MLHC RESOURCE MATERIAL

Miscellaneous Manuals
        Pastoral Ministry Manual $54.95
        Helps Ministry Manual $54.95
        Creating Excellent Standards in Nursery and Preschool Ministry - $9.95

Church Technical

Speaker: **Phil Anglin**

Ministry Photography
Books: Amherstmedia.com (This company has hundreds of books on every aspect of photography.)
Magazines: Rangefinder
        Professional Photographer
Educational Websites: www.adobe.com/designcenter/video_workshop/ (This site contains all of adobe product
        tutorial videos free online.)
        www.digital-photography-school.com
        www.cambridgeincolour.com/tutorials
        www.kenrockwell.com
        ny.webphotoschool.com
Equipment Sources: www.newegg.com (all electronics, computers, memory, cameras & software)
        www.uniquephoto.com 800-631-0300 photo equipment
        www.bhphotovideo.com 800-336-7408 photo equipment
        Sam's Club
        Camera Gallery (Tom Lottinville)
Image Editing and Management Software: Adobe Lightroom (adobe.com)
        Adobe Photoshop (adobe.com)
        ACDsee Pro (acdsee.com)
        Super Cat. (no-nonsense-software.com)
Discount Software: www.campusteck.com
        www.academicsuperstore.com

Speaker: **Tim Ostrom**

Managing Your Video and Audio Volunteers
Training: www.lynda.com
        www.cybercollege.com
Magazine: Church Production Magazine www.churchproduction.com
        Technologies for Worship Magazine www.tfwm.com
Legal and Copywrite issues: ccli, cvli - www.ccli.com
        Harry Fox agency www.harryfox.com
Royality Free Resources:
        Digital Juice www.digitaljuice.com
        Artbeats - www.artbeats.com

Speaker: **Darcy Veer**

Mac School: Mac Computer Possibilities
Dvd-Rom: Mac OS X 10.5 Leopard Essential Training (Christopher Breen) www.lynda.com
Books: Mac OS X Leopard For Dummies (Bob LeVitus) www.amazon.com
        Mac OS X 10.5 Leopard: Peachpit Learning Series (Robin Williams) www.peachpit.com
        Switching to the Mac: The Missing Manual, Leopard Edition (David Pogue) www.buy.com
        Mac OS X Leopard Edition (David Pogue) www.buy.com

Speaker: **Jason Holland**

Windows XP
How to configure file sharing in Windows XP: support.microsoft.com/kb/304040
How to Use Windows XP to Share a Printer with Others on Your Network:
technet.microsoft.com/en-us/library/bb457001.aspx
Permissions for Files and Folders in Windows XP: support.microsoft.com/kb/308419
How to troubleshoot home networking in Windows XP: support.microsoft.com/kb/308007
Troubleshooting Connectivity Problems on Windows Networks:
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part1.html
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part2.html
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part3.html
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part4.html
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part5.html

Windows Vista
File and Printer Sharing in Windows Vista: technet.microsoft.com/en-us/library/bb727037.aspx
Setting up a home network:
windowshelp.microsoft.com/Windows/en-US/help/76174f4a-7522-425a-9424-324dd299265e1033.mspx 2

Mac OS X
Connecting to the Internet: support.apple.com/kb/HT1383
Troubleshooting a LAN Connection: support.apple.com/kb/TS1317
About File Sharing: support.apple.com/kb/HT1549
Creating a Small Ethernet Network: support.apple.com/kb/HT1433
Setting up Windows File Sharing: support.apple.com/kb/HT1812
Connect to Windows File Sharing: support.apple.com/kb/HT1568

Network Troubleshooting
Using NSLOOKUP for DNS Server Diagnostics:
www.windowsnetworking.com/articles_tutorials/Troubleshooting-Connectivity-Problems-Windows-Networks-Part5.html
Troubleshooting Basic TCP/IP Problems: www.windowsnetworking.com/articles_tutorials/Troubleshooting-Basic-TCPIP.html
Using Tracert: www.windowsnetworking.com/articles_tutorials/Using-Tracert.html
Using Ping to test connectivity: technet.microsoft.com/en-us/library/cc737478(WS.10).aspx

Network Tools: network-tools.com/
Visual Traceroute: www.yougetsignal.com/tools/visual-tracert/

Security

Top 100 Security Tools: www.sectools.org
Nessus Security Scanner: www.nessus.org
Using Strong Passwords: www.microsoft.com/protect/yourself/password/create.mspx
AxCrypt Software for Windows: www.axantum.com/AxCrypt/
TrueCrypt Software: www.truecrypt.org
Password Gorilla: www.fpx.de/fp/Software/Gorilla/
Mac OS X Security Guides: www.apple.com/support/security/guides/ 3

MLH 2009

NETWORKING YOUR OFFICE COMPUTERS

Jason P Holland (jholland@rhema.org)

Introduction and Outline

- What is a network?

- Types of network architectures and topologies

- Basic network hardware

- Common networking terms

- Security

- Troubleshooting tips

- Things to consider when planning

- Questions?

Networks: what are they?

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What is a network?

