

SAP White Paper
SAP NetWeaver



SAP NetWeaver™
PLATFORM
INTEROPERABILITY
WITH IBM WEBSPHERE
AND MICROSOFT .NET

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CONTENTS

The Challenges	4
The Enterprise Pressure on IT	4
IT Strategies	4
Requirements of Heterogeneous Environments	5
IT Requirements	5
The Technical Requirements for Software Vendors	5
The Need for Interoperability	5
SAP: Addressing Infrastructure Needs	6
Introducing the Enterprise Services Architecture (ESA)	6
SAP NetWeaver the foundation for ESA	6
SAP Interoperability with Microsoft .NET and IBM WebSphere	7
SAP's Interoperability Philosophy	7
Interoperability at the Application Platform Level	7
– Collaboration with IBM and Microsoft in Standards Organizations	8
– Collaboration with IBM in Development Environments	8
– Web Dynpro	8
– SAP Java Connector	8
– SAP .NET Connector	8
Interoperability at the People, Information, and Process Levels	8
– Interoperability at the People Level	8
– Interoperability of SAP Mobile Infrastructure	10
– Interoperability at the Information Layer	10
– Interoperability at the Process Level	11
Conclusion	13
Interoperability Quick Reference Table	14

THE CHALLENGES

THE ENTERPRISE PRESSURE ON IT

In the past decade, companies made large-scale investments in best-of-breed products to support the functional requirements of business users. Recently, companies have been disillusioned by the software buying frenzy of the nineties and have increased pressure on their IT organizations to reduce cost, enable growth, and most of all, show value to their enterprises. They must leverage these investments.

However, the incessant expansion of the value chain increases the complexity and risk of managing systems like these. The real value lies in weaving these systems into a seamless network of pluggable, modular, reliable services.

To add to the challenge, two major technologies have split the market into two camps – Java and .NET, further intensifying diversity. Because many decisions on software infrastructure are made on a departmental rather than an enterprise level, companies find themselves with ample investments in both technologies. This situation forces IT organizations to master a high degree of heterogeneity in order to meet the requirements of their companies.

IT STRATEGIES

The strategies that IT organizations are formulating attempt to minimize the number of vendors supplying their business applications and technologies and to maximize the value of their existing systems and skills. And they are trying to do all that without compromising the ability to make their businesses adaptable and capable of developing new and innovative cross-functional business processes.

A growing number of large SAP customers are selecting SAP, IBM, and Microsoft as the dominant vendors to supply general business applications and their technology infrastructure. A critical element to the overall cost of their IT landscapes becomes how well the prevalent vendor solutions work together.

The good news is that emerging technical and business standards driven by these vendors promise to reduce the friction between the products. Standards conceived by such organizations as the World Wide Web Consortium (W3C), the Web Services Interoperability Organization (WS-I), the Java Community Process (JCP), and the Organization for the Advancement of Structured Information Standards (OASIS) have laid the groundwork for increased interoperability and a reduced total cost of ownership. It's no surprise that IT organizations are closely monitoring and adopting these standards.

REQUIREMENTS OF HETEROGENEOUS ENVIRONMENTS

In this environment, the business requirements from IT are twofold:

- Get the most out of existing assets
- Enable an adaptable business

In IT terms, these requirements may be qualified into requirements for the application platform and in addition, requirements on three levels: people integration, information integration, and business processes integration.

IT REQUIREMENTS

At large SAP customers, the lion's share of the integration effort occurs between SAP solutions and other custom business systems. These companies expect SAP to provide the means to import, export, and transact effectively with applications written in Java or .NET.

Without undermining these application platform requirements, these companies envision a holistic approach to their IT landscape, an approach that goes beyond traditional systems-level integration and requires complete interoperability on all three levels: people, information, and business processes.

On the people level, end users will settle for nothing less than a seamless user experience (in spite of the growing system diversity), boundless collaboration functionality, and pervasive access. Users demand ubiquitous access to information wherever it resides. That information must be served in a consistent manner and its integrity guaranteed. And the business processes that span systems and organizations have to be well orchestrated and offer high performance.

