

Executive Summary

Over the years, IT environments have become more complex and more heterogeneous due to diverse customer needs and rapid innovation in the IT industry. Integrating applications and business processes across the enterprise is critical for increasing productivity, improving organizational efficiencies, and reducing costs.

To address this issue, Microsoft delivers interoperability by design.

Microsoft's approach to interoperability increases the value of IT solutions by giving customers more control of their data and enabling bridging technologies that can translate between different data formats, protocols, and technologies.

What is Application Integration?

It's about getting different software applications to work better together. Application integration is:

- **Bringing people together** through accessibility technologies, bridging technologies, and broad support for industry and technical standards.
- **Integrating diverse systems** using a wide range of methods including messaging protocols, Web services, and developer tools.
- **Improving business efficiencies** with products like Microsoft® BizTalk® Server, Microsoft Dynamics™, Microsoft Office, SharePoint® Server, Visual Studio®, and Windows Vista™.
- **Providing opportunities for developers** to build innovative products and technologies for the Windows® operating system through initiatives like MSDN®, TechNet, CodePlex, and the Shared Source Initiative.

Microsoft's Approach to Application Integration

For customers who have heterogeneous IT environments, Microsoft delivers application integration four ways:

- **Products:** Providing innovative tools for developers, messaging protocols, and Web services technologies that broadly enable interoperability.
- **Community:** Working together with customers, partners, and competitors to enable a broad range of integration scenarios such as business process integration, Microsoft .NET/Java interoperability, and Web services integration.
- **Access:** Licensing technologies to and from other companies and promising not to assert patents for 38 Web services standards including SOAP, WSDL, and WS-I Basic Profile under the Open Specification Promise.
- **Standards:** Supporting industry and technical standards for messaging protocols, networking, and Web services and actively participating with leading standards-setting organizations to promote technology adoption.

Microsoft Supports Standards

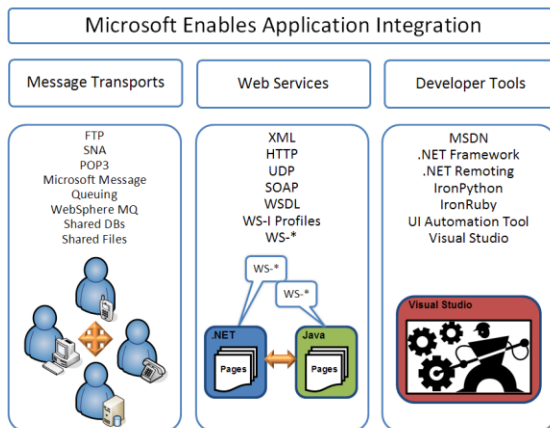
- **Microsoft products and technologies support hundreds of technical standards** such as FTP, HTTP, IMAP, IP, IPSec, Kerberos protocol, POP3, LU 6.2 protocol, MIME, SNA, SOAP, SSL, SNMP, TCP, TLS, UDP, WSDL, WS-*, and XML.
- **Microsoft is actively engaged with more than 100 standards-setting organizations and workgroups** such as ECMA, ETSI, OASIS, OMA, IEEE, IETF, ISO/IEC JTC1, ITU, and W3C.
- **Microsoft engineers have authored or co-authored dozens of industry specifications and standards** such as .NET CLI, C# CLI, XML, SOAP, WSDL, MTOM, UDDI, WS-Addressing, WS-AtomicTransaction, WS-Management, WS-Policy, WS-ReliableMessaging, and WS-I Basic Profile.
- **Microsoft is working with industry to define a new generation of software and Web services** based on eXtensible Markup Language (XML).

Getting Applications to Work Together

- With better application integration, customers can capitalize on existing application resources and source code, integrate complex and highly-customized business and organizational processes, and reduce total cost of ownership.
- Microsoft contributes to and supports messaging protocols that enable interoperability between Microsoft applications and other technology platforms such as IBM WebSphere, Oracle Fusion, SAP mySAP, and Sun One.
- The Visual Studio development system gives developers a comprehensive tools platform, reduced development complexity, improved team communication, and a vibrant third-party ecosystem for creating interoperable software solutions.
- The Microsoft .NET Framework is used to build and run all kinds of software, including mobile solutions, Windows applications, Web sites, and Web services—components that facilitate integration by sharing data and functionality over a network through standard, platform-independent protocols such as XML, SOAP, and HTTP.