- Network – collection of computers and other devices that are connected to each other (workstations, printers, servers, etc…) either by wire or wirelessly

- Allows communication between those devices

- Share resources and information across the network
  - Files, printers, applications, services and Internet connections

- LAN or WAN

Types of Network Architectures

- Client-Server
  - Client initiates a request for a service
  - Server provides that service over the network
  - Example: *client web browser connecting to a web server*
- Peer-to-Peer
  - Each peer node functions as both a client and server to all the other nodes
  - Share the responsibility
  - As more nodes are added, capacity increases
  - Example: *Napster, Bittorrent, streaming media*

Network Topologies
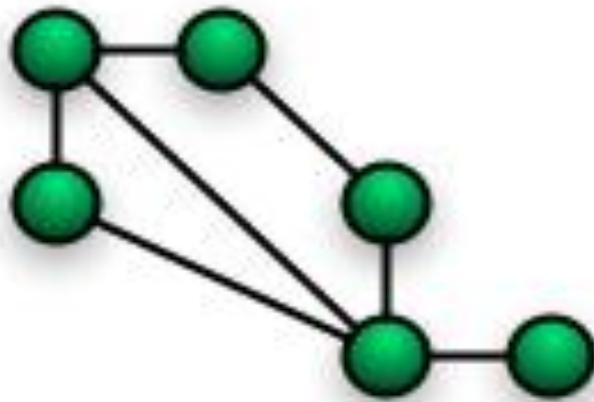
Mesh

Star
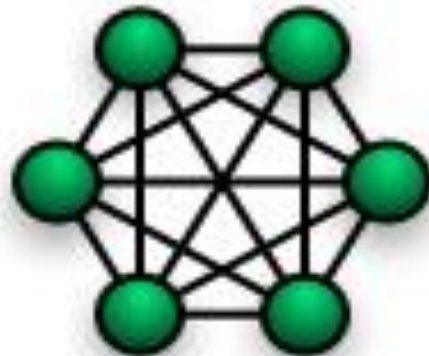
Fully Connected
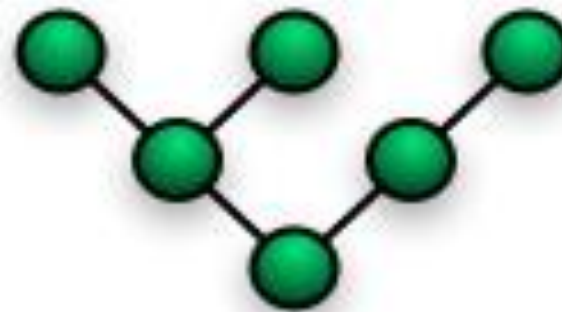
Tree

Network Protocols

- Network protocols are a set of standard rules used by computers to communicate between each other
- Differ in how they handle various aspects of the connection and error handling
- Can be secure (encrypted) or unsecure
- Most commonly used protocol on the Internet is TCP/IP
- Examples: *TCP/IP, HTTP, FTP, SSH, AFP, SMB, UDP, ICMP*

Basic Network Hardware

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Hardware that is commonly found on a network

Basic Hardware

- Ethernet Cable (Category 5, 5e, 6, RJ45)

- Network Interface Card (NIC)

- Hub – connect multiple devices, dumb, un-managed
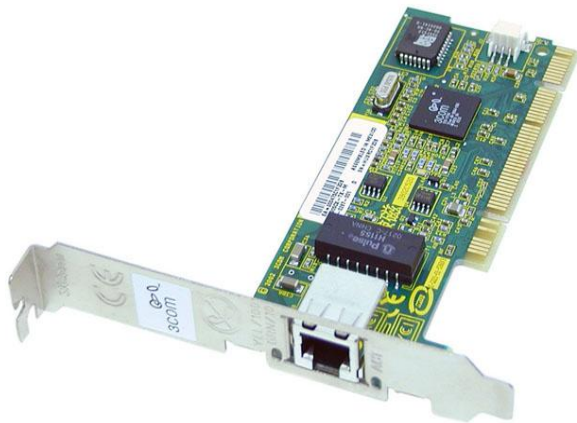
Basic Hardware continued…

- Switch – differing speeds, gateways, both un-managed and managed, varied prices

- Router – connects differing networks, very smart, can be expensive

- Access Point – provide wireless connectivity to a LAN

Basic Hardware continued…

- Firewalls – implemented as hardware or software to block unauthorized network access to resources
  - Set of rules defined that allow or deny based on specific criteria
  - Examples of firewall products:
    - Software – Microsoft Windows firewall, ipf (FreeBSD), iptables (Linux), pf (OpenBSD)
    - Hardware – Cisco PIX, SonicWALL, Linksys
- Server – provide service(s) to the network
- Client – device requesting the use of a service

12 Common Networking Terms

Terms that you will come across when building and using computer networks

Common Networking Terms

- IP Address – a unique numerical identification for a device on an IP based network
  - Used to locate that device on the network
  - Example: *www.rhema.org has an IP of 70.169.219.100*
  - Some addresses have been set aside for use in private networks such as a home or office using
  - Private range example: *192.168.0.0-192.168.255.255*
- Subnet – network devices located on a common logically routed network
  - Used to break up a network into smaller segments to cut down on traffic in that segment
  - Notation example: *subnet mask of 255.255.255.0*

Common Networking Terms continued…

- Media Access Control address (MAC) – a unique identifier that is assigned to a network card by the manufacturer
- Also known as "Ethernet Address" or "Machine Address"
- Example: _00:18:8B:82:5A:EA for a Broadcom NIC_
- First half of the number is the ID for the manufacturer and the second half is the serial number assigned to the device
- Required to be unique on a network
- Unlike an IP address, the MAC remains fixed for the life of the device

Common Networking Terms continued…

Common Networking Terms continued…

- Gateway – a network device that interfaces with another network using differing protocols

- Acts as an entrance to another network

- Main job is to join or convert those two networks

- Usually appears at the edge of the network

- In smaller networks, the gateway will often be used to connect your LAN to the Internet

- Can be implemented with hardware or software

- Example: *a firewall or wireless access point*

Common Networking Terms continued…

- Route – a selected path for network traffic to travel on
  - Smaller networks might have a single route
  - Large networks will have complex routing tables with many different routes
- Packet – a block of data on the network that has a source and destination

Common Networking Terms continued…

Common Networking Terms continued…

- DHCP (Dynamic Host Configuration Protocol) is used by clients to automatically configure network parameters for operation

