INTELLIGENCE FOR THE CHANGING WORLD OF BUSINESS TECHNOLOGY

SAP NetWeaver PI – Strategy and Roadmap

Udo Paltzer, Product Management SAP NetWeaver PI
Learning Points

- Learn about customer adoption and positioning of SAP NetWeaver PI
- Understand what is available today with SAP NetWeaver PI
- Learn about the roadmap for SAP NetWeaver PI
Agenda

- SAP NetWeaver PI – Customer Adoption & Analyst Evaluations
- SAP NetWeaver PI – Today
- SAP NetWeaver PI – Roadmap
SAP NetWeaver Process Integration Today

Adoption

1.2 million messages processed overnight
Replacement of BEA web Logic with SAP NetWeaver PI

SAP NetWeaver PI for mission critical A2A and B2B
Replacement of IBM Websphere & SAP BC with SAP NetWeaver PI

Automate processes with SAP NetWeaver PI to save payment processing costs and improve vendor relationships

Automation of real-time aggregation of business critical interfaces

Integration with on demand applications

SAP NetWeaver PI Adoption
- 180 new productive customers / quarter
- ~50 % of customers use SAP NetWeaver PI 7.1, 7.11, 7.30
- 300+ Customer References
- Scenarios: A2A, B2B, ESB, SOA
- SAP and non-SAP integration
- Ramp-up for SAP NetWeaver PO 7.31
  - Started end of 2011
  - 6 customers live during ramp-up
SAP NetWeaver Process Integration Today
Evaluation by Analysts

The Forrester Wave™: Comprehensive Integration Solutions, Q4 2010
By Ken Vollmer, November 9, 2010

- Forrester evaluated 15 leading comprehensive integration solution vendors against 137 criteria
  - Current offering: Architecture, EAI, B2B (EDI, XML), SOA, model driven development, BPM
  - Strategy: Product strategy, solution cost, strategic alliances, customer reference checks
  - Market presence: Installed base, new customers, delivery footprint
- Forrester has also spoken with more than 300 clients
- Evaluated products: SAP NetWeaver 7.1: BPM, BRM, CE, PI
- SAP has achieved leadership status for the past two years based on overall strength of its integration solution and scored well in all areas of the evaluation
- SAP scored top in strategic alliances, new customers, delivery footprint, solution costs

Gartner Research, 16 November 2010, ID G00208554
By Thomas Otter, Massimo Pezzini, Dan Sommer, Derek Prior, Dennis Gaughan

- Did SAP TechEd 2010 Revitalize NetWeaver?
  - SAP presented a more coherent and focused technology message than it has done for several years. SAP launched NetWeaver 7.3 and also laid out the plans for key developments, such as mobile, in-memory and cloud computing. … SAP's technology is now on the move.
Agenda

- SAP NetWeaver PI – Customer Adoption & Analyst Evaluations
- SAP NetWeaver PI – Today
- SAP NetWeaver PI – Roadmap
SAP NetWeaver PI & BPM in Process Orchestration
A Component View

Modeling
- SAP NetWeaver Process Orchestration
  - Process Composer
  - Integration Flow Editor
  - Enterprise Service Repository

Execution
- SAP NetWeaver BPM Process Server
- SAP NetWeaver PI Advanced Adapter Engine

Monitoring
- SAP NetWeaver NWA Process Analytics
- SAP NetWeaver NWA Message Monitoring

SAP Solution Manager Business Process
- Process modeling for core and custom processes

SAP Business Suite
- Process automation of core processes
- Process Observer

SAP Solution Manager: Business Process Monitoring / Process Analytics / PI Technical Monitoring Cockpit

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Next generation tooling via SAP Integration Flows

- Installation in “pure Eclipse”
- A visual BPMN representation of an integration scenario
- Modeling based on Enterprise Integration Patterns
- Complete support for modeling Service Interface and Data types in Eclipse
- Modeling of Mapping in Eclipse
- Bringing design-time and configuration-time in PI together
- Easier to understand and integrate systems

Enhanced monitoring via SAP Solution Manager

- Central User Defined Message Search (upon payload)
- New PI Message Alerting with simplified configuration
- Trend graph representation based on message alerts

