

SunRay and Secure Global Desktop in schools: improving sustainability and manageability whilst reducing costs – a background paper



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Summary

Modern “thin client” computers can provide reduced capital and running costs in environments where traditional desktop PCs have long been considered to be the only or the obvious option. They have proven to be simple to install, require no retraining and bring benefits in numerous areas, including running costs, capital costs, management costs, simplicity and flexibility. Configuration and deployment need not be difficult or daunting if a suitable supplier is chosen. In most schools a mixed ecology is best, using thin clients where suitable and retaining some traditional installations for specific needs. When coupled with Secure Global Desktop to provide remote access facilities (which can have a profound effect on working methods) a compelling combination results.

Background

A “thin client” is different from a typical desktop or laptop PC. Thin clients are designed to be simple, have no moving parts and do not themselves run the users' programs. Instead the thin client is simply a device which provides a display, sound, mouse, keyboard and USB connectors. It uses a network connection to a remote, more powerful computer which runs the user's software. Thin clients are intended to be cheap, long life, low power and easily replaceable.

The complexity of managing the user software is centralised on the remote servers where it can be more easily controlled: a single server (itself similar in power and cost to a traditional desktop computer) proves to be capable of supporting dozens of thin client displays.

Installing thin clients represents a departure from typical configurations and can be daunting without specialist knowledge or expertise and is likely to be seen as introducing risk. Selection of a skilled supplier with a track record of satisfied customers should reduce or eliminate this entirely.

The experience discussed below is directly based on Cutter Project's existing customer base using SunRay thin clients and associated software and servers. We are happy to arrange for those with an interest in finding out more to meet customers and see live systems in use.



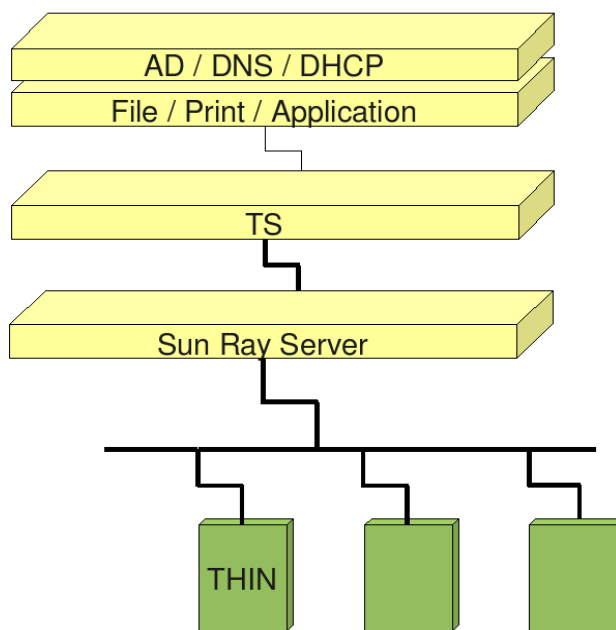
Experience

The combination of thin clients and centralised servers typically results in

- Reduced hardware replacement costs. Server computers are designed for longer life than desktops and thin clients are designed to last a minimum of 7-10 years.
- Reduced power consumption. Typical desktops use in the region of 100 watts whilst thin clients use 5-7 watts. The reduction in power consumption and heat often means no need for air-conditioning in classrooms.
- Low-noise classrooms. The thin clients are silent and the reduction in air conditioning noise provides a greatly improved classroom noise level.
- Enhanced classroom discipline. Thin clients provide near-instantaneous boot times and students do not have to wait for computers to start (thus giving opportunities for unruliness to develop)
- Greater flexibility. Well-designed thin client systems are independent of the software that is being used. Where alternative software systems such as, say, Unix or Linux are or may be needed the thin clients don't care; all that is needed is to configure some of the centralised servers appropriately. Users can be allocated to specific servers or mix-and-match depending on how management controls are set up.
- Improved availability. Thin clients rarely fail. If they do, or are damaged, no technical knowledge is needed to replace them and no installation or configuration is needed when they are replaced. The low cost of thin clients allows higher levels of spares to be kept, including the possibility of live spares in classrooms where space permits.
- Lower downtime. Centralised servers are easier to monitor and manage than distributed desktop PCs. Systems designed by Cutter include 24x7 monitoring and allow for remote management, remote reconfiguration and remote re-installation. Some of the systems we manage are 6,000 miles from us.
- Remote access. Thin client systems are based around the concept of networking. A thin-client setup opens the opportunity for the servers to be made available to staff or students working from home. From home it's common to use software thin clients: the school desktops are accessed through software running on a standard PC, laptop or in a web browser all via secure networking. Good security controls can permit staff to do timetabling or marking whilst students can continue to do coursework or other school work from home when it suits them. Some schools find this useful for long-term sick or excluded pupils.
- Reduced staffing levels. Schools using substantial numbers of thin clients in place of traditional desktops (say 300-400) report a dramatic reduction in the need for network technician time, freeing up one or two full-time staff equivalents.
- Access controls. SunRay thin clients can be equipped with smart card readers. Using these, secure access can be provided on a per-user or per-group basis to entirely separate sets of services. Different year groups can be given different sets of applications or staff and students can be given access to staff management or student services as appropriate.

