Using Citrix, You Can Take It With You

By Larry Eads

As a customer engineer here at BASIS, I'm frequently called to assist our resellers in designing specific hardware and software solutions for their customers. Recently, remote access to Windows applications has become a popular concern. From telecommuting employees or dial-in support for salespeople to just being able to access the office system from home, many users want to be able to "take it with them" when it comes to their personal productivity tools and shared business applications. To fulfill these end users' needs and provide remote software support, many BASIS resellers are looking for cost-effective, remote access solutions for Windows applications.

Software firms are addressing these issues with systems that mimic the familiar star topology used in centralized UNIX systems, that is, a central server with applications executing on the server and clients that only need to handle the presentation layer. The current market leader in multiuser Windows application servers is Citrix Systems, Inc. (NASDAQ: CTXS), founded in 1989, and developed under license and strategic agreement with Microsoft. A recent joint agreement between Citrix and Microsoft will allow both companies to offer thin-client solutions. The upcoming 5.0 version of NT from Microsoft will incorporate Citrix Systems' ICA protocol for support of thin clients. Here, I'll try to answer the most commonly asked questions about using Citrix.

My first exposure to the Citrix approach was during the fall of 1996 when I was visiting our Italian distributor for product demonstrations and a training class. There was a mis-understanding about who was providing the training stations for the class and, as a result, several students were waiting for class to begin with no classroom workstations in sight. Fortunately, a Citrix WinFrame system was available in-house and I watched in amazement while a multiuser Windows system was assembled in fifteen minutes. First, a Windows NT 3.5 server with WinFrame previously installed was placed at the instructor's desk. Next, four Wyse thin-client terminals with SVGA capability and mouse ports were placed at the students' desks. An ethernet cable was run from the server and daisy-chained between the terminals. After plugging in a mouse at each of the terminals, the terminals displayed a Windows desktop. When everything was ready, I was standing behind one of the terminals and watching the students manipulate the desktop. In terms of speed and responsiveness, it appeared as if each of the students was operating on a fast, dedicated PC.

Citrix is not the only vendor supplying multiuser Windows solutions. For example, New Moon Software's Liftoff is a similar product that takes a different approach. Liftoff requires fewer server resources than Citrix because a single instance of an application is shared among all users, but this has a disadvantage. If one user experiences problems, it can bring down the entire server. The Citrix solution, however, allocates separate instances for each user and each user can reboot his or her own Windows session without affecting other users.

There are several other aspects of the Citrix solution that are worth pointing out.

Scalability

Citrix suggests that an average user, who works in one application at a time, needs four megabytes on the server, while a power user, who jumps between applications, will need eight megabytes. It is much less expensive to install four to eight megabytes per user on the server than the typical thirty-two megabytes installed for modern Windows 95 desktops.

Citrix also indicates that a single Pentium processor server is adequate for fifteen users and can be scaled upwards smoothly if more users are needed. In other words, a dual Pentium system can support thirty users and a quad Pentium can support sixty users. When it becomes necessary to expand the system beyond a single server, WinFrame version 1.7 has an available option that allows load balancing across a server farm. In a load-balanced WinFrame environment, the user simply specifies the application he or she wants to run. The WinFrame farm determines which of the servers in the group is configured to run the application and, of these servers, which is currently the least busy. The least busy server is determined by a load factor, a function of CPU busy, paging rate, number of users, and other system variables reported by the server.

Windows NT version 5 will have this technology under the code name Hydra. Citrix will offer load-balancing functionality with the Picasso layer for the Hydra server. Customers will have the ability to load balance multiple WinFrame and Hydra/Picasso servers. With the introduction of WinFrame 1.7, Citrix is providing a migration path for customers who elect to implement Hydra/Picasso when these products become available.

Client Resources

Included with WinFrame Enterprise are several free clients that require minimal resources from the host PC: DOS; Windows 3.1; Windows 95; Windows NT; and, with the recent release of WinFrame

1.7, a client based on a plug-in for Netscape Navigator and Internet Explorer. This plug-in allows the user to run Windows applications from within a browser anywhere Internet access is available. The WinFrame client also has the ability to extend the life of marginal PCs; it can work effectively on a 286-class PC that has at least two megabytes of RAM and VGA graphic capability. This could be a major selling point for a prospective customer, who could run 32-bit modern applications on older hardware. Each of the WinFrame clients is contained on a single floppy disk and can be self-installed by the average user in less than five minutes.

Remote Access

Another selling point of the WinFrame environment is the various methods that can be utilized for remote access. It is easy to configure dial-up access to the WinFrame server, and security by user and group is easy to administer. I was particularly impressed when I attached a five-year-old modem to the server and the supplied utility software detected and configured the modem and set up the port for dial-in and dial-out use automatically.

When accessed in this manner or using the browser-based client for Internet access, the user is presented with exactly the same desktop and applications he or she sees when connected locally.

Program Installation

Once on the server, applications may be installed and access provided to all users, or each user can have a private directory structure with unique application and data storage. This central software installation is much easier than installing and maintaining applications on each individual workstation.

