Delta 2408

12 August 2003

To Citrix or Not to Citrix

Infrastructure Strategies, Global Networking Strategies
Leif-Olof Wallin

Citrix is repositioning itself as a remote-access infrastructure software provider, changing its products into a single product line to reinforce the message. Both finding the right balance between centrally hosted applications using Windows Terminal Server (WTS) and Citrix and leveraging the local processing power of PCs and laptops remain complex and challenging.

The repositioning of Citrix as a remote-access infrastructure software provider and subsequent rebranding of the product set into the Citrix MetaFrame Access Suite reinforce the vendor's goal to become a complete framework to deploy all enterprise applications to all users at all times. Although this sounds compelling (offering a single device-independent infrastructure with integrated management, real-time application conferencing, user identity management, and security functionality), META Group research shows that tactical deployment of Microsoft's WTS — often in combination with Citrix — will remain a best practice until 2007. These approaches should not be substitutes for properly architecting new applications with thin clients and multiple-device support, but they are being used for increasingly large enterprise deployments in particular usage scenarios. The biggest impediment to Citrix is the lack of support for disconnected users through a synchronization mechanism and robust client management functionality.

Citrix MetaFrame XP Presentation Server has undergone significant end-user quality-of-experience (QoE) improvements in recent releases. Enhancements include a zero-latency feature to dramatically reduce the number of network roundtrips, which is crucial when users are connected over mobile data networks (see GNS Delta 994), as well as an additional browser acceleration feature that enables more responsive scrolling, increases performance, and improves usability when viewing HTML content with JPEG and GIF images by intelligently caching graphics that are beneficial over all low-bandwidth connections. These improvements provide acceptable performance for many applications that were previously unacceptable to end users. Planners are encouraged to revisit poorly performing applications to re-evaluate QoE.

Best-Fit Scenarios for WTS

- Delivering a fat application (including those that are "chatty" from a network perspective) over a slow WAN connection or high-latency network. Many legacy client/server apps fall into this category, having been originally designed for use over a LAN but later deployed over a WAN or mobile data network.
- Delivering a native Windows application outside the firewall while minimizing security risk. WTS is frequently used to extend a Windows application to a business partner via an extranet.
- Delivering Windows applications that cannot be installed locally in an easy way (due to local operating system incompatibilities, DLL conflicts, and other behavior that destabilizes other applications in the standard build). This confines the ill-behaved application to a controlled environment and exposes only a single server.
- Delivering a new application to a massive number of users simultaneously. This is sometimes used when a new application or a new version of an existing application needs to be immediately available to a large user population, especially when normal distribution mechanisms are inadequate.

META Trend: User access diversity will increase as mobile users migrate from dial-up to broadband, wireless LAN hot spots, and ad hoc wired connections (e.g., hotel Ethernet) during 2003/04, as well as 2.5G/3G cellular data services (Europe and Asia 2004, US 2005/06). User authentication and SSL VPN adoption will accelerate, becoming the dominant application-based remote access mechanism by 2005, with IPSec devices securing network interconnections. Best-practice organizations will focus efforts on standardized remote access usage policies, user profiles, and formalized identity management processes.

- Dealing with highly variable application networking requirements. One of the difficulties of application/network profiling is that a simple application function, such as a mouse click on a directory, can generate many network requests. By sending only the presentation screens and mouse/keystroke events over the network, WTS and MetaFrame enable network requirements to be accurately estimated (typically 18 Kbps-24 Kbps per concurrent user).
- Delivering native Windows applications to non-Windows devices (e.g., pervasive devices such as smart phones or connected PDAs).

Best-Fit Scenarios for Citrix in Combination With WTS

We believe Citrix MetaFrame will continue to add value significantly beyond Microsoft Windows Server 2003 in the areas of administration, clustering, operations, software distribution, and multiple device support. META Group client experience shows that Citrix MetaFrame proves to be a valuable complement to WTS if one or more of the following criteria are met:

- More than five applications are to be delivered.
- More than 50-100 concurrent users are to be supported.
- When availability goals are 99.6% or higher.
- When secure access to applications over the Internet is needed and no traditional virtual private network infrastructure is available (by leveraging Citrix MetaFrame capabilities based on standards-based SSL/TLS encryption security technology).

When WTS/Citrix Is Not the Optimal Solution

- Delivering Microsoft Office, e-mail, or other well-behaved PC applications that bring value in a disconnected mode.
- Delivering applications that make extensive use of raster graphics (i.e., bitmaps), such as imaging.
- Applications that need to be operational in a disconnected mode. Users cannot rely on ubiquitous availability of mobile data networks or wireless LAN hot spots before 2008 at the earliest. These applications will continue to require local applications, local data store, and robust synchronization functions.

WTS/Citrix Cost Drivers

When deploying WTS/Citrix, the main cost drivers remain licenses, server farms, and operations. META Group research among clients indicates two areas that are generally underestimated/undersized: the server farm and the cost of getting proper operations processes, tools, and support in place.

The number of users supported per server with acceptable QoE for the end user is limited by the CPU power of the server as well as the memory consumption by the client applications running on the server, since the total amount of memory that can be managed by WTS/Citrix remains limited. Best practice remains to benchmark the actual applications to be deployed to obtain accurate sizing information because these numbers can vary greatly. Based on experience from client implementations, META Group believes organizations should plan for the following number of concurrent users per processor for the following application types:

- 10 — heavy applications (e.g., Lotus Notes)
- 15-25 — midweight applications
- 30-50 — lightweight applications (e.g., data entry)

WTS/Citrix Best Practices

Until 2007, best practice will be to deploy Windows Terminal Server and Citrix as a tactical solution where demanded by application requirements or infrastructure limitations to reduce overall operational cost. In many cases, this will result in a hybrid thin/fat-client model.

Bottom Line

Citrix, in combination with WTS, should be treated as a valuable tactical solution and will continue to add tangible business benefit until 2007+ (when applied selectively).

Business Impact: When tactically deployed, WTS and Citrix can provide significant cost reductions from consolidation by enabling distribution of centrally hosted applications that do not easily lend themselves to distribution.