Drawbacks, disadvantages and issues

Naturally nothing in life is perfect; thin client systems are no exception. We rarely recommend the wholesale replacement of traditional desktop or laptop systems (“fat clients”) in an entire school for some of the following reasons. Thin clients are inappropriate for heavy multimedia use (they are usually fine for light use) and we would not recommend them where extensive video editing, animation or sound processing is being performed. This is particularly so where restricted networking capabilities are available.



Some specialised desktop PCs are used for the control of automated equipment or data logging and thin clients are rarely suitable for that kind of use.

Some software written for Microsoft's Windows operating system does not work well on centralised servers. Cutter Project now has considerable experience of installing (and in some cases cajoling) ill-behaved software on centralised servers and can provide advice on alternatives or assistance in determining which packages have problems.

At present the capital costs of installing a thin client system are broadly comparable with the traditional approach. A strong financial case can only be made over the longer term when replacement and running costs are taken into account.

The savings of a thin client system become most evident when a substantial deployment is undertaken. Small-scale systems deployments such as trial systems are likely to be less cost-effective.

We believe that there is a compelling argument for most schools to take a hard look at whether or not a thin-client system can provide benefits to them. In general a strong financial case can be made based simply on replacement and management costs without having to try to attach figures to less quantifiable but also valuable benefits such as increased system availability, remote accessibility and quieter classrooms.

Remote access using Secure Global Desktop

The infrastructure that supports thin clients on users' desktops isn't limited to servicing thin-client equipment within your premises. With suitable security put in place it can be made accessible via internet connections to anyone you choose to permit. The thin clients themselves can be installed in your users' homes or remote places of work or, alternatively (and most often) users will make use of software thin clients instead.

Cutter Project uses Sun's Secure Global Desktop for this kind of off-site access. It provides security, access controls and integrates with a wide range of software thin clients. A popular way of getting

access is simply to open a particular link in a web browser and run the client that way.

Whilst simple to describe, this remote access has transformed the way some of our clients work. Staff in schools are able to work on marking, curriculum development, timetabling and a host of other activities from anywhere with a network connection. Those who have young children are able to go home at the end of the school day, tend to the needs of their youngsters and then carry on working where they left off at school later in the evening. During vacations they don't need to travel in to school as often and many claim that not only are they more productive that way, they aren't clogging up the roads either.

If made available to students, the schools systems are potentially useful for homework, for those off sick or excluded and others who may be unable to attend regularly.

Those clients who have implemented remote access via Secure Global Desktop have made comments to us such as “It's the single best thing we have done in years” and “If we lost access to this the staff would lynch me”.

Because it can easily be run in a web browser it's easy to demonstrate if you want to see it in use – simply contact us and we will arrange for a demonstration for you.

Recommendations

We would encourage anyone responsible for the procurement or specification of school ICT systems to investigate what is possible through the use of thin clients. We are well aware that claims from suppliers are likely to be viewed with considerable scepticism and we are happy to set up meetings and open days on our existing customer sites so you can determine for yourself whether thin clients may work for you.

Because we specialise in this area we think we do it better than many others. We have honed our configuration and delivery procedures so that it's possible for us to deploy a 400 desktop system in less than a day on your site and to be able to remotely maintain and administer it if you wish. Frankly, we think that's pretty good.

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