

PRESENTATIONS FOR THE ONLINE APCUG SPEAKERS BUREAU

Francis Chao, a member of the [Tucson Computer Society](#) in Arizona, is prepared to present any of the following programs to your computer user group. Clicking on the titles of most of these presentations will open up the presentation slides in PDF format. However, most of Francis' presentations are live demonstrations of actual software and hardware with presentation slides only used to provide introductions and explanations of the live demonstrations.

- **FREE ALTERNATIVES TO "MICROSOFT OFFICE"** (E)

This presentation will consist of live demonstrations of two alternative software programs that are free alternatives to the not-free "Microsoft Office" suite of not-free software programs. We will compare each of these free software programs to the latest version of "Microsoft 365" to give you an idea of whether you can stand the incompatibilities with the not-free "Microsoft Office" programs that the freebies are analogous with:

- A live demonstration of Softmaker's "**FreeOffice**"
- A live demonstration of The Document Foundation's "**LibreOffice**"

- **A Demonstration of Faster Wi-Fi Technologies** (E)

If you think that Wi-Fi is much slower than wired Ethernet connections, then you have not been keeping up with the massive improvements that have been made in the past four years. Most home and small business owners are still stuck on the super-slow 802.11N Wi-Fi speeds which are also known as Wi-Fi 4.

This presentation will be is a live demonstration and comparison of 802.11AC, 802.11AX which are also known as Wi-Fi 5, Wi-Fi 6, and Wi-Fi 6E.

These recent improvements in Wi-Fi technologies will improve the speed and reliability of your computers, tablets, cell phones, cameras, and other wireless devices:

- A live demonstration of Gigabit Ethernet (for comparison)
- A live demonstration of legacy 802.11N (= Wi-Fi 4) (also for comparison)
- A live demonstration of 802.11AC (= Wi-Fi 5)
- A live demonstration of 802.11 AX at 5 Gigabits per second (= Wi-Fi 6)
- A live demonstration of 802.11 AX at 6 Gigabits per second (= Wi-Fi 6E)
- A live demonstration of using all three Wi-Fi frequency bands (2.45 GHz, 5 GHz, and 6 GHz) simultaneously in a high-end router in order to provide better video surveillance, Wi-Fi cell phone and tablet support, and faster Internet access for your computers--all at the same time

- **Wi-Fi 6 versus Wi-Fi 5 versus 802.11n versus Gigabit Ethernet (E)**

We now have the new "Wi-Fi 6" (=802.11ax wireless network adapter in a desktop computer running side-by-side next to a "Wi-Fi 5" adapter and a Gigabit per second wired Ethernet adapter. The boost in speed for "Wi-Fi 6" relative to "Wi-Fi 5" is significant, especially for the higher speed broadband Internet access. However, Gigabit per second Ethernet is still significantly faster for local area network activities such as printing and file sharing. Upgrading an existing Wi-Fi 5 or slower router to a Wi-Fi 6 router will provide a slight boost in Internet and local area network speeds if most of your connected wireless equipment is still the legacy Wi-Fi 5 stuff. However, having a Wi-Fi 6 router will provide you with significant gains in speed and latency in the next year or two when all new computers, cell phones, cameras, and smart televisions upgrade to the Wi-Fi 6 standard.

- **Wi-Fi 6E Will Alleviate Radio Frequency Congestion (E)**

"Wi-Fi 6E" is an extension of "Wi-Fi 6" into the 6 Gigahertz radio frequency band. It will alleviate the massive congestion on the existing 2.45 and 5 Gigahertz radio frequency bands. This will enhance the speeds and reliability of wireless networking.

- The FCC approved the use of the 6Gigahertz radio frequencies on April 23, 2020
- No format or data speed changes between "Wi-Fi 6E" and "Wi-Fi 6": Just a pile of new frequency channels added to the existing 802.11ax standard
- With this new frequency band, Wi-Fi 6E can operate using 14 additional 80 MHz channels and 7 additional 160 MHz channels
- Asus has announced a new router that can operated in the 6 Gigahertz Wi-Fi 6E RF channel
- During the past six months, about a dozen PCIe adapters with Wi-Fi 6E (with Intel AX210 chipsets) have arrived at retail and high-end gamers have been buying them and installing them in anticipation of the introduction of the Asus router
- Retail availability of routers that can communicate on Wi-Fi 6E 6 Gigahertz radio frequency channels
- Retail availability of cell phones that can communicate on Wi-Fi 6E 6 Gigahertz radio frequency channels
- Some hacks for getting Wi-Fi 6E supported in Windows 10
- The 6 GHz Radio Frequency band that Wi-Fi 6E does not penetrate walls as well as signals in 2.4 GHz and 5 GHz Radio Frequency bands so router placement, mesh add-on devices, and Wi-Fi extenders are more important for Wi-Fi 6E

- **[AN INTRODUCTORY LOOK AT "WINDOWS 11"](#)** (E)

This presentation will consist of a live demonstration of the initial version of "Windows 11" that will be/was released on October 5, 2021:

- Stringent hardware requirements for "Windows 11.." relative to those for "Windows 10.."
- End of Life for "Windows 10" is on October 14, 2025
- Determining if your existing computer can run "Windows 11.."

Francis will also demonstrate the improvements over "Windows 10" that are explained at

<https://www.microsoft.com/en-us/windows/windows-11>

and

<https://www.cnet.com/tech/computing/windows-11-beta-download-new-features-device-compatibility-price-and-more-explained/>

- **[USING A "WINDOWS 10" COMPUTER TO TAKE FULL CONTROL OF AN ANDROID CELL PHONE](#)** (E)

This presentation will consist of several live demonstrations of using a "Windows 10" computer to take full control of a Android cell phone:

Using two free techniques, an Android phone will show up in a "Windows 10" computer as a window that looks exactly like the screen of the Android phone.

From this window inside your "Windows 10" computer, you can take or make cell phone calls and text messages. From this window inside your "Windows 10" computer, you can get to any of the apps inside your Android cell phone. Using the mouse, keyboard, and/or track pad of your "Windows 10" computer, you can respond to text messages many times faster than you can from the screen of your Android cell phone:

- A live demonstration showing the use of the bundled "Your Phone Companion" app in "Windows 10" to take complete control of an Android cell phone that is running Microsoft's free "Your Phone Companion" app.
- A live demonstration showing the use of a free "VNC" client in a "Windows 10" computer to take complete control a an Android cell phone that is running the free "Droid VNC Server" app

- **EARLY USES OF Wi-Fi 6E** (E)

Even before the Covid pandemic, the 2.45 Gigahertz and the 5 Gigahertz radio frequency bands have been, and are still often, jam-packed with more users and devices than they can carry. In March 2020, the FCC opened up the 6 Gigahertz radio frequency bands for use by Wi-Fi use. This huge new set of channels will make computers, cell phones, tablets, and associated routers run faster and more reliably.

- Three Radio Frequency Bands for Wi-Fi
- Some Terminology for Wi-Fi 6E
- Technological Challenges
- Wi-Fi 6E Cell Phones
- Wi-Fi 6E Routers
- Only Easy Way to Get Wi-Fi 6E Running
- Three Ways to Get Wi-Fi 6E for a Windows computer
- Using all three Wi-Fi Radio Frequency bands at the same time to get faster and more reliable use of your broadband and fixed Wi-Fi Internet service.

- **"Wi-Fi 6E" CONNECTION BETWEEN A "WINDOWS 10" COMPUTER AND A LINKSYS "HYDRA" ROUTER** (E)

After 3 months of trial-and-error, we have were finally able to use a "Windows 10.." computer to make a 6-Gigahertz "Wi-Fi 6E" connection to a new-fangled Linksys "Hydra" router. Our steps-by-step instructions for making this pioneering connection are described at

http://aztcs.apcug.org/meeting_notes/winhardsig/networks/Wi-Fi/Linksys-Hydra-rtr-to-Win10.pdf

- **USING A WEBCAM TO SPY ON SOMETHING** (E)

This presentation will consist of several live demonstrations of real and virtual Webcams with extensive how-to documentation on installing for each type of Webcam:

- Using Remote Access To View and Control Cameras Located On Other Computers On Your Local Network
 - TightVNC's free "VNC Server" and UltraVNC's "VNC Viewer"
 - Microsoft's bundled "Remote Access Protocol"
- Using a Cell Phone as a Webcam
 - for a "Windows.." computer
 - for a macOS computer
- Using Skype's Auto-Answer Capability to Communicate with your Dog, Cat, or Small Child
- Using a "Wyze Cam" to Send Video Motion Alerts, Perform Video Motion Recordings, View Video On Demand, and Do 24-hour Video Recordings
- Using "Contacam" to Send Video Motion Alerts to your Cell Phone(s) and Email Addresses

- **WEBCAM BASICS** (E)

You can use various models of Webcams to spy on your home(s), business(es), and pets. They can alert your cell phone and/or your computer when they detect motion.

In addition to these basic functions, the Internet cloud can now provide you with: A means of communicating with a Webcam from points unknown and cloud storage for saving snapshots and video clips either automatically when motion is detected by your Webcam or on-demand.

