NORTH AMERICAN UNIVERSITY
INSPIRATION INNOVATION GLOBAL COMPETENCE

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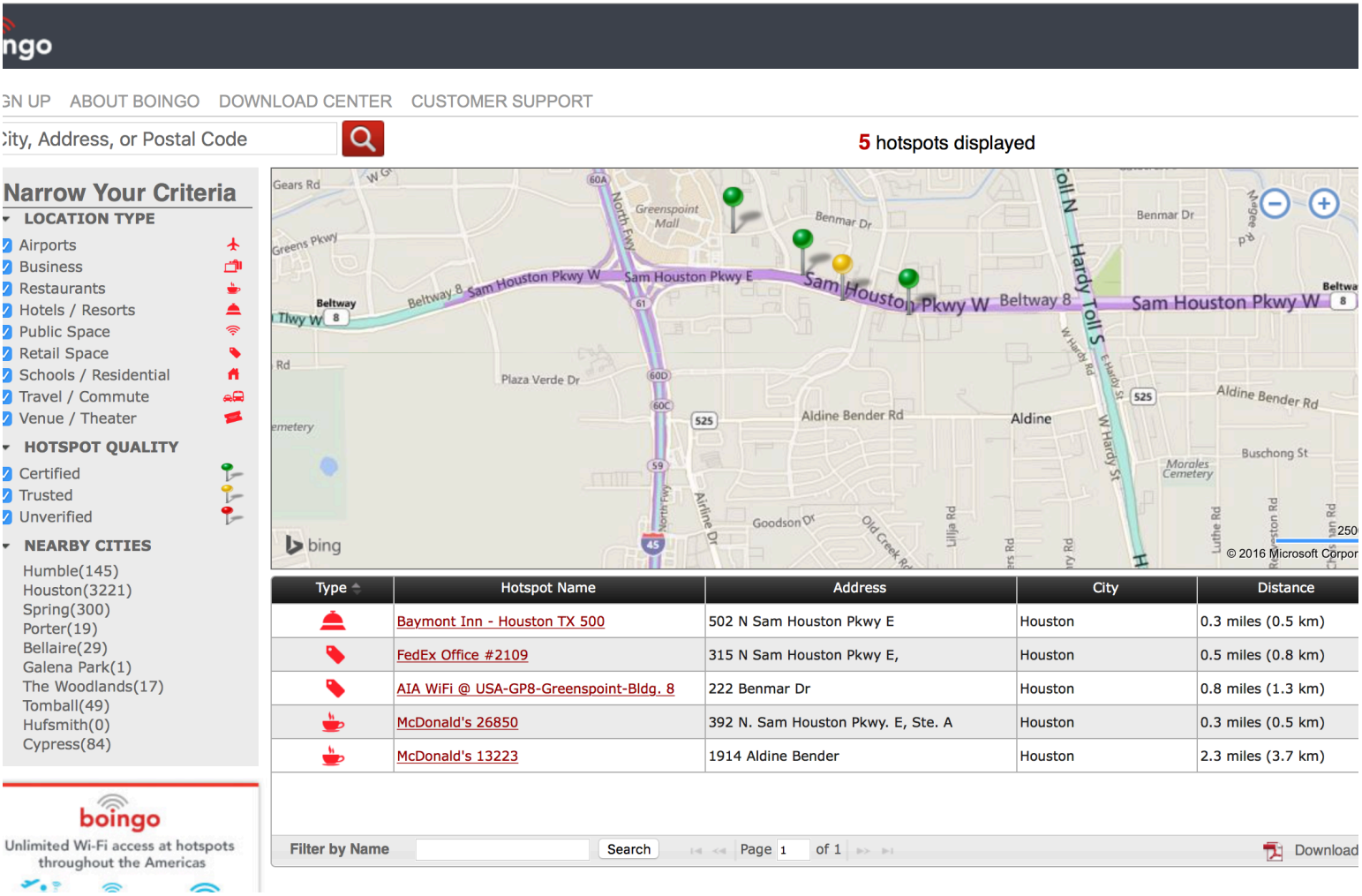
COMP 4358 HOMEWORK #1 Ch 1 and Ch 2 (Due: 2/7/2016)

Chapter 1

Locate area hotspots with different internet tools available to locate both free and fee- based hotspots. In this project you use one of those tools on the web to find hotspots in your area (zip code).



a. Under Hotspot name, click one of the links to a hotspot. What type of information appears? Would this be useful in locating and connecting to that hotspot?