For More Information, Visit

- Microsoft BizTalk Server
<http://www.microsoft.com/biztalk>
- Microsoft .NET Framework
<http://www.microsoft.com/net>
- Microsoft Visual Studio Developer Studio
<http://msdn.microsoft.com/vstudio/>
- Microsoft Servers
<http://www.microsoft.com/servers>
- Learn more
www.microsoft.com/interop



Microsoft®

Use Case Scenario	Microsoft Solutions	Standards Supported in Microsoft Products	For More Information, Visit
Integrate complex and highly-customized business processes and workflows	BizTalk Server offers more than 30 pre-built adapters for integration with HL7, JD Edwards, mySAP, Oracle, PeopleSoft, RosettaNet, SAP, Siebel, TIBCO, and other line of business applications. Developers can write their own custom adapters with the BizTalk Server Adapter Framework to connect with other Web services applications.	EDI, flat files, FTP, HTTP, IP, MIME, POP3, SMTP, SOAP, SQL, TCP, UDP, WS-*, XML, XSD	1) http://www.microsoft.com/biztalk/evaluation/adapter 2) http://msdn.microsoft.com/biztalk/learning/adapt
Integrate Microsoft Office applications with SAP ERP solutions	With Duet™ for Microsoft Office and SAP , users can access SAP business processes and data via the familiar Microsoft Office environment. In the second half of 2006, SAP and Microsoft will offer two value packs for Duet that provide additional business scenario support, enhanced platform capabilities, and language support.	HTTP, IP, SOAP, TCP, UDP, WS-*, XML, XSD	1) http://www.microsoft.com/presspass/press/2006/may06/05-02DuetPR.mspx 2) http://www.duet.com/
Integrate business process management workflows across different application platforms	Microsoft Dynamics AX Application Integration Framework (AIF) enables companies to integrate and communicate with other business processes and partners electronically. As the replacement for the Microsoft Business Solutions–Axapta 3.0 Commerce Gateway, it helps enable more secure B2B and A2A integration scenarios. It also greatly reduces the cost to develop and customize documents based on industry-standard XML.	EPC, EPI, file system, HTTP, MTOM, PML, SOAP, UDP, Unicode, WSDL, WS-*, XBRL, XML	1) http://msdn2.microsoft.com/en-us/library/aa834363.aspx
Integrate customer relationship management processes and workflows	Microsoft Dynamics CRM Connector Templates enable Microsoft CRM to integrate with a broad range of third-party ERP applications via BizTalk Server, including SAP, Oracle, PeopleSoft, and other applications. It also forms the basis of BizTalk Server–based adapters between Microsoft CRM and custom or legacy applications.	file system, HTTP, MTOM, PDF, SOAP, UDP, WS-I Profiles, WSDL, WS-*, XML	1) http://www.microsoft.com/presspass/press/2006/mar06/03-27Convergence2006CRMPR.mspx
Integrate Office SharePoint Server with SAP and Siebel line of business applications	Microsoft Office SharePoint Server 2007 introduces a new enterprise integration feature called Business Data Catalog that integrates business data from backend applications, such as SAP or Siebel, with corporate portals to provide rich solutions for end users.	HTTP, IP, MTOM, SOAP, TCP, WSDL, WS-*, XML	1) http://msdn2.microsoft.com/en-us/library/ms563661.aspx
Improve .NET/Java interoperability	Microsoft and Sun Microsystems are working together to design and develop interoperable solutions for .NET/Java integration using Web services, bridging technologies, and asynchronous technologies for IBM WebSphere, BEA WebLogic, JDBC databases, and all the leading Java EE application servers.	HTTP, IP, MTOM, SOAP, TCP, WSDL, WS-*, XML	1) http://www.microsoft.com/interop/partner/sun.mspx
