SECURE WEB ACCESS WITH A "VMWARE" VIRTUAL MACHINE AND A TWO-ROUTER "DE-MILITARIZED ZONE" ("DMZ")

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Web location for this presentation:
http://aztcs.org
Click on “Meeting Notes”
SUMMARY
From inside a "VMware" virtual machine that connects with a USB-to-Gigabit Ethernet adapter to a two-router "De-Militarized Zone" (DMZ), you can access the Internet with the maximum amount of protection from malware.
Demo: This presentation is being made from within a "Windows 7.." virtual machine that is connected by means of a USB-to-Gigabit Ethernet Adapter to a Two-Router De-Militarized Zone (DMZ).
The "Windows 7.." virtual machine is a single window inside my "Windows 8.." host computer:
Association of Personal Computer User Groups

Our mission is to provide assistance and resources to member organizations.

- User Groups
- Technical Groups
- All member Groups

We are here to serve ALL.

User Group News

UGLS Instructions
Please download these UGLS Instructions to learn how to update your User Group's records, so that the proper officers will receive information from APCUG.

Featured in Cleveland Business Connects Magazine
The Greater Cleveland PCUG and its SIG, the Web Development Special Interest Group, Cleveland were featured in Cleveland Business Connects Magazine, distributed monthly to 20,000 businesses in Northeast Ohio. Click here to read the article.

APCUG News

January 23
APCUG Reports Q1 2013
APCUG Reports issue Q1 is now available online here. It contains articles on Data Privacy Day 2013, Bring Back The Fun Into User Group Meetings, Newsletter The Heartbeat Of Your User Group, Why Drupal?, Is That Computer Ready For The Meeting?, User Groups Tips, plus various conferences, member group activities, & other APCUG information. The issue contains regional reports from ten regions. See what is happening in other User Groups around the world.
Open up the "Network and Sharing Center" inside the "Windows 7.." virtual machine:
FileZilla.exe - Shortcut

VMware Player

Sample.doc

Sample.txt

Network and Sharing Center

Control Panel Home
Change adapter settings
Change advanced sharing settings

View your basic network information and set up connections

WIN7ENTTRI64DMZ
(This computer)

Network 2

Internet

See also
HomeGroup
Internet Options
Windows Firewall

View your active networks

Connect or disconnect

Access type:
HomeGroup:
Connections:

Internet
Ready to create
Local Area Connection 3

Change your networking settings
Click on "Change adapter settings":
A "Network Connections" windows will be displayed:
Note that the regular virtual network adapter has been disabled:
Use the RIGHT mouse button to click on the "USB-to-Gigabit Ethernet" adapter:
Click on "Properties" in the pop-up context menu:
A "Properties" box will be displayed for the USB-to-Gigabit Ethernet adapter:
USB 2.0 to Gigabit Ethernet Network Adapter

Add Gigabit Ethernet speed to any USB 2.0 compatible Desktop or Laptop

- IEEE 802.3, 802.3u and 802.3ab compatible with link speeds of 10, 100 and 1000 Mbps
- USB Powered; No additional adapters required
- Supports Full and Half duplex

Compatible with Windows® 2000/XP/Vista®/7/Server 2003/2008 R2/Mac® OS 10.4+

Made in China

USB21000S
Explanation of the Demo:
The virtual machine connects by means to a USB-to-Gigabit Ethernet Adapter to a Two-Router DMZ for secure Internet access. This configuration blocks the access of malware to the other computers in my local network.
Two Problems With Accessing the Internet From a Typical "Windows.." Computer

Problem 1: When you add a real or virtual "Windows.." computer to an existing local area network, "Windows.." automatically defaults to file sharing. File sharing provides an "attack vector" for any malware that finds its way into your computer when you are accessing the Internet.
Two Problems With Accessing the Internet.. (continued)

• Problem 2: Even when you proactively turn off file sharing in various configuration screens in "Windows..", it is easy for the unsuspecting end-user or malware from the Internet to turn it back on.
Physical configuration diagram for an unsecure, default virtual machine:
Real Host Computer Runs "Windows 8.1"

"VMware Player" Software Program

"Windows 10" Virtual Machine

Virtual Ethernet Adapter of the Virtual Machine

Virtual Router

Network Address Translator

Network Switch

Real Ethernet Adapter of the Host Computer

Virtual Ethernet Adapter VMNet8 for host
Logical configuration diagram for an insecure, default virtual machine:
Internet