- Greatly reduces administration overhead

- Devices can be added to and removed from a network easily using DHCP

- IP address could change after a reboot
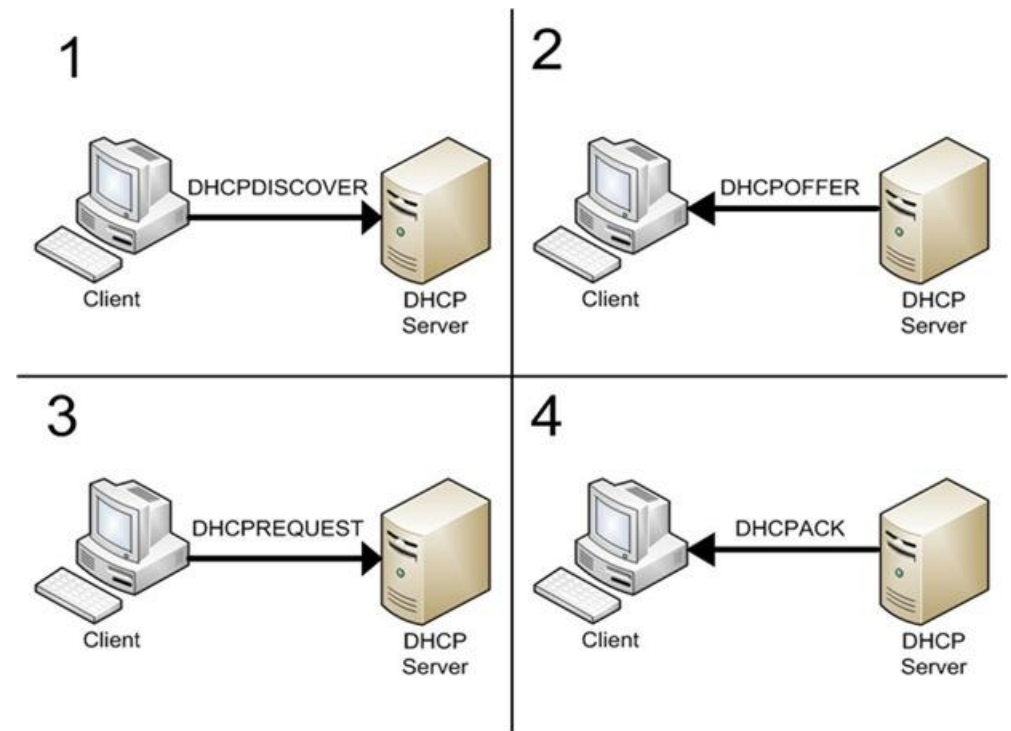
Common Networking Terms continued…
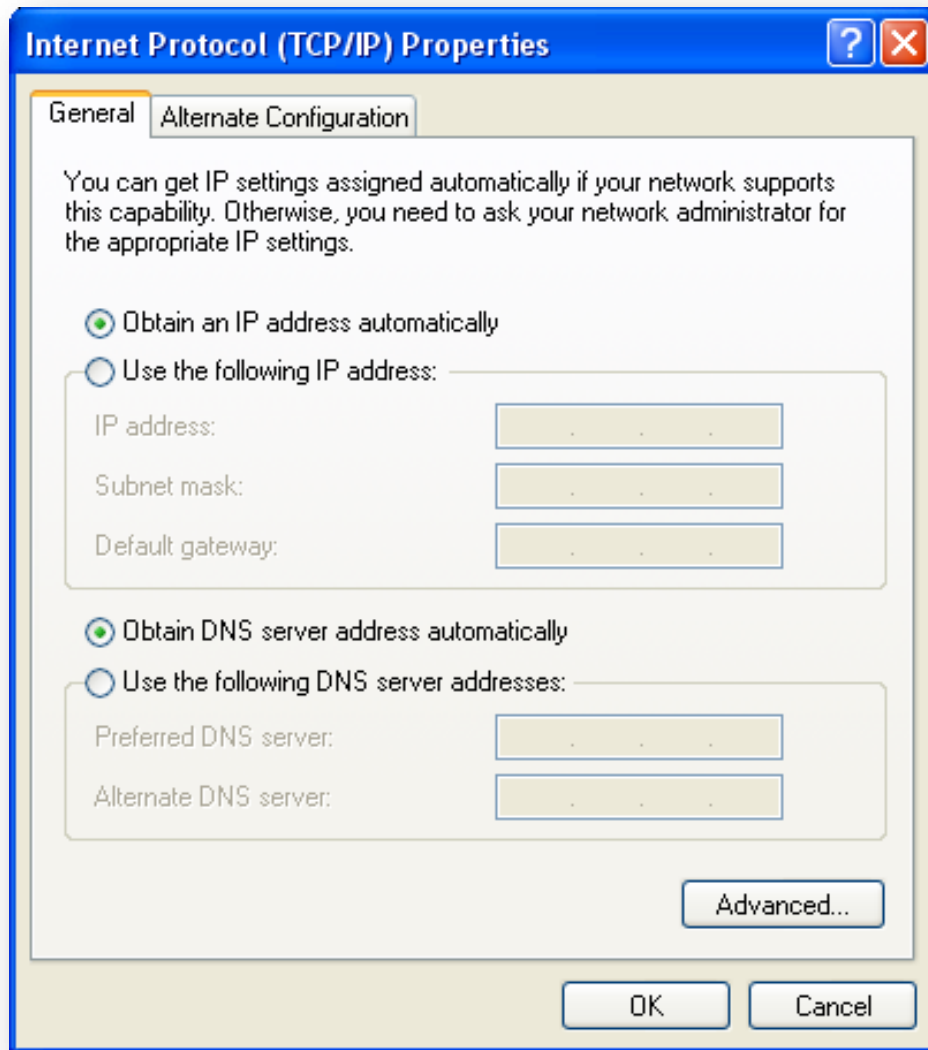
- Static IP address is manually assigned by a network administrator