Java only deployment option of PI

- Further functionality provided on the Java stack (Java IDOC adapter completed, FTP proxy server supported, SOAP adapter enhancements)
- Support requirements towards the Payment Card Industry standard
- Message status overview enablement for synchronous (logged) messages

Closer integration of BPM and PI

- Common deployment of AEX and BPM/BRM on one single SID
- Reliable connectivity between messaging and process layer via proven Java Proxy Runtime
- Call PI mappings (Java, XSLT) from within a BPM process
Adapter Engine Evolution
From Adapter Engine to Enterprise Service Bus

Further enhancements
- Receiver split
- Content-based routing
- Proxy connectivity
- Supporting more productive scenarios

Approaching the finishing line
- Extended Receiver Determination
- Parameterized mapping
- IDoc adapter enhancements
- Major enhancements towards common Eclipse environment
- Integration Flows
- Providing additional installation option with BPM/BRM capabilities

AAE enablement
- Basic routing & mapping

AAE = Advanced Adapter Engine, AEX = Advanced Adapter Engine Extended
BPM = Business Process Management, BRM = Business Rules Management
Green IT Savings by SAP Product Development
Example: SAP NetWeaver PI 7.3 (Integrated Scenarios)

Run SAP with less electricity

**SAP NetWeaver Process Integration 7.3 now a Single Stack installation**

- 60% less energy consumption
- Lower operational cost from easier maintenance
  (1 hr install time and 90 sec restart time)
- Only half of hardware requirements compared to double stack deployment
### Installation Options across Releases

<table>
<thead>
<tr>
<th></th>
<th>≤ 7.0x</th>
<th>≥ 7.1</th>
<th>≥ 7.3</th>
<th>≥ 7.31</th>
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<tbody>
<tr>
<td>Java Stack Domain</td>
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#### Dual Stack Domain

- **AE**: Adapter Engine
- **AAE**: Advanced Adapter Engine
- **IAE**: Implement Adapter Engine
- **AEX**: Advanced Adapter Engine Extended
- **BPM/BRM**: Business Process Manager/Business Rule Management
- **JAVA Proxy**: Java Proxy
- **ABAP Proxy**: ABAP Proxy

**Legend**
- Blue: JAVA Stack
- Orange: ABAP Stack

**Notes**

AE = Adapter Engine, AAE = Advanced Adapter Engine, AEX = Advanced Adapter Engine Extended
IE = Integration Engine, BPE = Business Process Engine (ccBPM)
Process Orchestration
Integration Centric Processes

Benefits

• Reduce TCO with single System ID installation
• Leverage SAP NetWeaver BRM for business rules
• One integrated stack to model and run all kinds of processes covering human centric as well as integration centric types of process steps
• Process patterns to jumpstart the design and implementation of customer’s business processes

Functional Insight

• Common deployment of AEX and BPM/BRM on one single system
• Reliable connectivity between messaging and process layer via proven Java proxy runtime
• Preserve your investments by calling PI mappings (Java, XSLT) from within a BPM process
• Model-driven development environment based on BPMN standard
• Leverage SAP NetWeaver BRM for business rules
• Delivering first Enterprise Integration Patterns including best practices, templates, and sizing guidelines
Process Orchestration
Closer integration of SAP NetWeaver BPM and PI

Enhance mapping capabilities in BPM through PI mappings

Reliable Connectivity at lower costs

Lower TCO with Single System ID installation
Process Orchestration
Model-driven development environment based on BPMN standard

Graphical Configuration using Integration Flows

Business Process Modeling
Example: Bank Loan Request ( Scatter-Gather )

• Further pattern examples: Request / reply, splitter, composed message processor, claim check

* please refer to “Enterprise Integration Patterns”, by Hohpe/Woolf (Addison-Wesley Professional , 2004)
Reduce Total Cost of Development
Next Generation Toolset for PI: Integration Flows and ESR in Eclipse

Benefits

- Simplify the integration of systems, applications, and services by having an easy understandable and visual representation of the message flow
- Leverage the full power of Eclipse and the BPMN standard
- Common understanding by using standard Enterprise Integration Patterns*
- Bringing design-time and configuration-time in PI together

