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Introduction

What are Thin Clients?
The key defining feature of what makes a thin client has been in the computing world since the 70's. Hosting information in the server data center and granting users access via what were called "dummy terminals" at the time has evolved greatly over the last fifteen years. While once these dummy terminals lagged far behind a traditional PC in terms of utility and functionality, they have since evolved to be very competitive in terms of both usability and price.

A thin client these days is a compact piece of computing technology that accesses data remotely through a connection to a server and brings a virtual desktop to the user. This method of computing can provide many unique advantages to an organization that cannot be offered through the use of a traditional desktop. While a thin client solution is not necessarily the most suitable option for every user, many users and administrators can benefit from the flexibility and simplicity they offer.

Thin Client Features
• Long Life Cycle - Modern thin clients use Disk on Module (DOM) memory instead of traditional hard drives and have no need for fan cooling. This lack of moving parts enables thin clients to have a longer life cycle than a traditional PC.
• Lower Energy - Thin clients require significantly less energy to run than desktop PCs.
• Remotely Hosted - Thin clients themselves house no data outside of their operating system. Any information accessed or input by the user is contained within the datacenter.
• Centrally Managed - Thin client terminals can be centrally managed by administrators. This allows for convenient updating, sorting, troubleshooting, and general up keeping.
The Financial Sector

Some of the largest industries in the thin client market are financial institutions. The unique requirements these institutions must meet are very well suited to a thin client solution, and this suitability has only increased as thin client technology has advanced over the years.

Challenges
Organizations in the financial sector are under ever-growing pressure to cut costs, increase productivity, and provide the highest level of data security possible. As more and more banks turn to thin client solutions to assist with these requirements, the thin client field has adapted to meet these needs. Not only does a financial institution have to cut costs as much as possible in order to maximize their financial standing and success, it must also ensure the security of the information entrusted to it. A lapse in security can not only be financially detrimental, it can result in a loss of reputation that can be even more damaging.

Key Requirements
The requirements of a company in the financial sector are:
- Reduced Cost
- Central Management
- Stability
- Security
The Financial Sector

Solutions
Thin clients are a natural fit for the central problems faced by organizations in the financial sector. The very design of a thin client itself boasts many inherent benefits that make them perfectly suited to meet these demands.

Cost Reduction
When an organization is considering switching users from a traditional PC to a virtualized desktop solution, one of the first things they must consider is the cost benefit. Thin clients have traditionally been cheaper than a desktop PC, but in the past that price advantage was paired with a reduction in user experience. However, over the past several years the increase in hardware capabilities and the streamlining of remote desktop protocols such as Citrix ICA and Microsoft RDP have increased thin client capabilities while allowing thin clients to maintain their low price tag.

Aside from the initial cost of purchasing thin clients, there are more ways in which a thin client solution ultimately proves to be more cost effective than utilizing traditional desktop PCs. Since thin clients have no moving parts, they have a longer life cycle than a PC and require less physical maintenance. Additionally, they require much less energy to run. The savings offered by this reduction in energy costs increases along with the size of the deployment and can lead to significant savings over time.
The Financial Sector

Central Management
The necessity for a robust method of central management increases greatly depending on the size of the organization deploying any form of computing solution. Thin clients have a significant advantage in this department: Since all of the data that a thin client accesses is stored within the data center, administrators can directly control and manage what their users are capable of accessing.

Using the Devon IT Echo™ Thin Client Management Software Suite, system administrators have many advantages in both the deployment phase and maintenance phase of their workload. Echo™ allows administrators to create unique profiles that contain information such as terminal settings (display options, keyboard settings, volume, locale, password configurations) and connection protocols. Administrators can create custom combinations through Echo™ and save them in custom profiles individually tailored to the needs of specific user groups. After a profile has been created, it can be pushed down to any thin client that is being managed by the server, and the changes will be automatically applied the next time that thin client reboots.

By setting a default profile, system administrators can ensure that as soon as a new thin client is connected to the management server it is instantly updated with a profile. This alone can save countless man-hours as compared to a traditional desktop PC deployment, which often requires an IT department to manually configure each and every PC before deploying it where needed.

