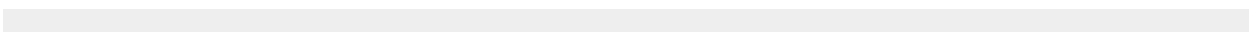




**WHAT IS WYSE STREAMING MANAGER AND  
HOW DOES IT WORK?**

A Primer

**WYSE**  
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## **ABOUT THIS PRIMER**

This primer will give you the information you need to decide if operating system and application streaming is right for you. It will also arm you with the information you need to effectively evaluate a streaming solution. And it will explain what Wyse Streaming Manager is and what it does for business.

If you don't understand a term or its usage in this primer, check in the Glossary on page 16. The Glossary is organized alphabetically and might provide a different way of using the term than you're used to.

You certainly don't need to read this primer cover-to-cover. Pick the chapters or sections that make the most sense for you. We tried to include the information a line-of-business manager might need as well as an IT manager, understanding that not everybody needs the same information.

If you have any comments or suggestions, please let us know. You can send comments to [feedback@wyse.com](mailto:feedback@wyse.com) or talk to your Wyse sales representative.

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## [SECTION 1] A LITTLE BACKGROUND

Part of the problem with computing in business today is that there are more personal computers than business computers. Personal computers are great for personal productivity, but actually quite difficult for businesses to manage and support. And it's killing IT staffs and budgets every day in corporations of all sizes.

### **BEYOND PERSONAL COMPUTING: THIN COMPUTING FOR BUSINESS**

Thin computing offers a solution that gives people access to the information they need, through applications they're comfortable with. By centralizing all of the data and applications in powerful servers, desktops around the world no longer need local storage – even for the operating system and applications. Which makes it easier for IT departments to deploy, manage, and maintain the operating systems, applications, and files from one central location.

This has traditionally been accomplished using applications like Citrix Presentation Server, Microsoft Terminal Services, or Sun Secure Global Desktop. These solutions deliver applications such as Microsoft Office to the desktop through a process we'll call screen casting. With screen casting, the applications run on the server, which pushes the screen out to the individual desktop. And this works great for about 80 percent of an enterprise's applications.

### **STREAMING: THE SOLUTION FOR EXCEPTIONS**

When you need to use applications that need to run at the desktop, screen casting won't work. For homegrown enterprise applications, multimedia, or graphics-intensive applications, the alternative to screen casting or PCs is a technology that securely delivers the operating system and applications – either together or independently – to the desktop, where they run locally.

This process is called streaming, and it delivers a complete operating environment – the operating system and applications – to the desktop device over a network. Streaming technology does this by packaging the operating system and applications so that they can be delivered bit-by-bit, giving the person only what they need at any given time. Delivering the software incrementally, streaming solutions demand less network bandwidth, yet still give people the performance they expect from a desktop PC.

Wyse Streaming Manager does just that. It packages and delivers a standardized operating system plus the necessary applications (independently of each other) to a stateless thin computer. Stateless thin computers have no flash memory, disk drive, or local storage of any kind, just RAM and a processor. When the operating system and applications are streamed to the thin computer, everything executes (or runs) locally, but all of the files and applications reside at the server. Where they are much easier to back up, manage, and maintain.

Because stateless thin computers have no local storage, they add another level of security. Since all user preferences are stored centrally, it's easy for an IT administrator to eliminate any viruses or spyware that accidentally get downloaded. Additionally, when a stateless thin computer is unplugged from the network, there is absolutely no data on it, since there is nowhere to store it. So nothing can walk out the door.

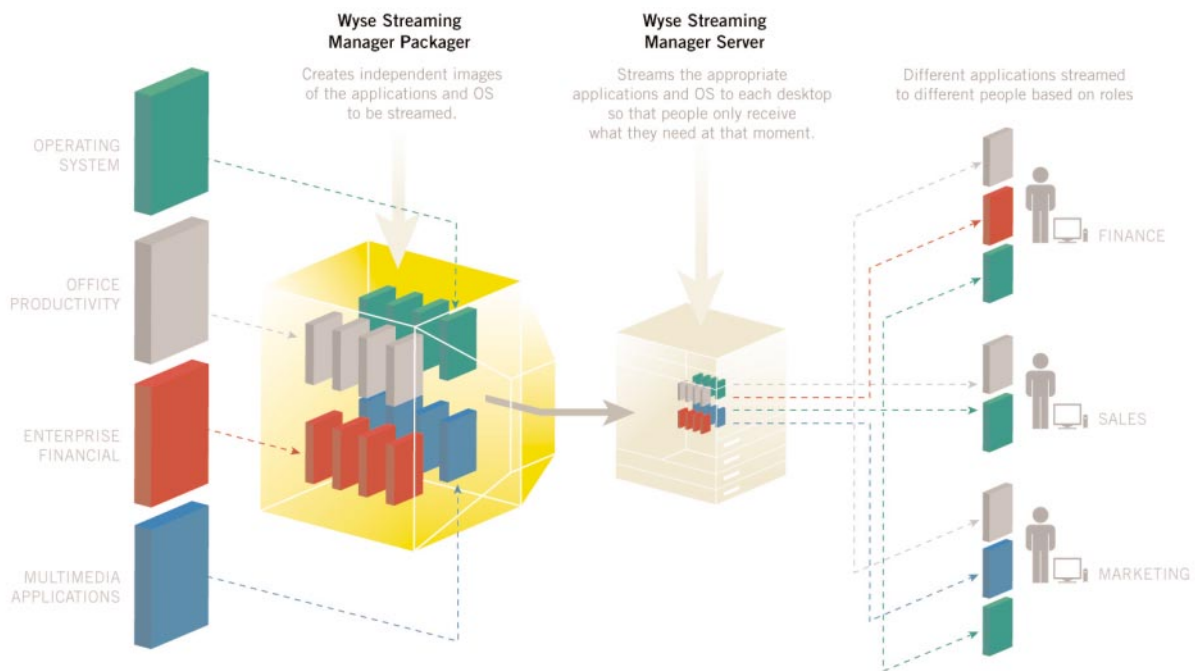
## [SECTION 2] WHAT IS WYSE STREAMING MANAGER?