Functional Insight

- End-to-End implementation of your integration scenarios in one tooling environment
  - ESR perspective for modeling your design time artifacts
  - PI Designer perspective for creating integration flows in a graphical modeling approach. An integration flow represents an integration scenario containing endpoints and flow steps
  - Runtime and Administration perspectives tailored for specific roles within the software lifecycle
- Available as plug-ins for both standard Eclipse and SAP NetWeaver Development Studio
Next Generation Toolset for SAP NetWeaver PI Integration Flows in Eclipse
Total Cost of Ownership
Operations

Benefits
- Reduced time for regular system health checks, hand-over procedures, root cause analysis, etc.
- Simplify operations processes by having all relevant information in one central point of entry
- Central collection of monitoring data to relieve productive systems from monitoring activities

Functional Insight
- Local monitoring enhancements
  - User defined message search upon payload for ABAP and Java in SAP NetWeaver Administrator (NWA)
  - New PI message based alerting with simplified configuration
- Central technical monitoring of PI shipped with Solution Manager 7.1
  - “Good morning” page for overall status of all components within and across PI domains
  - Tight integration with system monitoring, alerting infrastructure, notification, and incident management
  - Central user defined message search across multiple PI components
  - Solution Manager as consumer of message based alerting
PI Monitoring with SAP Solution Manager

Monitoring multiple PI domains

Accessing PI monitors

Aggregated overview as entry point with context sensitive navigation to other monitors
Security

Benefits
• Increased security for storing and monitoring of sensitive data

Functional Insight
• Support for Payment Card Industry (PCI) standard
  – Encrypted message storage on DB for scenarios that have been defined as being sensitive
  – Logging if sensitive data is displayed in message monitoring
B2B Offering

Benefits

- Tight Integration with SAP NetWeaver PI
- Flexible choice of B2B solution depending on your specific requirements

Functional Insight

- Address mainstream EDI capabilities in SAP NetWeaver PI
  - Add-ons for SFTP, OFTP, X.400, and AS2
  - Rapid deployment solutions for building B2B solutions based on PI (mappings between EDI and IDocs)
  - EDI splitter and B2B mapping functions
  - PGP encryption and archiving modules
  - Available via Separate download and install from SAP Service Market Place
  - Available as of SAP NetWeaver PI 7.11 onwards
- Support hybrid deployment options for B2B
  - On premise via SAP NetWeaver PI
  - Managed services via SAP Information Interchange (SAP II from Crossgate, now a SAP company)
SAP NetWeaver Process Orchestration 7.31 Ramp-Up

- **Timeline**
  - Ramp-Up has started on November 21st 2011
  - Ramp-Ups are scheduled up to 6 months, might be closed earlier depending on fulfillment of KPIs
- **KPIs:** 25 customers worldwide, 5 live customers, 80% scenario coverage
- **More than 30 customer nominations**
  - Most customers on PI/BPM
  - From PI customers majority on Java only PI
- **Scenario Coverage**
  - Integration Flows
  - Java IDoc Adapter
  - Integration-Centric Processes
  - Solution Manager Monitoring
Customer Situation and Pain Points

- Communication with customers, dealers and other external parties with heterogeneous data formats
- Heterogeneous systems on multiple platforms, ERPs and Databases covering both A2A and B2B applications.
- Growing demand of centralized integration and monitoring tool
- Latency of the stock replenishment and order creation process
- Managing consumer and costumer relationship was challenging
- Frequent database lookup

Why SAP?

- SAP NetWeaver PI is fully equipped to have it as a strategic integration platform
- Can integrate a wide range of backend systems that we have
- Supports a very large set of message formats and message protocols in a standardized manner
- Helps seamlessly integrate with partners, customers, vendors and other external parties like customs.
- Process driven integration solution which enables a quick realtime operation.
- Support for high volume, high frequency data through complex scenarios
- Less SAPS required when comparing to older versions
- Scalable integration solution and native EDI support

Implementation Highlights

- Automation of real-time aggregation of business critical interfaces like sales, stock replenishment, ordering, customer relationship management and modern trade
- Achieved better performance by migrating everything except ABAP proxy to Java based implementation
- Incorporated enhanced security
nZDM for SAP NetWeaver PI – Solution Characteristics

QUICK FACTS

Significant *business downtime reduction* for Support Package installation to approx. 30 minutes!

by executing the SP import on an clone of a production system and replacing the repository tables of the production system by the ones of the update system.