Enable interoperability between applications running different processes on different machines	Microsoft .NET Remoting provides a rich and extensible framework for objects in different application domains, processes, and machines to seamlessly communicate with each other. With Internet Information Services (IIS), .NET Remoting objects can be exposed as a Web Service. Any client that can consume a WSDL file can make SOAP calls to the remote object according to the contract specified in the WSDL file.	HTTP, IP, MTOM, SOAP, TCP, WSDL, WS-*, XML	1) http://msdn.microsoft.com/web/services/remoting
Integrate message queues and run distributed transactions	The Microsoft .NET Framework provides a managed code class of COM+ services called Enterprise Services (ES), which offers programmatic ways to utilize IIS and Microsoft Message Queuing services together with legacy applications.	HTTP, IP, MTOM, SOAP, TCP, WSDL, WS-*, XML	1) http://msdn.microsoft.com/web/services/enterpriseservices
Integrate IBM host applications with Windows	Microsoft Host Integration Server provides a wide variety of technologies and solutions that integrate IBM CICS, IMS, AS/400, and WebSphere MQ programs with Microsoft .NET, Microsoft Message Queuing, and COM applications.	FTP, HTTP, IP, LU 6.2 protocol, SNA, SOAP, TCP, UDP, WSDL, WS-*, XML	1) http://www.microsoft.com/hiserver/evaluation/overview
Provide a rich platform for application development and integration	The Microsoft .NET Framework version 3.0 provides a common language runtime (CLR) and the .NET Framework class library which developers can use to write object code that can be stored and executed locally, executed locally but Internet-distributed, or executed remotely. Code based on the .NET Framework can integrate with any other code whose compiler conforms to the common language specification (CLS).	.NET CLI, C++, CSS, C# CLI, DNS, FTP, HTML, HTTP, iDNS, IP, MTOM, SOAP, SSL, TCP, TLS, UDDI, WSDL, WS-*, XML	1) http://msdn2.microsoft.com/en-us/netframework 2) http://msdn2.microsoft.com/en-us/library/hfa3fa08(VS.80).aspx
Port applications written in other programming languages to the Windows platform	Visual Studio supports more than 30 different programming languages and can convert COBOL, RPG, Fortran, and Java to C, C++, Microsoft Visual C#, or Visual J# with tools such as the Java Language to C# Conversion Assistant (JLCA 3.0).	C++, C# CLI, CSS, DNS, FTP, HTML, HTTP, iDNS, IP, JScript®, TCP, TLS, SOAP, SSL, WS-*, XML	1) http://msdn.microsoft.com/vstudio/ 2) http://msdn.microsoft.com/vstudio/downloads/tools/jlca/
Enable assistive technology to help individuals successfully use the Windows platform	Microsoft UI Automation is a new accessibility and automation model designed to address the needs of assistive technology products and automated testing frameworks by providing programmatic access to the graphical user interface. Microsoft offers a cross-platform, royalty-free license for UI Automation to enhance innovation across the industry and to encourage adoption of a consistent accessibility and testing model across all operating systems.	W3C Web Content Accessibility Guidelines (WCAG); US Rehabilitation Act of 1973, (Section 508)	1) http://www.microsoft.com/enable/at/uia.aspx 2) http://www.microsoft.com/presspass/features/2006/jun06/06-05VistaAccessibility.mspx
Integrate Microsoft Exchange Server and Microsoft Office Outlook® with IBM Lotus Notes and Lotus Domino applications	Microsoft Exchange Server provides a wide range of connectors and extensions that enable messaging, calendaring, address book, and task list interoperability with IBM Lotus Notes and Lotus Domino applications. In addition, Exchange Server 2003 also supports Internet Protocol security (IPSec) between front-end servers and clustered back-end servers running Exchange Server.	DDNS, DHCP, HTML, HTTP, iCalendar, IMF, IP, IMAP, IMAP4, IPsec, IRC, Kerberos protocol, LDAP, MIME, MIXER, NNTP, POP3, S/MIME, SIP, SMTP, SNMP, SSL, TKEY RR, TLS, UTF-8, vCard MIME Directory Profile, VPIM v2, WebDAV, X.400, X.500	1) http://www.microsoft.com/exchange/evaluation/overview 2) http://www.microsoft.com/technet/prodtechnol/exchange