Servers

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1. Overview

TLS specializes in recycling old PC computers. While older PC computers may not be able to run the latest Windows applications, Open Source Linux/BSD operating systems perform quite well. (This website was created on, and is served from, a Pentium II 300 MHz CPU system, circa 1996.) Recycling computers for you own use can help prevent environmental waste while at the same time significantly increasing your office productivity. Open Source (free for commercial use) software significantly reduces your costs, while, at the same time, providing superior performance to Microsoft products and software designed to run under Windows.

Most of the server products provided by TLS only require a case and working harddrive, motherboard, memory, and network interface. Servers typically do not require keyboards, mice, speakers, or monitors. If you computer is less than ten years old, chances are that TLS can build a state of the art Unix/Linux/BSD server on it. Depending upon your budget, TLS can purchase new hardware to build a server based on modern hardware technologies, or, purchase used (recycled) components at low cost.

The build process usually takes less than two weeks if you have a working older computer or it only needs a few components. TLS starts by erasing, repartitioning, and reformatting the hard disk, backing up data if requested. TLS then installs a Linux/BSD based open source operating system, configures the server software, reconnects the server to your network, and then makes final configuration changes specific to your network. Prior to building and configuring your system, TLS will consult with you to determine the best possible configuration for your needs.

2. Benefits of Recycling/Refurbishing with Linux/BSD

Recycled computers are ideal for small to medium sized networks where processing power and storage requirements are not key factors. Older computers fit nicely into a distributed network service model where low powered computers are used to perform specific, discrete tasks. If one server goes down, it does not affect the services provided by other servers (i.e. a failure on a new computer set up to provide web services, file services, e-mail, and network services could be catastrophic), and, they can be cheaply replaced. Using Open Source technologies and a distributed server model, you can extend the working life of outdated Windows computers many years while providing your business or organization with services and features that would otherwise cost thousands of dollars.

Note:

For security purposes, TLS does not publicly disclose the specific software installed on current server models. Any of the following servers can be built on recycled computers, or, for additional costs, be built on modern technologies.

3. Miranda Network Server

The basic building block of a computer network is a DHCP server. TLS's Miranda© server provides DHCP service, firewall, and NAT translation and is designed to replace basic routers. The Miranda server is placed between the device that connects to your cable, dells modem, or modem and your inside network. It provides the same functionality as provided by the core features of a Windows Network Server. Miranda© systems include features not found on basic internet routers commonly installed and used by small to medium sized businesses, such as the ability to log connection attempts, display connections between your office and the outside world on any computer located at your office, regulate the bandwidth or flow of data between computers on your network and the outside world, and forensic tools to proactively deal with intruders. If you don't have a firewall and have to manually configure the network settings for computers at your office in order for them to be able to share files, communicate with other computers, and access the internet, then you need a DHCP/Firewall/NAT translation device.

View a Miranda© User's Guide. [Contains additional information beyond simply turning the device on and off -- which is all that is required for normal use.]

Miranda© systems are extremely robust and designed to be used without user intervention. In a busy office environment, a Miranda(c) system typically only needs to be reset (turned off and back on) once every few years. Short term power interruptions and loss of connectivity from the ISP do not have the same effect on a Linux/BSD Miranda(c) system as they would on a retail router. Unlike retail routers/internet access points which usually only allow up to five computers to share a single internet connection, a Miranda(c) system built even on a ten year old computer can support over a hundred computers.

Miranda(c) systems cost $500, assuming you have a working older computer, and may run more if additional hardware is needed.

4. File Servers

A file server is a centralized location for storing electronic data. Dedicated file servers are more advantageous because they are faster and more reliable service than sharing files on a computer used for day to day office work. TLS file servers include Open Source antivirus technologies using the same virus definitions as commercially available anti-virus products. TLS' file servers are compatible with Windows and Apple file sharing services. Your users see and access files the same way they do with files and folders on your existing computers -- e.g. the file server appears in 'Network Neighborhood', can be mapped as a local drive, and shortcuts can be placed anywhere. Options include data encryption (making data much harder to hack, or, access if the computer or disk drive is stolen), redundant/mirrored file

systems (storing two or more copies of each file on separate disk drives so that if one drive fails, files are still available without loss or downtime), and archiving/recording devices (i.e. CD/DVD burners).

The File Server comes with many additional tools for working with files, including batch file renamers, batch file converters, batch file movers, duplicate file checkers, robust CD/DVD burners/rippers/extractors, secure/permanent file deletion, file change/access monitors, and tools for recovering deleted files.

Prices start at $500, assuming you have a working older computer to recycle. File servers work best on newer computers (five years or less) that support large disk sizes in excess of 60 gb, but, can be set up to work with any sized hard disk. Additional costs may apply to installing larger capacity disk drives, redundant drives, and data archiving/recording devices.

5. Web Servers

Web servers allow you to serve web pages on your local network or to the outside world. TLS builds web servers using the same Apache web server as used by Google, Yahoo, and the majority of websites around the world. Web servers are essentially File Servers with additional HTTP services, including Perl, PhP, CGI scripting, and other components for providing state of the art, full-featured, dynamic content.

Assuming you have a working computer to recycle, web servers start at $700, or, can be added to a TLS File Server for an additional $200. Note, however, for security and business purposes, it may not be advisable to run a public web server on the same computer used for storing extremely sensitive information. Additionally, you need a domain name (@ $10 per year) if you want your web server to be accessible by the public through the internet.