- History of Webcams
- Legal Issues Regarding Webcams
- Security Issues Regarding Webcams
- Wired USB Webcams
- Cloud-based Standalone Webcams
- A Free Motion-Detection Alarm Using a USB Webcam

- **"MEET NOW" -- FREE BROWSER-BASED VIDEO CONFERENCING WITH A 24-HOUR MAXIMUM (E)**

If you would like to do free Zoom-like conferencing without the 40 minute limit, please try "Meet Now". Microsoft pushed it into all "Windows 10.." computers as a mandatory update in October 2020. Using three virtual "Windows 10.." computers and a real macOS computer, we will illustrate the following as a live demo:

- "Meet Me" icon in the Windows 10 "Notification Area"
- Creating a free URL address with a meeting number that is unique and reusable
- Inviting others to join you by using the URL address in the Edge, Google Chrome, or FireFox Web browsers in Windows.. computers and Macs
- Attendees can join meetings either as a guest or with a Microsoft account
- Attendees can join from computers, tablets, and cell phones that do not have the Skype app installed in them
- Attendees can join, leave, and then re-join a meeting
- Free video meetings last up to 24 hours

- **CLONING AN SSD FOR YOUR WINDOWS DESKTOP COMPUTER (E)**

Cloning SSDs is one proactively back up your data files and provide for a quick repair when a bootable SSD fails in the (near) future! The process of procuring a new, blank SSD and cloning it from an existing source SSD is also a great way to provide more usable storage space in your existing Windows computer.

- Free cloning apps versus non-free cloning apps
- Selecting a new SSD to purchase
- Preparing a new SSD to be a clone target
- Preparing the old existing SSD to be the clone source
- Two ways to clone SSDs
- Using the cloning app
- After cloning an SSD, do not try to boot up your Windows.. computer with both the original source SSD and the new target SSD attached at the same time
- After cloning an SSD, you can use "Disk Management" to expand C: partition of the newly-created target SSD

- **USING ZOOM TO REMOTELY TAKE CONTROL OF SOMEONE ELSE'S COMPUTER (E)**

If you have the Zoom Meetings Client app or Zoom Cloud Meetings installed on your computer or mobile phone, and someone else has the Zoom Meetings Client installed on their computer, you can use Zoom to take control of the other person's computer remotely to show them something or even to repair their computer:

- A live demonstration of using Zoom to control someone else's computer (using two virtual computers for a Zoom session that is independent from the Zoom session that is being used for this presentation).
- Preparing your free or Pro Zoom account for remote access into other's computers
- Installing Zoom Meetings Client into someone else's computer
- Any attendee of your Zoom meeting can then initiate remote control of another attendee's computer

- **GOOGLE ACCOUNTS, GOOGLE BRAND ACCOUNTS, AND YOUTUBE CHANNELS (E)**

To make the best use of your Google Account and YouTube channels, this presentation explains their relationships:

- Two kinds of channels at YouTube
- YouTube is a wholly-owned but independently-operated subsidiary of Google
- "Personal channel" is automatically made at YouTube.com if you first log into any Google service
- When you go to youtube.com/accounts, and you attempt to create a new channel, you create both a new Brand account at Google AND a new channel with a business or other name at YouTube
- Despite the above complexity: a Google account lets you access a Google Brand account which then lets you access a YouTube channel with a business or other name. However, you do not access them in that order.

- **MX LINUX (E)**

MX Linux has risen to the top in popularity according to Distrowatch.com:

MX Linux is a mid-weight distribution (distro) that runs faster and is much easier to configure and use relative to the other popular Linux distros.

- MX Linux is a super-configurable, fast, mid-weight Linux distribution that you can use either in a virtual machine or as the actual operating system for a PC
- A Quick Demo of MX Linux
- System Requirements for MX Linux
- Installing MX Linux
- Xfce Desktop Environment is Default for MX Linux
- Panel is Part of XFC Desktop Environment
- Thunar File Manager on the Panel
- Whisker Menu launcher on the
- Panel Apps
 - LibreOffice is the default free office suite but..
- Install and Use FreeOffice for an easier initial learning experience

- **GOOGLE DUO (E)**

The "Google Duo" app gives you the ability to make quality video and voice calls between any of the following devices: Android cell phones, iPhones, iPads, Windows PCs, macOS computers, and Linux computers:

- Live demonstration showing both an Android phone's screen and an iPhone's screen communicating with each other and various computers
- Video and voice communications between all phones, tablets, and computers (= Face Time killer)
- Low-light video calls
- Knock Knock video preview as an optional feature
- Invite Links to connect to other people's devices

- **HOMESOAP DISINFECTION APPLIANCE (E)**

The Homes soap UV-C sanitizer appliance is the best that we could find after comparing models from various manufacturers

- Technical specifications and cost
- Ease of use with a built-in timer
- Built-in lock-out" to prevent exposing you to the unknown effects of UV-C radiation
- Unique quartz reflectors irradiate objects from 360 degrees (unlike competitive devices)
- Lab tests done by third parties
- Ray gun devices as another option but they have unknown effects on humans and their pets
- Ozone oven devices as another option for sanitizing devices

- **CELL PHONE BASICS (E)**

Your iPhone or Android mobile phone is actually 6 separate radio transmitter-receivers in a very compact device. If you get a working understanding of the details of these 6 transmitter-receivers, you can make better use of your mobile phone and save money:

- 6 transmitter-receivers in an iPhone or Android cell phone:
Cellular transceiver, Wi-Fi transceiver, Global navigation Satellite System (GNSS) receiver = GPS, etc.), Bluetooth transceiver, Near-field Communication (NFC) and FM radio receiver
- Not having a data plan so that Wi-Fi is the cell phone's only Internet connection
- Having a data plan but using mainly Wi-Fi for the cell phone's Internet access
- Various apps use different combinations of the 6 transmitter-receivers
- Use the "MyGPSCoordinates" and/or "GPS Status" apps to get your latitude/longitude location from the GNSS receiver

- **CELLULAR SERVICE ANALYSIS (E)**

Knowledge is power:

By using various Websites before you buy a cell phone or a cell phone service AND by using various cell phone apps after you buy the phone or service, you can get better service at a better price:

- Use the "nPerf" Web site and the "nPerf" app to get a street-level map to show which cell carrier has 5G, 4G/LTE, 3G, or 2G service:
See http://aztcs.org/meeting_notes/winhardsig/cell-phones/5Gvs4G-maps.pdf
- Use the "Cellmapper" app to determine whether your cell phone running is 5G, 4G/LTE, 3G, or 2G:
See http://aztcs.org/meeting_notes/winhardsig/cell-phones/cellphonerunning5Gor4G.pdf
- Use the "Opensignal" app to determine the location and direction of the cell tower site that a cell phone is connected to:
See
http://aztcs.org/meeting_notes/winhardsig/cell-phones/Opensignal-tower-map.pdf

- **5G EMERGING TECHNOLOGY IN THE UNITED STATES (E)**

Here is a quick, concise summary about 5G at the present time:

- Verizon calls their two-millimeter Wavebands "Ultra Wideband"
- The 2.5 Gigahertz frequency that TMobile acquired by buying Sprint is referred to as "mid-band" by the 5G folks
- The 600 and 850 megahertz bands are referred to as "low-band" by the 5G folks
- The 600 and 850 megahertz bands are the former UHF TV frequencies that formerly belonged to the television broadcasters
- The 28 and 39 Gigahertz bands are referred to as "millimeter wave" or "high band" by the 5G folks
- The mid-band and low-band frequencies are called "Sub-6" by the 5G folks
- AT&T stopped using their misleading "5G E" moniker for their slightly-improved 4G service
- AT&T stopped their misleading attempts use the "5G+" moniker for their real 5G service
- Verisign continues to claim that they have the only real 5G because they have two "high-band" 5G frequencies while their competitors are still struggling to obtain frequencies in this frequency range.

- **CELL PHONE TETHERING (E)**

If your smart "Android" or "iPhone" cell phone has a "data plan" or a wireless connection to a "Wi-Fi router", it can be "tethered" to a computer, a tablet, another cell phone or to a router . When you do so, your smart Android or iPhone cell phone provides Internet access to the computer, tablet, another cell phone, or to a router. Your 5G cell phone can be your main Internet provider for your computer or it can be

set up as a redundant "hot standby" or a "cold standby" Internet provider for computer.

- **"DUAL WAN" ROUTERS AND USING A TETHERED CELL PHONE TO PROVIDE INTERNET FOR A ROUTER (E)**

Some routers let you connect two Internet connections to them. If you have a "Dual Wan" router, you can connect your regular cable modem, DSL modem, or satellite modem as the main Internet connection for the router. Then you can connect your tethered Android cell phone as the backup Internet connection for the router. However, this capability is probably only available when your cell phone is connected to a 5G tower.

- **CELL PHONE PROBLEMS (E)**

When the call center agent of a cell phone carrier configures your new cell phone, they can misconfigure it and turn your shiny new cell phone into a useless brick. Therefore, you need to run a few tests of any cell phone that has been recently configured by a cell phone carrier.

- **USING VIRTUAL MACHINES IN FREE VIRTUAL MACHINE PROGRAMS IN A "WINDOWS.." COMPUTER (E)**

If you install a free "Virtual Machine Program" into an existing Windows computer, you can use it to create virtual machines. These virtual machines are software entities that act like real hardware computers. You can then install any version of Windows or any distribution of Linux into a virtual machine. Using virtual machines provides you with a simulated hardware environment that isolates operating systems and software apps prevents them from conflicting with existing hardware and/or software apps in your physical Windows computer.

- [Overview of virtual machine programs running "guest operating systems"](#)
- [Installing free "virtual machine programs"](#)
- [Virtual networks created by virtual machine programs](#)
- [Copying or moving virtual machines in VMware Workstation Player](#)
- [Copying or moving virtual machines in Oracle VM VirtualBox](#)
- [Copying or moving virtual machines in Hyper-V](#)

- **USB-C (E)**

USB-C ports started showing up in computers about 4 years ago. A "USB-C" port is an ovoid rectangle that is about one quarter the size of a USB 3 Type A port. However, it is actually a USB 2 port, a USB 3.1 port, a Thunderbolt 3 port, an HDMI port, an audio port, a Displayport port, a charging-only port or any combination of the previously-list port types.