Hotspot Location

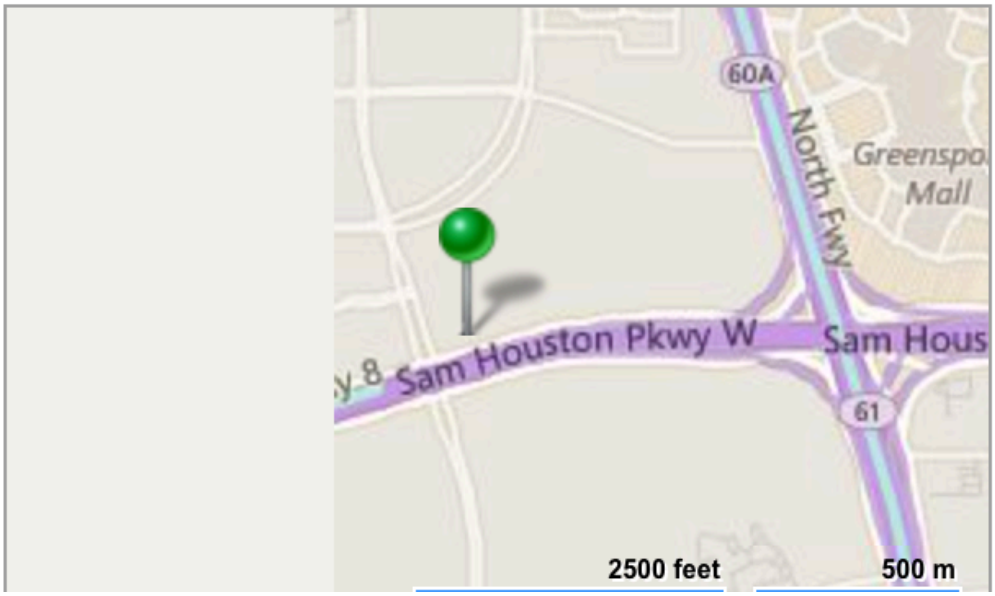
Address	315 N Sam Houston Pkwy E, Houston, Texas 77060 United States Get Directions to this Hotspot >
Phone Number	Not Provided