6. POP/E-Mail Servers

POP/E-Mail Server - Using the same technologies used by many Internet Service Providers (ISPs), TLS can build your own e-mail server. The advantage of having your own e-mail server is that you can create as many e-mail accounts as you want. Private e-mail servers are far more secure than public web-servers because information is sent directly between remote e-mail clients and your web server without being stored on ISP's web servers or free, ad based, web e-mail servers. If you have two or more business locations, private web servers can be set up to deliver secure (OpenSSH) encrypted connections directly between your offices. Additional options include data encryption so that even if your e-mail messages are intercepted as they travel through the internet, they are nearly impossible to read even by agencies such as the NSA.

Assuming you have a computer to recycle, e-mail servers start at $500. Note, as with web

pages, you will either need a domain name or a static IP address if you wish to receive e-mails from the public.

7. FTP Servers

FTP servers are the most well-known method of sharing data over the internet. TLS can configure public or private FTP servers with a wide range of options, including web browser based administration consoles, SSH connections, logging, data encryption, and more. FTP is a convenient way to share files that does not depend on clients having a specific operating system. Price is $500, assuming a working computer with adequate disk space for storing files.

8. Chat Server

Chat Server - This server includes IRC and VOIP servers. IRC, or internet relay chat, is a common text based messaging sysem for real-time text communications. IRC is platform independent and does not require clients use a particular operating system or chat program. The IRC component can be public or private and supports secure (SSH) connections. TLS presently implements VOIP through Teamspeak(R). Clients can only communicate with other clients using the Teamspeak software and cannot make computer to land-line phone calls. This implementation of VOIP allows for a continuous audio connection between two or more locations and can be used for security monitoring, as an audio component of a virtual conference room. Price is $500. Like the Miranda server, this chat server can be built on very old, garbage, computers.

9. Fax Servers

Fax Server - Fax servers provide the same functionality as a facsimile machine yet also provide the ability to (1) send faxes from any computer connecting through the internet to your office (the fax is sent over the internet to the fax server where it is sent as fax to another fax machine), (2) view received faxes from any computer connected to the internet. Received faxes can be configured to print to any printer on your network, and, also store a digital copy of faxes (in Adobe .PDF and .tiff formats) that can be opened on any computer on your network. The fax server is controlled through a user friendly internet browser based control panel. If you are traveling, it is easy to redirect faxes to your mobile device, another fax machine, or e-mail account(s).

Fax servers cost $700, assuming you have a working computer to recycle that has a fax modem. (Note, many older computers have dial-up fax modems -- fax modems are additional upgrade options in most recent desktop computers now that dial-up modems are being replaced by DLS and cable modems.) For a limited time, TLS fax servers require no initial

deposit and have an extended 6 month warranty.

10. X-Windows Server

X-Windows Server - An X-Windows server uses server-client model for proving a desktop user interface. A centralized X-Server is set up containing Linux/BSD office applications that are served locally to individual workstations. Unlike the other servers offered by TLS, the X-Windows server needs to be a reasonably fast computer. Client computers, the ones used by your staff, can be older, unsuitable for running Windows. The X-Windows Server is a complete operating system replacement. Client computers can share data with Microsoft Windows computers, but, if you need Microsoft products on all your computers, this solution is not for you. However, if most of your computers are out-of-date, consider re-using them as X-Windows clients.

The modern Linux/BSD user desktop is very similar to a Windows desktop. A panel at the bottom displays open folders/files, the date/time, running processes, a 'start' menu for launching programs, desktop icons including a trash bin, etc. Right and left mouse clicks open context sensitive menus such as 'properties,' 'open,' 'move to 'trash' etc. Users familiar with MS Windows can usually begin working with Linux/BSD X-Windows applications with little or no training. Open source (free for commercial use) software includes Word-processing (very similar to MS Word natively supporting .pdf, .xml, and OpenDoc formats), spreadsheet, calendar, e-mail, contact manager, calculator, financial software, popular web browsers, presentation, flowcharting, graphics viewers, file/folder archivers (.zip), CD/DVD burning, chat with popular instant messaging services, website authoring, and many other Open Source applications whose Windows equivalents would aggregatively cost thousands of dollars.

An X-Windows server configured for up to 20 clients costs $1000, computer not included. A single Unix/BSD X-Windows (non-server) desktop costs $600, assuming you have a sufficiently working computer.

11. Additional Information, Pricing, and Warranties

TLS Servers are made and installed locally in Humboldt County. Prices include installation at offices located within 25 miles of Eureka. Additional travel and shipping charges may apply for installations elsewhere.

While it defeats the point of recycling old computers, any server or desktop offered by TLS may be built on a new computer. Please call or e-mail for quotes.

All servers and desktops, except the fax server, require an initial 50% deposit. A non-refundable $50 fee is deducted from the initial deposit evaluate recycled computers to

determine whether required hardware components are present and working properly. Servers and desktops, except for the fax server, come with a 3 month money back warranty (excluding the $50 evaluation fee) if the server or desktop does not perform as guaranteed. Training and tech support is included with maintenance and training plans and is not included with the purchase price.

Prices are provided for estimation. Most server components can be mixed and matched. Depending upon the cababilities of the system to be recycled/refurbished, you may, for example, wish to run FTP, Web, and File services on the same system. TLS will consult with you to obtain the best, and most economical, configuration for your needs.

TLS does not resell software. Prices and fees charged by TLS are service fees for installation and configuration. Open Source software configured by TLS is subject to BSD and GNU licenses. If you are satisfied with your installation, TLS heartily encourages your donation to open source providers and may request that you make a nominal purchase of back-up installation media from an Open Source provider.