The exact capabilities of any specific USB-C port in any specific computer that you buy will be determined by the manufacturer of the computer.

Thunderbolt 3 devices are not always plug-and-play:

You sometimes need to open the "Thunderbolt" app in a computer and click on the problematic "Thunderbolt" device to turn it on.

If you do not know this, you might get the impression that a newly-inserted Thunderbolt 3 device is not working.

For step-by-step instructions on how to jump-start a problematic Thunderbolt 3 device, please see

http://www.aztcs.org/meeting_notes/winhardsig/USB3/Thunderbolt3fix.pdf

- **RESOLVING SOUND PROBLEMS IN "WINDOWS.." COMPUTERS** (E)

Windows 10, Windows 8.1, Windows 7, and Windows XP computers have many sound-enabled devices that automatically re-configure themselves as "default" when you do not want them to do so. During this presentation, we can use "Remote Desktop" remote access into another computer to demonstrate these problems and show you how to avoid having them interfere with your use of online meeting systems such as Zoom, TeamViewer, and Skype.

- **COMPUTER SOUND EQUIPMENT (THAT I RECOMMEND)** (E)

Here are some sound products for computers that I recommend:

Bose speakers

Koss headset

Creative Sound Blaster USB sound card

HDE USB 2 Extension Cable

and

UGREEN Y Audio Splitter Cable

We recommend these products because each item has unique capabilities that distinguish them from their competitors.

- **SOUND CONFIGURATION IN A "WINDOWS.." COMPUTER THAT IS RUNNING "ZOOM"** (E)

To get your speaker and microphone audio working right in a Windows computer that is running "Zoom":

Big Step 100:

Enable/test and disable the wanted and unwanted "Playback" and "Recording" audio devices.

Big Step 200:

Start up the Zoom app and adjust the Windows "Volume Mixer" to make sure that the "Zoom Meetings" volume slider is not muted.

Big Step 300:

Start up a test meeting (with just yourself in it) and use the Zoom app's audio test feature.

- **SHARING A PRINTER THAT IS ATTACHED TO ONE "WINDOWS.." COMPUTER WITH OTHER "WINDOWS.." COMPUTERS ON THE SAME LOCAL NETWORK" (E)**

The problem of using a Windows 7, 8.1, or 10 computer to send print jobs over a local network to a printer that is connected via USB to a Windows 7 or 8.1 or 10 computer involves both configuration settings in the host Windows computer AND configuration settings in the remote Windows printer:

Big Step 100:

From inside the Windows 10 computer that the printer is USB-connected to, turn on Printer Sharing for the USB-connected printer.

Big Step 100 needs to be done before Big Step 200 can be done.

To do Big Step 100, see the following detailed instructions at:

http://aztcs.org/meeting_notes/winhardsig/printers/PrintShare-BigStep100.pdf

After you complete Big Step 100, you need to do Big Step 200 which is done from inside the remote, network-connected Windows computer that you want to use to send print jobs to the printer: Run "Add a printer" in "Devices and Printers" speaker and microphone audio working right in a Windows.. computer that is running Zoom:

Big Step 100:

Enable/test and disable the wanted and unwanted "Playback" and "Recording" audio devices.

Big Step 200:

Start up the Zoom app and adjust the Windows "Volume Mixer" to make sure that the "Zoom Meetings" volume slider is not muted.

Big Step 300:

Start up a test meeting (with just yourself in it) and use the Zoom app's audio test feature.

- **WIPING "WINDOWSHARD DRIVES OF "WINDOWS.." COMPUTERS" TO PREPARE THEM FOR DONATION OR GIFTING** (E)

Most used computers are donated or sold with all sorts of recoverable data files and photo files on their old hard drives. Here is what we learned about wiping hard drives when we were asked to sanitize 10 computers for a small business.

- The free CCleaner Portable app's wipe does a good enough job in most cases
- The free MooO Disk Wiper app removes data from more areas
- Use them both for extra safety
- "Full Format" does the best wipe but it removes the Windows operating system which makes your computer less useful to the person or organization that you transferred your computer to
- Use the free Recuva app to see how good of a job CCleaner and MooO Disk did on cleaning the "free space" in your computer

- **USING FREE CLOUD STORAGE--AN OVERVIEW** (E)

You can use free cloud storage services to store data files and digital photos for free. The benefits of storing data files are:

- Reduce the probability of losing data files and photos due to hard drive crashes and operator error.
- Facilitates collaboration between multiple people working on the same project
- Provides you with the ability to synchronize data files and digital photo albums between multiple computers, tablets, and cell phones.

- **A COMPARISON OF ONEDRIVE, GOOGLE DRIVE, BOX, "DROPBOX, AND iCloud"** (E)

This detailed comparison between the five cloud storage services provides you with objective information for selecting which ones to use.

- **USING MICROSOFT'S ONEDRIVE" CLOUD STORAGE** (E)

Microsoft's OneDrive provides you with 5 Gigabytes of free storage space. The data files and digital photos that you store on OneDrive can be accessed from Windows, Apple MacOS, Linux, and Android computers, tablets, and cell phones but it is especially well-integrated with the Windows 10 "Start Menu" and the "File Explorer."

- **USING "GOOGLE DRIVE" CLOUD STORAGE** (E)

"Google Drive" gives you 5 Gigabytes of free storage up on Google's server farms. You can upload and download entire folders of data files or digital photos at the same time using most Web browser but uploads and downloads using Google's

"Chrome" browser are especially fast, compared to uploads of folders for "OneDrive" and "Box".

- **USINGBOX" CLOUD STORAGE** (E)

Box" gives you 5 Gigabytes storage up on their server farms. You can upload and download entire folders of data files or digital photos at the same time using most Web browser but uploads and downloads using Google's Chrome browser are especially fast, compared to uploads of folders for OneDrive and "Box". Box has the best online viewing and editing of data files because they offer their own viewer, viewing and editing with Zoho, and viewing and editing with Google Docs.

- **USING APPLE'S iCloud CLOUD STORAGE** (E)

iCloud gives you an initial 5 Gigabytes storage up on Apple's server farms. To obtain this amount of storage, you need to first obtain an Apple ID by either filling in the form at Apple Website or by using the screens inside the iTunes program. Then you can use this Apple ID to obtain an iCloud account from inside a Mac running OS X 10.7 or higher, or from a recent model iPad, or from a recent model iPhone.

- **BACKGROUND CHECKS ON THE INTERNET** (E)

The Web of the Internet is now an efficient way to do background research on people. However, the various Web sites that do these checks are fraught with attempts to trick you into spending more money than you had planned to spend! Most "background check" Web sites try to trick you into getting a forever-recurring month-to-month paid subscription to their various services.

This presentation consists of our advice for doing accurate, informative background checks without getting ripped off:

- Mylife is initially free and useful but...
- Most of the major background checking sites require forever subscription so... Intelius has a "No subscription" option but..
- The free Google.com search engine is often better at digging up dirt on an individual than Web sites that charge you for their searches:
For example, you can sometimes find discussion group postings where people discuss other people's extra-marital affairs.
For example, you can sometimes find information on non-U.S. marriages in case study files of law firms that represent clients who have been accused of not paying enough Federal income taxes.
- Use the Bullzip PDF Printer or the Save to PDF Printer to get a permanent, local copy of any information that you find on the Internet: Otherwise, you will lose

access to the information when the Web-based page is modified by the owner of the Web site:

- For example, the Websites of police departments usually delete arrest and mugshot records after 30 days

- **OVER-THE-AIR TELEVISION RECEPTION FOR FREE (E)**

You can receive digital television stations over-the-air for free. You will get less channels relative to those provided by cable television services and satellite dish services. However, the monthly cost for cable television and satellite dish service has been rising faster than the rate of inflation so this over-the-air technology can save you lots of money, if it is adequate for your needs:

- Digital television in North America uses the ATSC standard. ATSC stands for Advanced Television Systems Committee. Over-the-air ATSC television channels have been available since the first half of 2009. "
- ATSC is also known as 8VSB which stands for 8-level vestigial sideband modulation
- Steps for setting up over-the-air television reception
 - Step 1: Do an online site survey at <http://antennaweb.org> and <http://copradar.com/dtv/index.html#locator>
 - Step 2: Do a pilot test of television reception at your actual physical location
 - Step 3: Procure equipment: an ATSC television or an ATSC tuner for an existing, old television set, or an ATSC-capable tuner for an existing computer.
 - Step 4: Install and configure equipment.

- **USING THE ~\$30 IVIEW OR MEDIASONIC DIGITAL TUNER AS A BARE-BONES TELEVISION SET (E)**

The iView digital converter brings usable low-end television to you at the previously unattainable \$30 price point, provided you can provide it with a monitor, speakers, and an over-the-air antenna:

- The current iView model 3200STB Digital Converter Box can only accept over-the-air ATSC signals
- The current firmware of the 3200STB cannot receive clear QAM or encrypted QAM cable television signals. (Earlier models were able to receive clear QAM cable television signals.)
- The iView model 3200STB does not come with a monitor so you have to provide either a computer monitor that has an HDMI jack or a TV set with an "HDMI In" jack
- Does not come with speakers
- Does not come with a headset.
- Only has RCA left and right audio jacks so you might have to buy RCA plug to 3.5mm jack cables to connect to a headset or computer speakers.
- Has a television-type remote
- Has a USB 2 jack for attaching a flash drive or an external hard drive for recording television shows

- **TELEVISION SIGNALS FOR YOUR REAL OR VIRTUAL TELEVISION SET (E)**

You can watch television with either a real television set or with a virtual television that resides inside your Windows, Mac, or Linux computer. Your real or virtual television set can get television signals from either a cable television provider or over-the-air for free with an indoor or outdoor antenna.:

- Television Signal Options:
 - ATSC Over-The-Air
 - NTSC Over-The-Air (mostly obsolete)
 - Clear QAM from a cable provider. (Most cable television providers no longer offer clear QAM channels to their subscribers.)
 - Encrypted QAM from a cable provider. (Needs a set top box from your cable provider.)
- Reception Options
 - Television set
 - Tuner and television software inside a computer
- Timeline
 - ✓ 1941 - Black-and-white over-the-air NTSC television
 - ✓ 1949 - Black-and-white cable NTSC television
 - ✓ 1953 - Color NTSC over-the-air television
 - 2009-06-12 - NTSC to ATSC transition for most NTSC television stations, with an exception for low powered, translator, and Class A

stations which were allowed to continue broadcasting with NTSC signals.

