What are Thin Clients

All IT organizations are searching for an adaptive architecture that supports institutional goals, can adjust to new technology developments and does not cost and arm and a leg.

Today, the PC is dominating the desks of faculty and staff today and its support costs place an undue burden on Universities’ IT budgets especially when it is known that most PCs are underutilized. The advent of the browser as the universal human-computer interface along with a more network centric IT architecture has moved IT vendors to rethink their desktop strategies. Many prominent PC vendors are now offering thin clients that access information and application on a network server. Thin clients are not exactly the reincarnation of terminals as they are powered by fast processors and feature plenty of memory, however they do not download the application to the desktop but it is executed on the server. Thin client software like CITRIX’ Metaframe allows students and/or faculty and staff to access any PC application using either a low powered PC or a thin client device.

Recognizing the advantages of the thin client model, many PC manufacturers now offer Network PCs or thin clients. Thin clients are not network computers, the latter download the application to the desktop where it is executed. In a thin client environment only screens and keystrokes are transmitted over the network which reduces network congestion.

Citrix is a thin client / Server computing technology that allows PCs and/or thin client devices that have a CITRIX client installed to run PC and other applications on a server. One major advantage of the thin client approach is that it cuts the costs of deploying and maintaining PC application for students, labs, and special computing environments. In a standard PC environment, software upgrades involve updating every single PC, in a thin client environment, only the server software needs to be changed, reducing ongoing support costs substantially. The thin client solution can extend the lifetime of existing PCs as it allows low level PCs to run state-of-the-art PC applications from a server. It has the potential to reduce the support and maintenance costs for PCs especially in labs as PCs cannot be tempered with and all software upgrades and maintenance are done on the server only. It facilitates remote GUI access to on-campus GUI applications, providing students living off campus with the same access as those living in residence halls with high speed network connections. It may create the opportunity for students to keep their University endorsed notebook for four years by running computer intensive programs on a University Server. As it allows any type of PC or thin client device to access standard University applications PC standardization for students is less an issue.

Thin Client notebooks that are lighter (2 pounds) and have a battery life of ten to fifteen hours may replace the notebook Universities that ask students to purchase notebooks and often include a two year replacement cycle. Thin client notebooks running Windows CE or the future Pocket PC feature a full Web browser and installed with the Citrix client give students connected to the network the same functionality as those with a ‘fat’ notebook. Students with thin notebooks don’t need to plug in, they can easily carry their devices and live in less fear of failure as it has fewer moveable parts, no hard disk. It is also less expensive than full powered notebooks making it a more attractive solution for lower income students.

Why Thin Clients?

- Enhanced access and manageability
- Reduce costs of PC software deployment and maintenance
- Avoid tempering with PCs
- Standard software environment – everyone uses same version
- Reduce support, troubleshooting and data recovery costs
Prolong PC lifecycle
- Hardware intensive PC applications can be run by low level PCs
- Lifecycle of University endorsed student Notebooks could be extended to four years
- Lifecycle of any PC can be extended

Reduce Network Congestion
- Only screens and keystrokes are transferred over the network

Remote GUI Access
- Faster access to remote GUI applications

Support of heterogeneous PC environment
- Any brand and type of PC with an installed thin client will exhibit the same performance and characteristics

Centralized management, Single point of control
- Central management of Servers, software, storage

Less expensive and more robust hardware devices
- Thin desktop clients
- Thin notebooks that are lighter and have longer battery life

Ease of use
- Instant on
- No configuration or loading of software

Reduce lab, PC classroom, library PC support and maintenance costs
- Eliminate tempering with desktop device
- No need to reinstall standard image on all machines

Improved Security
- Access is more easily restricted to specific machines
- Secure storage of data files and documents (on server)
- Critical applications on the server, decreasing the risk compromising software

When?

Thin client technology is mature and available today. Because of the Wintel dominance its potential is slow in being recognized. However, more and more hardware vendors are now offering Internet or Thin Client devices. At this point the litmus test for thin clients is their ability to run PC applications. This will change as the industry is moving away from a PC to a network centric IT infrastructure and thin client technology will be used universally for all server applications. However, the thin client architecture is a network centric IT infrastructure and the network becomes the single point of failure. Without a robust and reliable network campus wide deployment of thin client technology is not realistic.

Thin client technology is used successfully in special, contained environments like: labs, selected application environments. However, as network reliability improves and wireless network increases thin clients will take off. The growth rate for thin clients is predicted to exceed that of PCs many times through 2004.
Universities should begin deploying thin client architecture in labs, libraries and for special applications that would otherwise require software upgrades to most PCs on campus.

**How can Thin Clients be utilized?**

- Provide access to University IT resources from anywhere, any time
  - Use Thin client software for remote access to on campus computing resources
  - Provide students living off campus with same access as those living on campus
  - Provide faculty and staff with remote access to GUI Administrative and Research systems

- Use in computing labs and computer classrooms, library to
  - increase workstation reliability and performance,
  - improve manageability,
  - extend lifecycle of existing workstations

- Extend lifetime of University endorsed student notebooks from two to four years
  - Students with three or four year old notebooks can still access high end PC applications on a server through thin client software

An interesting scenario presents itself for using thin client notebooks instead of standard notebooks for students.

**Standard notebooks have major problems:**

- Their life cycle is only two years
- They are very delicate
- They are very expensive
- They are too heavy to carry around all day, and
- The battery life is too short, therefore they require electrical outlets.

**Thin client notebooks**

- Weigh less than three pounds
- Are more robust since they have fewer moving parts
- Cost less than $1,000.- and
- Have a battery life of eight hours and more.

**Reference Sites:**

http://www.citrix.com