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The Financial Sector

Stability
Financial institutions require a high degree of stability when it comes to their data: Downtime is not an option. Since the information accessed by thin clients is all contained within the data center, this means that there must be constant access to the information stored in the servers. Additionally, it is important that the servers are capable of delivering their data quickly at a level comparable to what a desktop PC can provide. Thin clients maintain a state of high availability through redundant servers and load balancing. Through this approach, users accessing the data center are connected to the server most capable of dealing with the added workload as they connect, thus maximizing the quality and speed of their connection.

Furthermore, if a server goes offline whether it is for scheduled maintenance or unexpected malfunction, the redundant servers are able to pick up the extra workload in the meantime. This is a vital necessity in an industry that operates 24/7.

Security
Perhaps the most important feature for any company in the financial sector is security. When a bank is managing billions of dollars on a global scale, it is vitally important that every precaution is taken to safeguard their data.

Thin clients offer several features that make them a natural choice when it comes to security. Due to the fact that thin clients are not persistent (that is, there is no data stored on the thin client itself), they are naturally virus-resistant. If a user were to download a virus, a reboot of the device would revert that thin client to its prior state.

Another way in which banks must protect against security leaks is through the physical devices they use. The theft of a laptop, for example, can grant the thief access to a large amount of data that poses a significant security threat to the organization it was stolen from. Since thin clients themselves contain no data and only can be accessed remotely, a thief would be unable to gain any sensitive data if they managed to get their hands on a thin client.
The Financial Sector

Conclusion
The challenges faced by companies operating within the financial industry are many, but thin clients are a very suitable option to meet these challenges. By offering high availability, high security, and a powerful method of central management; thin clients have been providing solutions well suited to the demands of banks on a global scale. With the additional benefit of affordability, thin clients and the financial sector are a natural fit.
Healthcare

Healthcare is a global industry that stands to gain very much from the field of virtualized desktops and thin clients. In a field where users are often in hectic and demanding positions that directly impact the health of their patients, the last thing caregivers need is a computing solution that slows them down. Hospitals all over the world have been expanding into the thin client market greatly in the past decade, and the benefits they gain from thin client computing have only improved as time goes on.

Challenges
Healthcare is a fast paced field where every second counts and mobility is crucial. Additionally, it is vital to those in the healthcare field that their process is secure in order to protect their patients and adhere to provisions such as HIPAA. The loss of sensitive patient information is a mistake that hospitals cannot afford to make. Hospitals must maintain a very well controlled, and often limited, budget, so it is also critical in the healthcare field to act as fiscally responsible as possible.

Key Requirements
The requirements of a company in the healthcare field are:

- Reduced Cost
- Central Management
- Mobility
- Security
Healthcare

Solutions
Thin clients have proven to be an effective means for those in the healthcare industry to meet the demands placed upon them.

Cost Reduction
When an organization is considering switching users from a traditional PC to a virtualized desktop solution, one of the first things they must consider is the cost benefit. Thin clients have traditionally been cheaper than a desktop PC, but in the past that price advantage was paired with a reduction in user experience. However, over the past several years the increase in hardware capabilities and the streamlining of remote desktop protocols such as Citrix ICA and Microsoft RDP have increased thin client capabilities while allowing thin clients to maintain their low price tag.

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Healthcare

Central Management

The necessity for a robust method of central management increases greatly depending on the size of the organization deploying any form of computing solution. Thin clients have a significant advantage in this department: Since all of the data that a thin client accesses is stored within the data center, administrators can directly control and manage what their users are capable of accessing.

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Healthcare

Mobility
In the healthcare field, users are often moving from one place to another constantly. Whether these users are doctors moving from one patient’s room to the next or administrative staff moving from one hospital to another, users in this industry require flexibility and accessibility options that desktop PCs cannot offer.

