

Terminal Services and Citrix Metaframe

Once upon a time, a company called Citrix licensed the source code for Windows NT 3.51 and developed a product called Winframe. Winframe was a separate operating system for hosting applications. Multiple users could connect to a single server and get a graphical view of an NT 3.51 operating system. The big boon that differentiated it from products such as Norton's pcAnywhere is that each user gets his own environment as if he was the only one on the box. Citrix called this technology MultiWin. You could install applications once (on the Winframe server) and run them from any machine that had the Winframe client. It essentially gave you a Windows NT 3.51 "window" on existing client machines.

Winframe was designed to provide businesses with a thin client solution. By installing a terminal server, businesses can reduce their total cost of ownership. Because all the processing is performed on the terminal server, the client's hardware requirements and bandwidth requirements are minimal (thus, the thin client). Additionally, because all the software is installed on the terminal server, it is easy to maintain and update. When a new application version comes out, you simply update it on the terminal server and, voilà, everyone has it.

Windows NT 4.0 Shell

Microsoft, always recognizing innovative technologies when it sees them, cross-licensed the technology for Windows NT 4.0. The result was Microsoft's Windows NT 4.0 Terminal Server Edition, which is positioned the same as Winframe, but with the Windows NT 4.0/ Windows 95 style "Chicago" shell. Because this was Microsoft's first implementation, it had many limitations over Winframe, one of the biggest of which was the protocol. Microsoft Terminal Server uses the RDP protocol, whereas Citrix provides the ICA protocol. One of the major benefits of the ICA protocol is that it provides better compression, so sessions are much smoother. Rather than developing a new look-alike OS from scratch (because Microsoft wouldn't license the Windows NT 4.0 source code), Citrix offered its Winframe product as an add-on to Microsoft Terminal Server, and this add-on was called Metaframe. With Metaframe installed on a terminal server and using a Metaframe client, organizations could gain the benefit of the ICA client features. Additionally, Citrix provided Metaframe clients for non-Microsoft OSs (Macintosh, Unix, and so on)—not just Windows platforms.

Windows 2000 Redesign

With Windows 2000, Microsoft incorporated the terminal server technology into the Windows 2000 server platform, making it a service just like any other service. Citrix continues to offer the Metaframe product as an add-on to Windows 2000, and the ICA protocol continues to perform better and have more features than the RDP 5.0 protocol in Windows 2000 (local drive, port, sound redirection, full screen mode, and so on).

One nice enhancement to terminal services that Windows 2000 does provide is support for Windows 2000 Terminal Services Profiles. This enables users to have a profile for accessing the terminal server(s) that is different from their regular everyday profiles. This acknowledges the different ways people work in these two environments. For example, on a terminal server, administrators probably want to have certain applications installed and lock the system down so users can't step on each other's toes or load extra software on the server (wallpapers, a My Documents folder, and so on). Conversely, when a user is working on his own computer, he probably has different software and requires more control of the environment. Terminal Services Profiles makes keeping these two environments separate possible, yet it still provides the capability for roaming or mandatory profiles in either environment.

Metaframe Platform

The various versions of Metaframe have continually added more features. Some of the biggest features Microsoft did not have were local resource redirection (drives, ports, sound, and a shared clipboard). Additionally, several other features are provided by Metaframe for the Enterprise, one of the biggest of which is support for Metaframe clusters. You can have multiple Metaframe servers in a cluster all appearing to the user as a single server. Windows 2000 introduced the capability to load balance terminal servers, but Metaframe still had an edge, particularly when it comes to handling disconnected sessions. For a comparison of the features available in the RDP 4.0 and 5.0 protocol versus Citrix ICA, log on to <http://www.microsoft.com/windows2000/server/evaluation/features/rdp.asp>.

The Windows .NET Counterattack

With the enhancements to the RDP 5.1 protocol, the inclusion of Remote Desktop for Administration into all Windows Server 2003 products, and the availability of the Remote Desktop clients, Microsoft has positioned the terminal services in Windows 2003 Server to rival those of Citrix Metaframe. Terminal Server Session Directory solves the problem of disconnected sessions on terminal server clusters, whereas the RDP 5.1 protocol adds all the cool bells and whistles of resource redirection. In addition, management with group policy greatly eases the implementation of terminal servers. Metaframe still has a place and still has some advantages (such as availability for Unix clients, direct dialing to a Metaframe server, application publishing, and so on), but Windows Server 2003 greatly closes the gap. It will be interesting to see how Citrix counters with its version of Metaframe for Windows .NET.