- ✓ 2015-09-01 NTSC to ATSC transition for all NTSC low-powered, translators, and Class A television stations
- ✓ 2017-11-16 - FCC approves a voluntary rollout of ATSC 3.0 television channels along with a mandatory 5-year period for simulcasting with legacy ATSC 1.0 signals
- ✓ 2020 - ATSC 3.0 channels (= Next Gen TV) start appearing with 5 years of simulcasting with ATSC 1.0 required by the FCC
- ✓ 2020 - ATSC 3.0-capable television sets and tuners start appearing at retailers
- ✓ 2023 - End of 5-years of mandated simulcasting with ATSC 1.0 so that only ATSC 3.0 stations remain in existence
- A Television Tuner For Your Computer
- Steps for setting up your real or virtual television set

- **REPAIRING AND/OR RECOVERING DATA FROM EXTERNAL HARD DRIVES OR EXTERNAL SSDs** (E)

Like all hard drives, all external hard drives eventually fail. Using SATA data and power cables and/or USB hard drive adapters or enclosures, you can recover the data from or even repair the better-built models of external hard drives:

- Connecting a 2.5-in. hard drive or a SATA SSD to a USB port
- Connecting a 3.5-in. hard drive to a USB port
- Installing an add-on fan to a 3.5-in hard drive
- Attaching a SATA internal hard drive or a SATA SSD to your computer with a SATA data cable and a SATA power cable
- Two possible hardware configurations inside an external hard drive
- When a part inside an external hard drive or an external SSD breaks, you can save money and end up with a more reliable device if you substitute quality third-party parts as described at http://aztcs.org/meeting_notes/winhardsig/harddrives/external/Parts-for-external.pdf

- **BUILD YOUR OWN EXTERNAL HARD DRIVE ENCLOSURES** (E)

The external hard drives and external hard drive enclosures that are available at retail are all designed and constructed to be cheap. None of them last very long.

You can build yourself hard drive enclosures and external hard drives that are much more reliable than the ones that are available at retail. If you do so, you can usually build them at a price that is lower than the cost of buying the external hard drives and the external hard drive enclosures that are currently available at retail:

- A cheaper way to attach a SATA internal hard drive or a SATA SSD to a computer is to use a SATA data cable and a SATA power cable, instead of attaching a SATA internal hard drive or SSD to a USB port
- To build your own external hard drive enclosures or external SSD enclosures, you can use quality third-party parts as described at http://aztcs.org/meeting_notes/winhardsig/harddrives/external/Parts-for-external.pdf

- **STREAMING MEDIA: BASICS, MEDIA CAPTURE, AND SCREEN RECORDING** (E)

The videos and audios that you view or listen to in a Web browser arrive in your computer in three ways:

streaming without files,
sequential file chunks,
and

single file downloads.

You can use various software programs to save these media items for future viewing or listening

- Legal issues of media capture and screen recording
- Endless streaming media
- Single file streaming
- Streaming sequential chunks
- Media capture (at the network stack)
- Torture test for media capture software
- Screen recording
- Media capture versus screen recording

- **REPLAY CAPTURE SUITE PROGRAMS** (E)

Replay Capture Suite has 8 programs that can be used for:

- media capture at the network stack
- screen recording at the Graphics Device Interface
- online music
- media file conversion
- media file splitting and editing
- media and data file encryption
- recording Skype sessions

- **FREE SOFTWARE FOR MEDIA CAPTURE, AND SCREEN RECORDING** (E)

We have discovered several great free software programs for doing "media capture" and "screen recording":

- youtube-dl-gui for doing media capture
- aTube Catcher for media capture
- Flashback Express for screen recording
- iSpring Free Cam for screen recording

- **FREE SOFTWARE FOR EDITING VIDEO RECORDINGS** (E)

We have discovered two great free software programs for editing video recordings:

- Microsoft's "Video Editor" is bundled inside "Windows 10"
- "Videopad" by "NCH" is free for non-commercial home use

- **FREE SOFTWARE FOR EDITING DIGITAL PHOTOS** (E)

We have discovered four great free software apps for editing digital photos:

- Microsoft's Photos is bundled inside Windows 10
- Google Photo is a free "Web app that can be accessed from an Internet-connected Web browser
- Adobe Photoshop Express is a free app
- GIMP is a full-featured Free and Open Source app

- **INSTALLING OR REPLACING ATX POWER SUPPLIES IN DESKTOP COMPUTERS** (E)

90+ percent of Windows or Linux desktop computers have power supplies that adhere to or are close to Intel's specifications for ATX power supplies. These power supplies are the second-most failure prone parts inside desktop computers. You can

install or replace an ATX power supply in a desktop computer, if you learn a little about them:

- ATX and ATX12 are form factor standards that were created by Intel. These standards specify parts placement, shapes, and sizes for both the motherboards and the power supply units of desktop computers
- ATX power supplies can be non-modular, semi-modular, or full modular
- Using adapter cables to compensate for ATX-like power supplies that have some not-quite-standard cable pigtails
- An example of a reasonably-priced semi-modular ATX power supply
- Rails inside ATX power supplies
- Using newer models of ATX power supplies to power up older models of computers overheats and wears out the 3.3 and 5 volt rails of the newer models of ATX power supplies
- Using older models of ATX power supplies to power up newer models of computers overheats and wears out the 12 volt rails of older models of ATX power supplies

- **FILE SHARING BETWEEN "WINDOWS.." COMPUTERS** (E)

If two Windows computers are connected to the same broadband modem or router, you can share files between them across the local network instead of using flash drives and USB hard drives to transfer files between the two computers.:

- Two Kinds of File Sharing in a Windows 7"computer
Server Message Block (SMB) and
HomeGroup
- In a Windows 10 computer only Server Message Block (SMB) file sharing is available
- File sharing options for various versions of Windows
- Comprehensive Fix for Server Message Block file sharing Woes
- Use \\<Private IP address>
to brute-force file sharing between two Windows computers

- **REMOVING UNWANTED SOFTWARE FROM A "WINDOWS.." COMPUTER** (E)

When you buy a "Windows.." computer from a retailer, it will usually arrive loaded with all sorts of software programs that should be removed. Then, as you use the computer, you

will probably accumulate all sorts of additional software programs that need to be removed:

- Three Types of Programs Inside a "Windows.." computer:
 1. "Desktop Apps"
 2. "Universal Windows Platform" (UWP) Apps
 3. "Portable apps"
- To remove a "desktop app", use the free "Revo Uninstaller Portable" app.
- To remove a "Universal Windows Platform" app, use the free "Revo Uninstaller Portable" app.
- To remove a "portable app", use "File Explorer"/"Windows Explorer"

- **FIXING "WINDOWS UPDATE" (E)**

"Windows Update" breaks a lot in

"Windows 7" while it only occasionally breaks in "Windows 8.1" and "Windows 10":

- [Logical steps for repairing "Windows Update" in a "Windows 7.." computer](#)
- [Logical steps for repairing "Windows Update" in a "Windows 10"](#)

- **EMAIL BASICS (E)**

A typical email system consists of three servers up in the Internet cloud. Your end-user computer communicates with these three servers in order to send and receive email messages. To help you understand your options for sending and receiving email, let us tell you about how email works:

- Three Cloud-based Servers For The Typical Email Service:
a server for sending email, _____ a server for receiving email, _____ and a Web server.
- Access "Webmail" using a Web browser such as "Internet Explorer"
- Access the sending and receiving servers directly using a local "Email client program" that is installed on the hard drive of your local computer
- Advantages and disadvantages of "Webmail" compared to using an "Email client program"

- Using both "Webmail" and an "Email client program" to for maximum convenience and problem resolution

- **EMAIL--ADVANCED TOPICS AND TECHNIQUES** (E)

The diversity of options in email software, servers, and hardware platforms provides you with lots of ways to save money, time, and hard drive space:

- Offline Access to Webmail
- Three Cloud-based Servers For the Typical Email Service
- Protocols For Sending Email
- Protocols For Receiving Email
- Email Client Software:
 - ✓ [UWP apps versus Legacy Programs](#)
- Where Is My Email Stored?
- Selecting An Email Service
 - ✓ [Litmus Email Analytics'](#) Email Usage Data
 - ✓ [Security Lapses of Email Providers](#)
- Disadvantage of Email Address from Your Broadband Internet Service
- Verizon and AT&T Are Exceptions to the Above
- [Verizon's Acquisitions of AOL Mail and Yahoo!Mail](#)
- Microsoft Account Creation
- [Saving Email Locally on the Hard Drive of Your Computer](#)
- ["Google Takeout" Website Allows You to Download All of Your Gmail Into a Single Mbox File](#)
- Dormancy When Not Used

