



CrossOver Office™: Comparison with Competing Solutions

Overview: This document is provided to help identify and evaluate key points of comparison between CodeWeavers' CrossOver products and some of its key competitors. Two CrossOver products are examined in this light:

- **CrossOver Office**—allows Windows productivity applications like Word, Excel, Quicken, etc. to be run on a Linux PC without a Windows operating system license. Competes with solutions like VMWare and Win4Lin.
- **CrossOver Office Server Edition**—deploys the power of CrossOver Office in a distributed thin-client environment. Competes with solutions like Windows Terminal Server and Citrix.

For both products, we examine a number of different indices which would be used to come to a purchase decision. As will be seen, CodeWeavers products offer a compelling value proposition to those customers seeking to bridge from Windows to Linux.

CrossOver Office Comparison

Technology Approach

Both VMWare and Win4Lin are emulators. In other words, Windows applications are actually run under Windows in a separate virtual machine on the client PC, and the emulator handles displaying the applications under Linux. Unlike emulation technologies, CrossOver Office is based on an open-source technology called Wine. Wine is a complete re-implementation of the Win32 API under Linux. As a result, using CrossOver to run Windows applications does not require one to have a Windows OS running in the background. Instead, Windows applications run “as if natively” directly under Linux. This provides the user with an immediate cost savings associated with the purchase of the Windows OS, and has other implications as well.

Memory Allocation

Most emulation technology requires a dedicated block of memory to run the emulator. It is not uncommon, for instance, for a VMWare session to soak up 128MB of system RAM. This RAM is used exclusively by the emulator as long as it is run, regardless of whether any applications are being run or not. CrossOver Office, on the other hand, consumes RAM dynamically, based on the application's needs at the time.

Ease of Use / Convenience / Integration

One of the practical outcomes of an emulator approach is that the emulator by necessity “carves out” an environment that is somewhat separate from the Linux OS on the host PC. For instance, in order to establish a VMWare session, a user literally has to boot Windows in a separate partition and wait for it to load before then loading the actual application. Given the memory issues just discussed, it is impractical

for many users to simply keep VMWare running in the background at all times, meaning that the user suffers this startup penalty whenever s/he uses the software. By contrast, CrossOver suffers from no start-up lag for the OS—the only delay is the time it takes for Word to load.

Similarly, in terms of file integration, an emulator solution lives in its own sandbox as far as file-sharing is concerned. As a result, moving files in and out of VMWare requires mounting Samba drives and so on. With CrossOver, the applications run natively under Linux file system, and files can be saved and moved around normally within the OS.

System Performance

Emulation technology typically imposes a penalty in terms of performance. Wine does as well, but it tends to exact a smaller premium, meaning that CrossOver offers very good performance to the average office user.

Cost

Emulators like VMWare tend to be pricier than Wine. VMWare is \$299.00 (as of 10/25/02), and Win4Lin is \$89.99. In addition, each of these solutions requires a WindowsXP license, which retails at \$199.99. In other words, complete emulator solutions retail for between \$289-\$499. CrossOver Office retails for \$54.95.

Application Footprint


This is the current major shortcoming of Wine, and hence CrossOver Office. CrossOver does not yet support as wide a range of Windows applications with the same degree of fluidity that emulators do. This is because emulators truly run Windows applications natively, whereas Wine currently has not completely re-implemented the Win32 API. As a result, emulators are still a better choice for running custom-built Windows applications. For this same reason, CodeWeavers has focused its efforts on running a discreet set of high-value office productivity applications like MSOffice. The currently supported applications for CrossOver Office are:

- Microsoft Office 97 and 2000, including, Microsoft Word, Excel and Powerpoint
- Microsoft Outlook
- Internet Explorer 5.5
- Microsoft Visio
- Intuit Quicken
- Lotus Notes 5.5
- Microsoft Viewers (Word, Excel, Powerpoint)

The result of this focus has been that for applications like Word, Excel, and Powerpoint, which are on 90+ percent of desktops, CrossOver is a perfectly viable alternative. And as CrossOver continues to improve, of course, the supported Windows application footprint will continue to increase as well. For instance, version 2.0 of CrossOver Office (due out in Q1 2003) will feature support for MSOffice XP and MS Access. Support for Adobe Photoshop and Illustrator, as well as double-byte language support (Chinese, Japanese, Korean) is forthcoming in 2003 as well. [CodeWeavers currently supported list of applications can be found at: http://www.codeweavers.com/products/office/supported_applications.php]

CrossOver Office Evaluation Matrix

The following grid graphically summarizes the attributes discussed in this white paper.