- The IP address will never change, even after a reboot

- Should be used for important devices that need not change their address (servers, switches, printers)

Common Networking Terms continued…
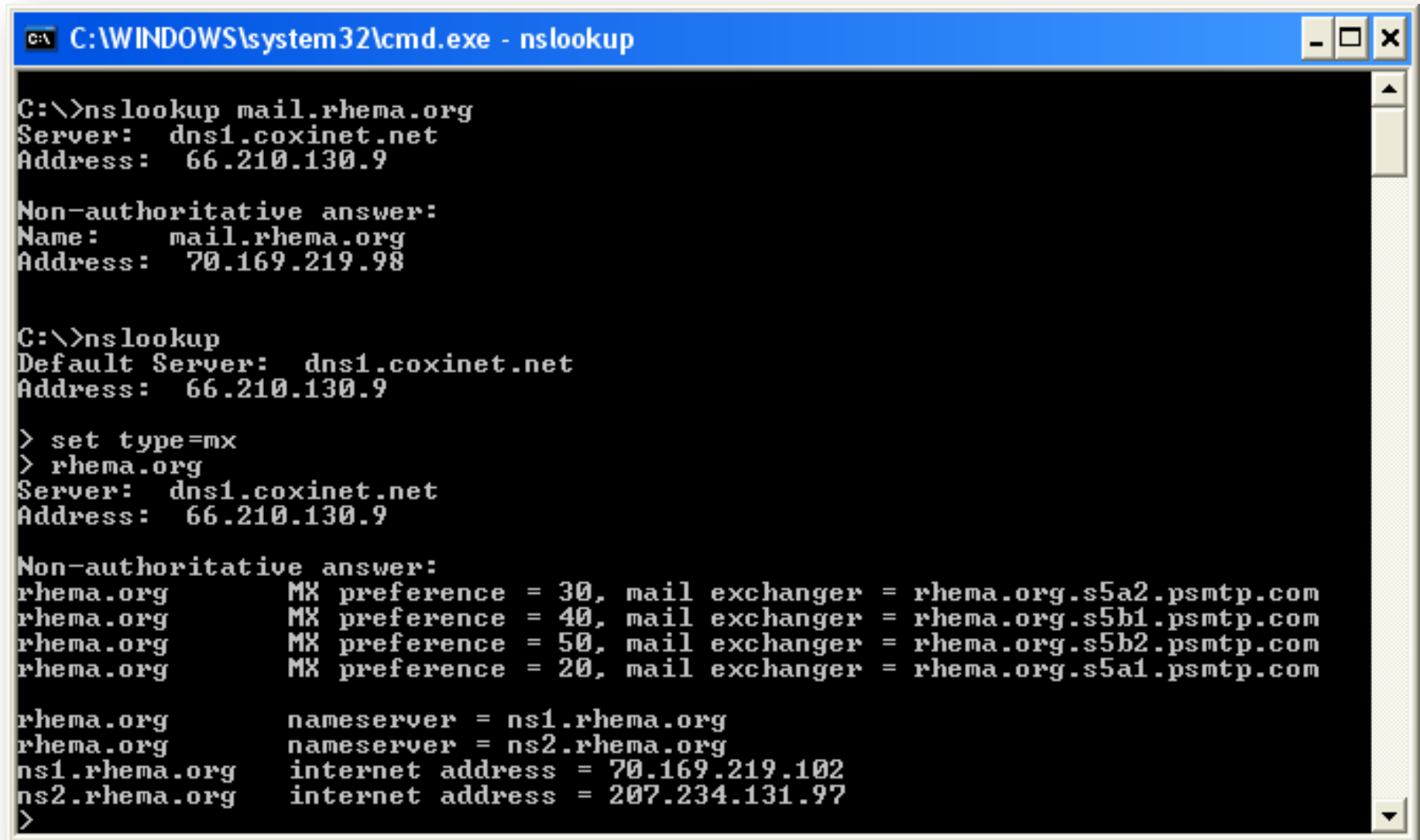
- DNS (Domain Name System) – hierarchical system that translates an IP address to a more human readable name for the purpose of locating that device on a network
- Considered to be the "phone book" of the Internet
- Hostname is the DNS short name for a network device
- Impossible to remember IP addresses for all devices, so DNS was developed
- The "authority" over a block of addresses is handled by a Name Server
- Example: *mail.rhema.org* *"resolves to" 70.169.219.98*
- Resolving a hostname to IP is called "forward lookup"
- Resolving an IP to hostname is called "reverse lookup"

Common Networking Terms continued...

Common Networking Terms continued…

- Network port – communications endpoint used by TCP or UDP protocols

- Identified by a number known as the port number

- Service is said to "listen" on that port number for incoming requests

- Ports 1 to 1024 are "reserved", anything above 1024 is considered unreserved

- Examples: *HTTP port 80, HTTPS port 443, FTP port 21, SMTP port 25*

Security

Some very brief security practices that apply to both network and computer security in general

Security

- Security is VERY IMPORTANT!
- Limit physical access to network devices
- Do NOT use WEP, use WPA2 for wireless network encryption
- Firewall all your outward facing network devices
- Regularly scan your network with a security scanner (Nessus)
- Install anti-virus software on ALL machines that access the network
- Leave a documented trail of any change made to the network

26 | # Troubleshooting Tips

A few tips to help you troubleshoot common network problems

Troubleshooting Tips

- Do you have a physical connection?

- Link light on both ends of the connection?