In a nutshell, Wyse Streaming Manager allows IT staff to deploy a standardized operating system and applications to stateless thin computers from a central location. By streaming the operating system and applications independent of each other, Wyse Streaming Manager makes it possible for stateless thin computers to operate just like a PC, but without the local storage. Which makes it easier for IT to backup, update, manage, maintain, and support multitudes of desktops with minimal staff.

Wyse Streaming Manager includes:

- An easy-to-use operating system image-creation tool for IT administrators that allows them to create and deploy operating system images
- An application packager that allows IT administrators to create and deploy application images
- A centralized web-based management interface
- Windows Server-based services that manage the streaming of the operating system and applications

### WYSE STREAMING MANAGER: HOW IT WORKS



### DELIVERING WHAT YOU NEED, WHEN YOU NEED IT

IT staff can use Wyse Streaming Manager to create one operating system image, then deploy different applications to different people, based on their roles and needs. Because the operating system and applications are securely stored on centralized servers, they're much easier to update, upgrade, patch, and secure. This also makes it easier to prevent the spread of viruses, since updating security software for a couple of operating system images on a server is much easier than upgrading security software on a couple hundred desktops, and making sure they all get installed.

When the operating system and applications are streamed to the thin computer, they run there, locally. Allowing thin computers to work just like a PC, but without the IT headaches. However, Wyse Streaming Manager only streams those parts of the operating system and applications that the person needs. So, if somebody never uses the Table function in Microsoft Word, that part of the application doesn't make the trip. And, if it is needed, it comes when called.

Wyse Streaming Manager supports the Microsoft Windows XP Professional and Windows 2000 Professional operating systems, as well as all of the applications that will run on those operating systems.

## **KEY DIFFERENTIATORS**

### **DEPLOY APPLICATIONS INDEPENDENT OF OPERATING SYSTEM**

The key differentiator for Wyse Streaming Manager is the ability to deploy applications independent of the streamed operating system. This allows customers to standardize their operating system images across their organization, then deliver applications based on roles and needs.

Because the operating system is not dependent upon the applications being deployed, a single operating system image can be deployed across multiple thin computers (as long as you have the licenses for each machine). The independence of the operating system and the applications also allows IT departments to deploy application patches and updates without having to modify the operating system image.

### **DELIVER A PC EXPERIENCE WITHOUT LOCAL STORAGE**

Wyse Streaming Manager delivers software on demand to stateless thin computers, where the applications run, but don't reside. It delivers the power and flexibility of a PC to the person using it, while giving IT the manageability they want from a thin-computing environment.

So people can run graphics-intensive or multimedia applications locally, without having any of the data stored locally. It's all safely secured back on the server.

This is no small issue. With a stateless thin computer, nothing is resident on the device. It's a blank slate as soon as you log off. So there is nothing to erase before disposal. Nothing to steal. Nothing to infect. No data to accidentally erase or lose to a virus. In fact, there is nothing to manage — nothing resident on the device to update or patch. And no hard drive to power, so it requires less energy and has a substantially longer mean time between failures (a common hardware measurement of reliability in the IT world).

