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# Directions

on Microsoft



issue

**Messaging, Workflow  
Roadmap Announced**

## **A project code-named Oslo will deliver updated messaging and workflow technologies in the next version of BizTalk Server and other products starting in 2009.**

By Rob Helm

A project code-named Oslo will deliver updated messaging and workflow technologies in the next version of BizTalk Server and other products starting in 2009. These technologies are central to Microsoft's platform for service-oriented architectures and composite applications, which many architects believe are a faster and less costly way to build new business applications. Understanding Oslo can help organizations choose the right technologies for applications today, but Oslo is still far off and represents a broader vision that might never be realized in full.

### **Backing Service-Oriented Architectures**

Oslo is not a product but a project to update Microsoft technologies for service-oriented architectures, and for composite applications built on those architectures.

**A service-oriented architecture** is one in which the functions of major business applications (for example, a company's enterprise resource planning [ERP] system) are made available as Web services, large-scale software components that communicate by exchanging messages as described in published message interfaces, or "contracts." For example, a hospital might create Web services for patient administration, lab scheduling, and clinical records on top of its existing ERP installation and clinical systems. Oslo will deliver Microsoft's next generation of messaging APIs, tools and services for building such Web services on Windows.

**A composite application** implements a specific business process on top of a service-oriented architecture, integrating multiple Web services while keeping the logic of the business process (its workflow) separate from the constituent Web services. For example, a diagnostic imaging center at a hospital might build a composite application for patient self-check-in on top of the hospital's patient administration, lab scheduling, and clinical record Web services. Oslo will deliver the next version of Microsoft's programming tools and runtime support for workflows in composite applications, as well as new technologies for managing composite applications in production environments.

Software architects at Microsoft and elsewhere believe that service-oriented architectures and composite applications benefit business application development. Service-oriented architectures effectively turn existing applications into libraries of components (Web services) that other developers can discover and integrate into new, composite applications. Composite applications, in turn, can automate business processes that cut across an organization's existing business applications, potentially reducing the costs of running the business processes and improving their reliability. Building composite applications on Web services could prove an easier, safer way to support new business processes than customizing the underlying business applications directly, which can potentially impact existing users of the business applications, and which

requires developers who know the customization technologies of all the business application vendors.

### **Oslo Improves Messaging, Workflow, Tools**

Oslo technology won't appear until 2009 or later, so any description of that technology is at best an informed guess.

According to current plans, the major vehicle for Oslo technology will be the next version of BizTalk Server, not yet named but called BizTalk Server V6 here. BizTalk Server is Microsoft's product for application integration, business-to-business commerce, and business process management. Among other things, BizTalk Server includes messaging technology to support building Web services on existing applications, and a workflow technology (called Orchestration) for capturing the workflow of composite applications.

However, BizTalk Server is not the only product affected by Oslo: planned updates to the Visual Studio development environment and the System Center line of systems management products will also deliver Oslo technologies, and an online service from Microsoft will use Oslo technologies to support business-to-business composite applications.

(See the illustration "Oslo and the Product Roadmap" on the next page.)

### ***BizTalk Server Messaging on Communication Foundation***

BizTalk Server V6 will ship a new messaging infrastructure built on the Windows Communication Foundation messaging API. The Communication Foundation (introduced in the .NET Framework 3.0) enables reliable communication among Web services and other components of composite applications. It supports a variety of network protocols and message formats, including Microsoft Message Queue (MSMQ) and the WS-\* protocols under development by Microsoft, IBM, and other vendors.

Today, BizTalk Server uses a messaging technology that predates the Communication Foundation, although it can connect to the Communication Foundation through translation components (delivered in BizTalk Server 2006 R2). BizTalk Server V6, in contrast, will use the Communication Foundation as its native messaging technology. Possible messaging features include the following:

**Publish-subscribe routing.** BizTalk Server V6 will probably support publish-subscribe routing of Communications Foundation messages. In publish-subscribe routing, Web services and other components don't have to ad-

dress messages to specific recipients; instead, they can publish messages with information on their content, and the messages are delivered automatically to recipients who have previously subscribed to that content. Publish-subscribe support simplifies construction of composite applications because the communications patterns of Web services and other components aren't hardwired, and so often don't need to be changed to support new applications. The Communication Foundation has no publish-subscribe routing capability today, although at least one partner (Neudesic) has built one. BizTalk Server V6 will probably support the WS-Eventing protocol, the WS-\* protocol that enables publish-subscribe routing.

**Adapters for business applications.** BizTalk Server V6 will deliver messaging adapters for enterprise business applications such as SAP's mySAP and Siebel CRM. An adapter enables an application to send and receive messages over the Communication Foundation, a crucial step to implementing a Web service on top of the application. An early version of the Oslo adapter technology already ships in a free toolkit called the Line of Business Adapter SDK. However, BizTalk Server V6 will deliver better developer tools for creating adapters, and will deliver adapters for major business applications, including mySAP ERP, Siebel CRM, and Oracle databases. A preview of Microsoft's business application adapters is already available in a beta BizTalk Adapter Pack; BizTalk Server V6 will bundle an expanded version of the adapter pack. The adapter pack will also continue to be available separately, supporting organizations that want to build Web services on the Communication Foundation and their business applications, but that don't need BizTalk Server's other capabilities.