		Emulation Solutions (VMWare, Win4Lin)
Memory Allocation	Dynamic	Static
Ease of Use / Convenience / Integration	Direct integration with Linux OS and file system	Unintegrated
System Performance	As if native	Good
Retail Cost	\$54.95	\$279-\$500 (Windows license included)
Supported Applications	Core Windows office productivity applications	Most Windows applications

CrossOver Office Server Edition Comparison

Many of the same comments regarding CrossOver Office running in standalone mode pertain to an evaluation of Server Edition. However, there are other aspects of competing thin-client environments that bear mentioning as well.

Technology Approach

Much like CrossOver Office's competitors in the standalone space, Microsoft Terminal Server and Citrix both require a Microsoft Windows operating system license underlying the operation of the server applications. CrossOver Office Server Edition obviates the need for an MS OS license on either client or server, and thereby keeps overall technology acquisition and licensing costs down. Server Edition makes it possible to economically extend Windows applications into Unix environments like Solaris, which previously required complex and pricey hardware solutions in order to run Windows.

Ease of Licensing

CodeWeavers is strongly opposed to licensing practices that are overly complex, restrictive, or burdensome for our customers. In an era where many organizations have IT functionaries whose entire job revolves around ensuring their company's compliance with software licensing obligations, we think that this is one of the strongest appeals of Server Edition. Server Edition is licensed on a simple concurrent usage scheme. There is no need for managing individual client-access licenses (CALs), or for re-assigning licenses if a user moves from one machine to another. Users are not locked out from the software for having a spike in corporate usage and thereby temporarily exceeding their license limit. CrossOver Server Edition makes it easy to be in compliance with licensing, since all licensing reports are compiled in a single location on the server. System administrators know where they stand with a single click of a button.

Cost

Server Edition is far less expensive than its competitors. Basic Microsoft server licensing costs for a 25-user workgroup (server license, server CALs, and terminal services CALs) amount to \$240 per seat at retail. A solution like Citrix will add retail \$250 per user on top of that. CrossOver Office Server Edition starts at a price of \$95 per concurrent user. This is one of the most appealing aspects of Server Edition—the ability to “get into the game” for a reasonable initial cost, even for smaller organizations. Server Edition pricing is given below:

Initial Server	\$1,195.00
Additional Servers	\$595.00
Client Licenses	
25	\$1,185.00
50	\$2,250.00
100	\$4,000.00
500	17,500.00

Another cost-savings opportunity is using Server Edition to drive consolidation onto a single desktop. For those organizations that have numbers of technical personnel (engineers, CAD/CAM operators, etc.) using multiple desktop machines (such as a Unix workstation for engineering, and a Windows PC for email and Word), Server Edition allows the customer to completely eliminate the cost of ownership of the Windows PC by running all applications—Windows and Unix—on a single X11 desktop.

Application Footprint

As with the standalone version of CrossOver Office, thin-client solutions such as Microsoft Terminal Server and Citrix (not surprisingly!) run a wider variety of Windows applications. However, CrossOver continues to expand its application footprint, and already strongly supports some of the most critical applications on the market.

Network Performance

Solutions like Citrix have expended great efforts in optimizing their applications for usage in low-bandwidth environments. As a result, they have very efficient transmission protocols, and can in some cases be used over dial-up connections. CrossOver Office Server Edition is not optimized for such environments, and in most cases should not be deployed over low-bandwidth connections. However, ServerEdition's bandwidth utilization is still surprisingly good in most settings—approximately 120KB/sec to load an application, 40KB/sec for normal usage, and 8 KB/sec when idle. This makes it a very high-performance, scalable solution in 10MB/sec LAN environments, and makes it possible to deploy with some degradation over faster remote connections like DSL.

CrossOver Office Server Edition Evaluation Matrix

The grid below graphically summarizes the attributes discussed in this White Paper.

		Thin-Client Solutions (MS Terminal Server, Citrix)
Per User Cost for 25-user Workgroup (retail)	\$95	MS Terminal Services: \$240 Citrix: \$500
Ease of Licensing	Easy	Needlessly complex
Network Performance	Good	Good (Citrix ICA: Very Good)
Supported Applications	Core Windows office productivity applications	Most Windows applications