



## Integration Technologies Overview

**The goal of integration projects is to achieve efficient communication between otherwise disconnected systems or components. It is the art of the interface.**

A variety of techniques can be used to move data and messages between systems. Solutions range from the extremely simple to the complex. Our familiarity with a wide range of operating systems, database environments, and application servers enables us to identify practical and cost-effective integration solutions. At the same time, we have the tools and technologies at our disposal to deliver solutions to the most demanding integration challenges.

**XML Web Services.** XML web services provide an industry-standard approach for exchanging data between systems -- be they homogeneous or heterogeneous. Web services are a cost-effective and standards-based solution for systems that must exchange data across the public Internet, such as those of trading partners or businesses that constitute a supply chain. Because web services can "describe" themselves to a third party over the Internet, they are also a useful solution for offering a data service to be consumed by multiple systems, such as order-taking or real-time inventory checks.

**Java and .NET Remoting.** Java and .NET remoting provide a rich set of features for invoking functions and data operations on remote systems. These techniques are very well suited to fast binary communication within a corporate network.

**Shell Scripting.** Shell scripting provides a straightforward but very flexible means for "batching" data and messages between heterogeneous systems using utilities that are native to a variety of operating systems. Shell scripting can be combined with command-line tools that are bundled with the operating system such as ftp, awk, grep and sed and ones that are shipped with a server product such as Oracle SQL\*Plus and SQL\*Loader or Microsoft OSQL and BCP utilities to automate complex file and data manipulation tasks. On the Windows platform, many COM objects are scriptable and a surprising number of platform features are accessible through scriptable interfaces to the Windows Management Instrumentation. Script-based integration is a practical, and often inexpensive, solution for many basic integration needs.

### WolfeReiter thoughtful computing

WolfeReiter provides comprehensive software services to business, nonprofit, and government clients.

- Software Design and Development
- Systems Integration
- Consultative ROI Analysis & IT Investment Planning
- Project Planning and Management Based on the Industry-Standard Software Development Life Cycle Approach
- Application Security Design and Implementation

Contact us today for a free consultation or visit [www.thoughtfulcomputing.com](http://www.thoughtfulcomputing.com) to learn more.

941 O Street NW  
Washington, DC 20001  
[info@thoughtfulcomputing.com](mailto:info@thoughtfulcomputing.com)

202.468.2752



**COM/COM+ Services.** Many Windows applications and business server systems for Windows export their functionality through the Component Object Model. COM and COM+ objects can often be instrumented with custom code to provide rich integration between systems that were not designed to be used together. COM-based integration is most feasible within a secure and trusted local area Windows-based network.

**Message Queuing.** Message Queues are an asynchronous system for sending messages between two computing systems. These messages are guaranteed to arrive but the timing of their arrival is indeterminate. Message Queues are especially useful for integrating high-volume transaction processing systems with a non-real-time business function. The transaction system passes some payload to the message queue and then finish process its transaction without waiting for the back-end business function to process. The advantage is that when transaction processing is decoupled from processor and time-intensive business processes, the transactions are processed much more quickly and cheaply.

**CORBA.** CORBA is the acronym for Common Object Request Broker Architecture, a complex platform- and language-neutral application integration technology. It is notoriously complex, but is useful especially for integrating legacy financial systems and for integrating systems from different vendors that are otherwise totally incompatible.

**ICE.** The Internet Communications Engine, is a middleware integration system intended as a practical and simplified replacement for CORBA. ICE is highly efficient. It has excellent performance for both latency and data transfer. Furthermore, ICE provides features that make it inherently faster than other middleware technologies, such as CORBA and XML Web Services.

## WolfeReiter

thoughtful computing

WolfeReiter provides comprehensive software services to business, nonprofit, and government clients.

- Software Design and Development
- Systems Integration
- Consultative ROI Analysis & IT Investment Planning
- Project Planning and Management Based on the Industry-Standard Software Development Life Cycle Approach
- Application Security Design and Implementation

Contact us today for a free consultation or visit [www.thoughtfulcomputing.com](http://www.thoughtfulcomputing.com) to learn more.

941 O Street NW  
Washington, DC 20001  
[info@thoughtfulcomputing.com](mailto:info@thoughtfulcomputing.com)

202.468.2752