**Design tools.** Today BizTalk Server provides useful graphical tools for describing application-specific message formats and converting between them. In BizTalk Server V6, these tools will probably be updated to use the Communication Foundation messaging infrastructure. Nothing comparable exists for the Communication Foundation today.

### ***BizTalk Server Moves to Workflow Foundation***

BizTalk Server V6 will deliver improvements to Microsoft's technology for workflow, the Windows Workflow Foundation. The Workflow Foundation (also introduced in the .NET Framework 3.0) runs programs (called workflows) in a simplified language designed for business processes, such as the steps of a patient check-in. The Workflow Foundation can

simplify creation and maintenance of composite applications thanks to its simplified language and graphical tools.

According to current plans, BizTalk Server V6 will host the Workflow Foundation engine and deliver new design and deployment tools for workflows running on that engine. Today, BizTalk Server uses its own workflow technology (called Orchestration), although it provides some tools for monitoring Workflow Foundation workflows. Likely features for V6 include the following:

**Deployment.** BizTalk Server V6 will probably deliver tools for centrally deploying Workflow Foundation workflows to servers and server farms, analogous to the Orchestration tools today. Support for server farms will be critical for limiting downtime and enabling large transaction volumes in composite applications. Today, some specific applications (such as SharePoint Server) embed the Workflow Foundation engine and support workflow deployment, but there are no tools for large-scale Workflow Foundation deployment in custom applications.

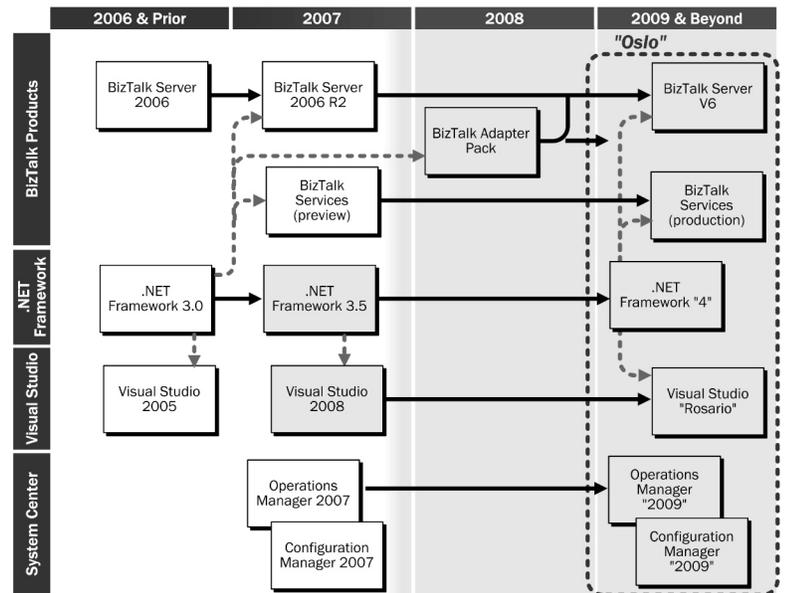
**Monitoring.** BizTalk Server V6 will probably deliver new tools that allow administrators and business workers to monitor running Workflow Foundation workflows. As with BizTalk's current Business Activity Monitoring feature, workers will probably be able to track the progress of business processes and obtain reports from either a browser or selected Office applications. BizTalk Server 2006 R2 already delivers Business Activity Monitoring support for Workflow Foundation workflows, but the features will probably be considerably extended in V6.

**Design.** BizTalk Server will probably deliver tools for graphical design and modification of Workflow Foundation workflows by business analysts. Today, developers can design Workflow Foundation workflows in Visual Studio, and SharePoint Designer provides a rules editor (similar to the editor for Outlook rules) that allows business users to create very simple workflows for use with SharePoint Server. BizTalk Server V6 will probably deliver a more general-purpose workflow tool for businesspeople, akin to the Visio-based Orchestration Designer of earlier versions.

**New Online Services, Repository**

In addition to the changes in BizTalk Server V6, Oslo is to deliver online services to aid business-to-business composite applications that cut across independent organizations, and a configuration database called the Repository to store composite application components.

## Oslo and the Product Roadmap



Releases for Nov. 2007 and later are Directions on Microsoft estimates

The Oslo technologies will be delivered in a set of products starting in 2009. Shown here is a likely delivery schedule. Oslo is a code name for a broad Microsoft initiative delivering messaging and workflow technologies for composite applications, which implement new business processes on top of an organization's existing business applications (e.g., its enterprise resource planning [ERP] system) and communicate with those business applications via Web services.