- Email Away From Home
- Security Defenses for Webmail
- Security Defenses for An Email Client Program
- [Sending SMS Text To A Cell Phone](#)
- [Accessing "Yahoo!Mail" from a Email Client Program Inside A "Windows.." Computer](#)
- [Apple iCloud email in "Windows 10"](#)

- **["HOW YOU CAN SILENCE THAT NOISY COMPUTER" \(B\)](#)**

There are two ways to silence that noisy computer of yours:

Method 1:

Make it quieter or buy a quieter computer

Method 2:

Move the main computer unit
away from your keyboard-monitor-mouse

- Using free software to measure the sound level of a computer
- Buying silent computers.
- Adding in liquid cooling sometimes helps
- Sound-reducing computer parts sometimes help
- Move your computer away from your monitor-keyboard-mouse by using active extension cables

- **[MOVING YOUR MONITOR, KEYBOARD, MOUSE, WEBCAM, HEADSET, SPEAKER, AND MICROPHONE FARTHER AWAY FROM YOUR COMPUTER](#)** (E)
Using HDMI cables with Redmere Technology and active "USB 3" extension cables, you can now place flatscreen monitors, mice, keyboards, and some USB devices up to 32 feet away from your computer. These technological advancements make it possible for you to place your computer in the next room by running cables through a hole in a wall:
 - Extensions for audio cables
 - Moving your keyboard, mouse, monitor, etc. farther from your computer
 - Installing conventional HDMI cables
 - Installing passive USB 3 extension cables and powered USB 3 hubs
 - Installing HDMI cables with Redmere Technology
 - Installing active USB 3 extension cables

- **["REVO UNINSTALLER PORTABLE"](#)** (B)
"Revo Uninstaller Portable" is a free software program that helps you clean up your hard drive and the Windows "Registry" after it runs the uninstall wizard that is part of all "desktop app" programs that run in "Windows..".
 - When you use "Programs and Features" in "Windows.." to remove a program..
 - "Revo Uninstaller Portable" cleans up the hard drive and the Windows "Registry"
 - "Revo Uninstaller Portable" Is a "portable application"
 - Programs that "Revo Uninstaller Portable" can remove:
"Desktop apps" and "Universal Windows Platform" (UWP) apps.
 - Getting "Revo Uninstaller Portable"
 - Using "Revo Uninstaller Portable"

- **["WORLD MAPS SHOWING LIGHT AND DARK AREAS IN REAL TIME"](#)** (B)
A real-time world map that shows light, dark, and twilight areas can be handy if you have to communicate with folks in other parts of the world. These "geoclocks" are available in

two formats:

As a free-standing software program

and

as a Web page.

- "Geoclock"--The Original World Clock Map
- More Up-To-Date world clock programs
- Web Sites that Provide a World Clock

- **"WINDOWS 10" ACTIVATION (I)**

Windows 10's activation process is different from any previous "Windows.." product.

- There are two ways to activate "Windows 10": "Digital License" Activation and "Product Key" Activation
- When you get a free upgrade to "Windows 10" from Windows 7, 8, or 8.1, you get a "Digital License" activation
- Both ways to activate "Windows 10" store the Uniquely Universal Identifier (UUID) of your computer's motherboard up in Microsoft's activation servers in the Internet cloud.
- The "Anniversary Update" converts a "Product Key" activation to "Digital License" activation for copies of "Windows 10" that were original activated a "Windows 10 Product Key".
- Two ways to linking Your "Microsoft Account" to a "Digital License" activation
- If you link your Microsoft Account to your Windows account, you get the ability to use the "Activation Troubleshooter" in "Windows 10" to activate after changing out your computer's motherboard. However, you then have to log into "Windows 10" with your "Microsoft Account". If you go back to logging into "Windows 10" with a "Local Account", you lose your ability to use the "Windows 10 Activation Troubleshooter" to change your computer's motherboard.
- If you activate "Windows 10" with a purchased "Windows 10 Product Key" and then you replace the hard drive but keep the same motherboard, you can do a

"fresh install" with an Installation Media DVD or USB thumb drive. During the "fresh install" process, you can either "Skip activation" or enter in your purchased "Windows 10 Product Key". If you enter in your "Windows 10 Product Key", your "fresh install" will have a "Product Key" license. If you "Skip activation", your "fresh install" will have a "Digital License".

- **USING THE FREE "WINDOWS 10 ENTERPRISE EVALUATION" (B)**

There are three ways for you to run the free "Windows 10 Enterprise Evaluation". It is close enough to the other editions of "Windows 10.." so that you can use it to test hardware and compatibility with your existing computer(s).

- What is the "Windows 10 Enterprise Evaluation"?
- System requirements
- Testing an old "Pentium 4" computer to make sure that it can run "Windows 10"
- Ways for you to run the "Windows 10 Enterprise Evaluation":
 - Method 1: Installing it into a real, physical computer.
 - Method 2: Installing it into a virtual machine.

- **ADDING EXTERNAL PARTS TO REPAIR OR IMPROVE A COMPUTER (B)**

You can add external parts to make cost-effective temporary or permanent repairs or improvements to a computer:

- Parts of a computer fail In two ways
- Use "USBTreeView" to troubleshoot
- Disabling failed parts in a computer
- Reasons to add an external part to your computer
- Examples of external parts
- Portable and AC-Powered Monitors
- USB hubs
- External DVD/CD drives
- External hard drives and external hard drive enclosures to boot up a computer
- Gigabit Ethernet wired network adapters
- USB 3-based 802.11ac Wi-Fi wireless network adapters
- External USB mouse
- External USB keyboard
- USB sound card
- USB 3-based "DisplayLink" adapters

- **EXTENDING AND SPEEDING UP A LOCAL AREA NETWORK (LAN)--Part 1: THE BASICS** (E)

There are various technologies that you can use to extend and speed up the network ("LAN") in your home or business:

- Category 5/5e/6/6a/7 cable
- Powerline Networking
- Radio Repeaters for Wi-Fi
- Phone Line Networking
- Coaxial Networking
- Switches, routers, and extenders at the end of the (above) extension techniques
- Additional wireless enhancements to speed up you wireless network. (Many of these improvements for your wireless network are free.)
- Less common options such as wired Ethernet extenders, fiber optic media converters, high-gain antennas such as parabolic dishes, and wireless mesh networks

- **EXTENDING AND SPEEDING UP A LOCAL AREA NETWORK (LAN)--PART 2: USING Wi-Fi RANGE EXTENDERS AND POWERLINE NETWORKING** (B)

You can use powerline networking and/or wireless range extenders to extend your local network:

- Measuring Internet bandwidth
- Measuring local network speed
- Examples of powerline networking equipment
- Examples of wireless range extenders
- Internet speeds and local network speeds at different points in a typical home network
- Using free programs to analyze wireless network
- Using a wireless router at the end of a powerline networking link
- Wireless extender and powerline hybrids

- **EXTENDING AND SPEEDING UP A LOCAL AREA NETWORK (LAN)--PART 3: USING "MULTIMEDIA OVER COAX ALLIANCE" (MoCA) AND POWERLINE NETWORKING (B)**

You can use powerline networking and/or wireless range extenders to extend your local network:

- Measuring Internet bandwidth
- Measuring local network speed
- Examples of powerline networking equipment
- Examples of "Multimedia over Coax Alliance" (MoCA)
- Internet speeds and local network speeds at different points in a typical home network
- Use MoCA 2.1 to get "Gigabit Ethernet" Speeds
- Do not use MoCA version 1.1 equipment
- Disable the MoCA feature of your cable modem if your cable modems bottlenecks your MoCA 2.1 equipment
- You can attach a spare wireless router at the end of a powerline link or a MoCA link

- **WHAT TO DO WHEN YOUR COMPUTER WILL NOT BOOT (B)**

If your computer will not boot up, here are some logical troubleshooting steps for you to follow from the simple and obvious to more complex procedures.

- Basic troubleshooting of any computer
- Change boot order during initial boot up
- Booting with a bootable DVD or CD disc, a bootable USB flash drive, or a bootable HDD
- Troubleshooting a "Windows.." desktop computer
- Troubleshooting a "Windows.." laptop computer
- Troubleshooting a Mac "OS X" computer
- Restore a "Windows.." computer from a "system image backup"

- **USING THE "TASK MANAGER" IN A "WINDOWS.." COMPUTER** (B)

The "Task Manager" in "Windows.." provides you with an under-the-hood view of the operating system, startup programs, third-party software application programs, hardware utilization, and network bandwidth utilization. In addition to being a useful analysis tool, the "Task Manager" in "Windows.." gives you a powerful way to close down potentially dangerous Web browser tabs and windows and any "drive by" downloads of malware that they might attempt to send into your computer:

 - Launching the "Task Manager"
 - "Task Manager" Differences Between Windows 7/8/8.1/10
 - Using the "Task Manager"
 - Using the "Processes" Tab of the "Task Manager"
 - Using the "Users" Tab of the "Task Manager"
 - Using the "Details" Tab of the "Task Manager"
 - Using the "App History" Tab of the "Task Manager"
 - Monitoring for a "Memory Leak"
 - Using the "Startup" Tab of the "Task Manager"
 - Using the "Services" Tab of the "Task Manager"

- **"COMPUTER MANAGEMENT" IN A "WINDOWS.." COMPUTER** (I)

The Computer Management "Microsoft Management Console" in "Windows.." provides you with access to the "System Tools" submenu, the "Disk Management" applet, and the "Services" window. These applets allow you to perform maintenance, repairs, and modifications to a "Windows.." computer:

 - Uses of "Computer Management"
 - Starting "Computer Management"
 - Submenu Items of "Computer Management"
 - **"Task Scheduler"** lets you look at and modify what activities are automatically scheduled by both the "Windows.." operating system and third party applications
 - **"Event Viewer"** gives you a user-friendly look at the historical logs of what has happened "under the hood" inside both "Windows.." and third-party applications for problem analysis and resolution
 - **"Shared Folders"** shows you what other computers on your local network can "see" in your computer by means of "file sharing" which is called "Server Message Blocks" (= SMG = SAMBA = "conventional file sharing"). "Shared Folders" does not show the files and folders that your "Windows.." computer is sharing by means of Homegroups".