Hotspot Details

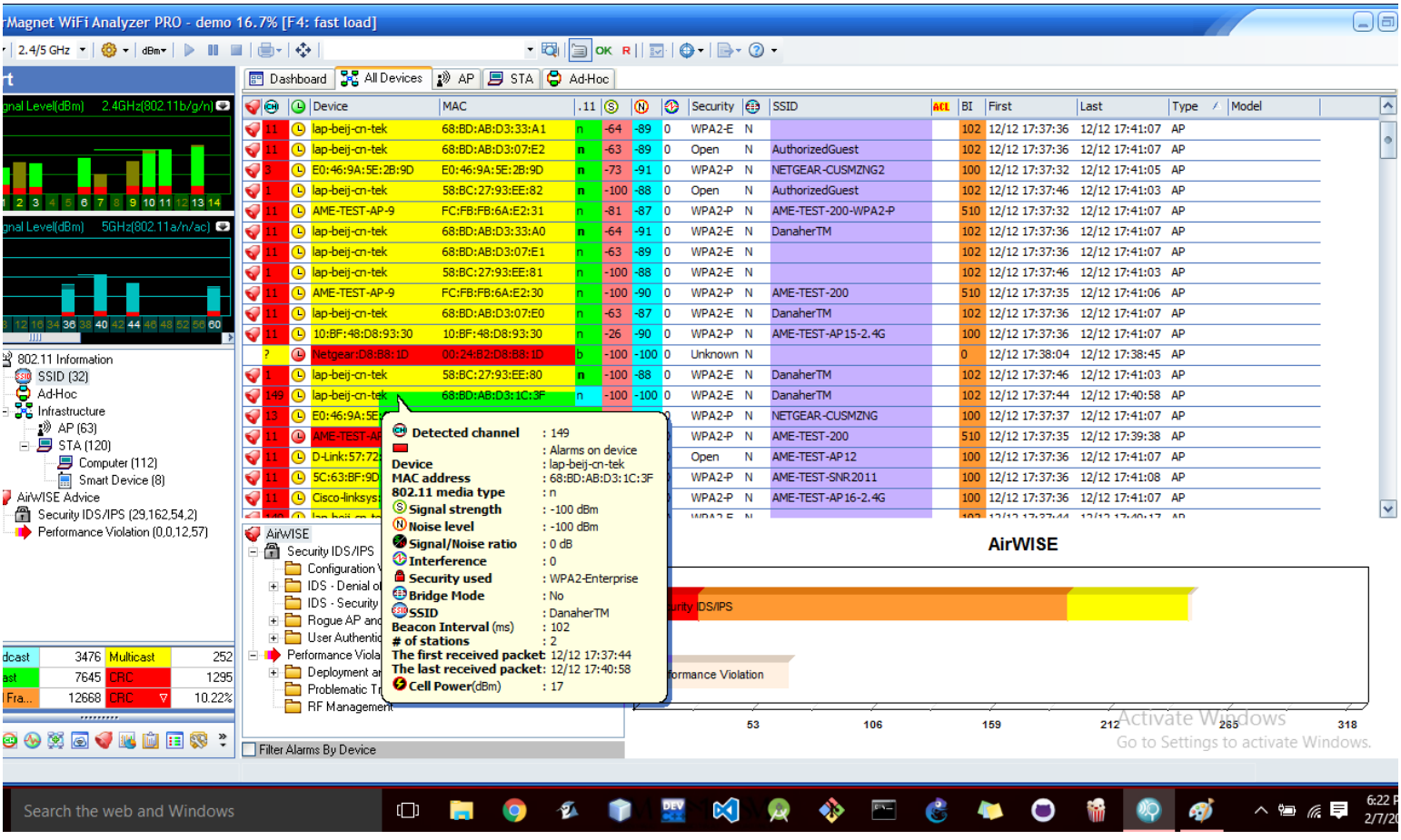
SSID	attwifi_retail (hint: this is the network name as it appears on your network list)
Location Type	Retailer
Description	wifi
Website	Not Provided

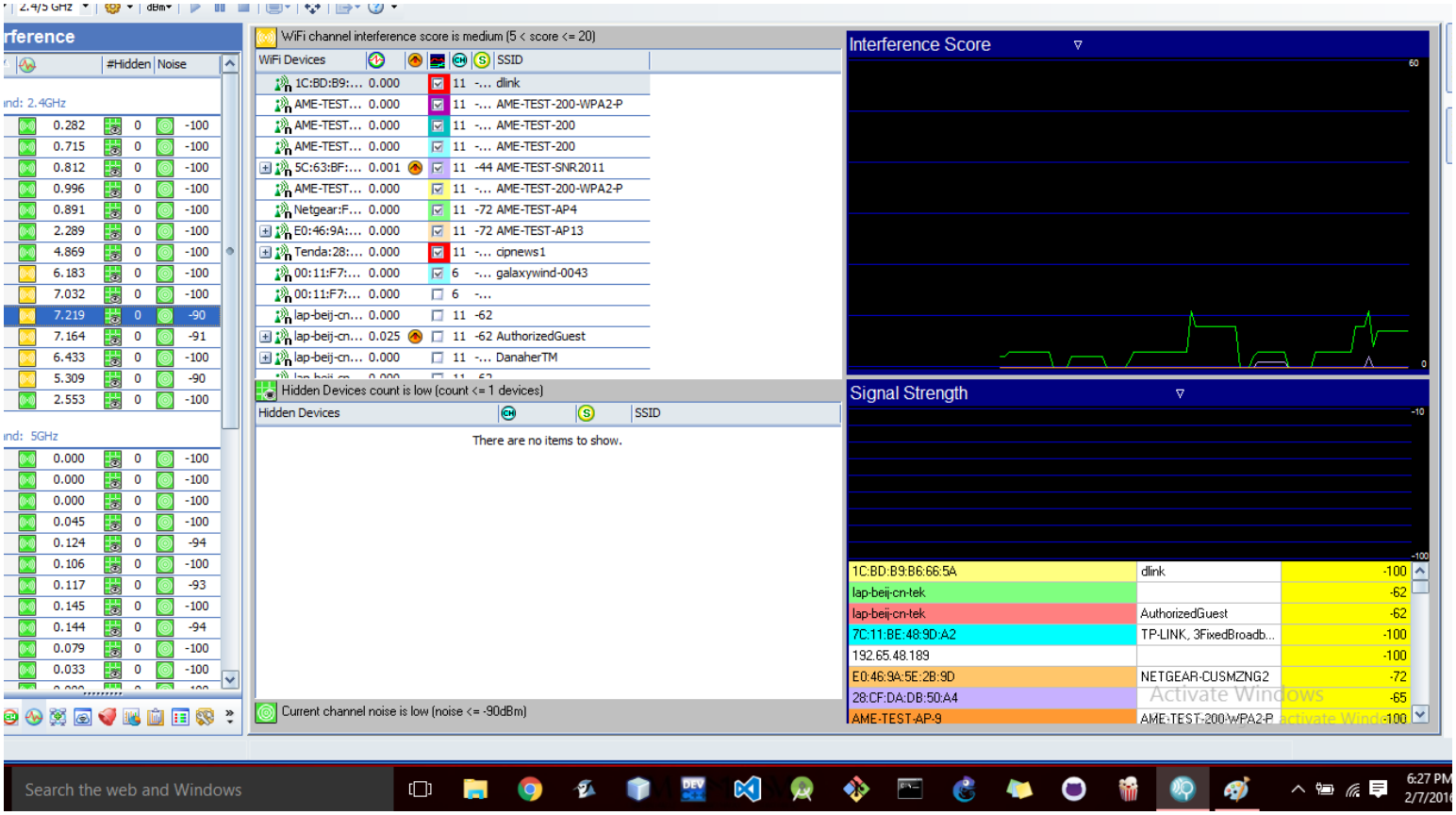
when I click the link it is showing me the information related to that particular hotspot. To me locating this hotspot is not useful because the distance of this hotspot is far away from my location so I cannot do a connection with it .