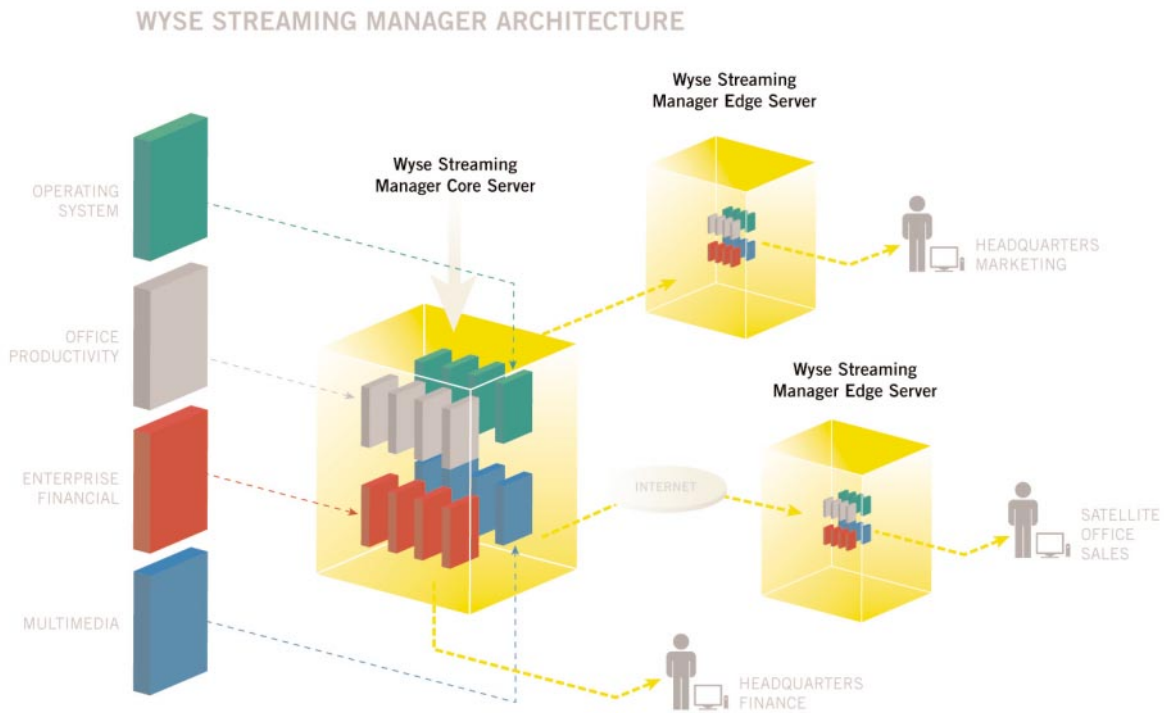
Even when there is local storage attached to the desktop device, Wyse Streaming Manager completely ignores it, making any device – even a PC with an 80GB hard disk – a stateless one. While Wyse Streaming Manager is running, people can only access the applications that an IT administrator has assigned them.

This solution dramatically eliminates downtime to deploy new applications and operating system patches, since everything can be done at a central location and streamed out to desktop devices. A single reboot is all that's needed to ensure that the software has been updated on any device.

### [SECTION 3] WHAT CHALLENGES DOES WYSE STREAMING MANAGER SOLVE?

The IT department will reap the greatest benefits from deploying Wyse Streaming Manager. For the most part, the only thing that people using thin computers running Wyse Streaming Manager will notice is the smaller device on their desks and the significant reduction in the number of calls they have to make to your internal Help Desk.

For an IT department, Wyse Streaming Manager dramatically reduces costs associated with security, support, application licensing and management, operating system deployment and maintenance, as well as application deployment and maintenance.



#### **INCREASED SECURITY**

Because Wyse Streaming Manager can stream the operating system, applications, and data to a stateless thin computer, nothing is stored on the thin computer. Which means it's a blank slate as soon as the person using it logs off. So there's nothing to physically steal. No laptop can walk out of an office with the credit information for 100,000 customers, the medical records of 200 patients, or any kind of sensitive or proprietary information.

By streaming the operating system and applications from a central location, it's much easier for an IT staff to ensure that each desktop is protected by the very latest security solutions. Instead of pushing out updates and hoping people accept the update, IT can simply update any applications, package them, and stream them to every desktop.

Also, since all of the data is stored at the server, it's much easier to back up on a regular basis. So, even if a thin computer is removed from the network, the data is secure on the server. All of which makes compliance with new government regulations – such as HIPAA, Sarbanes-Oxley, and Basel II – much easier.

### **REDUCED COSTS**

Because all software updates and patches can be performed at the server, patch-related downtime is all but eliminated. This also eliminates the need to ensure that patches and upgrades are applied at hundreds or thousands of desktop computers throughout your organization.

Deploying Wyse Streaming Manager also eliminates most of the visits IT support staff have to make to desktops. Since all of the software can be provisioned from centralized servers, there is no need to update software at the desktop. And, because the thin computers are stateless devices, there's very little to go wrong from a hardware perspective, which eliminates most service calls. Additionally, any recovery from a virus or Trojan horse attack is handled at the server level, further reducing support staff calls.

One of the more subtle advantages of Wyse Streaming Manager is that you can easily switch a thin computer's use from a self-help kiosk to a point-of-sale system, from a sales computer to a support computer, or from administrative desktop to an executive desktop simply by logging out or rebooting the machine. This allows you the flexibility to have a single system serve many purposes or many different people with no additional work on IT's part.