- This considers updating the SAP software – OS or DB updates are not included
- All standard PI scenarios are fully available

Value & Benefit

- **Availability of business critical functions during most of maintenance process duration**
- The overall business **downtime is independent of number and size of the SPs** to be applied to the system.

- **Risk Mitigation**: Potential Issues during actual SP application do not affect the business downtime
  - Point in time for switching can be chosen freely: process running on clone not bound to “maintenance window”
  - **Covers the most frequent use case**

 ➔ **Realization for the most critical Customer Systems:**

- **SAP NetWeaver PI 7.10, 7.11 & later releases**, no down port to older releases.

- It is an additional offering besides the standard software maintenance tools for mission critical PI installations, currently delivered exclusively as a SAP Consulting Service, but planned to be shipped as a standard SAP Tool via SL Toolset without separate license costs by Q3/2012
How to minimize **BUSINESS** Downtime?

**Planned Downtime during a common SAP Software maintenance case**

1. **Notification of Users**
2. **System Cool Down**
3. **Backup**
4. **Maintenance Procedure**
5. **Backup**
6. **Test and Verification**

**Business Downtime**

**Planned Downtime with near-Zero Downtime Technology**

1. **Technical Downtime**
2. **Maintenance Procedure**
3. **Test and Verification**
4. **Shadow System**
5. **Productive system in restricted mode**
6. **Switch**

**Business Downtime**
nZDM-Tools for SAP NetWeaver PI
Roadmap Overview – Summary of Key Innovations

**TODAY**

- nZDM-Tools for PI 7.1x available since Q3/2010
- Reference customer established
- Platform coverage complete ¹)
- Downtime Minimization Consulting Service for nZDM/PI is available
- nZDM-Tools for PI 7.30 available since Q4 / 2011

**PLANNED (12 – 18 months)**

- nZDM/PI shipped via SL Toolset 1.0 in Q3/Q4 2012 without a separate license fee, consulting support optional
- EHP Installation Scenario (Upgrade PI 7.1x → 7.3x) planned for Q3/Q4 2012, **depending on customer demand**

**FUTURE DIRECTION**

- Depending on customer demand and customer feedback

¹) Some DB/OS platform combinations are available only on request

This is the current state of planning and may be changed by SAP at any time.
Near-Zero Downtime Maintenance for SAP NetWeaver PI:
Mirror update with back copy (in-place update principle)

**Production System**

- **Normal production**
  - No restrictions

- **Business Only Mode**
  - Only allow PI processing (all scenarios)
  - No non-PI change operations
  - No config changes/design time changes

- **System down**
  - Stop production
  - Switch shadow tables

- **Normal production**
  - No restrictions

**Update System**

- Copied Production System

**Time**

- **Clone productive system except PI processing data**
  - SP n

- **Copy back DB except PI processing data**
  - SP n
  - SP n+m

**Standard update**

- Apply SP on mirror system
- PI processing data is not affected

**Back copy**

- Copy back DB tables not containing PI processing data
- Use shadow tables as copy target
Utilizing SAPinst framework

Procedure is organized by steps

Each nZDM step contains:

- Choose option screen
- Define parameters section
- Summary screen to check/correct parameter settings
- Execution phase
- Completion status screen

Manual user interactions are triggered and monitored by the nZDM tool
External Productive Usage of nZDM PI
EnBW, Karlsruhe, Germany

<table>
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<tr>
<th>System</th>
<th>Duration</th>
<th>Method</th>
<th>Business(!) Downtime</th>
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<td>RVI - Test</td>
<td>01. – 04.03.2010</td>
<td>nZDM</td>
<td>nZDM: 26 minutes net.</td>
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<tr>
<td>REI - Development</td>
<td>09. – 10.03.2010</td>
<td>SPAM / JSPM</td>
<td>Regular Patching: 10 hours (traditional SP procedure, plus 3 hours caused by problem solving)</td>
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<tr>
<td>RTI - Preproduction</td>
<td>15. – 17.03.2010</td>
<td>nZDM</td>
<td>nZDM: 34 minutes (incl. Clean up)</td>
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<tr>
<td>RBI - Production</td>
<td>24. – 26.03.2010</td>
<td>nZDM</td>
<td>30 minutes (incl. Clean up)</td>
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PI 7.1 SP9 was applied to the productive system with ~ 30 min downtime without any issues (95% less downtime)