Broadband Modem

Cat 5/5e/6/6a Cable

Router 2

WAN side

Network Address Translator

Network Switch

LAN side

Virtual Router

Network Address Translator

Network Switch

Virtual Ethernet Adapter

Virtual Ethernet Adapter of the Virtual Machine

"Windows 10" Virtual Machine

Real Ethernet Adapter of the Host Computer

Real Host Computer Runs "Windows 8.1"

Virtual Ethernet Adapter VMNet8 for the host computer

Real Ethernet Adapter of the Host Computer

Cat 5/5e/6/6a Cable

Virtual Ethernet Adapter

Real Host Computer
Simplified, logical configuration diagram for an unsecure, default virtual machine:
Internet

Broadband Modem

Router 2

WAN side

Network Address Translator

Network Switch

LAN side

Real Ethernet Adapter of the Host Computer

Virtual Router

"Windows 10" Virtual Machine

Virtual Ethernet Adapter of the Virtual Machine

Real Host Computer Runs "Windows 8.1"

Virtual Ethernet Adapter VMNet8 for the host computer

Real Ethernet Adapter of the Host Computer

Virtual Ethernet Adapter
Further, simplified, logical configuration diagram for an unsecure, default virtual machine:
"Windows 10" Virtual Machine

Virtual Ethernet Adapter of the Virtual Machine

Real Host Computer Runs "Windows 8.1"

Virtual Ethernet Adapter VMNet8 for the host computer

Router 2

WAN side

Network Address Translator

Network Switch

LAN side

Virtual Router

Network Address Translator

Network Switch

Internet

Broadband Modem

WAN side

Virtual Router

LAN side

Virtual Ethernet Adapter

"Windows 10" Virtual Machine

Real Host Computer Runs "Windows 8.1"
"De-Militarized Zone" (= "DMZ")
Using A Second Router Interjected Into An Existing Local Network": 
To make the network more secure: Insert a second "Secure" router between the current router and the host computer. Insert a "USB to .." network adapter between the virtual machine and the original router. Disconnect the virtual Ethernet adapter of the virtual machine.
Reference:
https://www.grc.com/nat/nat.htm
Physical configuration diagram for the "Secure Web" virtual machine:
Internet

"VMware Player" Software Program

"Windows 10" Virtual Machine

Real Host Computer

"Windows 8.1" Virtual Machine

Real Ethernet Adapter of the Host Computer which runs "Windows 8.1"
Logical configuration diagram for the "Secure Web" virtual machine:
Internet

"Windows 10" Virtual Machine

Real Ethernet Adapter of Host Computer Runs "Windows 8.1"

Real USB to Gigabit Ethernet Adapter

Router 1

WAN side

LAN side

Network Address Translator

Network Switch

DMZ

Router 2

WAN side

LAN side

Network Address Translator

Network Switch

Secure Local Network

Cat 5/5e/6/6A Cable

Broadband Modem

"Secure Local Network"

"Windows 10" Virtual Machine

Network Address Translator

Network Switch

DMZ

Real Host Computer Runs "Windows 8.1"

Real USB to Gigabit Ethernet Adapter

USB Cable

Cat 5/5e/6/6A Cable
The virtual "NAT Router that is provided by "VMware Player" is not in use:
Simplified, logical configuration diagram for the "Secure Web" virtual machine:
Internet

USB Cable

Cable Cat 5/5e/6/6A

“Windows 10” Virtual Machine

Virtual USB Port of “Windows 10” Virtual Machine

Host Computer

Real Ethernet Adapter of Host Computer

“Windows 7” Host Computer

Router 1

WAN side

LAN side

Network Address Translator

Network Switch

DMZ

Router 2

WAN side

LAN side

Network Address Translator

Network Switch

Secure Local Network

Cat 5/5e/6/6a Cable

Broadband Modem

WAN side

LAN side

WAN side

LAN side

DMZ

Virtual USB Port of “Windows 10” Virtual Machine

USB Cable
A Four-Part Solution for Secure Web Access

- Solution Part 1: Disconnect the default virtual Ethernet network adapter of the virtual machine.
- Solution Part 2: Provide the virtual machine with a USB-to-Gigabyte Ethernet adapter.
A Four-Part Solution for Secure Web Access (continued)

- Solution Part 3: Add an extra router to your local network in order to create a two-router "De-Militarized Zone" (DMZ).
Solution Part 4: Connect the virtual machine to the two-router De-Militarized Zone (DMZ), using the USB-to-Gigabit Ethernet adapter that you installed in "Solution Part 2".
Solution Part 1: Disconnect the default virtual Ethernet network adapter of the virtual machine:

- Disconnect the default virtual network adapter of the virtual machine in order to prevent end-users and malware from accessing the various virtual routers that could connect the virtual machine to other computers on your local network:
Solution Part 1, Step 101: Start VMware Player:
Solution Part 1, Step 102: The "VMware Player" window will be displayed:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

Upgrade to VMware Workstation
Get advanced features such as snapshots, developer tool integration, and more.

