

How CLI Thin Clients Can Work In Education Environments

Use of CLI thin client devices instead of PCs or other devices in education environments can dramatically reduce Total Cost of Ownership (TCO), and improve the delivery of educational content in the process. CLI thin clients can be used in K-12 settings, and also in university settings, by students, teachers, and administrators alike. To fully understand this, it is important to understand what server-based computing is, and what CLI thin clients are.

Server-Based Computing

The cornerstone concept behind CLI thin clients is server-based computing, which is sometimes referred to as server-centric, centralized, application-server, or client-server computing. In server-based computing, all applications are deployed, supported, and executed at the server, not at the user desktop. All data is stored on the server. Only keystrokes, mouse clicks, and the screen images travel across the network (or the Internet). All applications are displayed on the desktop device. This desktop device can be a text terminal, a Mac, a PC, terminal emulation software, or a CLI thin client.

CLI Thin Clients

CLI thin clients are simple devices that are used for information display. CLI thin clients do not “run” applications, but can display any application containing graphics or text information. Applications look the same as the original. In order to display applications running on the server, CLI thin clients use either a type of display protocol, terminal emulation, or web browser. CLI thin clients have no local hard disk, floppy, or CD storage, and no fan or other moving parts. Many CLI thin clients have a local Windows CE operating system, but many also utilize a local Windows XP Embedded, or local Linux operating system. Their use brings many benefits, including a low Total Cost of Ownership, easy administration, high reliability, long useful life, and low power consumption.

Use of CLI Thin Clients in Educational Environments

“Educational environments” are not just limited to the classroom, but encompass many other areas, including the computer lab, home, office, etc. CLI thin clients are a perfect match for these environments, not just in direct educational application, but also in the infrastructure and support of the entire educational process. CLI thin clients bring many benefits when used in educational environments.

CLI Thin Client Devices Facilitate Rapid Software and Hardware Deployment / Delivery

Since CLI thin clients are compatible with industry-standard PC keyboards, mice and monitors, and come complete with multiple communication ports, installation is simple, fast and easy, typically taking less than five minutes. In addition, since all applications are deployed, supported, and executed at the server, and not on the thin client, to maintain version / release level consistency among users systems administrators only have to load upgrades or new software once onto the central server, instead of multiple times onto various PCs. Plus, memory and storage upgrades also get focused on the server. All of these minimize work interruptions, reduce support costs, and save tremendous amounts of time, especially on deployment and upgrades in wide-geography, campus computing settings.

CLI Thin Client Devices Are Very Durable In Harsh Environments

Many legacy display devices use fans for device cooling. In environments where dust, dirt, and other contaminants are prevalent, such as classrooms or dormitory rooms, fans can suck in such contaminants, causing hardware components to overheat, or moving parts to stick or seize, leading to failure. CLI products have no fans or other moving parts. And some CLI products also come complete with impact-resistant metal enclosures. This all improves uptime, and saves on repair and replacement costs.

CLI Thin Client Devices Reduce User (Re)training Requirements

CLI thin clients use industry-standard PC keyboards and mice, and make use of existing applications. End users who have already used PCs or terminals require little (re)training in order to acquire the knowledge and experience to safely and productively use CLI thin clients. This makes them self-sufficient in a shorter amount of time, saving money and time.

CLI Thin Client Devices Reduce Help Desk Demands, and Can Improve Teaching Effectiveness

When problems with PCs occur, they can be difficult to troubleshoot. Being simple devices, CLI thin clients require less maintenance than PCs, since there is far less that can possibly go wrong. If issues do arise, CLI thin clients are faster and easier to troubleshoot. Using shadowing, systems administrators can remotely "view" any CLI thin client for faster configuration, problem diagnosis, and resolution. This allows CLI thin clients to be supported by a smaller technical staff than would be required for PCs. Shadowing can also be used by educators to assist students with work in a classroom, or even when students are working remotely.