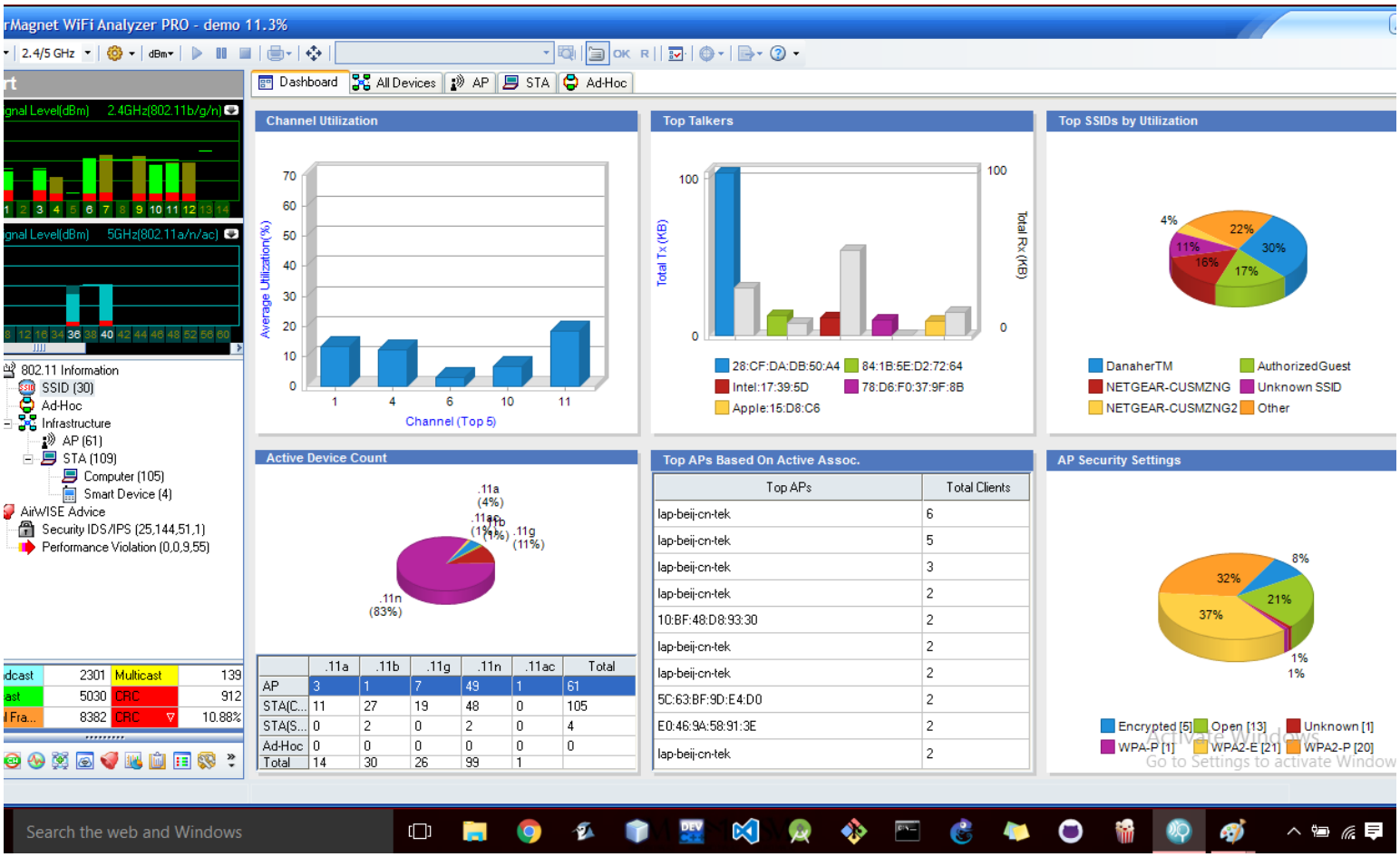
b. Show on map. Map should appear with the location of this hotspot.