- Does the network device you are directly connected to appear to be working properly?
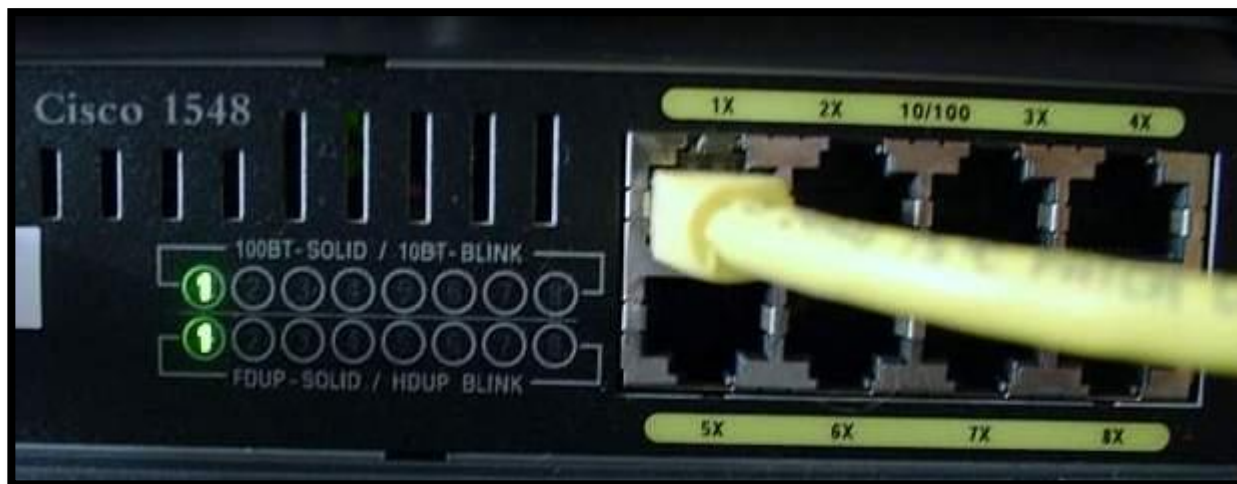
Troubleshooting Tips continued…
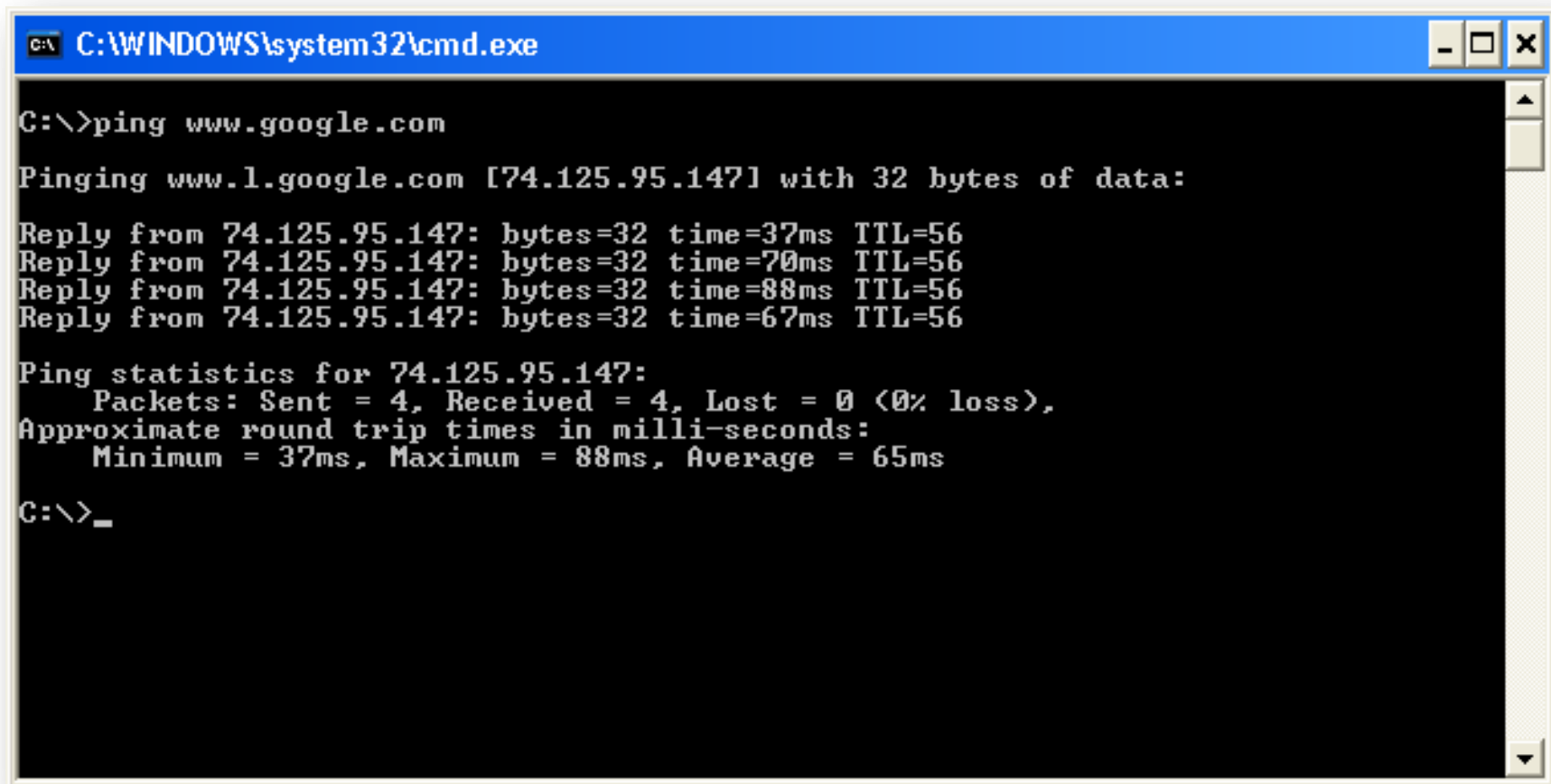
- Is your network device assigned an IP address?
- Can you reach the nearest network device? Work your way out from there
  - Local machine, then switch, then gateway, then Internet
- Can you lookup hostnames via nslookup?

