

Thin Computing proposal 2009

Goal:

Expand the breadth of the successful ChipPC pilot program across campus by making the decision for departments purchasing new equipment to go with a thin client over a bargain basement PC a "no brainer" -- easier on the budget and easier on IT staff. See initial project website at <http://illinois.edu/goto/greencomputing>

Requirements for Success

- LABOR: Make implementation, training and upkeep by IT staff easy.
- NEW CPUS: Make it financially attractive compared to purchasing a new computer, particularly the up-front costs as that's what appears in their budget.
- KIOSKS: Make it more attractive than using "free" old computers from surplus for e-mail and other kiosks

Outline

A bargain basement desktop PC from Dell costs approximately \$400 (just the CPU box with mouse and keyboard, no monitor)

The retail cost for the base model of the ChipPC thin client with the software plugins necessary to run it is approximately \$400* but does not include a USB keyboard/mouse and monitor, and if not operating in standalone kiosk mode a terminal server is required in order to act as a full desktop replacement.

While there are many performance benefits for the end user when using Terminal Services/Thin Clients over traditional desktops for the end-user (world-wide secure access to your desktop from any computer, without needing a VPN drives stay mapped), there are two significant places where performance suffers: audio (streaming audio from Pandora works within the "acceptable" range), but video playback is particularly degraded. We would like to make the costs to the purchasing department as attractive as possible to counteract these perceptions -- our initial project has nearly 100% end-user acceptance (see end-user interviews under the "videos" section at <http://www.illinois.edu/goto/greencomputing>)

Participants and Responsibilities

- Webstore could handle the clerical portion of selling and distributing the units with the Sustainability Fee discount applied in "packages" based on the need for stand-alone Kiosks or full desktop replacement (terminal services).
- CITES is willing to provide campus-level terminal services on a pilot basis (costs to be determined).

- Swanlund System Services would work with the Departmental IT staff to implement and train how to support their users.

Funding

We are requesting \$20,000 from the sustainability fund to cover costs for infrastructure servers run by CITES (estimated to be \$5000) with the remaining \$15,000 going to help reduce the costs of thin clients through jointed funded purchases through WebStore. We have requested \$10,000 from an engagement grant for a similar sustainable computing project and where possible the funds will be jointly used to cover expenses. There are additionally some campus RSOs that are potentially interested in purchasing and using thin clients and they be able to obtain further funding through SORF.

Timeline

We should be able to acquire and fund thin client purchases within the one year time frame of the grant. We don't normally deal with purchases of this scale, so I don't know how long they normally take, but I'm assuming that something can be arranged within a few months of approval. We have already started some preliminary work with CITES on the thin client and Terminal Server infrastructure as an extension of our previous grant and this work will of course continue as best as possible even if this project is not funded.

Respectfully,

Chris Clausen (cclausen@illinois.edu) & Matt Childress (childrsm@illinois.edu), Swanlund System Services

Andre Krabbe (akrabbe@illinois.edu), Webstore

Eric Coleman (ecc@illinois.edu) & Kevin Murphy (ktmurphy@illinois.edu), CITES Windows Services Group

Sally Jackson (sallyj@illinois.edu), Illinois CIO

* Nov 20th, 2009 CDW.com: Hardware \$313, Domain Authenticator \$50, Customized System Screens \$20, Xcalibur Global \$42

Dear Chris,

Please clarify the following regarding your letter of inquiry:

- 1) What amount of incentive do you seek to offer to units purchasing thin clients and how many do you anticipate supporting through this program?
- 2) What exactly would be purchased from the \$5000 CITES component of the budget, or what services provided? Will this expense cover the lifetime costs associated with the thin clients? How does this expense scale with the number of thin clients deployed?

Thanks,
Suhail

Suhail,

Note that these responses represent my current thinking on the subject and may change after consultation with Matt (CCed,) CITES and other campus departments that wish to eventually use these services / equipment.

For number 1)

The details are still being worked out as we're still trying to find a vendor who will offer us a discount on about a quantity 100 purchase of thin clients. Unfortunately CDW/ChipPC had originally told us qty 100 and now they want a quantity 200 minimum order. We're not sure we can get a (total) commitment to purchase 200 thin clients at this point in time.

However, we'd like to aim for a funding point of the thin clients (and needed software licenses) at 60% funding by this grant, but we're not sure that the funds we asked for will cover 60% at the minimum amount we need to purchase in order to get a quantity discount so the funded percentage might actually end up being lower. We are in contact with other vendors though, like Provantage.com and Dell about their prices and quantity discounts and things look promising for a quantity 100 purchase, although the prices are still somewhat higher than the qty 200 deal directly with ChipPC and CDW. We're planning to include more accurate numbers in the actual grant proposal if we are asked to submit one.

If stipulated in the grant, we could cap funding at a specific percentage or at a specific dollar amount (some may want to order more expensive thin clients that better meet their needs and it doesn't seem fair to match at a specific percentage) per thin client. As you can see, this isn't exactly a clear cut funding plan as there are several variables that depend on each organization's specific needs. Email kiosks for the union don't need to be as powerful as staff thin clients for the College of FAA and would of course cost less. Additional suggestions from the committee would be useful.

For number 2)

The \$5000 would cover the costs for CITES to host several (4 initially) virtual machines. I can try and itemize it further if needed, but basically we've had three VMs running at CITES for some time now (Chip PC Xcalibur Global server, Terminal Server license server, Windows Terminal Server.) The current plan is to add an additional Windows Terminal Server and extend the license server to also act as a "session directory" load balancer for the two systems as a proof of concept for a larger and expandable Terminal Server cluster. I can itemize the various virtual machine specifications, but I figured \$5000 was a good rough estimate for a year period. The actual current pricing model is listed at: <http://www.cites.illinois.edu/vmware/> Note that CITES has been running these VMs for awhile without additional funding from us, so they have in effect already donated some money (and time) to the project. These funds would cover the one year testing or pilot program until the grant money ends around May, 2011. We'd like to setup a charge-back system where users (departments) actually pay for Terminal Server hosting directly (possibly also eventually including a thin client amortized over its lifetime.). Finding willing participants (possibly at FAA who I think submitted a similar grant) will take some work and making sure that the environment can scale is what we want to make sure and do first. Part of the work in this grant would be to determine a sustainable price point for a campus "hosted Windows desktop" service and would include the underlying VM costs (if we decide to go with virtual machines) or include actual hardware prices if using real hardware is determined to be more effective. Once we have pricing data, we may apply for another grant next year to help offset costs to departments for the hosted service. (I'd be curious to know if anyone else has applied for funding to cover virtual machines hosted by CITES as part of a server / data center consolidation effort.) I believe that running 100 thin clients across two servers (50 users per server) is not unreasonable, although that will depend on the exact workload of user each user. Simple email kiosks versus actual end-users running multiple applications are very different workloads and we may need to plan to scale out separate (virtual) server farms for the different workloads.

We're planning to include more accurate numbers in the full proposal if we are asked to submit one.

Note that there are still even more complex issues to resolve like who would (and how to) support users on a centralized Terminal Server cluster, but until such a service exists, that isn't likely to be answered. This is just forward progress for now as we can't come up with a complete plan and cost analysis without some basis in reality for the estimates. Of course, the incremental cost of adding an additional thin client user should always decrease over time and this is something that also needs to be taken into consideration. Seeing as CITES currently charges about \$5 / month / user for an email account, I'm thinking that \$25 / month may not be unreasonable, although we'd have to do further calculations.