



Benefits of a Network Boot Thin Client



All Thin Clients rely on a small local Operating System (or O/S) to display a program's output, get input from the user, and handle any local communication requirements. This O/S can be embedded in the Thin Client when it is manufactured or it can be downloaded from the server when the Thin Client is powered up. Booting a Thin Client from a server eliminates the need for local storage, which actually has two major benefits: Hardware costs are reduced and Thin Client management is simplified.

Network Boot Thin Client Lowers Client Cost

By far the most common Operating System used as an embedded O/S for Thin Clients is Windows® CE, and by far the most common method for storing CE in the client is embedding it in a DiskOnChip (DOC). Initial versions of CE could be completely contained within an 8MB DOC, which costs approximately \$25. It should be noted, however, that just like all other Microsoft Operating Systems, CE has been growing steadily since its introduction. Booting from the network eliminates the need for the DOC and thus saves the \$25 component cost. Additional savings are realized because a Network Boot Thin Client doesn't incur the cost of the Windows CE license and user time isn't wasted waiting on the slower DOC boot process.

Network Boot Thin Client Simplifies Management

Thin Clients that store the Operating System locally (inside the Thin Client) also require local software to allow for configuration of the client. This typically involves starting up the Thin Client, setting the IP address (or pointing it to a DHCP server), and setting local parameters such as screen resolution, serial port configuration, etc. This is a process that must be repeated for each client installed. While not a laborious task for a single unit, it becomes daunting when there are dozens of clients and exceedingly expensive when there are thousands of clients distributed across a large geographic area. By comparison, setting up a Network Boot Thin Client is simply a matter of plugging it in and turning it on.

Network Boot Thin Client Simplifies O/S Updates

Having a local O/S stored on the client also brings up the issue of client firmware updates. Over time, the local O/S will grow obsolete and need to be updated. Today most manufacturers allow you to "flash" the O/S with updates, a process that is fraught with danger. If something goes wrong during the flash process, the Thin Client will be rendered useless. The O/S becomes "scrambled" and the unit will need to be serviced by the manufacturer. By contrast, the Network Boot provides a fresh copy of the O/S each time the user powers-up his machine. If there is an update to the O/S, it is simply loaded on the server and the next time the user logs on, the Thin Client will get the latest version. This means that Network Boot Thin Clients don't grow obsolete as fast as local boot units. If you pull a 2-year-old unit off the shelf, when it boots, it will have the same O/S as all the currently running Thin Clients.

Network Boot Thin Client Simplifies Application Upgrades & Updates

With a local O/S like Windows CE, there can be subtle differences between the CE versions that actually are installed. And because of the way that each build of CE is selected as a subset of all of CE's components, different manufacturers will choose different CE components depending on their particular hardware. While many companies strive to install only the same model and version of hardware, it is almost impossible to achieve a homogeneous collection of products, and consequently slightly different versions of CE will exist on the same network. This makes it difficult to assure that upgraded applications will react the same way at each client. Fully testing the different versions of CE for application compatibility would require testing at each physical location. By contrast, a Network Boot Thin Client provides a uniform Operating System to all clients that can be rigorously tested prior to initiating an application upgrade.



Network Boot Thin Client Lowers Total Cost of Ownership

Using a Network Boot Thin Client also provides for more predictable operating costs. The cost of upgrading the Windows CE O/S on all installed Thin Clients is difficult to measure, as several steps are required. First, there is the cost of the Microsoft CE software upgrade, then the cost of additional testing, and finally the cost of deployment. Plus you'll have the cost of fixing some of the Thin Clients if there is a problem along the way. There are less points of failure in the Network Boot Model, and compatibility will be less of an issue because there won't be a dozen different versions of the Windows CE O/S installed in the Thin Client hardware. A Network Boot Thin Client doesn't require going through the flash process because a fresh copy of the O/S gets loaded every time the machine boots. And testing will take less time because all clients will be running the exact same O/S.

Network Boot Thin Clients are More Secure

Many Thin Clients with local CE function as a small computer (similar to a PDA) even when not connected to the Thin Client network. This makes it a useful item, and one that people might be inclined to steal. If a Network Boot Thin Client is removed from the network there is no chance that it can function, thus reducing the chance it will be stolen. A local O/S also invites the introduction of viruses, as the unit can be brought up and "tinkered with" and viruses can be introduced into the client's O/S. For a Network Boot Thin Client, the operating system is stored on the server, which typically is kept in a secure location, greatly reducing the chance of a virus being introduced to the system.

Network Boot Thin Clients are Easier to Service

When compared to standard PCs, Thin Clients are much less prone to failure because of the lack of moving parts. But if a unit is destroyed or damaged in some way, even a computer novice can replace a Network Boot Thin Client. Simply plug it in and turn it on, and the Thin Client will automatically configure itself. By contrast, a CE Thin Client will most likely need to be told the username/password and the address of the boot server. (Do you know your IP address?)

Network Boot Thin Clients Startup Faster

Amazingly, the entire process of loading the O/S at boot time takes only about 5 seconds over standard 10MB Ethernet, which is considerably less time than it takes to read the same size file out of a local Disk On Chip. This is because of the speed associated with current DOC technology, combined with the limited speed of processors typically found in Thin Clients.

Summary

Zona Research (Redwood City, CA) states that Windows-based Thin Client systems typically cost 56 percent less to own and operate than distributed PC environments.

The Network Boot Thin Client provides additional benefit above and beyond the traditional Windows CE Thin Client, and provides cost savings when you purchase, deploy and manage your computer infrastructure.

- Lower Client Cost
- Simplified Management
- Simplified O/S Updates
- Simplified Application Upgrades and Updates
- Improved Security
- Improved Serviceability
- Faster Startup Time