Help
View VMware Player's help contents.

This product is not licensed and is authorized for non-commercial use only. For commercial use, purchase a license. Buy now.
Solution Part 1, Step 103: The "VMware Player" window will be displayed:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

Upgrade to VMware Workstation
Get advanced features such as snapshots, developer tool integration, and more.

Help
View VMware Player’s help contents.

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Solution Part 1, Step 104: Click once on the virtual machine that you wish to use:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

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Solution Part 1, Step 105: Click once on "Edit virtual machine settings":

Solution Part 1, Step 106: Click once on "Network Adapter":

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## Virtual Machine Settings

### Hardware

<table>
<thead>
<tr>
<th>Device</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>4.9 GB</td>
</tr>
<tr>
<td>Processors</td>
<td>4</td>
</tr>
<tr>
<td>Hard Disk (SCSI)</td>
<td>360 GB</td>
</tr>
<tr>
<td>CD/DVD (IDE)</td>
<td>Using file L:\Archive.par\Win...</td>
</tr>
<tr>
<td>Floppy</td>
<td>Auto detect</td>
</tr>
<tr>
<td>Network Adapter</td>
<td>NAT</td>
</tr>
<tr>
<td>USB Controller</td>
<td>Present</td>
</tr>
<tr>
<td>Sound Card</td>
<td>Auto detect</td>
</tr>
<tr>
<td>Printer</td>
<td>Present</td>
</tr>
<tr>
<td>Display</td>
<td>Auto detect</td>
</tr>
</tbody>
</table>

### Memory

Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.

**Memory for this virtual machine:** 5048 MB

- Maximum recommended memory (Memory swapping may occur beyond this size.) 13684 MB
- Recommended memory 2048 MB
- Guest OS recommended minimum 1024 MB

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[Image of Virtual Machine Settings window with detailed settings.]
Solution Part 1, Step 107: Select the "LAN Segment" option button in the "Network Connection section:
Solution Part 1, Step 108: Click on the "LAN Segments.." button:
Solution Part 1, Step 109:
A "Global LAN Segments" box will be displayed:
Solution Part 1, Step 110: Click on the "Add" button of the "Global LAN Segments" box:
Solution Part 1, Step 111:
A new LAN Segment will be displayed:
Solution Part 1, Step 112:
Click on the "Rename" button:
Global LAN Segments

Global LAN Segments:
LAN Segment 1

Add  Rename  Remove
OK     Cancel
Solution Part 1, Step 113: Provide the new LAN segment with an appropriate name such as "Virtual LAN segment for isolating the "Windows 7 Enterprise Trial" 64-bit virtual machine created on 2013-02-04".
Virtual LAN segment for isolating the "Windows 7 Enterprise"
Solution Part 1, Step 114:
Click on the "OK" button of the "Global LAN Segments" box:
Global LAN Segments:

Virtual LAN segment for isolating the "Windows 7 Enterprise"
Solution Part 1, Step 115:
Click on the "OK" button of the "Virtual Machine Settings" box:
Solution Part 2: Provide the virtual machine with a USB-to Gigabit Ethernet adapter

- Provide the virtual machine with a USB-to-Gigabit Ethernet adapter:
Solution Part 2, Step 201: (For your information, in "Solution Part 4", you will perform two actions:
Action 1: Disconnect the Ethernet side of the adapter from the router that the host computer is connected to and connect it to a new router that provides a "De-Militarized Zone" (DMZ) for isolating the host computer and other computers from harmful malware.
Action 2: You will be virtually disconnecting this USB-to-Gigabit Adapter from the host computer and then connecting it to a virtual machine that will be used for secure Internet access.
Solution Part 2, Step 201: Follow the manufacturer's instructions to install the USB-to-Gigabit Ethernet adapter into your real, physical computer. During this initial installation, you will be using a Cat 5/5e/6 cable to TEMPORARILY connect the network jack of the USB-to-Gigabit Ethernet adapter to an active LAN port on the router that your host computer is currently attached to:
Solution Part 3: Add an extra router...(continued)