THE TECHNICAL REQUIREMENTS FOR SOFTWARE VENDORS

These requirements translate into a set of technical requirements that large IT organizations demand from software vendors, especially the leading ones. As a prerequisite, standards have to be agreed upon and implemented in products without delay. Development and administration environments, which are typically proprietary, have to become more synergistic, almost interchangeable. Developers and administrators demand the ability to use their preferred tools and languages independently of the applications they build or manage. They want a portal. High-speed interoperability between the different messaging and process management infrastructures has to be established between the vendors' offerings. The business content built for portals or the business content designed for integration between applications has to be compatible between major technology platforms. Data, whether structured or unstructured, has to be transported, manipulated, and served up consistently. And finally, IT needs the freedom to plug in and unplug application functions securely and reliably according to business needs – not software vendors' strategies.

THE NEED FOR INTEROPERABILITY

Market forces and product leadership have driven SAP, IBM, and Microsoft to expand their offerings into multiple areas. As a result, their product portfolios overlap. Nevertheless, SAP is committed to ensuring interoperability with IBM and Microsoft solutions and to cooperating with them in development strategies, field engagements, and competency and support centers. This paper describes the complete landscape of interoperability between SAP solutions and IBM WebSphere and Microsoft .NET; it reflects the latest strategies of SAP, IBM, and Microsoft.

SAP: ADDRESSING INFRASTRUCTURE NEEDS

INTRODUCING THE ENTERPRISE SERVICES ARCHITECTURE (ESA)

SAP's long-term success has been driven by its ability to understand its customers' requirements and to translate technology advancements into business solutions that meet these requirements. The recent announcement of the Enterprise Services Architecture, SAP's blueprint for building, delivering, and deploying business solutions based on Web services, is a strong signal to its customers that it is serious about meeting their requirements.

SAP NetWeaver THE FOUNDATION FOR ESA

The technical foundation of SAP's Enterprise Services Architecture is the next generation of mySAP™ Technology, called SAP NetWeaver™. SAP NetWeaver is the integration

and application platform to unify and align people, information, and business processes across technologies and organizations.

A key ingredient of SAP NetWeaver is complete interoperability with both Microsoft .NET and IBM WebSphere. That means IT organizations don't have to decide between the two technologies. Using SAP NetWeaver, they can weave their environments into a single, smooth fabric – and do so at a lower cost of ownership.

Most SAP solutions, such as mySAP™ Customer Relationship Management and SAP® xApps™, are already powered by SAP NetWeaver, inheriting its intrinsic virtues. In the future, all SAP solutions will be powered by the SAP NetWeaver platform. By bolstering an open developer community, SAP is encouraging its partners to develop solutions powered by SAP NetWeaver, creating an even wider ecosystem. This ecosystem will offer a wider range of prebuilt interoperability between SAP and a myriad of products.

SAP NetWeaver is globally available today. Its building blocks are in widespread use among companies building new applications that extend SAP and non-SAP systems. For a roadmap of availability of certain capabilities and versions, please refer to the SAP NetWeaver product roadmap and platform availability matrix. To learn more about SAP NetWeaver and the Enterprise Services Architecture go to www.sap.com/solutions/netweaver.

