Implementing a TCSC environment

To help maximize the benefits of a thin client environment, HP works closely with Microsoft, Debian, and Citrix, software leaders in the thin client marketplace. The following section describes components of a TCSC solution.

The Microsoft component

An HP Windows thin client, running Microsoft Windows CE.Net or Microsoft Windows XP Embedded on the client, supports the latest version of Citrix Presentation Server running in a Microsoft Windows server environment. In a TCSC environment, Terminal Services running on Microsoft Windows 2003 Server allow application execution, data processing, and data storage to occur on the server. Using terminal emulation software, the thin client sends only display refreshes, keystrokes, and mouse movements to the application server. The server carries out the specified actions on locally stored data and then returns an updated display to the thin client (see figure below).

This approach promotes centralized application management, minimizing network bandwidth requirements between application servers and thin clients. With only displays, keystrokes, and mouse movements as network traffic, communications are minimal and inherently more secure.

The Linux component

An HP Linux thin client supports the latest version of Citrix Presentation Server running in a Linux server environment. Or, your client can use an X-terminal session to log onto a Linux or Unix server.

The Citrix component

Citrix Presentation Server is an industry-leading solution for centrally managing Microsoft Windows applications and delivering their functionality as a secure service to thin clients—throughout the enterprise.

Citrix Presentation Server is designed to enhance the capabilities of Microsoft Windows 2003 Server, Unix servers, and Linux servers. It provides the exceptional scalability, interoperability,
manageability, flexibility, end-to-end security, and network leverage that the enterprise requires from an application serving solution. Benefits include

- **Internet leverage**—Data-center managers can more easily deliver the functionality of any application to a thin client’s Web browser without writing a single line of code. With Presentation Server’s built-in Secure Sockets Layer (SSL) gateway, Internet access is simple and secure and end-to-end security is strong.

- **Manageability and scalability**—Presentation Server delivers the power to centrally configure and manage application servers using robust system management capabilities that can be integrated with third-party network management solutions (such as HP OpenView).

### The HP component

When applications are centralized rather than dispersed among individual thin clients, selecting a suitable server becomes even more critical. HP can deliver flexible, industry-standard server solutions to meet all customer needs—from a simple workgroup to an enterprise-wide deployment. Whether deployed individually or clustered in server farms, HP servers can handle the most demanding tasks.

HP understands that businesses must adapt to survive, doing more with less and responding faster with fewer resources. With the HP ProLiant Advantage your organization can adapt, conserve and respond. The ProLiant Advantage combines solution integration and service expertise with an adaptive infrastructure consisting of versatile, industry-standard ProLiant servers, integrated HP Smart Array storage and ProLiant Essentials software.

Delivering the power, speed, manageability, scalability, and high availability required for thousands of users to access business-critical applications, HP ProLiant servers are ideal for the demanding thin client environment. In addition, these servers are optimized for use with Microsoft Windows 2000 Server and Citrix Presentation Server software.

### Choosing a server

The sizing of the server is highly dependent on the computing requirements of the end users. As a general rule of thumb, a 2-way server would support 50 thin clients; a 4-way would support 100 clients and so on. Heavier use would require more memory, storage and processing power. HP ActiveAnswers provides a useful server configurator that lets users estimate their server needs based on individual requirements. For more information on ActiveAnswers, see [www.compaq.com/activeanswers/citrix](http://www.compaq.com/activeanswers/citrix).

As a world leader in servers, HP delivers the fast performance and reliability that are essential for thin client server environments. HP provides a wide choice of high-quality servers, allowing you to scale performance for any level of your enterprise. HP ProLiant server offerings include the following:

- **HP ProLiant ML servers**—HP ProLiant ML servers are designed to provide maximum internal storage and I/O flexibility for rack or tower deployments. These workhorses can handle intensive applications ranging from enterprise resource planning (ERP) to e-commerce hosting. With up to eight processors, up to 11 PCI slots, next-generation PCI hot-plug, and redundant power and cooling, ProLiant ML servers are ideal for high-volume, 24 x 7 data-center environments.

- **HP ProLiant DL servers**—HP ProLiant DL servers deliver enterprise-class performance with robust, affordable multiprocessors in a slim (1U–7U) form factor that is ideal for multiserver rack environments. Optimized for clustering operations and attached external storage, ProLiant DL servers can handle jobs as large as data warehousing or as small as Web hosting.
• **HP ProLiant BL servers**—HP offers two families of ProLiant BL server blades: e-Class and p-Class.

  — **e-Class**—These ultra-dense server blades are optimized for rapid deployment and provisioning, and with up to 280 blades deployed in a single rack, they are ideal for space-constrained enterprises and service providers. ProLiant e-Class server blades can handle a wide range of data-center jobs, from front-end Web serving to other, more transaction-intensive applications. Their industry-standard design ensures that these server blades can integrate seamlessly into an existing IT infrastructure. Drag-and-drop configuration and rip-and-replace servicing position these server blades at the cutting edge of adaptive computing.

  — **p-Class**—The more powerful ProLiant p-Class server blades deliver higher levels of performance and availability for high-performance front-end, mid-tier and back-end applications.

**Blade PC**

The Consolidated Client Infrastructure (CCI) solution from HP centralizes desktop compute and storage resources into easily managed, highly secure data centers, while giving end users the convenience and familiarity of a traditional desktop environment. CCI provides a dynamic workplace solution that may dramatically lower desktop total cost of ownership and raise levels of security, service quality, and ease of management. Utilizing the combined product and services offerings from HP, CCI is a three-tiered architecture that consists of:

• An access tier using thin clients;
• A compute tier with racks of blade PCs inside a data center;
• A resource tier made up of a storage pool, network printers, application servers, and other networked resources, also inside the data center.

The HP blade PC works with thin clients as the second tier in a CCI installation. It has a 3U form factor that provides extreme density, thermal efficiencies designed to minimize power and cooling requirements, memory expandability to 1 GB for good performance while working in your mainstream applications, and dual 10/100 integrated network controllers that help maximize throughput efficiencies. The 40 GB hard drive provides ample storage for accessing and working with data.

**Why choose HP as a thin client solution partner?**

You can gain a competitive advantage by utilizing affordable thin clients with Microsoft Windows and Linux operating systems for your server-based or blade PC computing solutions. HP thin clients lead the way with proven enterprise technology for maximum security and lower ownership costs through reliable and consistent products that are simple, dependable and manageable for your business environment.