- Despite marketing claims by router manufacturer's that you can have a DMZ inside a single router by doing "port forwarding" inside a single router, you need TWO separate routers in order to create a secure DMZ.
Solution Part 3: Add an extra router to your local network in order to create a two-router "De-Militarized Zone" (DMZ)

- Despite marketing claims by router manufacturer's that you can have a DMZ inside a single router by doing "port forwarding" inside a single router, you need TWO separate routers in order to create a secure DMZ.
Solution Part 3: Add an extra router..(continued)

• The basic configuration for a two-router DMZ is as follows:
Solution Part 3: Add an extra router..(continued)

• After you add in the second router, your network configuration, which will now have a DMZ, will be as follows:
Solution Part 3: Add an extra router...(continued)

- Configure the two routers so that they do not use the same private IP addresses:
Internet

Broadband Modem

Router 1

WAN side

LAN side

Network Address Translator

Network Switch

DMZ

Router 2

WAN side

LAN side

Network Address Translator

Network Switch

Secure Local Network

192.168.1.50
192.168.1.51
192.168.1.52
192.168.1.53
192.168.1.54
e tc.

192.168.2.50
192.168.2.51
192.168.2.52
192.168.2.53
192.168.2.54
e tc.
Solution Part 4: Connect the virtual machine to the two-router "De-Militarized Zone" (DMZ)

- Connect the "VMware" virtual machine to a two-router "De-Militarized Zone" (DMZ), using the USB-to-Gigabit Ethernet adapter that you installed in "Solution Part 2".
Physical configuration diagram for the "Secure Web" virtual machine:
Internet

Broadband Modem

"VMware Player" Software Program

"Windows 7" Virtual Machine

Real USB to Gigabit Ethernet Adapter

Virtual USB Port of "Windows 7" Virtual Machine

Real Host Computer

Router 1

WAN side

Network Address Translator

Network Switch

DMZ

Router 2

WAN side

Network Address Translator

Network Switch

Secure Local Network

Cat 5/5e/6 Cable

Real Ethernet Adapter of Host Computer

Real USB to Gigabit Ethernet Adapter

USB Cable

Cat 5/5e/6 Cable

Router 1 LAN side

Real Ethernet Adapter of Host Computer

Router 2 WAN side

DMZ
Logical configuration diagram for the "Secure Web" virtual machine:
Internet

Broadband Modem

Real USB to Gigabit Ethernet Adapter

Router 1

WAN side

Network Address Translator

Network Switch

DMZ

LAN side

Network Address Translator

Network Switch

Router 2

WAN side

Secure Local Network

Cat 5/5e/6 Cable

LAN side

Real Ethernet Adapter of Host Computer

"Windows 7" Virtual Machine

Virtual USB Port of "Windows 7" Virtual Machine

USB Cable

Real Host Computer
Solution Part 4, Step 401: Use a Cat 5/5e/6 cable to connect the USB-to-Gigabit Ethernet adapter to a LAN jack on the router that is part of the "De-Militarized Zone" (DMZ)
Solution Part 4, Step 402: Start VMware Player:
Solution Part 4, Step 403: A "VMware Player" window will be displayed:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

Upgrade to VMware Workstation
Get advanced features such as snapshots, developer tool integration, and more.

Help
View VMware Player’s help contents.

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Solution Part 4, Step 404: Click once on the virtual machine that you wish to use:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

Upgrade to VMware Workstation
Get advanced features such as snapshots, developer tool integration, and more.

Help
View VMware Player’s help contents.

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Solution Part 4, Step 405: Click once on "Play virtual machine": 
Solution Part 4, Step 406: If a "A USB device is about to be unplugged.." message pops up, click once on its "OK" button:
A USB device is about to be unplugged from the host and connected to this virtual machine. It will first be stopped to enable safe removal. With some devices, the host may display the message "The device can now safely be removed."

Do not show this message again

OK  Cancel
Solution Part 4, Step 407: If a "Removable Devices" message pops up, click once on its "OK" button:
The following devices can be connected to this virtual machine using the status bar or choosing VM > Removable Devices:

- Hauppauge WinTV HVR-950
- ASMedia AS2105
- ASMedia AS2105
- Realtek USB 2.0-CRW
- ASIX AX88178 (connected to Windows 7 Ent Trial x64 D...)

Each device can be connected either to the host or to one virtual machine at a time.