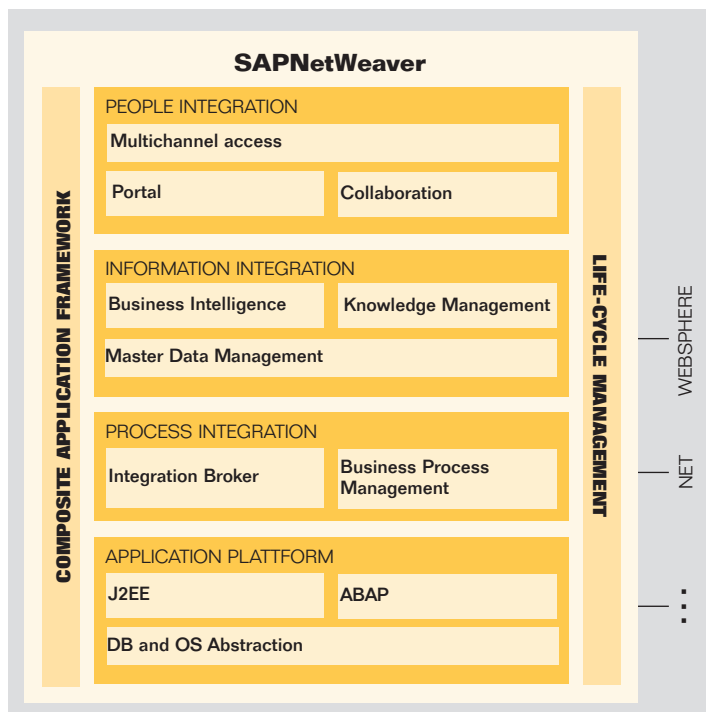


Figure 1: SAP NetWeaver: Powering all SAP Solutions

SAP INTEROPERABILITY WITH MICROSOFT .NET AND IBM WEBSHERE

SAP'S INTEROPERABILITY PHILOSOPHY

SAP's interoperability philosophy is the culmination of customer requirements and technology advancements. SAP NetWeaver is designed for full interoperability with .NET and WebSphere along three levels: people, information, and processes.

Although a higher value is gained by leveraging all SAP NetWeaver building blocks as one, SAP's philosophy assumes a heterogeneous environment in which additional technology products from different vendors have various roles, but are all-inclusive. It is important to note that the building blocks of SAP NetWeaver on all three levels rely on the foundation of SAP® Web Application Server as its runtime environment. SAP Web Application Server offers a complete set of fundamental capabilities that are not available in other application platforms, capabilities that stem from SAP's intimate and long-lasting experience building packaged business solutions.

IBM WEBSHERE	SAP NETWEAVER	MICROSOFT .NET
<ul style="list-style-type: none"> Portal Development Kit for IBM WebSphere Integration with Lotus Sametime 	People Integration Multichannel access Portal Collaboration	<ul style="list-style-type: none"> Portal Developer Kit for .NET Smart client on .NET Microsoft Office integration Microsoft Exchange integration
<ul style="list-style-type: none"> Integration with IBM Content Manager 	Information Integration Knowledge management Business intelligence Master data management	<ul style="list-style-type: none"> Integration of Microsoft Content Management Server Integration of SQL Server Analysis Services
<ul style="list-style-type: none"> Interoperability with IBM WebSphere Business Integration 	Process Integration Integration broker Business process management	<ul style="list-style-type: none"> Interoperability with Microsoft BizTalk Server
<ul style="list-style-type: none"> Eclipse-based Java IDE Technical, standards-based connectivity (XML, Web services) 	Application Platform J2EE ABAP DB and OS abstraction	<ul style="list-style-type: none"> Visual Studio .NET integration. Technical, standards-based connectivity (XML, Web Services)

Figure 2: SAP NetWeaver Interoperability with IBM WebSphere and Microsoft .NET

The next section describes the interoperability of SAP NetWeaver with IBM WebSphere and Microsoft .NET, starting with the application platform level and then drilling down into the interoperability points on all three integration levels. Complementary software products (such as the IBM Tivoli product line) and their interfaces are certified by SAP Integration and Certification Centers (ICC) to guarantee customer satisfaction.

The long-lasting commitment of SAP to IBM's and Microsoft's databases, operating systems, and platforms is strong and well documented.

INTEROPERABILITY AT THE APPLICATION PLATFORM LEVEL

Application platform capabilities are delivered through SAP Web Application Server – a key building block of SAP NetWeaver. It provides full support for platform-independent Web services, business Web applications, and development based on open standards. Its software life-cycle management capabilities cover the gamut of requirements demanded by the constant changes that occur in an adaptive business.

While combining both SAP's ABAP and Sun's Java environments in one server, SAP Web Application Server is fully compliant with Java 2 Platform, Enterprise Edition (J2EE).

SAP Web Application Server also embraces Web services open standards, such as Extensible Markup Language (XML), Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), and Universal Description, Discovery, and Integration (UDDI). Support for these standards, plus J2EE Connector Architecture (JCA) and Java Message Service (JMS), will provide comprehensive interoperability with J2EE servers like IBM WebSphere and Microsoft .NET.