Zero downtime for integrated PI scenarios running on de-central adapter engines

- nZDM PI procedure worked on customer environment without any issues.
- Procedure could be executed mainly by customer’s basis administrators.
- Procedure could be improved by customer input.
- Errors during traditional SP deployment process increased downtime by 3 hours. With nZDM procedure any potential error resolution activities during SP deployment have no impact on business downtime.
- Normal PI housekeeping was executed on production system.
Agenda

- SAP NetWeaver PI – Customer Adoption & Analyst Evaluations
- SAP NetWeaver PI – Today
- SAP NetWeaver PI – Roadmap
EHP1 for SAP NetWeaver PI 7.3 – SP4
Planned Service Bus Capabilities

Extended receiver determination for integrated configuration object
Enhanced security during message processing
  • Virus scan at PI inbound and outbound
  • Specific role for maintaining OS commands in file/ftp communication channels
Cache optimization measures
CTC for setting up central ESR of AEX, upgrade, and system copy
Copy with content in Integration Directory
  • Client copy
  • Configuration based on templates
Communication channel agreement support

Mapping completeness
- Value mapping: editor & excel spreadsheet import/export
- Configurable parameters

B2B support (header mapping, virtual receiver, party support)

Access Control List

Creating integration flows from PI scenario model

Runtime & administration perspective for integration flows

Scenario-specific configuration (logging and staging)

Extended Receiver Determination for integration flows

Reuse of communication channel templates

Extended search

CTS+ transport, transport log viewer, and transporting on object level

Virus scanner support for integration flows
Import of RFCs and IDocs

Mapping
  • Function libraries (CRUD)
  • Testing enhancements: selection of steps and direction
  • Create and use mapping templates

Context objects

Search functionality / where-used list

PCI settings for RFC / IDoc objects in ESR Swing and Eclipse

Content structuring (creating SWCVs, namespaces, local SWCVs)
NWA Component Monitor
- Enhance the component monitor to cover ccBPM availability and self-test

NWA Communication Channel Monitor Enhancements
- Enable comments on status change as required field
- Communication channel PING for all adapters (remaining: http, Idoc)

User Defined Message Search Enhancements
- UDS central search configuration and transport
- UDS search restrictions for users w/o payload permissions
- UDS handling for encrypted payload
- Indexing for archived messages

Message Monitor Enhancements
- Message processing time granularity
- Search by IDoc message number in message monitor
- Context-sensitive navigation to message monitoring by scenario ID
- Enhance „Open Message“ function to show/download message attachments

Message Alerting Enhancements
- Mass consistency checks for message alerting
- Integration of SAP NetWeaver BPM into message alerting
Process Integration & Orchestration
Towards a fully integrated stack

Further planned investment topics
• Migration support from dual stack to single stack
• More patterns & guidelines for process orchestration
• Graphical mapping editor in Eclipse
• B2B
  – More integration content for industry specific B2B scenarios
  – Further RDS (rapid deployment solutions) offerings, including integration with SAP II from Crossgate
  – Monitor for B2B message tracking
  – End-to-end process visibility for business users
• Improved developer productivity
• ...
Integration Visibility  
For IT & Application Support and Business Power Users

Planned Innovations: B2B Message Monitor

- Central, end-to-end integration visibility into the correct closure of business transactions with your business partners
  - Monitoring information along the integration layers of the B2B message flow, including processing within SAP NetWeaver Process Integration, Process Orchestration, SAP backend system layers (ABAP proxy, ALE, tRFC/qRFC, WS) and SAP Information Interchange
  - Show relevant payload data in monitoring overview, such as EDI number, order number etc.
  - Provide a summarized information for most common B2B related issues, such as flows with highest error ratio, most overdue acknowledgements etc.
- Capture the business impact and get involved into error resolution (e.g. semantic conflicts) via object- and user specific views
- Measure business SLAs, such as E2E processing times, error ratio, volumes etc., especially in scenarios where trust in intercompany communication is vital for business success
- Integration with other functionality of SAP such as alerting, incident and notification management

Lab Preview
SAP’s Vision for Cloud Integration
Accelerate Time to Value for Cloud Solutions