[ ] Do not show this hint again

OK
Solution Part 4, Step 408: Click on the "Player" button:
Solution Part 4, Step 409: Click on "Removable Devices":
Solution Part 4, Step 410: Click on the USB-to-Gigabit Adapter:
Solution Part 4, Step 411:
Click on
"Connect (Disconnect from host)"
Solution Part 4, Step 412:
Click on the "OK" button of the "A USB device is about to be unplugged.." warning:
A USB device is about to be unplugged from the host and connected to this virtual machine. It will first be stopped to enable safe removal. With some devices, the host may display the message "The device can now safely be removed."

☐ Do not show this message again

[OK] [Cancel]
Solution Part 4, Step 413: Follow the manufacturer's instructions for installing the USB-to Gigabit Ethernet adapter into the virtual machine.
Solution Part 4, Step 414:
If you need to attach a CD to the virtual machine: Click on "Player", click on "Removable Devices", click on "CD", click on "Settings", etc.
Solution Part 4, Step 415: Double-click on "Network and Sharing Center" in the "Control Panel":
Adjust your computer's settings

- Fonts
- Getting Started
- HomeGroup
- Indexing Options
- Internet Options
- Keyboard
- Location and Other Sensors
- Mouse
- Network and Sharing Center
- Notification Area Icons
- Parental Controls
- Performance Information and Tools
- Personalization
- Phone and Modem
- Power Options
- Programs and Features
- Recovery
- Region and Language

New updates are available
Click to install them using Windows Update.
Solution Part 4, Step 416: Click on "Change adapter settings":
Solution Part 4, Step 417: Make sure that the default virtual network adapter remains disabled since you disabled it in "Solution Part 1": 
Solution Part 4, Step 418: Use the RIGHT mouse button to perform a click on the USB-to-Gigabit Ethernet adapter:
Solution Part 4, Step 419: Click on "Status" in the popup context menu:
Solution Part 4, Step 420: Check the Internet and local network status of the "USB-to Gigabyte Ethernet" adapter:
Solution Part 4, Step 421: Close the "Local Area Connection..Status" window by clicking on the "x" button in its upper-right corner:
### General

**Connection**
- IPv4 Connectivity: Internet
- IPv6 Connectivity: No network access
- Media State: Enabled
- Duration: 00:02:18
- Speed: 1.0 Gbps

**Activity**

<table>
<thead>
<tr>
<th>Sent</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,575</td>
<td>19,297</td>
</tr>
</tbody>
</table>
Solution Part 4, Step 422: Shut down the virtual machine.
Solution Part 4, Step 423: Close the "VMware Player" windows by clicking on the "x" button in its upper-right corner:
Welcome to VMware Player

Create a New Virtual Machine
Create a new virtual machine, which will then be added to the top of your library.

Open a Virtual Machine
Open an existing virtual machine, which will then be added to the top of your library.

Upgrade to VMware Workstation
Get advanced features such as snapshots, developer tool integration, and more.

Help
View VMware Player’s help contents.

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Solution Part 4, Step 424:
Look at the Taskbar bar of the host computer and make sure that no additional "VMware" virtual machines and no additional copies of "VMware Player" are turned on. If you find a VMware Player "Task button", double-click on it and turn off the corresponding VMware virtual machine or copy of "VMware Player".
Solution Part 4, Step 425:
Start the "Control Panel":
Getting Started
Connect to a Projector
Remote Desktop Connection
Sticky Notes
Snipping Tool
Calculator
Paint
XPS Viewer
Windows Fax and Scan
Magnifier

All Programs

Search programs and files

Shut down

Control Panel
Devices and Printers
Default Programs
Help and Support

Computer
Solution Part 4, Step 426: Double-click on "Network and Sharing Center": 
Adjust your computer’s settings

- Location and Other Sensors
- Mouse
- Network and Sharing Center
- Notification Area Icons
- Parental Controls
- Performance Information and Tools
- Personalization
Solution Part 4, Step 427:
Note that in this example, "Network and Sharing Center" is showing the existence of three networks:

"Network" is the original network that is connected to the motherboard-based net. "Network 4" is the USB-to-Gigabit Ethernet adapter which is still connected to the DMZ. (We need to disconnect "Network 4" ASAP for safety.) "Unidentified network" is the 4 virtual networks that are provided by the "VMware Player" virtual machine program.
Solution Part 4, Step 428:
Click on "Change adapter settings":