Troubleshooting Tips continued…

- Can you "ping" your IP address?
- Ping the gateway? Ping a website?
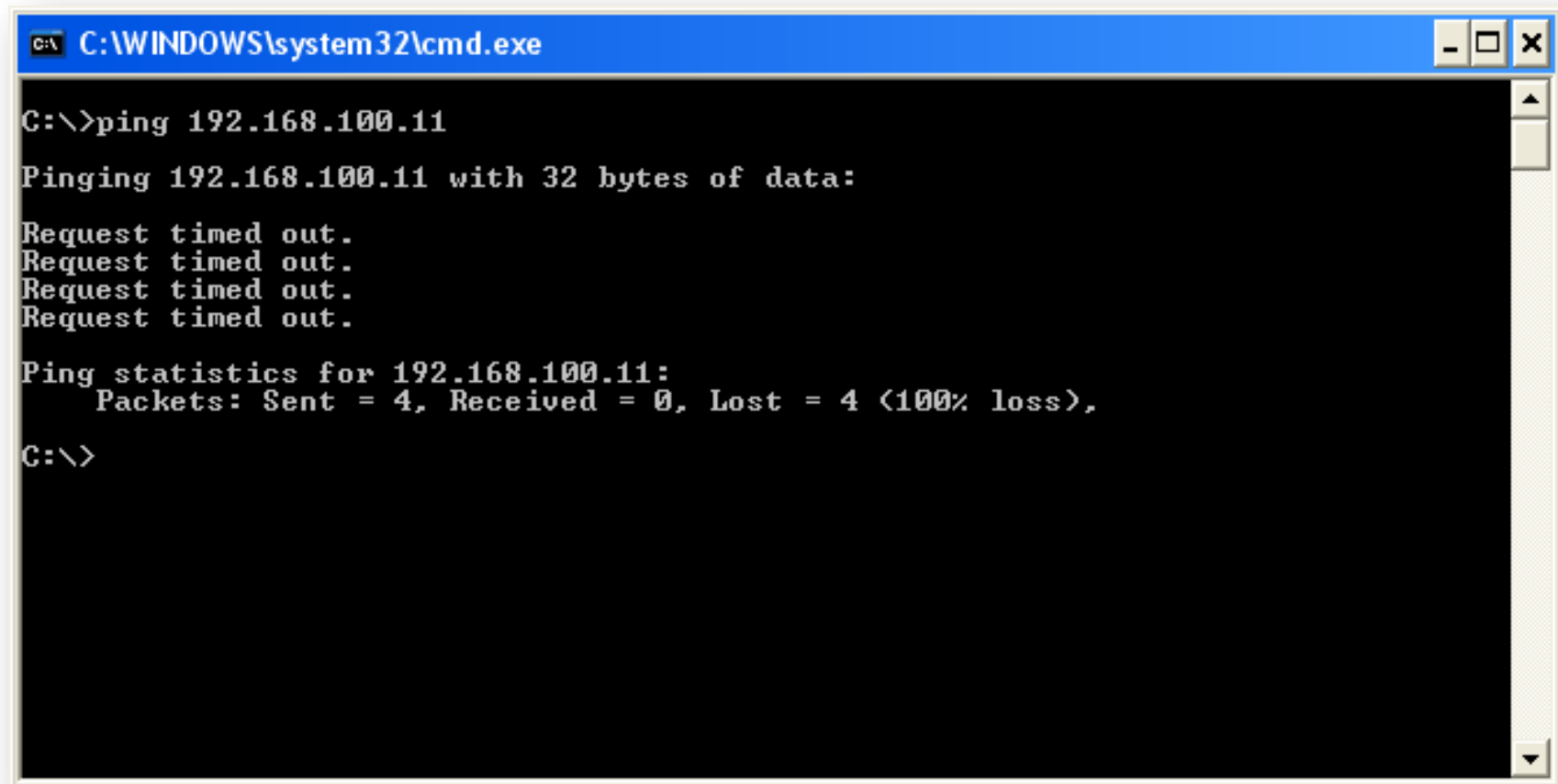
Troubleshooting Tips …

