
• Integration of data pools using AS2 adapter of B2B add-on
• IDocs for material master data from SAP ERP are mapped to GS1 compliant trade items using SAP NetWeaver Process Orchestration
Implementation use cases for B2B add-on
Order-to-cash process to with Non-SAP ERP
High Tech Company (Germany)

Implementation highlights
- Used as pure B2B integration hub replacing a legacy EDI solution
- Integration of Non-SAP ERP solution (Baan) of European corporate affiliates
- Go live after three months only

Business processes
- Classical order-to-cash process (e.g. purchase order, invoice, goods receipt

Technical details
- New installation of Process Orchestration as of release 7.31 together with B2B add-on
- Integration of partners using AS2 adapter
- Exchange of EDIFACT D97A and D96A
Solution Details
Configure B2B integration scenarios

Same approach and tooling as used for A2A integration

- Same infrastructure to figure B2B scenarios
- Support of Integration Builder and Eclipse based tools
- Access EDI specific configurations from the same framework
- Monitor B2B scenarios with the same context of existing monitoring mechanism
Trading Partner Management Solution
Partner onboarding and management made easy

- Single repository for managing, storing and browsing all trading partner related information
- Multiple access points for enabling rapid partner onboarding (e.g. partner self service, mass import)
- Dynamic look up of trading partner information at runtime
- Automatic Certificate rollover mechanism for renewing certificates
- Governed approach for accessing, maintaining, approving and activating trading partner information
- One Touch shift from Test to production and Vice versa
- Maintain Channel Parameters as technical profiles
- Delivered as part of B2B add-on

Trading Partner Repository
- Unique identifiers
- Partner classification
- Functional profiles
- Technical profiles
- Support related information
- Certificate Profiles
- Document Profiles
- Custom settings

Access Points
- Web based User Interface
- Online/Offline Onboarding
- APIs

Internal | Application | External

Trading Partner Management Solution
SAP NetWeaver Process Orchestration with B2B add-on
Automatic Certificate Rollover

- Define once and no further manual intervention required for certificate RollOver
- Maintain Trading Partner specific view
- Easy to use and increases productivity
- Alerts on certificate rollover and approaching expiry time*

*Planned
B2B Add-On
Connectivity options

- Security: Encryption, signing and compression support (as per specifications)
- Protocols: HTTP(S), ISDN, TCP/IP, P7 (as per specifications)
- Different levels channel archiving for incoming/outbound message content
- Technical acknowledgment support (MDN, EERP/NERP, Delivery Reports)
- Option to create XI message for technical acknowledgements
- SHA-1 & SHA-2 signature support
- Encoding support
- Duplicate Check
- Bulk Message Support

*Can be used together with any Java based adapter.
B2B EDI Content

- Out of the Box runtime Content for EDIFACT, EANCOM, VDA, TRADACOMS, Odette etc.
- Platform Support for industry standard subsets (eg. VICS, UCS etc.)
- Example Mappings (IDOC-EDI and vice versa) for business Transactions delivered along with B2B AddOn
- RDS for productive mappings (Order To Cash and Procure to Pay) scenarios
- Predefined UDFs for ESR B2B Mappings

Other Formats: RNIF, CIDX and SWIFT are offered by SAP as different Business Packages. HL7 is offered via SAP consulting service ‘IAH’
Monitor B2B message exchange
Using standard message monitoring

- Enhanced local message monitoring to support monitoring of B2B acknowledgments as well
- Monitor sent and received technical (MDN, ERP, Delivery Reports) and functional acknowledgments (Control, 997)
- Search and view all related messages, e.g.
  - Original bulk message and corresponding split messages by EDI Separator
  - Original message and technical acknowledgment messages created as new XI messages
- Both consolidated and detailed status views are available
Enhanced Supportability and Tracking via Local Message Monitoring

SAP NetWeaver Process Orchestration

B2B Add-On
- Content
- Adapters
- Converter Modules

Local Message Monitoring

- Increase Productivity: Validation report in XML/HTML format
- Business Requirement: Search based on interchange no, sender id and receiver id
- Audit and Compliance: Retrieve and view original EDI payloads