SAP also supports bidirectional communication with J2EE application servers via SAP® Java Connector (SAP® JCo) and with Microsoft .NET via SAP® .NET Connector.

Collaboration with IBM and Microsoft in Standards Organizations

SAP, IBM, and Microsoft have joined forces in leading industry standards organizations. They have committed themselves to even closer cooperation in major councils to drive the evolution of open standard technologies and organizations, including:

- Java and J2EE (Java Community Process and Eclipse.org)
- Web services organizations, including W3C, WS-I, OASIS, and UDDI.org
- Java specification requests (JSR) – JSR 168 and JSR 170 – from Java Community Process and Web Services for Remote Portals (WSRP) from OASIS
- Business process integration standards, such as Business Process Execution Language for Web Services (BPEL4WS)

Collaboration with IBM in Development Environments

SAP made a decision to standardize its development environment on the Eclipse open source framework so SAP's Java integrated development environment is based on Eclipse. This fact alone ensures high interoperability with IBM's WebSphere Studio Application Developer (WSAD). For example, the Java classes for access to SAP interfaces, such as Remote Function Calls (RFC) and Business Application Programming Interfaces (BAPIs), are integrated into WSAD, and development performed in WSAD is compatible with the SAP Web Application Server runtime environment. That means SAP Web Application Server supports Java applications that are developed in WSAD.

Web Dynpro

SAP Web Dynpro technology is a model-driven development and runtime environment for Web applications. It goes beyond classical Web development by offering cost-effective, easy-to-use, and maintainable browser-based user interfaces for business solutions.

When developing user interfaces, Web Dynpro creates a declarative meta model and reduces the required amount of programming code. Based on the meta model created,

Web Dynpro generates code to create a ready-to-run Web application for different runtime platforms, such as ABAP, J2EE, or .NET.

SAP Java Connector

SAP Java Connector is a toolkit that allows a Java application to communicate with any SAP system. It combines an easy-to-use API with unprecedented flexibility and performance. The package supports both, Java-to-SAP, as well as SAP-to-Java calls.

Customers using IBM WebSphere can easily access existing business objects and integrate their applications with any SAP application.

SAP .NET Connector

With the new SAP .NET Connector, companies can extend SAP solutions powered by SAP NetWeaver with applications built for the Microsoft .NET platform. This connector offers bidirectional access so SAP applications can access and integrate .NET services. At the same time, projects developed in a .NET environment can access SAP business functionality. SAP .NET Connector comes with a comprehensive support for Visual Studio .NET IDE.

INTEROPERABILITY AT THE PEOPLE, INFORMATION, AND PROCESS LEVELS

Interoperability at the People Level

The key capabilities of SAP NetWeaver on the people level are a portal capability, collaboration features, and multichannel access via various devices or voice. These capabilities are delivered by the SAP® Enterprise Portal component and SAP® Mobile Infrastructure.

The benefits of interoperability between technologies on the people level are manifold:

- It gives customers and partners the flexibility to develop portal content on their preferred platform.
- It increases the efficiency and productivity of portal content development.
- It contributes to cost savings and protects customer investments.
- End users profit from an improved user experience.

PORTAL INTEROPERABILITY

The true promise of portals is to aggregate content from various sources – regardless of their origin – into one consistent, role-based user interface. Delivering on that promise depends on a productive and efficient development environment. Because developers want to leverage their skills in other development environments, SAP Enterprise Portal will support the emerging WSRP standard and will be JSR 168 compliant. This will allow the portal to transparently consume portlets (portal windows to back-end functions) developed in other development environments – and vice versa – as long as they are compliant with these standards.

SAP is also committed to delivering a portal developer kit for IBM WebSphere, as well as Microsoft .NET. This will allow developers to create front-end services in .NET or IBM WebSphere environments and to seamlessly embed them into SAP Enterprise Portal.

These developer kits go beyond simplistic HTML integration and offer developers in IBM WebSphere or Microsoft .NET environments the ability to access SAP Enterprise Portal services, such as user management, roles, pages, and personalization data, as if they were accessing these APIs natively. This is possible because SAP has exposed essential APIs as Web services served through a proxy and has included publishing capabilities in SAP Enterprise Portal.