☐ This slide shows that the device with IP address 192.168.100.11 cannot be reached on the network
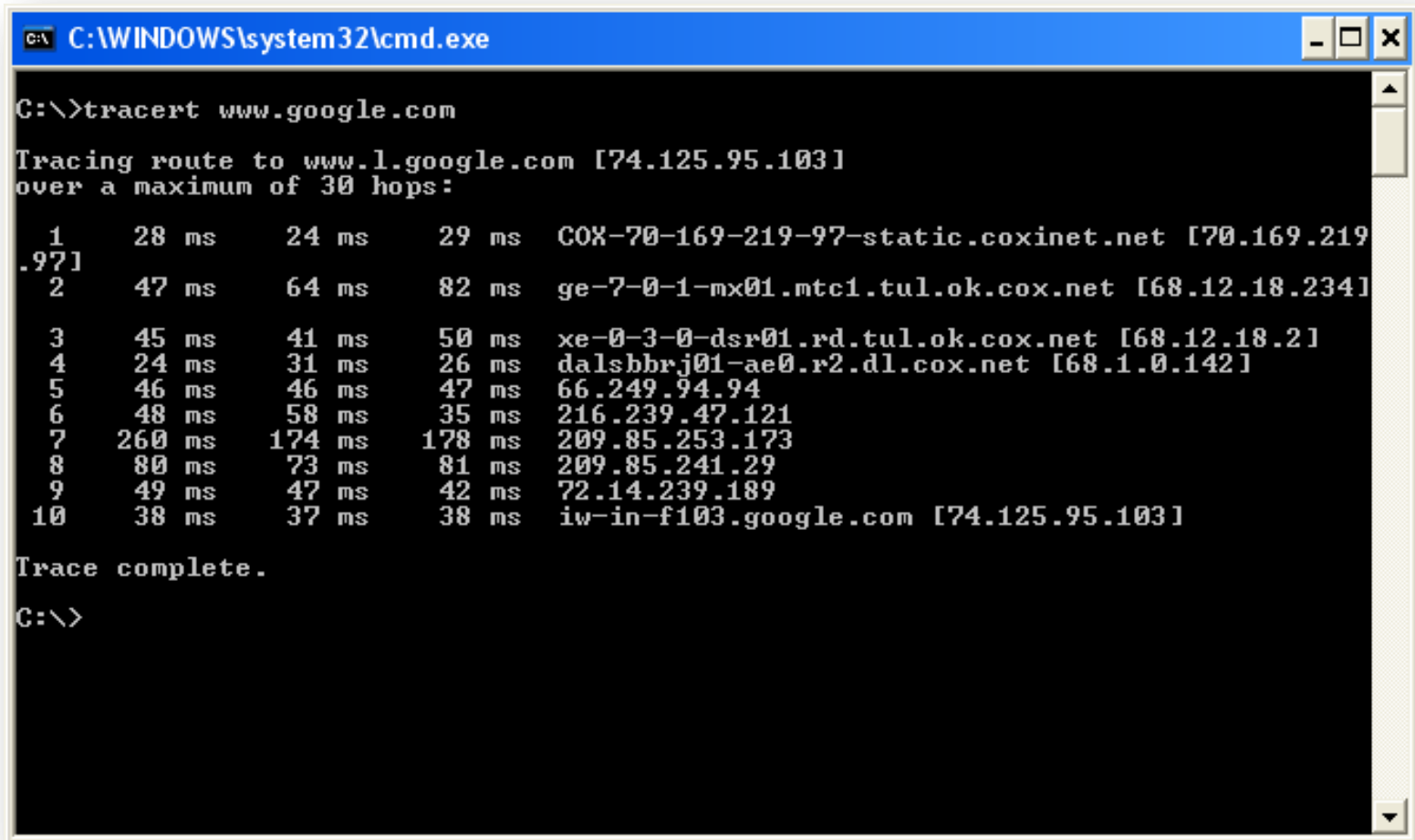
Troubleshooting Tips continued…

☐ Can you use traceroute to get outside of your network?

Troubleshooting Tips continued…

□ Traceroute to www.cnn.com timed out

Troubleshooting Tips continued…

- Can you telnet to a service port on the device you are trying to reach?

Things to Consider

What do I think about when planning my network?

Things To Consider When Planning

- What are my basic needs?
- What is my budget?
- Will I grow or expand in the future?
- Is performance or speed an issue for my users?
- Redundancy? Or redundancy?
- Implement security in the planning stage!
- Purchase from a reputable vendor and don't forget the warranty!
- Who is my backup in case there are problems? Cross-training!

Questions?!

Anyone? Bueller? Bueller?

MLH 2009

DATA BACKUPS AND COMPUTER SECURITY

Jason P Holland (jholland@rhema.org)

Introduction and Outline

- What is a backup?

- Why are backups needed?

- Common backup media

- Simple backup examples

- Final Thoughts

- Why is computer security so important?

- Common ways to secure a computer

Backups: what are they?

"Back up my hard drive? How do I put it in reverse?" --Unknown

What is a backup?

- Backup – a copy of data made for the purpose of recovery if that data is ever lost

- Data loss is very common and can happen at any time without warning

- Data **cannot** be considered safe if it is **only** stored in one place

- If the data is important, it should be backed up
  - Your backup should contain what you cannot afford to lose!

- Often overlooked processes

Why do you need backups?

- For two really big reasons:
    1. Disaster recovery
    2. Accidental deletion or corruption of data
- Hardware does fail, mistakes and accidents do happen
- When you lose data, the time you invested in creating that data is lost (time = money)
- Some data cannot be easily replaced
- I lost data preparing for MLH!
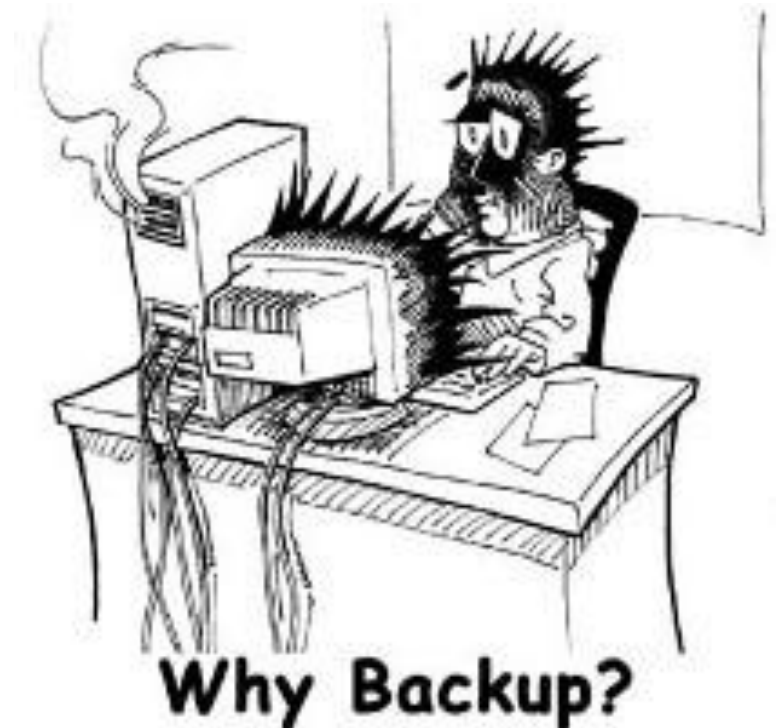
Why do people neglect to take backups?