Desktop Administration

Depending on the application and the types of users supported, it is possible to present the user with a prearranged desktop configuration. The user can manipulate the desktop during a session, but the desktop reverts to the original configuration the next time the user logs in.

Within the Business Basic community, there are a variety of solutions that address the issue of graphical client-server systems. One vendor provides a thin client that operates as a presentation layer that is written in Business Basic. Hosting a Visual PRO/5™ application under the WinFrame scenario does offer one compelling feature: any other compatible Windows application can be deployed as a client/server application, not just the Business Basic application.

Disadvantages

In fairness, as with any solution, there are some negative aspects with the Citrix approach. The most important is that WinFrame is based on Windows NT 3.51 and not the current 4.x. The desktop presented to the user is similar to the Windows 3.x interface. Citrix indicates that it will soon have a Windows NT 4.x desktop in a product slated for imminent release. Although it presents a 16-bit appearance, the current product can run 32-bit applications.

But, not all 32-bit applications can be run in this environment. The only way to be sure a particular application is supported is to contact the manufacturer or ask Citrix. In my personal experience, I have yet to find a major application that does not work in this environment.

Current pricing may seem high at approximately $400 list price per user; however, this also includes the base price of Windows NT 3.5. Additional user license packs must still be purchased from Microsoft. Although the minimum system configuration for WinFrame Enterprise begins at fifteen users, Citrix is helping to lower the initial price with a new WorkGroups option that lowers the entry point to a non-upgradable five-user system.

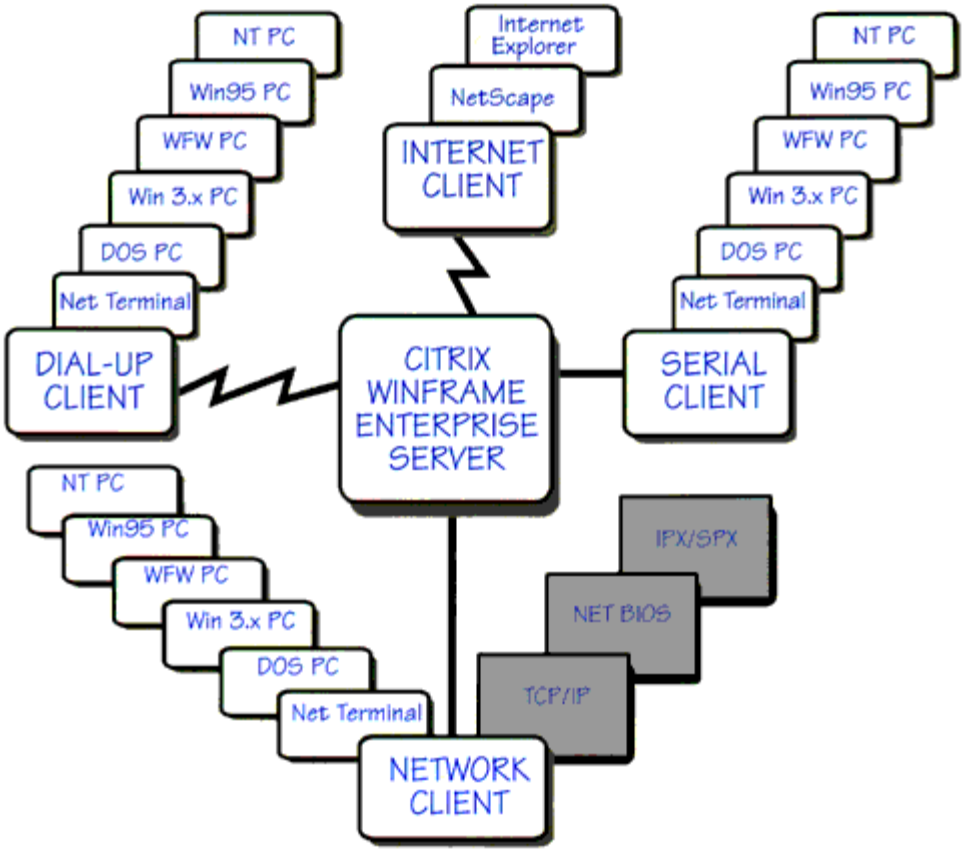
BASIS and Citrix

BASIS feels that the Citrix WinFrame technology is a viable way to deploy multiuser graphical applications with a minimum of complexity. Now that Microsoft has endorsed this technology with its agreement with Citrix and has announced plans for the Windows Terminal, we think the Citrix/Microsoft solution will become even more important in the future.

BASIS is a member of the Citrix Business Alliance Program and is currently testing and tuning Visual PRO/5 for the WinFrame environment. Future releases of Visual PRO/5 will operate seamlessly in this environment.

For More Information

If you would like to test drive the capabilities of the Citrix WinFrame dial-up client, go to http://www.citrix.com/ and download the necessary client software. On the main web page, select "test drive" from the quick-nav list box. There are both 16- and 32-bit clients available for evaluation. Even at 28k baud, Microsoft Word works in full graphical capability, and while it doesn't keep up with the fastest typists at this access speed, it does provide a good demonstration of the Citrix remote access capability.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