### **BETTER ENTERPRISE CONSISTENCY**

By standardizing on a single operating system, an IT department can focus on delivering better access to the information people need, along with the tools they need to access and use that information.

Wyse Streaming Manager allows IT administrators to deploy the same operating system image across multiple machines, independent of the applications needed on each desktop. So the same operating system can be used for sales (where they need access to a CRM solution), marketing communications (running presentation and image-manipulation software), and operations (who use a supply-chain management solution), with IT deploying the appropriate applications to people in different roles throughout the organization.

### **IMPROVED LICENSING MANAGEMENT**

The integrated license management and metering tool in Wyse Streaming Manager automates license reporting and eliminates the need to pay for "shelfware" licenses. Compliant with Business Software Alliance audits and reporting, the licensing tool can also help you proactively assess your needs for future purchases.

### **SIMPLIFIED DEPLOYMENT AND MAINTENANCE**

Since everything is packaged and stored at the server, Wyse Streaming Manager reduces the IT pain of keeping operating systems and applications up to date with patches and upgrades. All of this work can be done once, then the images created and streamed to the thin computers on desktops throughout the organization. So you only need to upgrade or patch the software once, regardless of how many desktops you have. Most IT administrators can tell you that this is a significant time savings. They also enjoy being able to use the web-based administrative console from any office or even a remote location.

## **[SECTION 4] WHERE DOES WYSE STREAMING MANAGER WORK BEST?**

Unfortunately, Wyse Streaming Manager is not ideal for every possible situation. However, because it does deliver PC performance and flexibility without the IT headaches of a PC, it can work in many more situations than we can possibly detail here without resorting to long lists of very small type.

So rather than have you try to find your specific situation in a very long list, we thought it more appropriate to focus on three key factors: the IT infrastructure, work styles and habits, and the organization or group.

Let's look at IT infrastructure, since there are technical prerequisites that need to be in place before Wyse Streaming Manager will perform. However, these are generally pretty standard in most organizations.

### **INFRASTRUCTURE**

Here are the minimum and recommended requirements for your IT infrastructure.

#### Desktop System

- Minimum processor speed of 800MHz (1GHz or higher is recommended)
- Minimum memory of 256MB (512MB is recommended)

#### Dedicated Server

- Minimum server processor speed of 1GHz (3GHz or higher is recommended)
- Minimum server LAN card of 100Mbps (1Gbps is recommended)

#### Server Operating System

- Microsoft Windows Server 2000 SP3 or higher
- Microsoft Windows Server 2003

#### Network Speed

- Minimum network speed of 10Mbps (100Mbps duplex or higher is recommended)

#### Additional Network Requirements

- DHCP
- PXE/network boot

#### Supported Database

- Microsoft SQL Server 2000 SP3 or higher

#### Streaming Operating Systems Supported

- Microsoft Windows XP Professional
- Microsoft Windows 2000 Professional

Make sure the network can support the transfer speeds you need in order to deliver a true PC experience over the network.

## **WORK STYLES AND HABITS**

While Wyse Streaming Manager is an excellent PC replacement strategy under most circumstances, certain situations lend themselves best to deploying Wyse Streaming Manager.

People who spend most of their day at their desks are the best suited for this solution. Since they don't travel or need to take their computer everywhere they go, a desktop thin computer is ideal. It takes up less space, creates less heat and noise, and has nowhere near the help desk headaches of a PC.

If they use terminals now, they'll be thrilled to get more functionality and performance. In many cases, things will run faster with Wyse Streaming Manager than with a 9-month old PC.

Psychologically, these people are easier to convince that they are getting the latest and greatest technology (which is true). There isn't quite the emotional attachment to their PC or terminal that there is for mobile workers and their laptops.

Wyse Streaming Manager is also ideal for those who work with a couple of applications or suites in addition to CAD, multimedia, and other applications that need to run locally. These applications may also be used in conjunction with server-based applications, such as CRM, databases, supply-chain management, human resources, or accounting solutions.

## **ORGANIZATIONS**

While certain types of organizations are ideal fits for Wyse Streaming Manager, there are scores of other organizations who work in similar ways, and could benefit from the solution. For now we'll focus on a handful of industries that can benefit from deploying Wyse Streaming Manager: call centers, government agencies, banking and finance, healthcare and insurance organizations.

**CALL CENTERS ARE AN IDEAL DEPLOYMENT.** These groups typically consist of a lot of people who work in shifts, exclusively at their desk. They need access to enterprise-class applications designed for call centers or help desk situations, many of which are homegrown. Many of these applications won't work through screen-casting software, requiring companies to deploy PCs in situations that call for thin computers.

**GOVERNMENT AGENCIES** appreciate the additional security that Wyse Streaming Manager offers. Because it allows government institutions to deploy completely stateless thin computers, there is absolutely nothing resident on the device once logged off. Also, any local storage attached to the device is ignored, so there is no chance of sensitive data being removed by accident or on purpose.