The result? At runtime, content developed and run within IBM WebSphere or .NET appears seamlessly within the SAP Enterprise Portal interface, exploiting such portal services as single sign-on.

The portal developer kit will be accompanied with complete documentation, a set of samples, and prebuilt extensions.

INTEROPERABILITY OF COLLABORATION CAPABILITIES

SAP NetWeaver offers collaboration capabilities, such as a collaboration room and real-time collaboration, that promote dynamic communication within permanent and ad hoc teams or communities. Local administrators can manage shared e-mail, calendars, threaded discussions, and document stores, and they can independently update membership and access rights.

Although it handles most collaboration needs, SAP NetWeaver is designed to encompass groupware and collaboration products from other vendors. For example, it already interacts with information from Lotus Notes/Domino, as well as Microsoft Exchange and Microsoft Office. Furthermore, the knowledge management repository manager for Lotus Notes, which is discussed later, offers another level of interaction with Lotus Notes.

SAP is working with IBM to jointly develop built-in integration with Lotus Sametime, IBM's instant messaging and Web conferencing solution. This integration will allow SAP NetWeaver users to take full advantage of Lotus Sametime capabilities without switching back and forth between environments and without learning two different environments.

Interoperability of SAP Mobile Infrastructure

SAP Mobile Infrastructure provides a highly scalable and flexible platform that enables companies to run mobile applications in either a connected or disconnected mode. Mobile applications can be developed within IBM WebSphere and run via SAP Mobile Infrastructure, thus taking advantage of the capabilities of the IBM DB2 database everywhere on mobile devices. SAP Mobile Infrastructure currently runs on both Pocket PC and Linux-based devices.

SMART CLIENT FOR SAP ON .NET

Microsoft .NET WinForms technology offers the performance and flexibility of a rich client and no-touch deployment with the security of a thin client. Because this futuristic user interface may attract SAP users, SAP has embarked with Microsoft on a mission to offer a .NET implementation of Web Dynpro, SAP's highly productive user interface development engine, as a smart client.

Interoperability at the Information Layer

The information layer of SAP NetWeaver consists of the following key capabilities:

- Business intelligence for structured information
- Knowledge management for unstructured information
- Master data management for consistency and data integrity across systems

Although information is typically universal, accessing and aggregating it consistently while ensuring its integrity requires a high level of openness and interoperability.

A FLEXIBLE BLEND OF TOOLS FOR MANAGING STRUCTURED INFORMATION

SAP® Business Information Warehouse (SAP® BW) is an end-to-end solution that handles the entire gamut of business intelligence needs. It is the core component of the mySAP™ Business Intelligence solution. The scalable architecture and support for open standards enables organizations to integrate, analyze, and disseminate relevant and timely information. This includes a

set of industry-leading partner products that work with SAP BW in all levels – from extraction, transformation, and load (ETL) utilities through analyzing, reporting, and delivering the information.

IT organizations can use Microsoft's SQL Server Analysis Services as multidimensional storage in SAP BW so that multidimensional or hybrid online analytical processing (MOLAP or HOLAP) structures can be used instead of relational OLAP (ROLAP). This significantly improves the performance of certain ad hoc queries and multiuser access on overlapping data sets. It features integrated management tools with SAP BW and SQL Server management tools.

On the metadata level, SAP BW offers standards base data integration that includes the Java Metadata Interface (JMI) specification and XML Metadata Interchange (XMI). XMI enables metadata interchange in distributed heterogeneous environments in a platform-neutral way and can be used with .NET or J2EE development environments.

SAP BW provides OLE DB for OLAP, which allows generic accessibility to a wide variety of applications.

In addition to the support for OLE DB for OLAP, SAP BW also supports XML for Analysis (XMLA), which defines a similar API based on SOAP and XML. XMLA provides reliable data access for Web applications, the Internet, mobile devices, and cross-platform desktop components. Using ADO .NET or ADOMD.NET on the .NET platform facilitates XMLA-based SAP BW access.