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How the EDI Separator works
Splitting of Electronic Data Interchanges into single messages

1. Receive Electronic Data Interchange comprising of multiple B2B documents from partner
2. Splits and route messages based on various sender, partner and EDI Syntax rules
3. “One Iflow Model” for receiving different EDI formats from partners (eg. VAN provider)
4. Extended support for VDA, TRADACOMS, Odette XML, CUSTOMZED and Default messages*
5. Send functional acknowledgement for ANSI ASC X12 (997) and EDIFACT/EANCOM (CONTRL) to partner
6. Supports XML routing and splitting*

*Introduced with SP2
B2B Integration Cockpit
Central access to all B2B configuration tools

**OFTP Log Viewer**
- For viewing technical logs generated by the OFTP adapter
- Shows OFTP transmission details like date & time, message ID and its description

**Trading Partner Management**
- Maintain Partner Specific Data (IDs, Technical and Functional Profiles)
- Online and Offline Onboarding
- Automatic Certificate RollOver
- Trading Partner Agreements

**Number Range Object Maintenance**
- For automatically inserting continuous counters into outgoing EDI messages
- Configure minimum, maximum value, format and warn level
- API for mass configuration or migration

**EDI Content Manager**
- Easy-to-use web based user interface for defining, customizing and testing EDI conversion rules
- Generation of XSDs which can be imported into the Enterprise Services Repository
- Test features for validating EDI messages and generating sample EDI messages
- Version control for EDI conversion rules
EDI Content Manager
Customize, View and Test

- Single entry point for viewing, editing and maintaining EDI definitions
- Test UI for testing your incoming/outgoing EDI message conversions to simulate real time scenarios
- Easy Export/Import of content data
- Versioning of customized EDI messages
- Role based access
Message Comparison

- Compare two message definitions
- Different colors represent similarities and differences
- Optionally include detailed segment level comparison
- Currently available for EDIFACT, X12 and EANCOM
Low scale archiving of EDI messages
Using the archiver module of the B2B add-on

- Correlate IDoc no/XI message ID with EDI message
- Detection of IDoc number possible
- Realized via archiver module and operational mappings
- Archiving of multiple files at different stages
- Enables low-scale archiving to the file system
- For inbound and outbound EDI messages
Rapid Deployment Solution for EDI Integration
Cost efficient approach for migrating from legacy B2B solutions

Fast Time-To-Value

- Deployment of B2B Add On and predefined mappings
- Configuration of B2B integration scenarios
- Go live support
- Knowledge transfer workshop
- Documentation

Cost Effective

- SAP NetWeaver Process Orchestration, B2B Add-On
- Predefined mappings for the order-to-cash and procure-to-pay processes of SAP ERP
- Supporting ANSI X.12 and EDIFACT standard

Quick & Lean

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B2B SP2* Summary

- Trading Partner Management (Profiles, Agreement and Onboarding)
- Automatic Certificate Rollover
- EANCOM standard Support (Content, Customization UI, converter modules, Acknowledgment support)
- Local Monitoring Enhancements
  - Acknowledgment Monitoring *
  - Validation Report
  - Attach and View original EDI Payload**
  - View related messages together*
- EDI Separator enhanced to process VDA, TRADACOMS, PLAIN, XML and Default messages
- Generic Module for conversion of different EDI messages in Inbound/Outbound direction
- Enhanced channel archiving Support for AS2 and OFTP Adapter
- EDI Content Manager
  - EDI Definitions Message Comparison
  - New Message Creation*
  - Where Used List
  - EDI Message Editor Enhancements
- Archiving File Name enhancements
- Enhanced Dynamic parameters configuration for technical adapters
- Overall Logging, Tracing and usability improvements

*Scheduled RTC: October, 2013

*Downported to SP1
** Partially available with SP1
Integration Visibility
For IT & Application Support and Business Power Users

Message Flow Monitor in SAP Solution Manager

- Monitoring along the B2B message flow including SAP backend systems
- Show relevant payload data in monitoring overview (EDI & order number, amount etc.)*
- Provide a summarized information for most common B2B related issues
- Provide consolidated status of Technical and Functional Acknowledgments
- Measure SLAs, such as processing times, error ratio, volumes etc*.
- Integration with other functionality of SAP Solution Manager such as alerting, incident and notification management.