**BANKING AND FINANCE** centers look to Wyse Streaming Manager for PC-like performance with the additional security and ease of maintenance that thin computing offers. With the ability to run applications at the desktop, these organizations can use specialty software developed and customized just for them in addition to standard office-suite solutions. Yet all of the data and applications remain in the data center, making it easier to manage and maintain. Not to mention, keeping sensitive data secure.

**HEALTHCARE AND INSURANCE ORGANIZATIONS**, which need to comply with regulations such as HIPAA, are moving to thin computing in order to secure data and simplify management. While keeping patient information secure is paramount in HIPAA compliance, healthcare providers still need access to that information at the point of care. Wyse Streaming Manager delivers the data and applications each provider needs when and where they need it based on their role within the organization.

**WHERE IT'S NOT A GOOD FIT**

Of course, Wyse Streaming Manager is not the perfect solution in every situation. It's not a good fit in low-bandwidth environments, such as dial-up or networks delivering less than 10Mbps performance. In these situations, the operating system and applications cannot stream fast enough to deliver the performance people need.

It might also be overkill in situations where a screen-casting solution is ideal. This includes most situations where users do not need access to applications that need to run locally.

If you have any questions about whether Wyse Streaming Manager is a good fit for your organization, contact your Wyse sales representative or your local Wyse value-added reseller.

## [SECTION 5] EXAMPLES OF WYSE STREAMING MANAGER IN ACTION

While Wyse Streaming Manager is a new technology, it has been deployed in a variety of different environments. Here are a couple of examples that show how Wyse Streaming Manager solves very real world computing challenges.

### **GOVERNMENT INSTITUTION**

This agency has a mix of Microsoft Windows XP-based Wyse thin clients and PCs within their network. However the local storage (flash and hard disk) present a large security risk in their classified network. Additionally, many of the legacy applications could not be packaged in a terminal services-type environment.

By repurposing the existing Windows XP-based Wyse thin clients to run off Wyse Streaming Manager, this agency could securely stream legacy applications to the desktop. This solved two problems for the agency: getting the people on thin computers access to the legacy applications, and increasing security, since Wyse Streaming Manager ignores any local storage during a streaming session.

Additionally, this approach leverages their existing infrastructure, without compromising performance or security. Giving this government agency a net result of increased security and application compatibility with minimal investment.

### **EDUCATIONAL INSTITUTION**

This school district has to manage more than 500 PCs, many of them aging desktops. With limited IT resources and a small budget, they were stretched trying to keep those systems updated. Additionally, legacy student applications, such as Reader Rabbit, cannot be used in a terminal services-type environment. One of the key requirements for classroom computers is the ability to do rich multimedia for training.

By replacing the aging PCs with Wyse stateless thin computers, Wyse Streaming Manager, and Microsoft XP Professional, this school district is able to deliver the operating system and applications the teachers and administrators need. At the same time they are able to practically eliminate the need to manage desktop clients at the desktop – everything can be done by IT through a web-based console.

Additionally, the district can now offer full application compatibility, with all the control and manageability that IT needs in order to support 500 desktops with limited budget and resources.

## **[SECTION 6] HOW DOES WYSE STREAMING MANAGER WORK?**

Wyse Streaming Manager works on a simple concept. Bits of the operating system and application are transferred across the network as the person needs, and are executed locally on their desktop. With Wyse Streaming Manager, the operating system acts as though there is a local hard disk attached to the device; however Wyse Streaming Manager intercepts any directions to access the local hard disk and transfers it across the network to the server.

It all functions together just like a PC, but with the storage in a place that makes it easier to manage, maintain, update, and secure. You just have a long cable (your network) connecting the CPU with the disk drive.

### **SO HOW DOES IT (OR IT) DO ALL THAT?**

The first step in the process is for IT, Wyse Professional Services, or a Wyse Certified Partner to create the operating system image. This is done with a simple operating system packaging utility included in Wyse Streaming Manager. This utility needs to be run on a reference machine that has the same configuration as the desktop devices, plus some form of local storage.

The process captures all the files and settings of the local storage, then transfers that information to the server. The process has the flexibility to allow the administrator to configure the operating system image size being captured. So they can capture, for example, an 8GB image using a local storage of only 4GB. Each operating system image is then stored in a single file in the Streaming Directory on the core server.

### **APPLICATION PACKAGING**

All applications to be streamed also need to be packaged. Wyse Streaming Manager includes a straightforward utility called the Application Publisher to do this. The application package also includes all the changes to the operating system that are needed for the application to function. This includes application-specific files and the registry entries. This application package is then stored on the server, to be streamed to desktop systems.

### **AT THE DESKTOP**

When the thin computer is turned on, the device looks across the network for the operating system on the streaming server. This is called a network boot. The Streaming Server responds to the request by streaming the operating system bits across the network to the desktop. In this case only the bits that are needed for the device at that particular time are sent across the network and then executed locally on the desktop device. By controlling this process Wyse Streaming Manager ensures that network bandwidth is not consumed by the booting traffic as multiple clients start up.