SEAMLESS INTERACTION WITH UNSTRUCTURED INFORMATION

SAP® Knowledge Management (SAP® KM) supports industry standards for accessing, interacting, and delivering unstructured information that is stored in a heterogeneous repository landscape. The repository framework of SAP KM provides open APIs to connect to virtually any repository – either via specific connectors for certain repository types or via standard proto-

cols, including Web-based Distributed Authoring and Versioning (WebDAV), HTTP, and Information and Content Exchange (ICE). A straightforward example is the ability to access documents stored in the SAP KM repository using a Microsoft file system client. All SAP KM services, such as full text search, check in/out, or categorization can be applied to the connected repositories.

SAP is exploring integration scenarios between its SAP KM repository framework and data management tools like IBM Content Manager and Microsoft Content Management Server. When these scenarios materialize, they will offer even greater interoperability on the information level.

Interoperability at the Process Level

The key capabilities of SAP NetWeaver on the process level are an integration broker and business process management (BPM). These capabilities are delivered with SAP® Exchange Infrastructure (SAP® XI).

The benefits of interoperability between technologies on the process level include minimizing the number of point-to-point connections, centralizing integration knowledge, allowing ease of change, and orchestrating processes that span many technologies.

CONNECTIVITY WITH SAP EXCHANGE INFRASTRUCTURE

SAP Exchange Infrastructure includes an open, standards-based integration broker. It provides a solution for integrating applications and services whether they are SAP or non-SAP and whether they are within or beyond enterprise boundaries.

SAP Exchange Infrastructure provides a number of technical adapters that facilitate interoperability with other enterprise application integration (EAI) or business-to-business (B2B) solutions, such as IBM WebSphere. For example, SAP XI offers a JMS adapter that allows interoperability with IBM WebSphere MQ. A business application that runs on SAP can be integrated with a business application that runs on IBM WebSphere,

applying JMS using MQSeries. This interoperability between SAP XI and IBM WebSphere MQ, which has been successfully implemented at customer sites, allows customers to deploy and integrate more than one business process integration solution. SAP XI is also interoperable with Microsoft Message Queuing (MSMQ) via partner adapters, which are available from SAP. That means companies can interweave and manage an IT landscape in which IBM WebSphere Business Integration, Microsoft BizTalk, and SAP Exchange Infrastructure coexist and exchange information. SAP XI allows for heterogeneous system integration – even at the integration broker level itself.

THE ADAPTER FRAMEWORK

In the future, SAP Exchange Infrastructure will offer an adapter framework based on Java Connector Architecture (JCA) 1.5. This adapter framework will allow third-party adapter providers, major software vendors, and companies to develop resource adapters that plug into the adapter framework. IBM WebSphere Business Integration offers a number of JCA adapters for connectivity to non-SAP back-end systems, which broadens the range of non-SAP back-end integration options for SAP customers. Such resource adapters may offer integration on two levels:

First, a resource adapter can integrate non-SAP back-end applications, such as those from Oracle, PeopleSoft, JD Edwards, and Siebel. The benefit of the SAP JCA adapter framework is that the adapters do not require their own adapter runtime. The adapters function as plug-ins to the adapter framework, reducing the total cost of ownership.

Second, these resource adapters can convert messages from one protocol to another, integrating EAI solutions at the messaging level. This adapter framework enables message-level interoperability of SAP XI with other EAI solutions, such as IBM WebSphere Business Integration or Microsoft .NET.

VERTICAL INDUSTRIES STANDARDS

SAP provides application-level industry solutions for various vertical industries, such as high tech or chemicals. To complement its application industry solutions, SAP XI will also provide industry solution kits for industry standards, such as RosettaNet, Chemical Industry Data Exchange (CIDX) or Petroleum Industry Data Exchange (PIDX). Because SAP, IBM, and Microsoft support RosettaNet message protocol, interoperability via this standard protocol will be achievable.

INTEGRATION KNOWLEDGE AND CONTENT

SAP Exchange Infrastructure goes beyond pure messaging functionality; it centralizes integration knowledge and content – whether it is for SAP or non-SAP applications – in the SAP XI integration repository and integration directory. The benefit of centralizing integration knowledge (beside offering more efficient management) is the ability to deliver built-in content, such as business scenarios, business process definitions, and mappings. This makes SAP XI a more comprehensive solution to the integration challenge, and it reduces the need for customized integration. Because SAP XI is based on open standards, IT organizations can create, import, or manage integration content for IBM and Microsoft solutions in SAP Exchange Infrastructure in two ways.