*This is the current state of planning and may be changed by SAP at any time.
Outlook
Further Roadmap Topics – Planned Innovations
Towards a full B2B gateway solution

- Trading Partner Management enhancements
- Alerting for negative acknowledgments and certificate expiry/rollover
- Extended EDI message support and monitoring
- Optimized EDI Content Manager (change log, export/Import, new UIs for Plain converter etc.)
- Enhanced UI for Number Range Objects
- Technical Protocols extension

This is the current state of planning and may be changed by SAP at any time.
Further Roadmap Topics – Future Direction
Towards a full B2B gateway solution

• Integration with new generation products like SAP HANA Cloud Integration and SAP Operational Process Intelligence powered by SAP HANA

• New connectivity and EDI standards support based on customer feedback

• Integration into standard transport mechanisms (eg. CTS+)

• Extension to core B2B standards

• Intelligent mapping support

This is the current state of planning and may be changed by SAP at any time.
Innovation
Intelligent Mapping Support
Intelligent message and mapping suggestion service based on “wisdom of the crowd” content

• Rich content furnished by community for messages and mappings including message / mapping guidelines
• Customers learn from other customers within their industry
• Intelligent proposals for messages / mappings based on specific semantics (like industry, industry standard, country)
• Take into consideration existing complex interrelations
• Seamless import and publish possibility between SAP HANA Integration or SAP NetWeaver Process Orchestration (incl. B2B add-on) and Content Community

Future direction

This is the current state of planning and may be changed by SAP at any time.
Usual B2B Integration Process

Source Business Partner

1. Analyze/collect business requirements
2. Write Message Implementation Guideline
3. Negotiate, compare and write Mapping Guideline
4. Develop and implement mapping
5. Deploy
6. Simulate and test
7. Productive runtime

Target Business Partner

1. Analyze/collect business requirements
2. Write Message Implementation Guideline
**Issue: Average Efforts in Percent**

Source Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

~ 50%

Target Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Only 5% of the interface is a function of the middleware choice. The remaining 95% is a function of application semantics.”

Gartner Group
Issue: Heterogeneity in Business Semantics

- Several hundred B2B Standards
- Several million semantic possibilities per message type (e.g. 1,3 Billion at UN/EDIFACT ORDERS)
- Specific requirements by
  - Domains / Industries
  - Country and governmental laws
  - Business processes
  - Companies
  - Business partners
  - Products
  - Daily changing aspects
Message Implementation Guideline (MIG)

A prerequisite of every good B2B integration project.

Describes the following parts unambiguously on business semantic level:

- Used B2B standard and business message
- Definition, scope, business context and usage of the business message
- Substructure including cardinality, which is used and required for the specific business purpose
- The definition, format, behavior in ingoing or outgoing direction, properties, usage, and constraints of each element that is considered in the substructure
- Business rules and/or constraints defining the requirements and behavior across elements
- Applied code lists, values and their business meaning
- Examples and remarks

A Message Implementation Guideline should be a contractual reference of the supported interfaces by the business partners in a B2B integration.
Issue: Current Tool Support

Vast majority of tools focus on technical implementation and runtime
Source Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Target Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Isolation means, a Business Partner
- Selects B2B standard / interfaces as requested by the business partners or according best of their knowledge without good comparison
- Defines message implementation guidelines (MIGs) according best of their knowledge for fulfilling their requirements

- Has weak possibilities of reusability and comparison
- Does not have an overall understanding what other business partners already defined or need

Isolation leads to manual negotiations and hard-coded point-to-point agreements, which does not scale.
Solution: Cloud Based Integration Content Building

Source Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Integration Knowledge Catalog

- Data Model / Integration Knowledge
  - All B2B message and mapping definitions semantically consolidated, contextualized and populated

- Automated, self-learning system
  - Consolidate and contextualize contributions.
  - Identify what is common and context specific.
  - Automatically suggests data models, interfaces, and mappings based on most common patterns and matches across the business partners.