Solution Part 4, Step 429: A "Network Connections" window will be displayed:
Solution Part 4, Step 430: 
Use the RIGHT mouse button to click on the "USB-to-Gigabit Ethernet" adapter:
Solution Part 4, Step 431:
A popup context menu will be displayed:
Solution Part 4, Step 432:
Click on "Disable" in the popup context menu:
Solution Part 4, Step 433: The USB-to-Gigabit Ethernet adapter will now show a status of "Disabled":
Solution Part 4, Step 434: Close the "Network Connections" window by clicking on the "x" button in its upper-right corner:
Solution Part 4, Step 435: Close the "Control Panel" window by clicking on the "x" button in its upper-right corner:
Adjust your computer’s settings

- Action Center
- AutoPlay
- Color Management

View by: Large icons

- Administrative Tools
- BitLocker Drive Encryption
- Credential Manager
This Scheme for Secure Web Access Does Not Work Well With Other "Virtual Machine Programs"

- While we have had great success with virtual machines running inside of "VMware Player" and "VMware Workstation", we have not had no success with other "Virtual Machine Programs":

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This Scheme for Secure Web Access Does Not Work Well With Other "Virtual Machine Programs" (continued)

- "Hyper-V" (which is bundled with "Windows 8 Pro" and "Windows 8 Enterprise") has no direct support for connecting USB devices to virtual machines so it is not possible to attach a virtual machine in "Hyper-V" to an external USB-to-Gigabit Adapter".
This Scheme for Secure Web Access Does Not Work Well With Other "Virtual Machine Programs" (continued)

- "Windows Virtual PC" (which is available for free in "Windows 7 Professional" and "Windows 7 Enterprise") has no direct support for connecting USB devices to virtual machines so it is not possible to attach a virtual machine in "Windows Virtual PC" to an external USB-to-Gigabit Adapter".
This Scheme for Secure Web Access Does Not Work Well With Other "Virtual Machine Programs" (continued)

- "Oracle VM VirtualBox" (which runs in "Windows XP", "Windows Vista", "Windows 7", "Windows 8", and Mac OS X) has unreliable support for connecting USB devices to virtual machines so we have found it too much of a challenge to attach a virtual machine in "Oracle VM VirtualBox" to a USB-to-Gigabit Ethernet adapter.
StarTech's model USB21000S works well with "Windows 8" computers, even through it does not say so on the box. It also worked well in our Macs:
USB 2.0 to Gigabit Ethernet Network Adapter

Add Gigabit Ethernet speed to any USB 2.0 compatible Desktop or Laptop

- IEEE 802.3, 802.3u and 802.3ab compatible with link speeds of 10, 100 and 1000 Mbps
- USB Powered; No additional adapters required
- Supports Full and Half duplex

Compatible with Windows® 2000/XP/Vista®/7/Server 2003/2008 R2/Mac® OS 10.4+

Made in China
Compatible with Windows® 2000/XP/Vista®/7/Server 2003/2008 R2/Mac®OS 10.4+
USB-to-Ethernet Adapters

• SIIG's model JU-NE0111-S1U works well with "Windows 8" and Mac "OS X" computers, even through it does not say so on the box:
- Supports 10/100/1000 Mbps auto-sensing capability
- Supports Auto MDIX (straight and cross network cable auto-detection)
- Compatible with IEEE 802.3, 802.3u and 802.3ab
- Supports full-duplex and half-duplex operation

USB 2.0 Gigabit Ethernet

Adds a Gigabit Ethernet 10/100/1000 Mbps port to your USB enabled system

USB 2.0 Gigabit Ethernet is a trademark of SIIG, Inc. SIIG and SIIG logo are registered trademarks of SIIG, Inc. All other trademarks belong to their respective owners. Visit our website at www.siig.com for more warranty, support and product information!
USB-to-Ethernet Adapters

• Apple's model A1277 works well with "Windows 7" and "Windows 8", even through it does not say so on the box. See http://store.apple.com/us/product/MC704ZM/A/apple-usb-ether-net-adaptor#overview-5:
USB-to-Ethernet Adapters

- "Windows.." drivers for Apple's model A1277 are available at http://tnkgrl.wordpress.com/2008/02/10/windows-drivers-for-apple-usb-ethernet-adapter/
Apple USB Ethernet Adaptor

Easily connect your MacBook Air computer to an Ethernet network with the Apple USB Ethernet Adaptor. Small and light, it connects to the USB 2.0 port of your MacBook Air and provides an RJ-45 connector that supports 10/100BASE-T performance.
REFERENCES AND ADDITIONAL READING:

• http://www.grc.com/nat/nat.htm
• http://en.wikipedia.org/wiki/DMZ_(computing)
• http://www.boutell.com/newfaq/creating/dmz.html