When the operating system is loaded on the device the person working on the thin computer sees the exact same sequence that they would see with a regular PC. They can login to a domain (if the operating system image has been configured accordingly) and the operating system security takes over and ensures that the user credentials are verified by the active directory that is in place on the corporate network.

Wyse Streaming Manager has the capability to share a single operating system image across multiple devices. Each device has its own virtual C: drive. Device-specific changes made to the shared image are stored in this virtual C: drive, making each thin computer function like a separate PC even though the same OS image is shared across multiple devices.

Additionally, any local desktop storage is ignored by Wyse Streaming Manager, making the desktop a secure and stateless device as long as it is running Wyse Streaming Manager. No data from a session remains on the device once the session is closed.

If Active Directory is enabled, then a single sign-on lets the person log into the Wyse Streaming Manager client, and access all of the applications assigned to that person (based on their group) by the administrator. When the user starts the application using normal Windows operations (selecting the start menu or desktop icon) the application bits are streamed to the device. Once again, only the information needed by the device is transferred to the device, where it runs locally. Due to local execution, graphics intensive and multimedia applications can run effectively with a rich user experience.

## [SECTION 7] WHAT TO EXPECT FROM WYSE STREAMING MANAGER.

From a business perspective, Wyse Streaming Manager delivers the power of a PC that business people want and need to do their work. It automatically backs up work; allows instant recovery from infection by viruses, Trojan horses, and spyware; and makes it easier to pick up where you left off – even if you move to another desk, office, or conference room.

From an IT perspective, Wyse Streaming Manager delivers **centralized management** of all software, patches, and upgrades. No more updating and patching operating systems and solutions at the desktop. This dramatically reduces IT costs.

By centralizing all management, and all of the software including the operating system, it also dramatically **improves** security. After all, it's much easier to update security software for a couple of operating system or application images on the server than a couple hundred desktops. You do not have to trust that employees will deploy the updates, or even read the email. You take care of it and distribute the secured software with the operating system and applications as you update it.

Wyse Streaming Manager also improves security by treating every device as a stateless thin computer. So nothing that is worked on or distributed is left on the device. No local storage is acknowledged on any device (with hard disk) unless authorized by the administrator, so nobody can download information on purpose or by accident.

The **total cost of ownership** comes down due to the lower IT costs and improved application-license management. When calculating your costs, remember to consider all of the following expenses:

- Wyse Streaming Manager
- Wyse Streaming Manager Imaging Device
  - This is optional if you are using Wyse Professional Services or Wyse Certified Partners to do your implementation
- Operating system licenses
- Application licenses
- Wyse thin computers
- Any additional infrastructure upgrades, including:
  - Dedicated server for Wyse Streaming Manager
  - Network upgrades
  - Operating system upgrades

Because Wyse Streaming Manager is one of the ways you can deploy thin computing, you also get all its benefits.

### **SECURITY**

Unlike a PC, a Wyse thin computer – and any device running Wyse Streaming Manager – has no local storage device (or is treated as though it has none), so malware is dealt with at the server level, where it's easier to detect. Since there is no way to store and remove information from thin computers unless authorized by the administrator, sensitive data is always safe on the server and compliant with privacy regulations. Wyse thin computers also work with security initiatives such as smart cards and biometrics to further increase your security. And since nothing is stored on the desktop, there is nothing for thieves to steal.

**MANAGEABILITY**

Thin computers are much easier to deploy and configure for the simple reason that the software is delivered from the server. All you need to do is connect the cables. Application updates can also be performed at the server level, eliminating manual updates of individual systems. And data backup is simplified since all data resides on the server, not on local hard drives.

**AVAILABILITY**

Because thin computers have solid-state technology, there are no moving parts to fail. Should a thin computer ever fail or get removed, the data is always instantly available from another system. This lack of local storage, and the problems associated with it, make data much more available to people.

**RELIABILITY**

Thin computers are nine times more reliable than PCs because there are no mechanical parts to break down. With no local storage of applications or data, it is impossible to download viruses, malware, or software that causes conflicts with more mission-critical applications. By avoiding the introduction of downloaded software while pushing storage and computing power to more reliable servers, thin computing dramatically increases the reliability of the entire infrastructure.

**TOTAL COST OF OWNERSHIP**

The average annual maintenance costs for a PC are four to seven times the acquisition costs. This is not true for thin computers. On average, thin computers can save more than \$1000 per seat per year in maintenance costs alone over PCs. This can be 40 percent or more savings for IT departments. And the lower cost makes it possible to deploy thin computing to more people in more places than ever before.

**SCALABILITY**

One of the greatest challenges for rapidly expanding enterprises, businesses, and organizations is rapidly deploying systems. Setting up a thin computer only requires plugging in three or four cables, something anybody can do. The rest of the set up takes place in the data center. Additionally, a well-designed thin-computing solution can easily support hundreds of thousands of thin computers. Giving an enterprise or organization of any size the ability to grow quickly and cost-effectively

## **[SECTION 8] WHAT TO DO NEXT.**

If you think that thin computing – and Wyse Streaming Manager – is the best way to take your enterprise to the next level, the first next step is to take a close look at your infrastructure and needs. Don't forget to look at how people use the technology, since that's a key component of any getting any new technology to work.