CLI Thin Client Devices Reduce Security Risks

Because CLI thin clients have no local hard disk, floppy, or CD storage, they are nearly virus resistant, and reduce the number of potential virus entry points into a network, keeping valuable data secure from corruption. The lack of local storage also keeps data private by preventing inappropriate removal. Some CLI thin clients even support smart card readers for device and application level access authentication. In addition, because applications and data reside on the server and not locally, and because some CLI thin clients include theft deterrent enhancements, CLI thin clients themselves are not prime targets for theft as are PCs. This reduces insurance and device replacement costs.

CLI Thin Client Devices Easily Integrate With Existing Peripherals and Network Infrastructure

Since they can include Ethernet, USB, serial, parallel, and PS/2 ports, CLI's products are fully plug-compatible with existing PCs, and can replace these devices seamlessly and quickly. CLI products are compatible with industry-standard PC keyboards, mice, monitors, and printers. This provides investment protection by allowing the use of existing peripherals, reducing or eliminating the need to scrap or write off existing, functioning peripherals and replace them with new peripherals. CLI products can also interface with existing Ethernet (10/100Mbps) networks, the most popular, cost-effective, and reliable networking technology, and some CLI products even support wireless 802.11 networking. This makes installation, deployment and delivery simple, fast and easy.

CLI Thin Client Devices Take Up Little (Or No) Space

CLI thin client devices are much smaller than PCs, and can easily fit on top of or under a table or desk. Some CLI thin clients are made of metal, and can support the weight of an average monitor, and some even include a kit to mount them on the back of compatible monitors. This makes them virtually zero-footprint, which can be extremely helpful in space constrained environments, such as dormitory rooms. And many CLI thin clients include an internal power supply, eliminating the need for an external power transformer, further reducing clutter and saving space.

CLI Thin Client Devices Are Very Reliable, With Longer Useful Lives

CLI thin clients have no local hard disk, floppy, or CD storage, and no fan or other moving parts, the parts that typically break down in PCs. Because they do not contain these parts, CLI thin clients have nearly 10 times higher reliability than PCs, greatly reducing (and even eliminating) downtime. Aging PCs are costly to repair, and annual maintenance contracts can be a tremendous expense. All of CLI's products can come complete with advanced-replacement warranties. This gives users brand new, reliable hardware, increasing uptime, and eliminating costly repairs and maintenance contracts. Also, desktop PCs need to undergo technology "refreshes" as frequently as every three years, becoming obsolete very quickly. But since CLI thin clients display applications running on the central server, application and processing power upgrades are only made at the server level. And if they ever do need to change, CLI thin clients include management software, which systems administrators can simply use to remotely upgrade the thin client software, without needing to visit every desktop. In addition, the display protocols used require little local processing power in the thin client, so the thin client hardware is not obsolete immediately after deployment like PCs can be. This extends the useful life of a CLI thin client device to 7-10 years or more, lowering the cost of technology refresh considerably.

CLI Thin Client Devices Consume Less Energy

Because they are simpler, have fewer components, and no moving parts, CLI thin clients typically consume one-tenth the energy that PCs or other desktop devices consume. This lower power consumption not only saves money, it also contributes to increased hardware reliability and is environmentally friendly.

CLI Thin Client Devices Can Access A Great Deal Of Information, Securely and Remotely

CLI products can run multiple sessions, support high screen resolutions, and can access multiple hosts and the Internet simultaneously, improving display presentation and productivity. And since all CLI thin clients support both Citrix ICA and Microsoft RDP, they can be used to access applications securely and remotely. Teachers, students, and graduate students can access applications from their homes, offices, or anywhere else, and at a low cost.

Get Educated on CLI Thin Clients

Thin clients are not for everyone, and not for all situations. But thin clients can be used in education environments, and can reduce Total Cost of Ownership (TCO), and improve the delivery of educational content in the process. CLI thin clients can be used in K-12 settings, and also in university settings, by students, teachers, and administrators alike. Information can be accessed anytime, anyplace by anyone on any CLI thin client device. This open, scalable architecture has already been implemented in several schools, in computer labs, classrooms, homes, and offices.

For more information, visit the Computer Lab International web site at www.computerlab.com, or send email to info@computerlab.com, or call 1.800.727.5250 in the US, 1.714.572.8000 elsewhere.

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