- Community based, deployed in the Cloud
  - As repository grows, network effect becomes exponentially more powerful

Target Business Partner
Solution: Seamless B2B Integration from Analyze to Runtime

Source Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline
- Display simulation data
- Ask
- Propose
- Contribute
- Propose

Target Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Will be:
- Either: SAP HCI (HANA Cloud Integration) for on demand
- Or: SAP NetWeaver PI (Process Integration) for on premise
Interaction based on ISO 14662 Open-EDI Reference Model

Integration Content Building

1. Templates
   BOV (Business Oriented View)
   - B2B Standards

2. Message Guidelines

3. Mapping Guidelines

4. Interface Schemes
   - (.xsd)

5. Message Mappings
   - (.mmap)

6. Test & Deploy

7. Governance

Generate Update Generate Update Display

SAP Hana Cloud Integration (on demand) or SAP NW PI (on premise)
Task: Get a data model / mapping that is very close to the business needs in a given context

- The proposals are compared with real Message Implementation Guideline and Mapping Guidelines of purchase orders from a German wholesaler and a Suisse food and beverage company.

Result:

- The system provides proposals with an accuracy of >80% after other 50 contributions.
- And enables a time saving 50% - 60% of a complete integration project.
Relationship Between Design Time (BOV) and HCI/NW PI (FSV)

Integration Content Building

Integration Knowledge Catalog

Template

Message Guideline

Mapping Guideline

Source M. Guide

Map. Entities

Target M. Guide

Integration Content Views

Display/ed it

One look and feel

HCI or NW PI specific views

WebUI Client (SAPUI5)

Same look and feel (~ same controls)

Communication Component

(inbound channel)

B2B AddOn¹

(syntax conversion)

Validation Service¹²

(constraint validation jar)

Message Mapping

Source XSD

MMap

Target XSD

B2B AddOn¹

(syntax conversion)

Communication Component

(outbound channel)

Repository

generate

test data

Relationship

store

display/edit

Relationship

store

Exception Handling

Communication Component (SAPUI5)

Integration Content Views

Integration Content

Views

Display/edit

One look and feel

HCI or NW PI specific views

WebUI Client (SAPUI5)

Same look and feel (~ same controls)

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¹ Optional, ² New Service
Estimated Savings, if Enough Content is in Catalog

Source Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

< 80% < 70%

Target Business Partner

- Analyze/collect business requirements
- Write Message Implementation Guideline

Reached by collaborative content building combined with automatic learning curve and integrated handover to design and runtime without information loss.
Integration Knowledge based Wisdom of the Crowd

Increasing number of participants and contributors

- Increases the quality of content and proposals
- Decreases the total integration time

Significantly!!!
# Value Proposition

<table>
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<tr>
<th>Process</th>
<th>Features</th>
<th>Value</th>
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| Analyze/collect business requirements | • Accessible internally and externally  
• Requirements documented in natural language  
• Context identification  
• Requirements for business partners | ➔ Simplified interface modeling  
➔ Intuitive and assisted definition and maintenance  
➔ High quality of interfaces and documentation |
| Write Message Implementation Guideline | • Import of existing guidelines  
• Proposal services  
• Allow flexible customizations  
• Enriched documentation | ➔ Reduction of interface mapping efforts  
➔ Provides mapping proposals  
➔ Reduces manual effort and media breaks  
➔ Consistency and high quality |
| Negotiate, compare and write Mapping Guideline | • Consolidation  
• Comparison and delta identification  
• Analytics of requirements | ➔ Builds B2B networks  
➔ Collects partner interfaces  
➔ Self service for business partners  
➔ Simplifies onboarding, quick analysis of differences |
| Develop and implement mapping | • Customized model generation  
• Schema serialization in div. formats  
• Provision to SAP HCI or SAP NetWeaver PI | |
| Simulate and test | • Display simulation results in MIGs  
• Enriches the understanding of test data | |
Thank You!

Contact information:

Piyush Gakhar piyush.gakhar@sap.com
Sindhu Gangadharan sindhu.gangadharan@sap.com
Gunther Stuhec gunther.stuhec@sap.com
Further Information

SAP Public Web

scn.sap.com
www.sap.com
https://scn.sap.com/community/b2b-integration
http://help.sap.com/nw-b2b-addon

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