- **USING THE FREE "VMWARE WORKSTATION PLAYER" TO RUN A FREE, TIME-LIMITED COPY OF "WINDOWS 10" IN A "VIRTUAL MACHINE" (I)**

By using a virtual machine program such as the free "VMware Workstation Player" inside your existing "Windows.." or Linux computer, you can create virtual machines and run free evaluation copies of "Windows 10" inside them:

- Big Step 0:
Learn about virtual machines
- Big Step 100:
Install the free "VMware Workstation Player" program into your existing computer
- Big Step 200:
Use the "VMware Workstation Player" to create a new virtual machine
- Big Step 300:
Download a free, time-limited copy of "Windows 10.." and install it into the new virtual machine
- Big Step 400:
Run "Windows 10.." inside the virtual machine and install the "VMware Tools" program which consists of drivers provided by "VMware Player"

- **INITIAL SETUP OF "WINDOWS 10.." WITH A "LOCAL ACCOUNT"**(E)

Here are the detailed steps for the initial setup of "Windows 10.." with a "local account". This non-default configuration reduces Microsoft's data gathering and makes your computer run more efficiently.

- By default, when you start up a "Windows 10.." computer for the first time or when you create a new "user account" in "Windows 10", it tries to get you to log into your "user account" in the "Windows 10.." computer with a "Microsoft Account" which is an account at Microsoft's server farm system. When you log into "Windows 10.." with a "Microsoft Account", your computer will be in constant communication with Microsoft's server farms which will be constantly gathering and storing data about what you are doing with your computer.
- When you set up "Windows 10.." with a "local account", you greatly reduce the amount of data that Microsoft's server farms can gather about you. You also free up Internet bandwidth, RAM, and CPU processor cycles. These local computer resources become available for the programs that you run on your computer.
- When a "local account" in "Windows 10" is used, you get a reduction in the amount of complexity in "File Explorer" so that the new user of "Windows 10" does not have to deal with the complexities of Microsoft's "OneDrive" cloud storageDefault appearance of "Windows 10

- **SOME SIMPLE TECHNIQUES FOR MAKING A "WINDOWS.." COMPUTER EASIER TO USE** (E)

This is a hands-on demonstration of some simple tricks for making your "Windows.." computer more user friendly and efficient:

- Unhide file extensions
- Pre-pend year-month-day to file and folder names
- Circle trick for checking the aspect ratio of your monitor screen
- Copy-paste or cut-paste to the right pane of "Windows Explorer" or "File Explorer" (instead of to the left pane)
- Drag down or up before copy-paste or cut-paste to avoid inadvertently putting into folders
- Use the paste button to avoid copy-paste or cut-paste into folders
- Use a text file as an intermediate step to strip out formatting
- Right click-rename or f2 and then copy to copy the name of a file instead of the file
- netplwiz or control userpasswords2 to make Windows.. log you in automatically when you power up your computer
- Use Windows' "Preview" for faster previews relative to third-party programs
- USE Ctrl+Shift+Esc or Ctr+Alt+Delete and the "Task Manager" to avoid mousing over or clicking on hazardous URLs

- When sending document files to other computer users, it is best to use the .doc, .xls, and .ppt file formats
- Use printable paper rulers when you need a ruler
- When in doubt, use the right mouse button to click on something
- Ctrl + and Ctrl - to enlarge and reduce the text in most Web pages

- **POWERLINE NETWORKING** (E)

"Powerline networking" has improved greatly in speed and reliability. It is now comparable in speeds to "Gigabit Ethernet" so you can now use it to extend your local network with less of a slowdown relative to "Gigabit Ethernet":

- A live demonstration of a "powerline network" that connects a broadband modem, a router, and an end-user computer
- Extending your existing network with powerline networking transceivers
- Power networking standards: "HomePlug AV2" and "G.hn"
- Reviews of powerline networking devices
- Default "mesh network" configuration
- Setting independent groups of powerline networking transceivers

- **USING ROUTERS WITH "WIRELESS INTERNET SERVICE PROVIDER" (WISP) CAPABILITY** (E)

A router that has "Wireless Internet Service Provider" ("WISP") capability can grab a wireless Wi-Fi signal and repackage the signal in order to provide you with capabilities, cost savings, and security that you otherwise would not have with a wireless Internet service:

- "Wireless Internet Service Provider" (WISP) fundamentals
- "Edimax" routers
- "Netis" routers
- Additional routers with a "WISP" mode

- **CONFIGURING ROUTERS** (E)

Most modern home routers will have an initial default configuration that will work with your broadband modem and your existing computers, tablets, cell phones, and printers. Here are hints for modifying the initial default configuration for your specific networking environment:

- Test the initial default configuration of your router
- Modifying the configuration of your home router
- USB ports on routers
- Checking for "Network-attached Storage" (NAS)

- **ANALYZING AND RESOLVING Wi-Fi PROBLEMS** (E)

To analyze and resolve Wi-Fi problems, you can install free software utility programs for your "Windows.." or Mac "OS X" computer. These programs give you numerical and graphical information that you can use:

- Free Wi-Fi software for your "Windows.." or Mac "OS X" computer
- Received Signal Strength Indication (RSSI)
- Selecting the right Wi-Fi channel

- **RESOLVE BOTTLENECKS IN YOUR LOCAL AREA NETWORK** (E)

To get the best Internet download and upload speeds for your local network, you can use your computer to measure the actual Internet "bandwidth" at different points in your local network. Then you can bypass or replace the troublemaking network devices:

- A demonstration of a real bottleneck in a typical home network
- Big Step 100: Measure
Internet bandwidth at various locations on your home network
- Big Step 200: Measure
local network speeds at various locations on your home network

- **"USB 3" VERSUS "USB 2" VERSUS "eSATA"** (E)
We have all heard the marketing hype about how "USB 3" is 10 times faster than "USB 2". We will show you our "real world"
measurements:
"USB 3" is about 2 to 3 times faster than "USB 2"
and
"USB3" is just a little bit faster than "eSATA".
We will show you the basic facts about these three connection technologies.
We will also tell you about the backward and forward compatibilities and incompatibilities of "USB 3" and "USB 2".

- **WORKAROUNDS FOR FAILURES OF "USB 2" DEVICES ATTACHED TO THE "USB 3" PORTS OF "WINDOWS", MAC "OS X", OR LINUX COMPUTERS** (E)
USB 2 devices sometimes fail when attached to USB 3 ports in Windows, Mac "OS X", and Linux computers. There are two workarounds for this problem:
 - Workaround 1:
Use a cable USB 3 cable that is less than 5 feet in total length.
 - Workaround 2:
Use a powered USB 3 hub at the equipment end of the USB 3 cable.

- **TESTING USB PORTS, CABLES, AND DEVICES** (E)
Using three free software programs, you can test USB ports, cables, and equipment in order to resolve problems:
 - Use the free "USBTreeView" software program to check for basic functioning and stability
 - Use the free "FlashBench" software program to put a "USB 2" or "USB 3" port through a series of real world tests: "Writes" and "Reads" of real files to a USB flash drive, a mechanical hard drive, or a solid state drive
 - Use the free "CrystalDiskMark Portable" software program for more extensive comparison testing

- **USB ADAPTERS FOR ADDING USB PORTS TO AN EXISTING COMPUTER**(E)
PCIe "USB 3" adapters bring the speed increases of "USB 3" to computers that do

not have "USB 3" ports. However, be prepared for a struggle if you attempt to install one into a "Windows.." (or Mac "OS X" or Linux) computer:

- Example of a USB 3 controller
- Installing a USB 3 controller
- Reason for the protracted struggle

- **DATA PRESERVATION ISSUES AND STRATEGIES (B)**

Hard drives and all data storage media, like every other part, of your computer have a 100 percent failure rate. That means that you have to proactively plan ahead in order to avoid the loss of data files and photo files when a hard drive or data storage media eventually fails:

- There are three surviving hard drive manufacturers: Seagate, HGST, and Western Digital
- Reliability data gathered by "BackBlaze" company show that HGST hard drives are more reliable than Western Digital hard drives which are more reliable than Seagate hard drives
- Strategies for dealing with the certainty of hard drive failure:
 - Data File/Folder Backups To Internal and External Hard Drives
 - Redundancy using Microsoft's bundled "Storage Spaces", and "RAID" hard drive arrays.
 - Storing Data Files and Photo Files in the Internet "Cloud" with "OneDrive", "Google Drive", "Box", etc.
 - Imaging of Hard Drives with bundled Microsoft software

- Imaging of Hard Drives with third party software such as "Macrium Reflect Free", "Clonezilla", or "Acronis True Image"
- Data Recovery Software such as "Recuva"
- "Fix when broke" using a cleanroom services such as "DriveSavers" or "OnTrack"

- **MAC "OS X" COMPUTERS AND HOW THEY DIFFER FROM "WINDOWS.." COMPUTERS (B)**

Let's look at the pricing and models AND the user interface of Apple's Mac "OS X" computers and compare them to "Windows.." computers:

- Four Models of Macs
 - "Mac Mini" is a small-form-factor computer
 - "iMac" is an "All in One"
 - "MacBooks" are laptops
 - "Mac Pro" is full-sized tower
- Pricing of Macs
- User Interface of Macs
 - "Menu Bar" is always visible on the top of the screen

- "Dock" is similar to the "Task Buttons" in the center of the Windows.. "Taskbar".
- "Finder" icon in the "Dock" is similar to "Windows Explorer" in "Windows.."
- Keyboard differences
- Running "Windows.." Inside Macs
 - Method 1: Running "Windows.." inside a virtual machine running in "Parallels Desktop", "VMware Fusion", or "Oracle VM VirtualBox".
 - Method 2: Running "Windows.." inside a "Boot Camp" partition

- **MAKING A "MAC MINI" MORE PORTABLE (B)**

A "Mac mini" is usually used as a desktop computer. However, by adding a few accessories to it, a "Mac mini" can travel well with you. When you travel with it, your "Mac mini" can be used as your main portable computer or as a backup for your existing "MacBook" or "Windows.." laptop computer.:

- "Mac mini in a briefcase" concept
- Models of the "Mac mini" computer
- Add a keyboard and a mouse
- Add a portable monitor
- Add a briefcase
- Add a wrap-around case
- Add a USB sound dongle if you need a microphone jack
- Connecting USB devices to a "Mac mini"
- Connecting more than one monitor to a "Mac mini"
- Appendix: History of the "Mac mini"

- **[A COMPARISON OF FREE ANTIVIRUS PROGRAMS \(B\)](#)**

Free antivirus programs are now good enough to meet the needs of most home computer users, and many businesses, and organizational entities:

- A Comprehensive List of Antivirus Programs
- Free Antivirus Programs Versus Not-Free Antivirus Programs
- Criteria For Selecting Antivirus Programs
- Comparison Reviews of Free Antivirus Programs
- Comparison Tests of Antivirus Programs
- "Report Cards" for the Best Free Antivirus Programs
- "**FortiClient**" Versus "**Avast! Free Antivirus**", the Two Best Free Antivirus Programs for "Windows.." Computers
- "**Avast! Free Antivirus**" versus "**Sophos**", the Two Best Free Antivirus Programs for Mac "OS X" Computers

- **[REMOVING "RANSOMWARE" FROM A "WINDOWS.." COMPUTER \(B\)](#)**

"Ransomware" is malware that takes over your computer or part of your computer and offers to give you back access to it when you pay a ransom fee. The more sophisticated instances

of "ransomware" can only be removed by booting up with a bootable "rescue media" CD-R disc, DVD-R disc, or USB flash drive device.

- What is "Ransomware"?
- Proactive Prevention To Prevent "Ransomware" Infections
- Back Up Your Computer and Its Data Files To Avoid The Losses Caused by "Ransomware"
- Reactive Removal of "Ransomware" With "Safe Mode"
- Reactive Removal of "Ransomware" With Bootable Media
- Using Bootable Media For Computers With "UEFI" with "Secure Boot"
- "ICE Cybercrime Center" Ransomware

- **REMOTE DESKTOP CONNECTION (B)**

You can use "Remote Desktop Connection" to operate your "Windows 7", "Windows 8.1" or "Windows 10" computer from another computer or tablet. The "Windows.." computer that is being controlled is usually called the "host computer" or the "remote computer". The computer that you are using to access the "host computer" is usually called the "client computer".

"Client computer" -----> "Host computer"

- For example, if you have Hauppauge's "WinTV" software and one of their USB television tuners running in your "Windows.." computer, you can use "Remote Desktop Connection" to view "WinTV" from your Android tablet or your iPad. The net result is that your Android tablet or your iPad becomes your wireless television set--a wireless television set that you can take outside to your porch or garden.
- For a Windows laptop, desktop, or tablet, you can start "Remote Desktop Connecton" by running mstsc.exe from inside a "Windows Explorer" window, a "File Explorer" window, or an elevated command prompt window.
- For an iPad or iPhone, you can download and install Microsoft's free "Microsoft Remote Desktop" software from the Apple Store
- For an Android tablet or phone, you can download and Microsoft's free "Remote Desktop Connection" from the "Play Store"
- For a Mac "OS X" computer, you can download and install the free "Microsoft Remote Desktop Connection Client for Mac" program from the Apple Store applet

- **MAKING "WINDOWS.." EASIER TO USE BY SHOWING FILE EXTENSIONS AND BY PROVIDING LOGICAL NAMES FOR FILES AND FOLDERS (B)**

All versions of "Windows.." from "Windows 95" to "Windows 8.1" suffer from various problems that Microsoft has inadvertently designed into them. Here are some tips and tricks for making "Windows.." easier to use including turning on the display of file extensions, and providing logical names for files and folders:

- Problems caused by the default of "Hide file extensions of known file types"
- Turning off "Hide file extensions of known file types"

- File and folder naming with year-month-day prepended
- Naming of the files that you send to other "Windows.." computer users

MAKING "WINDOWS 10" EASIER TO USE (E)

To make "Windows 10" easier to use:

- Use the popup "Power User's" Context Menu.
- Make a desktop shortcut to the bundled "Snip & Sketch" tool.
- When you start up a "Windows 10" computer for the first time, it is fairly insistent that you either create or use an existing online "Microsoft Account" (= "Hotmail" account = "Windows Live" account = "OneDrive" account) to log into "Windows 8.1" or

"Windows 10". This is not a good way for a new user of "Windows 10" to start out so you can [follow a few simple steps to create a "local account" instead](#).

- **EXTEND THE USEFULNESS OF YOUR "WINDOWS..", MAC "OS X", OR LINUX COMPUTER WITH PERIPHERAL AND VIRTUAL ADD-ONS** (E)

You can use peripheral and/or virtual add-ons to enhance the usefulness of your computer.

- With the addition of real hardware peripherals such as fax modems, TV tuners, and Webcams, your computer can perform the same functions as real fax machines, TV sets, and video surveillance systems.
- You can use free software to create virtualized computer hardware to massively expand the variety of operating systems and software applications that you can operate.
- By combining virtualized computer hardware and real hardware peripherals, you can obtain synergistic benefits such as super secure Web access.

- **VIRTUAL FAX MACHINE INSIDE YOUR COMPUTER** (E)

You can use a fax modem and fax software instead of a real fax machine:

- [Fax transmission and reception from "Windows.."](#)
- [Fax transmission and reception from Mac "OS X"](#)
- [Fax transmission and reception from "Ubuntu" Linux](#)

- **KARAOKE MACHINES INSIDE YOUR COMPUTER (E)**

You can play free karaoke song files with free karaoke software inside your computer instead of using a real karaoke machine:

- [Karaoke for "Windows.."-Part 1](#)
- [Karaoke for "Windows.."-Part 2](#)
- [Karaoke for Mac "OS X"](#)
- [Karaoke for "Ubuntu" Linux](#)
- [Non-professional Karaoke File Formats: .KAR and .MIDI / .MID](#)
- [Legal Issues and Guidelines for Karaoke](#)

- **TELEVISION INSIDE YOUR COMPUTER (E)**

You can create a working virtual television set inside your computer by installing a television tuner and running television viewing software such as "Windows Media Center", "WinTV", "EyeTV", "Kaffeine", or "TV Time", using a real karaoke machine:

- [TV Inside Your "Windows.." or Mac "OS X" Computer](#)
- [TV Inside Your "Ubuntu" Linux Computer](#)

- **[MAKING THE FREE "LIBREOFFICE" PROGRAM DEFAULT TO THE .DOC, .XLS, AND .PPT FILE FORMATS OF "MICROSOFT OFFICE.."](#)** (B)

The free "LibreOffice" suite of software programs is a great alternative to not-free "Microsoft Office..". However, you should set the various programs inside "LibreOffice" to default to the most common file formats of .DOC, .XLS, and .PPT

in order to have maximum compatibility. Let us show you the steps for making "LibreOffice Writer", "LibreOffice Calc", and "LibreOffice Impress" get along with "Microsoft Word", "Microsoft Excel", and "PowerPoint".

- **TROUBLESHOOTING PRINTER PROBLEMS IN A "WINDOWS.." COMPUTER**

(B)

We will show you how to use various screens in the Windows "Control Panel" and the "Services Console" to troubleshoot and resolve problems in the "print spooler", the "print processor", and the "port monitor" to resolve problems that are more complex than the usually-misleading fixes that are suggested by the "Troubleshoot" wizards that "Windows.." provides for your various printers.

- **TROUBLESHOOTING PRINTER PROBLEMS IN A "MacOS" COMPUTER** (B)

We will show you how to use various screens in the "System Preferences" window and the "Terminal" app to troubleshoot and resolve problems.

- **ACCESSIBILITY IN "WINDOWS 10" AND "WINDOWS 8.1"** (E)

Computer users with special needs will find "Windows 10" and "Windows 8.1" easier to use than prior versions of "Windows..":

- "Narrator" can be turned on during the installation or upgrade process in order to help you install or upgrade from your current version of "Windows XP"/"Windows Vista", or "Windows 7" to "Windows 8.1" or "Windows 10".
- "Magnifier" now works for "High Contrast" themes.
- "Narrator" will now speak any text that you put your finger onto (for tablets and touch screen monitors).
- All accessibility settings can be changed from either the login screen or the legacy Desktop of "Windows 8.1" or "Windows 10"

- **MAINTAINING AND REPAIRING HARD DRIVES FOR WINDOWS COMPUTERS** (E)

When confronted with hard drive problems, you should perform low-risk, less invasive procedures first, followed by increasingly aggressive, higher-risk procedures. As you perform these increasingly invasive procedures, you will either repair the hard drive and return it to service or you will decide that it is beyond economical repair:

- [Always Click on "Cancel" when an "Initialize Disk" box pops up\(unless you have just attached an unformatted hard drive or USB flash drive device to your computer\)](#)
- [Maintenance and Repair Strategy](#)
- ["Error-checking" in "Windows.." to Resolve Bad Clusters](#)
- ["Soft Repairs" with Utilities in Linux](#)

- [Data Recovery with Utilities in Linux](#)

- [Radical "Surgery" to Extend the Life of Failed Hard Drives:](#)

If you are unable to recover the data files from a failed hard drive and its platters are still spinning, you can usually use "Disk Management" in "Windows" to create partitions to "block out" the bad sections of the hard drive, in order to extend the useful life of the hard drive.