- They have never lost data in the past, false sense of security
- They don't know how to do a backup or have never been told backups are necessary
- They think backups are boring and don't want to bother with them
- They don't think they are a priority
- New employees are not trained on old procedures
- Assume someone else is doing the backups
- They simply forget

Common Backup Media

- What media options do I have?
  - **DO NOT USE A FLOPPY DISK!**
  - Hard Drive (additional internal bays, external USB/Firewire, RAID)
  - Optical Media (CD-RW, DVD)
  - Tape (LTO Ultrium, VXA, DDS/DAT)
  - Remote Backup Service (Mozy, Skydrive, Dropbox)
    - Mozy (2GB free), Skydrive (25GB free)
  - Solid State Media (USB flash drive, CompactFlash)
- Media do have a usage life, nothing lasts forever

Simple Backup Examples

Some really simple ways to take backups that will save you from data loss

Simple Backup Examples

- Burn a CD each day/week/month
- Copy files to an external drive
  - Via script or some other automated method
  - Manual process
- Mozy
  - 2GB free storage
  - Install the MozyHome software and can be scheduled
- Microsoft Skydrive
  - 25GB free storage, 50MB file size limit

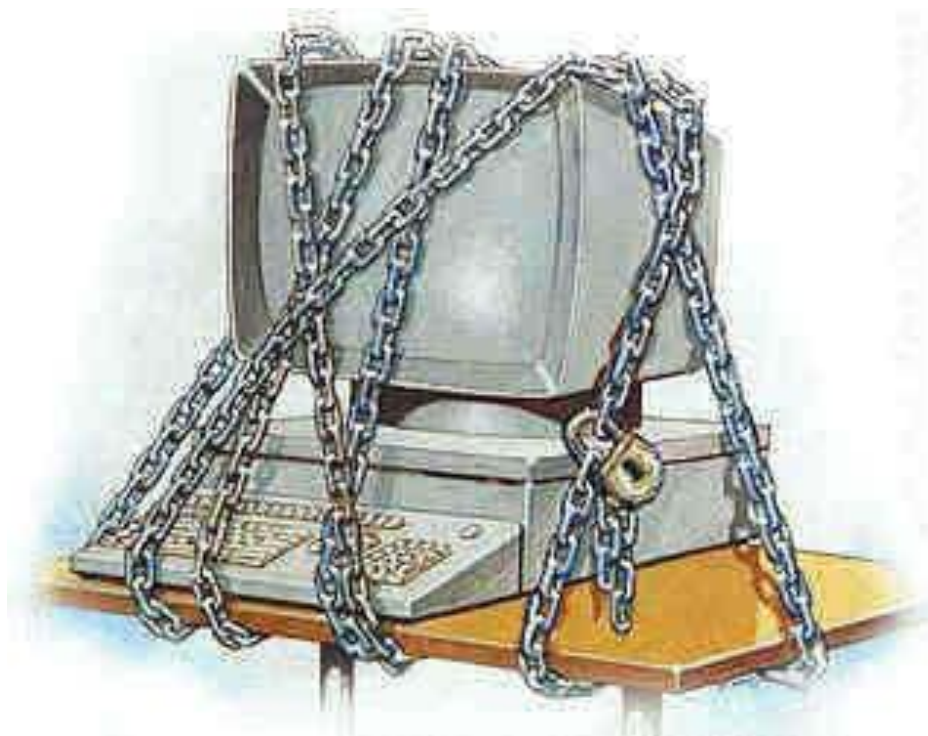# Final Thoughts On Backups

- ☐ It is never to late to start doing backups…so start TODAY!

- ☐ Always document your backup and restore procedures

- ☐ Store some backups offsite for DR

- ☐ Test your backups regularly

- ☐ Encrypt financial and sensitive data before it is backed up, unless supported by backup software

- ☐ Regularly review what is backed up

Computer Security

What is computer security?

- "The objective of computer security includes protection of information and property from theft, corruption, or natural disaster, while allowing the information and property to remain accessible and productive to its intended users." [1]

- Sometimes you have to implement restrictive security policies for the benefit of the users

- Every computer user needs to be aware and proactive with computer security. We are all responsible.

- Think about the information you trust. Be critical and cautious.

13

Some Security Best Practices

A few best practices for securing your computing environment

Security

- ☐ Install and use Anti-Virus software on all computers

- ☐ Keep your computers patched and up-to-date

- ☐ Force users to change their passwords often

- ☐ Require a complex password (minimum of 8 characters, use letters+numbers+symbols)

- ☐ Reset administrative default passwords

- ☐ Use care when opening email with attachments

- ☐ Use care when downloading and installing software from the Internet

Security continued…

- Firewall all your outward facing network devices
- Use file and share permissions and access control lists (ACL)
- Regularly scan your network devices with a security scanner (Nessus)
- Leave a trail of security and audit logs for intrusion tracking and troubleshooting
- Disable the use of insecure protocols on your network (telnet, ftp, http for certain websites)
- Turn off unused services on your network devices

Security continued…

- For very sensitive files and for files that are on a laptop, don't rely solely on file and folder ACLs. Use encryption.

- If you store passwords in a file, encrypt that file

- Limit physical access to your servers and network equipment

- Secure your wireless network (WPA2)

- Create a "Computer Usage Policy" for users and have them read it regularly

- Never walk away from a computer and leave it unlocked

References

1. http://en.wikipedia.org/wiki/Computer_security