First, SAP Exchange Infrastructure will enable the import of Web Services Description Language (WSDL) files. That means IT groups can manage Web services descriptions originating from IBM or Microsoft in the SAP Exchange Infrastructure repository and directory.

Second, SAP Exchange Infrastructure supports Extensible Stylesheet Language Transformation (XSLT) mappings. Mappings to and from SAP and non-SAP applications can be managed in SAP Exchange Infrastructure so IT groups can create mappings to Microsoft .NET applications and manage interoperability at the content level within SAP Exchange Infrastructure.

BUSINESS PROCESS MANAGEMENT

Business process management (BPM) includes the orchestration, design, execution, and monitoring of business processes that span multiple systems or applications. The challenge for major software vendors is to orchestrate business processes that include applications built by other vendors. As various BPM tools supporting involved applications adopt the standards, business process design that involves applications of various vendors becomes possible.

SAP is currently investigating and driving standards in the realm of BPM and will support the winning standards as they emerge. BPEL4WS is an example of a strong candidate to become an approved standard that will give BPM tools the capability to import and export descriptions of business processes sequences with other BPM tools and will facilitate the interoperability of SAP NetWeaver with IBM WebSphere and Microsoft .NET on the process level.

CONCLUSION

SAP considers itself to be a trusted advisor to IT organizations, helping them reduce the total cost of ownership, enable growth, and show added value to their enterprises. SAP recognizes the high level of heterogeneity of IT landscapes and the need to consolidate and leverage existing investments, while enabling an adaptive business in which IT can promote growth of the enterprise.

SAP has delivered a unique integration and application platform that is designed to be fully interoperable with IBM WebSphere and Microsoft .NET. This integration applies a holistic approach, that covers all three integration layers – people, information, and business processes – while relying on an application platform based on open standards.

SAP is committed to continue investigating ways to cooperate with IBM and Microsoft to ensure a high level of interoperability to help customers reduce total cost of ownership and meet their toughening enterprise requirements.

INTEROPERABILITY QUICK REFERENCE TABLE

SAP NetWeaver™	IBM WebSphere	Microsoft .NET
People		
Portal Developer Kit (PDK)	Portal interoperability with IBM WebSphere with PDK and standards, such as JSR 168 and WSRP	Portal interoperability with Microsoft .NET
Collaboration	Integration with Lotus Domino and Lotus Sametime for collaboration purposes and for enabling single sign-on	
Desktop		Agree to codevelop a .NET smart client for WebDynpro
Information		
Knowledge management (repository framework)	Integration of data management products like IBM Content Manager for information integration purposes (under investigation)	Integration with Microsoft Content Management Server
Business intelligence		Integration of SQL Server Analysis Services in mySAP Business Intelligence
Desktop/office		Portal integration with Microsoft Office; SAP connector to latest release of Microsoft Exchange Server
Processes		
SAP Exchange Infrastructure: JMS adapter	Integration with IBM WebSphere Business Integrator via message exchange	
SAP Exchange Infrastructure Adapter Framework	Able to integrate IBM WebSphere to SAP Exchange Infrastructure via resource adapters	Able to integrate with Microsoft .NET via a MSMQ adapter
Business standards	Able to integrate to IBM WebSphere via the RosettaNet message protocol	Able to integrate to Microsoft .NET via the RosettaNet message protocol
Business content compatibility	Able to import WSDL files for Web services integration with IBM WebSphere	Able to import WSDL files for Web services integration with Microsoft .NET
Application platform		
Standards compliance XML, SOAP, WSDL, and UDDI	Joint participation	Joint participation
Development environment	SAP supports Eclipse as the open source framework for its development environment. The IBM WebSphere WSAD is ready to support the SAP Web Application Server runtime environment. SAP Java Connector	Visual Studio.NET SAP .NET Connector
Life-cycle management	Integration with Tivoli product line (policy manager and content manager)	

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