If you need help with evaluating your situation or with getting products, call Wyse at 1-800-GET-WYSE or visit our website at [www.wyse.com](http://www.wyse.com) today. We can get somebody out to help you right away.

If you already work with a Wyse Partner, then they are your fastest and best way to get going with Wyse Streaming Manager or another Wyse thin-computing solution.

## [SECTION 9] GLOSSARY OF TERMS

### *Application Image*

In order to make an application ready for streaming, the software must first make an image of how that application looks when it is deployed, then segment that into smaller pieces that will travel easily down the network to the desktop.

### *Basel II*

The International Convergence of Capital Measurement and Capital Standards – A Revised Framework or The New Accord was released in 2004. It represents the recommendations of bankers to revise the international standards for measuring the adequacy of a bank's capital. It was created to promote greater consistency in the way banks and banking regulators approach risk management across national borders. Nations included in the Basel Committee include Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, the United States, plus representatives from Luxembourg and Spain.

### *BIOS*

The acronym for Basic Input/Output System, this is the built-in software that contains all the software code required to control the keyboard, display, drives, serial communications, network, and other features.

### *Business Computer*

This is, quite simply, a computer that gives the person using it the business value they need (typically access to both the information and applications they need to do their jobs). A well-designed business computer also offers high IT value, allowing the IT department to manage, secure, and support the computer quickly and efficiently. It must also allow IT to do what is necessary to comply with government and industry regulations.

### *Business Software Alliance*

This trade group represents the world's largest software makers. Its primary goal is to fight software piracy, which the group claims costs the software industry more than 11 billion dollars each year. The alliance is funded through membership dues based on each member's software revenues, and through settlements.

### *CAD*

Computer-aided design (or CAD) is the practice of using software and hardware tools that help engineers, architects and other design professionals. CAD is sometimes also known as computer-assisted design, computer-aided drafting, or computer-aided design and drafting (CADD). CAD solutions are available for 2D drafting, 3D design, and solid-design modeling.

### *CPU*

The Central Processing Unit – or brains of the computer. The CPU performs all the mathematical, instruction, and logic, processing in a computer.

### *CRM*

Customer Relationship Management software helps to track and manage all aspects of interactions between a company and its customers from sales to service.

### *Enterprise-class Applications*

Enterprise-class applications are designed to work for a large organization, often around the world. Many enterprise-class applications help with things like supply-chain management, finance, human resources, and customer-relationship management.

### *Flash Memory*

Flash memory is a type of EPROM (Electrically Programmable Read-Only Memory) that holds memory content without constant power (unlike RAM chips, which clear as soon as the power is turned off).

### *HIPAA*

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) requires health and human services providers adopt national standards for electronic health-care transactions. It gives patients greater access to their own medical records and more control over how their personally identifiable information is used in health care.

### *Image-Manipulation Software*

A group of software products that allow people to capture, enhance, and even change photographs and other images on the computer. These are graphics-intensive programs that must run on a local processor with sufficient RAM.

### *Multimedia*

Applications and technologies that manipulate or display text, data, images, voice and video objects. Many computer-aided training solutions employ multimedia to create a richer educational experience.

### *Network Boot*

This allows you to boot a thin computer across the network, just as though the data were stored on a local hard drive or CD-ROM. Almost all systems have this ability, which you can change in the system BIOS.

### *Operating System Image*

In order to make an operating system ready for streaming, the software must first make an image of how that operating system will look when it is deployed, then segment that into smaller pieces that will travel easily down the network to the desktop without interrupting the work or experience of the person using the desktop.

### *Patches*

A small piece of software designed to update or fix problems with a computer program. This includes fixing bugs, replacing graphics and improving the usability or performance. Patches often fix security holes, especially in popular software that is the favorite target of hackers.

### *Personal Computer*

Personal computers (or PCs) are perhaps the most prolifically used tool in business today. While personal computers provide great personal value to business professionals, they pose a number of challenges to IT departments in the areas of management, security, and total cost of ownership.

### *Point-of-Sale System*

This is the combination of hardware and software that records customers' purchases and accepts payments. It is a computerized version of the basic cash register, often with ties to software that tracks inventory levels.

### *RAM*

Random Access Memory or RAM is a type of computer storage whose contents can be accessed in any order. It is the most common computer memory, typically used by programs to perform necessary tasks while the computer is on.

### *Reboot*

A soft reboot (also known as a warm reboot) involves restarting a computer under software control, without removing the power or pressing the reset button. It usually entails an orderly shutdown and restart.

A hard reboot (also known as a cold reboot) happens when the power to a computer is turned off and then on, or when the reset button on the computer is pressed. This restarts the computer without performing any shut-down procedures.