Thin clients can meet the demand for mobility in several ways. Since all of an individual user’s data is stored in the datacenter and accessed remotely, users are able to connect to their own personal desktop from any thin client device connected to the server hosting their information. Once the user enters their credentials into a thin client connected to that server, they are quickly presented with the remote desktop they require, regardless of location. This can prove to be a very useful feature in an industry where users are not always in one static location.

Another way in which thin clients meet the mobile demands of those in the healthcare field is through mobile thin clients. A doctor making their rounds can have constant access to critical patient data while on the move. The ability to access and update patient information on the fly can be an extremely useful feature in caregiving.

Security
Those in the healthcare industry must be able to provide a high level of security for their patient information. Regulations such as HIPAA are a critical factor in healthcare, and any lapse in security can open medical institutions up to costly fines and lawsuits. Security risks are something no healthcare provider can afford to take lightly.

Hospitals can be very hectic places, and theft is hardly uncommon. When the theft of a single laptop can grant a thief access to a large amount of sensitive patient data, it is crucial to minimize the risk that the theft of a physical device offers. Since thin clients themselves contain no data and only access it remotely, a thief would be unable to gain any sensitive data if they managed to get their hands on one.
Healthcare

Conclusion
Healthcare is a high-pressure field where budgets are tight, users are constantly on the move, and security is critical. Thin clients provide an excellent solution for the IT needs of medical facilities and associated industries such as insurance companies and administrative organizations. The flexibility of thin clients, as well as the cost savings they can provide, provides caregivers an effective method of performing their jobs efficiently while protecting the sensitive nature of the information they are handling.
K-12 Education

Without any question, the use of computers as learning tools has become an expected standard in the classroom, and their roles are only expanding. Finding a viable yet affordable solution that can perform all of the operations needed has proven difficult in the past, often times leaving school districts with outdated equipment ill suited to provide the best learning potential possible.

Challenges
Educating our children through technology, however, presents its own unique challenges. Teachers must be able to control and focus the scope of what their students have access to in addition to having the ability to expand or narrow that scope as they progress. Without being able to offer a true desktop experience, however, would prevent students from fully benefitting from any class work they may have as well as limit them in the range of programs they are able to learn about. Schools operate under very strict, limited budgets that have very little room for frivolous spending: every dollar counts. Thin clients offer an affordable and manageable alternative to desktop PCs in the K-12 educational field.

Key Requirements
The requirements of K-12 educators are:

- Control
- User Experience
- Central Management
- Reduced Cost
K-12 Education

Solutions
As thin clients have progressed over the years, their role as viable competition to desktop PCs has improved dramatically. With centralized management and the ability to tightly control what users have access to, educating future generations through virtual desktops and thin clients has never been easier.

Control
A central focus for any teacher using computers to educate students is limiting the students in what they are able to access. Teachers can’t be everywhere at once, and without being able to control what the students access there’s no telling what those towards the back of the class may actually be doing. Thin clients provide teachers with a reliable method to choose what students are able to use, and when.

For example, if a teacher wanted to instruct students on how to use a word processing program in a Citrix virtual desktop, they would create a new Citrix connection and log in as an administrator. Then, they can install the word processor and remove any programs they don’t want the students to access that day, such as a web browser. The teacher could then save the desktop, and when the students then connect to that virtual desktop through their thin clients only the programs that the teacher has selected will be available to them. In this manner, a teacher can alter the virtual desktop daily in order to give access only to those programs which pertain to the day’s syllabus.

User Experience
Modern thin clients are capable of providing a much richer user experience than in the past. With software developments like Remote FX for RDP connections and Citrix HDX, teachers are able to utilize more robust programs for their students to access. As time goes on, computer education for students has started earlier and earlier each year. Because of this, the scope of what is taught to students between kindergarten and 12th grade grows broader, and the capabilities of thin clients have advanced to where even high level software for advanced students can be run as effectively as on a desktop PC.
K-12 Education

Central Management
In a school district with thousands of students, potentially spread out over many different facilities, it is important for the IT staff to have access to a centralized management platform. Thin clients have a significant advantage over traditional PCs in this department: Since all of the data that a thin client accesses is stored within the data center, administrators can directly control and manage what their users are capable of accessing.