- [**USING A LOCAL AREA NETWORK \(LAN\) TO SHARE FILES BETWEEN WINDOWS COMPUTERS, MAC "OS X" COMPUTERS, OR LINUX COMPUTERS**](#)

(I)

If you have "Windows.." and/or Mac "OS X" computers OR "Windows.." and/or Linux computers on your local area network (LAN), you can use a few network tricks to share files between them.

- **USING VIRTUALIZATION OF HARDWARE TO SAVE MONEY, TIME, AND SPACE** (E)

You can save money, space, and time by using the virtual software "devices" to simulate all or part of real, physical equipment:

- "Microsoft Fax" instead of a real fax machine
- A USB TV tuner and "WinTV" or "Windows Media Center" instead of a television set
- The "Virtual CloneDrive" software program instead of a real DVD/CD drive
- Windows' "Internet Connection Sharing" instead of a real router and network switch for sharing the existing network connection of a real Windows computer
- Windows' "Network Bridge" instead of a real network switch or a real network bridge for sharing the existing network connection of a real Windows computer
- Software-based "virtual machines" and "virtual hard drives" instead of real computer hardware and real hard drives.
- Virtual networks and virtual network devices instead of real network devices

- **CHOOSING A VIRTUAL MACHINE PROGRAM FOR YOUR "WINDOWS.." COMPUTER** (B)

There are three free virtual machine programs that you can run inside your "Windows.." computer: "VMware Workstation Player", "Oracle VM VirtualBox", and "Hyper-V". Each of these programs let you create and clone "virtual machines" which are complete software-based computers. Since they are all free, you can run all of them in your "Windows" computer--but not at the same

time. The compelling reasons for picking one of the virtual machine programs are presented to you to help you pick the best one for your needs.

(The presentation slides for all of our presentations on virtual machines are located at

http://aztcs.org/meeting_notes/winhardsig/virtualmachines/virtualmachines-concise.pdf

and

http://aztcs.org/meeting_notes/winhardsig/virtualmachines/comparison-vm-programs.pdf

and http://aztcs.org/meeting_notes/winhardsig/virtualmachines/virtualmachines-longterm.pdf

and

http://aztcs.org/meeting_notes/winhardsig/win8/win8-Hyper-V.pdf

- **BENEFITS OF USING VIRTUAL MACHINES** (E)

Let us show you how virtual machines can save you time, money, and space. You can use “virtual machines” to perform activities that you would otherwise have to do with real computers. When you use virtual machines in free "virtual machine programs", it is like getting a pile of computers to use for free with all of them residing inside your existing physical "host" computer. When you run virtual machine programs, you can use fewer real computers because you can create “virtual machines” instead of keeping old computers around or buying additional new computers.

- **INSTALLING A "VIRTUAL MACHINE PROGRAM" INTO YOUR "WINDOWS" COMPUTER** (I)

We have created detailed step-by instructions to help you to install the following two free "virtual machine programs" into your "Windows" computer: "VMware Workstation Player", and "Oracle VM VirtualBox". We will demonstrate the actual installation of one or more these amazing programs into a "Windows 7" computer.

- **FREE SOFTWARE VERSUS FREE SERVICES** (B)

For any given computer function, you often have both free software and free Web-based "software as a service" services to choose from. Free software has the advantage of not requiring an Internet connection. Free Web-based services have the advantage of storing automatically on the Web to save you hard drive space. But to run a free Web-based service, your computer has to be connected to the Internet and the Internet connection can act as a bottleneck for the creation and editing of larger data files. Let's compare free software and free online services for doing word processing, spreadsheets, presentation creation, video frame capture, and karaoke music.

- **[FREE ONLINE COMPUTER TRAINING](#)** (E)
Your computer and its Internet connection can provide you with hundreds of hours of free training that you can access in the comfort of your home. The Tucson Computer Society has a collection of categorized hyperlinked shortcuts to Web sites that have free computer training. These shortcuts include free training from the Web sites of Adobe and Microsoft. You also can get free and non-free training from the Web sites of training organizations such as Lynda.com, Hewlett Packard, SeniorNet, Oasis, and various public libraries.

- **[KARAOKE MUSIC FOR FREE](#)** (B)
"Karaoke" means displaying the timed lyrics while playing the instrumental "backing tracks" for music that someone (you!) has to sing. Instead of buying karaoke machines and karaoke CD+G discs, you can run karaoke for free in your "Windows" computer. There are two ways for you to do this: you can use your Web browser to visit various karaoke Web sites and you can download and run various free software programs for playing karaoke. Let's demonstrate both ways of doing karaoke for free:
 - The karaoke Web sites that we will visit are:
["Divtune's Albums"](#) at the Vimeo.com Web site,
[RedKaraoke.com](#),
[KaraokeHaven.com](#),
and
[Cantanding.com](#)
 - The free software programs that we will demonstrate are:
[GoSing](#),
[VanBasco's Karaoke Player](#),

and
[KaraFun Player](#).

- **WEBCAMS AND RELATED FREE SOFTWARE AND SERVICES** (E)

We will show you how a webcam can be used for:

- Voice and video calling with the free versions of Skype, Windows Live Messenger, or Google Video Chat
- Interactive games that require a Webcam
- Taking still photos using free software and free Web-based services
- Free software for doing frame grabs from video files
- Free Internet-based video recording and surveillance
- Free video motion detection and recording for home and business security

- **SPEEDING UP "WINDOWS 7"** (I)

We have prepared extensive step-by-step instructions for you to use to speed up your "Windows 7" computer(s). We will use an actual "Windows 7" virtual machine to show you how to use the "System" applet in the control panel to perform various speedup tweaks including "supersizing" the virtual memory "swap file". Then we will show you how to run "services.msc" in "Microsoft Management Console" to turn off

and disable unneeded services, which will massively speed up your "Windows 7" computer.

- [**SPEEDING UP "WINDOWS VISTA" \(I\)**](#)

We have prepared extensive step-by-step instructions for you to use to speed up your "Windows Vista" computer(s). We will use an actual "Windows Vista" virtual machine to show you how to use the "System" applet in the control panel to perform various speedup tweaks including "supersizing" the virtual memory "swap file". Then we will show you how to run "services.msc" in "Microsoft Management Console" to turn off and disable unneeded services, which will massively speed up your "Windows Vista" computer.

- [**SPEEDING UP "WINDOWS 8.1" \(I\)**](#)

We have prepared extensive step-by-step instructions for you to use to speed up your "Windows 8.1" computer(s). We will use an actual "Windows 8.1" virtual machine to show you how to use the "System" applet in the control panel to perform various speedup tweaks including "supersizing" the virtual memory "swap file". Then we will show you how to run "services.msc" in "Microsoft Management Console" to turn off and disable unneeded services, which will speed up your "Windows 8.1" computer.

- [**SPEEDING UP "WINDOWS 10" \(I\)**](#)

We have prepared extensive step-by-step instructions for you to use to speed up your "Windows 10" computer(s). We will use an actual "Windows 10" virtual machine to show you how to use the "System" applet in the control panel to perform various

speedup tweaks including "supersizing" the virtual memory "swap file". Then we will show you how to run "services.msc" in "Microsoft Management Console" to turn off and disable unneeded services, which will speed up your "Windows 10" computer.

- **[TURN OFF STARTUP PROGRAMS TO SPEED UP YOUR "WINDOWS" COMPUTER](#)** (1)

To get even more speed out of your "Windows XP", "Windows Vista", "Windows 7", "Windows 8.1" or "Windows 10" computer, you can to edit the registry to disable some of the "startup programs" that your software programs put into your computer:

- For "Windows 7", "Windows 8.1", or "Windows 10" computers, you can run "Regedit.exe" to "REM" out the registry keys that start up programs inside the "Run" folders in the registry.
- For "Windows XP" and "Windows Vista" computers, you can also perform these same registry edits using "Regedit.exe".
- For "Windows XP" and "Windows Vista" computers, you can also run the "Software Explorer" inside "Windows Defender", instead of running "Regedit.exe".
- Using various virtual machines running "Windows XP", "Windows Vista", "Windows 7", "Windows 8.1", or "Windows 10", we will show you how to make

these various tweaks. We have prepared extensive step-by-step instructions for you to use for all of these versions of "Windows..".

- **[SHARING FILES AND PRINTERS BETWEEN "WINDOWS 10", "WINDOWS 8.1", "WINDOWS 7", "WINDOWS XP", AND "WINDOWS VISTA" COMPUTERS](#)** (E)

When you need to share files and/or printers between "Windows 7" computers and computers running earlier versions of "Windows..", you have to use traditional file/printer sharing instead of "homegroups". You might also have to use IP addresses to "kick start" the sharing process. Using virtual machines running "Windows 10", "Windows 8.1", "Windows 7", "Windows Vista", and "Windows XP", we will show you how file and printer sharing can be done between disparate versions of "Windows..".

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