#### *Sarbanes-Oxley*

Sarbanes-Oxley is a United States federal law that establishes stringent financial reporting requirements for companies doing business in the United States. It went into effect in 2002, establishing a public company accounting oversight board, auditor independence, corporate responsibility, and enhanced financial disclosure. It has a profound effect on IT departments as there are provisions for the safeguarding of assets, among others.

#### *Screen Casting*

A process of delivering remote access to information and applications, all of which are processed and stored at the server. The server then uses a protocol such as ICA (Citrix Independent Computing Architecture) or RDP (Microsoft Remote Desktop Protocol) to transmit high-level window display information to the desktop.

#### *Secure Streaming*

The key to streaming applications in classified or confidential networks is to transmit all of the data securely. This is done through encryption, as well as through standard security methods of identification.

#### *Self-help kiosk*

This is a computer-based kiosk used for maps, information, shopping registries, or even employment applications. Self-help kiosks can be powered by PCs, thin computers, or even terminals in some cases.

#### *Shelfware*

This is a term IT departments use to describe software that is purchased, but rarely (if ever) used. Often shelfware is unnoticed or hard to prove, but corporations continue to pay licensing fees believing that the software is used.

#### *Single Sign On*

Single Sign On (SSO) is a method of software authentication that allows a person to use a single identity across multiple systems. This means that the person does not have to use a different user ID and password for each application or resource they want to use.

#### *Spyware*

This is software, usually accidentally downloaded from the Internet, that covertly gathers information through a person's Internet connection without his or her knowledge. Generally this information is used for advertising purposes; however it can be more malicious than that. Spyware applications are typically bundled as a hidden component of freeware or shareware programs that can be downloaded from the Internet.

#### *Stateless*

A stateless device keeps applications, data, and configuration information only as long as it is being used. As soon as a stateless device is turned off, it retains no memory of what happened during the last session. Usually stateless devices have only RAM for memory, which requires power in order to retain information. Shutting down or even logging off of a stateless device flushes the RAM, erasing any information stored there.

### *Streaming*

A technique for transferring data so that it can be processed as a continuous stream. With streaming, the desktop system can start using the application or data before the entire file has been transmitted. The most common use of streaming technology is for video and audio files across the Internet. Application and operating system streaming works on much the same principles.

### *Supply-Chain Management*

Supply-chain management (or SCM) is the process of planning, implementing, and controlling the operations of your supply chain. The goal is to meet your customers' requirements as efficiently as possible. Supply-chain management covers the movement and storage of raw materials, tracks work-in-process inventory, and follows finished goods from the point of origin to the customer.

### *Thin Computer*

Thin computers are just like a personal computer, but without the local storage. Sometimes called thin clients, thin computers each have a microprocessor and RAM, but no disk drive. Because thin computers have no moving parts (such as a disk drive or fan), they need very little power and very little space. They also have much greater reliability and a substantially longer mean time between failures than PCs.

### *Thin Computing*

Thin Computing delivers the access to information and applications that people need, at a much lower cost than traditional methods. Thin computing makes it easier for IT to manage systems and improve the reliability and security of information, which dramatically lowers IT costs. Additionally, thin computing improves on the security, reliability, and availability of PCs, which are the typical problems that run up the cost to deploy PCs enterprise-wide.

### *Thin Client*

A thin client is very similar to a thin computer. It has a microprocessor and RAM, but no disk drive or local storage. The difference between a thin client and a thin computer is that the applications for thin clients typically run on the server instead of locally.

### *Trojan horse*

A Trojan horse, in terms of computer software, is a malicious program (or virus) that is disguised as legitimate software. The name is derived from the story of the Trojan horse (detailed in Virgil's classic epic poem *The Aeneid*). These programs appear harmless, practical, or interesting to an unsuspecting user, but are actually extremely harmful when executed, often infecting scores of PCs in just minutes.

### *Update*

Like a patch, an update is a small correction designed to improve the performance and usability of software. While not a major new release, updates are typically used to extend the life of the software program.

### *Upgrade*

An upgrade is often considered a major new release of software. It involves replacing components of the application or operating system in order to bring the system up to date. While generally considered a bigger correction than an update or patch, an upgrade can be as simple as a bug fix.

### *Virtual C: drive*

The C: drive is a PC's main hard drive. This is where the operating system and applications are typically stored. It is called the C: drive because the A: and B: drives are typically reserved for drives from which the initial

installation might take place (historically floppy disk drives). A virtual C: drive is space on a server dedicated to each person with a registered login on the network. This is the boot disk for thin computers running Wyse Streaming Manager, and operates just like a local hard disk. The only difference is that the drive is located in the server, where it's easy to secure, back up, manage, and maintain.

### *Virus*

A self-replicating program that spreads by inserting copies of itself into other executable code or documents. A computer virus is like a biological virus because it spreads by inserting itself into other things. These dangerous computer programs typically have a destructive payload that is activated under certain conditions. Trojan horses are one form of virus.