Cloud Integration Technology
Enable integration of SAP Cloud solutions to:
• SAP on-premise solutions
• SAP Cloud solutions
• 3rd party cloud solutions, and
• 3rd party on-premise solutions

Prepackaged Integration Content for SAP to SAP, e.g. via Rapid Deployment Solutions

Ecosystem & Community can extend and create content

Notes: Direct integration also available for certain solutions, for simple landscapes with latest releases. SAP NetWeaver PI and Data Services will also support integration with SAP Cloud solutions.
SAP Financial Services Network is a new innovative on-demand solution designed to simplify electronic interaction with financial institutions. The network supports multi-bank routing, multi-format documents, on-boarding, provisioning, management, and monitoring capabilities.

- No custom solution per bank
- No multi-connection for multi-banks
- No additional hardware/software
- No additional training needed
- No manual updates of settlement, reports to ERP environment
SAP Financial Services Network
Next Generation Financial Services Network for Corporate Connectivity

Register
- Create an account and users
- Configure SLAs, alerts, reporting
- Choose business services

On-board
- Enter interface details for connection
- Configure or select message formats
- Test E2E connectivity

Run and Manage
- Execute Transactions and monitor
- Grow business services and network
- Reduce exceptions cost

Financial Services Network

Portal
SAP Value Application Services
Bank Value Application Services
Integration as a Service
Business Directory
eStore
Platform as a Service
Data store
SAP Cloud

Financial Institutions
e.g. Banks, Credit Cards, Insurance

Back Office Systems

Agent

direct

Corporates

Agent

ERP

Agent

ERP
**Roadmap**

**Key themes, capabilities, and planned innovations**

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<th>Bank and Corporate</th>
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<td>• Reliable Messaging</td>
<td>• Additional Protocols</td>
<td>• Value Applications</td>
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<tr>
<td>• Local Monitoring</td>
<td>• Self-service Monitoring</td>
<td>• Access Control</td>
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<tr>
<td>• Easy implementation</td>
<td>• Internationalization</td>
<td>• UI Portal</td>
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<td>• Security : PKCS#7</td>
<td>• Security Mediation</td>
<td>• Content lifecycle</td>
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<td>• 2-way Routing</td>
<td>• Transform, Map, Enrich</td>
<td>• Security: Certificate Flow</td>
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<th>Messages</th>
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<tr>
<td>• Support ISO 20022</td>
<td>• Support ISO 20022 + extensions</td>
<td>• Message Library</td>
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<tr>
<td>• Existing</td>
<td>• IDOC support</td>
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<th>Operations</th>
<th>Operations</th>
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<tbody>
<tr>
<td>• 24 x 7 operations</td>
<td>• Multilingual Support</td>
<td>• Volume Readiness</td>
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<tr>
<td>• Support in English</td>
<td>• Improved Onboarding</td>
<td>• Additional locations</td>
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<td>• Onboarding</td>
<td>• Archiving</td>
<td>• SAS 70 Type II</td>
</tr>
<tr>
<td>• Data Center in St. Leon Rot</td>
<td>• ISO 27001</td>
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RPU 1  
Sep 2012  

RPU 2  
Nov 2012  

GA  
Feb 2012  

This is the current state of planning and may be changed by SAP at any time.
FSN Timelines

- **Customer Engagement Initiative / Design Phase**
  - Design-workshops, Review Mock-Ups / early software milestones

- **PoC/Pilot Phases** - 1 On-boarding 2 FSN Agent 3 FSN Bank Connectivity
  - Proof of Concept and exploring the alpha version

- **Beta Phase**
  - Robust operational and technical tests of the E2E solution

- **Customer Proof**
  - RPU 1: Productize beta program participants on productive service offering
  - RPU 2: Wider take-on of corporates and banks

- **General Availability**

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Legend:
- **DC**: Development Close
- **CC**: Correction Close
- **P2D**: Planning to Development
- **RPU**: Release for Productive Usage
- **D2V**: Development to Validation
- **D2B**: Development to Beta

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Key Learnings

- There is a strong customer adoption of SAP NetWeaver PI
- SAP NetWeaver PI provides solid key ESB capabilities
- A clear roadmap for SAP NetWeaver PI is available
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