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K-12 Education

Cost Reduction
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Conclusion
The ability for teachers to control what their students are able to access on their computers is a valuable tool in the field of education. By utilizing profiles and maintaining a single connection pushed down to their students, this degree of control can be exercised easily and fluidly. The fact that switching to thin clients also provides economic savings only adds to the appeal when considering deploying thin clients to a K-12 educational system. As technology advances, it’s important that students are given every opportunity to learn through modern devices that provide rich desktop experiences capable of keeping pace with what is being taught.
Higher Education

In today’s ever changing technological reliant world, as hardware turns towards its end of life, IT administrators are looking for more efficient, secure and cost effective options for their infrastructure. Providing students with accessibility of technology at their finger tips to create a dynamic learning environment is essential, but tight budget restraints amongst school systems leaves IT administrators to search for effective and cost conscience technology solutions.

Challenges
In a university setting, thin client deployments can become quite large depending on the size of the school. With such large deployments cost concerns are paramount, and often thin clients will be slowly integrated within the system as obsolete equipment that needs to be replaced. Providing students and faculty with the flexibility to access their data while on the move is another important requirement, and securely maintaining this data and how it is accessed is a primary concern for IT administrators in the higher education field.

Key Requirements
The requirements of those in the field of higher education are:

- Reduced Cost
- Mobility
- Central Management
- Security
Higher Education

Solutions

Cost Reduction
When a college is considering switching users from a traditional PC to a virtualized desktop solution, one of the first things they must consider is the cost benefit. Thin clients have traditionally been cheaper than a desktop PC, but in the past that price advantage was paired with a reduction in user experience. However, over the past several years the increase in hardware capabilities and the streamlining of remote desktop protocols such as Citrix ICA and Microsoft RDP have increased thin client capabilities while allowing thin clients to maintain their low price tag.

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Higher Education

Mobility
In the world of higher education, the importance of mobility can not be overstated. Students are constantly on the move, going from one classroom to the next. Thin clients can meet the demand for mobility in several ways.

Since all of an individual user’s data is stored in the datacenter and accessed remotely, users are able to connect to their own personal desktop from any thin client device connected to the server hosting their information. Once the user enters their credentials into a thin client connected to that server, they are quickly presented with the remote desktop they require, regardless of location. This can prove to be a very useful feature in an industry where users are not always in one static location.

Another way in which thin clients meet the mobile demands of students is through mobile thin clients. Many schools provide their students with laptops upon enrollment, and thin client devices can provide a viable option for college administrators. Whether a student is accessing their desktop in their dorm or in the student union, their mobile needs can be met through thin client computing.
Higher Education

Central Management
In a university with tens of thousands of students, potentially spread out over many different facilities, as well as faculty and administrative workers, it is important for the IT staff to have access to a centralized management platform. Thin clients have a significant advantage over traditional PCs in this department: Since all of the data that a thin client accesses is stored within the data center, administrators can directly control and manage what their users are capable of accessing.

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Higher Education

Security
The need for security in higher education is an important factor when considering a computing solution. There are many advantages that thin clients offer to both students and staff that can improve the overall level of security offered.

Since a student using a thin client is storing all of their data to a remote server, if their thin client is lost or stolen they won't lose all of their hard work. Since thin clients themselves serve no function without the data center, there is very little incentive to steal a thin client in the first place. Without any data on the device itself, students are protected from losing their personal information as well.

Faculty and staff are likewise protected from losing sensitive files or information for the same reason. By remotely accessing presentations, lectures, and syllabi, professors have no need to worry about losing their educational materials.

Conclusion
In a higher education setting, students are not the only ones that can benefit from thin client computing. The security and mobility offered by thin clients is beneficial to faculty, administrators, and students alike. With potentially tens of thousands of students on a single campus, system administrators greatly benefit from a robust central management platform like Echo™. Not only can thin clients provide convenience, they can also offer financial savings to both the university and student body due to lower costs.
Thin Client Use Cases

Contact Devon IT for more information.

We can help you discover the thin client solution that is best for your infrastructure.

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