The most important product in the Oslo initiative is BizTalk Server V6, which will deliver a new messaging component based on the Windows Communication Foundation and a new workflow engine based on the Windows Workflow Foundation. Both the Communication Foundation and the Workflow Foundation shipped initially in the .NET Framework 3.0 and will continue to be available in subsequent versions, including the Oslo version (not officially named and called .NET Framework "4" here). However, BizTalk Server V6 will deliver additional components not in the Framework, such as support for publish-subscribe message routing, messaging adapters to enable connectivity to major business applications (such as mySAP ERP and Siebel CRM), and support for deploying workflows on server farms.

Also part of Oslo is a shared Repository component that stores workflows, Web services contracts, and other components of composite applications, to aid centralized development and management. Repository is supposed to be used by BizTalk Server V6 but also by Visual Studio (mostly likely the version code-named "Rosario" and due in roughly 2009), and by future versions of System Center products such as the Operations Manager monitoring product and the Configuration Manager product for software updating and inventory. The vehicle for delivering Repository is not clear, however. Among other possibilities, it could be a feature of the .NET Framework "4," a stand-alone product, or a feature of Microsoft's SQL Server database management system.

Visual Studio will continue to host BizTalk Server's developer tools for creating messaging and workflow components. However, BizTalk Server V6, like earlier versions, will probably ship workflow design and monitoring tools that don't require Visual Studio to support business analysts who need to define and keep track of business processes.

**BizTalk Services.** A planned set of Microsoft-hosted online services, called BizTalk Services, will provide publish-subscribe messaging routing, workflow hosting, and other services for business-to-business composite applications. Currently available in a preview version, these services will most likely provide capabilities of BizTalk Server V6 in a hosted configuration. However, they will also provide features, such as firewall traversal, that are specifically required for cross-organization applications.

**Repository.** A planned database technology, currently code-named Repository, will provide centralized storage of composite application components, including workflows and Web services contracts. According to current plans, Repository will also store the discovery, configuration, and health models required by systems management tools such as Configuration Manager and Operations Manager. BizTalk Server V6, a future version of Visual Studio, and the System Center products will all eventually employ Repository and enable organizations to maintain a single shared database with all the components of each composite application, potentially simplifying development and management.

The vehicle for delivering Repository is not clear. Among other possibilities, it could be a feature of the .NET Framework “4,” a stand-alone product, or a feature of Microsoft’s SQL Server database management system.

### **Broad Vision Requires Broader Changes**

Oslo supports principles—service-oriented architecture and composite applications—that Microsoft believes will drive future business application development. However, organizations today have reason to be wary.

**BizTalk Server migration.** The move to the Windows Communication Foundation and Workflow Foundation in BizTalk Server V6 suggests that BizTalk Server’s current messaging and Orchestration technologies will get little additional development from Microsoft. Microsoft might continue to ship the current technologies in V6 alongside the new ones, and paid product support will be available for the current technologies at least through 2017 (when BizTalk Server 2006 R2 support is scheduled to end). However, customers will want to limit new development on top of BizTalk Server’s existing messaging and Orchestration technologies.

**Technology and architecture shifts.** Current wisdom about how to build composite applications could change by the time Oslo is complete. After all, it wasn’t that long ago

that distributed object systems like DCOM and CORBA were state-of-the-art for enterprise application development. More recently, some organizations have adopted a Web-site-like architecture for Web services called REST (for Representational State Transfer) versus the more general, but more complex message-oriented architecture implied by the WS-\* protocols. Organizations evaluating Oslo will want to verify the adoption of technologies such as WS-\* messaging and look for large-scale successes in composite application development in their industries.

**Business application competitors.** Microsoft provides a relatively small fraction of the business applications that customers will wrap in Web services for composite applications: SAP and Oracle are better positioned in this regard, and so their customers will want to investigate these vendors’ composite application platforms alongside Microsoft’s. Microsoft could compensate in part by shipping a substantial library of messaging adapters in BizTalk Server V6, something it has done in previous versions of BizTalk Server.

**Using what you have.** All vendors pushing service-oriented architecture face a problem: Most existing business applications weren’t designed to support Web services. Furthermore, in many organizations, business units have very little incentive to reengineer their applications to support Web services: The benefit of those Web services go to other business units, while the costs fall on the unit that hosts the service. By improving tools and infrastructure, Microsoft can reduce the engineering costs of service-oriented architecture, but corporate culture and governance that determine how much service-oriented architecture has in any organization.

### **Resources**

**Microsoft’s service-oriented architecture site** is [www.microsoft.com/soa](http://www.microsoft.com/soa).

**The Windows Communication Foundation and Workflow Foundation** are summarized in the Nov. 2006 Research Report, “The .NET Framework 3.0.”

**BizTalk Server** is explained in more detail in “BizTalk Server 2006 R2 Ready” on page 15 of the Oct. 2007 Update and the Oct. 2004 Research Report, “BizTalk Server 2004 Drives Microsoft Integration Strategy.”

**BizTalk Services** are previewed in “BizTalk Services Demo B2B Technologies” on page 42 of the June 2007 Update.

**Microsoft product release and retirement plans** are forecast in the Oct. 2007 Enterprise Software Roadmap.