nstall A Network Meter Gadget. A wireless signal meter that shows when you have moved into a hotspot 'erage area and also tells you the strength of the signal and other properties. Example: WiFi Analyzer att Hafner). Explain what type of information is available and the use of it.




WiFi channel interference score is medium (5 < score <= 20)
WiFi Devices
SSID
1C:BD:B9:... 0.000 11 -... dlink
AME-TEST... 0.000 11 -... AME-TEST-200-WPA2-P
AME-TEST... 0.000 11 -... AME-TEST-200
AME-TEST... 0.000 11 -... AME-TEST-200
5C:63:BF:... 0.001 11 -44 AME-TEST-SNR2011
AME-TEST... 0.000 11 -... AME-TEST-200-WPA2-P
Netgear:F... 0.000 11 -72 AME-TEST-AP4
E0:46:9A:... 0.000 11 -72 AME-TEST-AP13
Tenda:28:... 0.000 11 -... cipnews1
00:11:F7:... 0.000 6 -... galaxywind-0043
00:11:F7:... 0.000 6 -...
lap-beij-cn... 0.000 11 -62
lap-beij-cn... 0.025 11 -62 AuthorizedGuest
lap-beij-cn... 0.000 11 -... DanaherTM
Hidden Devices count is low (count <= 1 devices)
Hidden Devices
SSID
There are no items to show.
Current channel noise is low (noise <= -90dBm)
Interference Score
Signal Strength
1C:BD:B9:B6:66:5A dlink -100
lap-beij-cn-tek -62
lap-beij-cn-tek AuthorizedGuest -62
7C:11:BE:48:9D:A2 TP-LINK, 3FixedBroadb... -100
192.65.48.189 -100
E0:46:9A:5E:2B:9D NETGEAR-CUSMZNG2 -72
28:CF:DA:DB:50:A4 -65
AME-TEST-AP-9 AME-TEST-200-WPA2-P -100
Search the web and Windows


rMagnet WiFi Analyzer PRO - demo 11.3%
Dashboard
All Devices
AP
STA
Ad-Hoc
Channel Utilization
Average Utilization(%)
Channel (Top 5)
Top Talkers
Total Tx (KB)
Total Rx (KB)
28:CF:DA:DB:50:A4
84:1B:5E:D2:72:64
Intel:17:39:5D
78:D6:F0:37:9F:8B
Apple:15:D8:C6
Top SSIDs by Utilization
DanaherTM
AuthorizedGuest
NETGEAR-CUSMZNG
Unknown SSID
NETGEAR-CUSMZNG2
Other
802.11 Information
SSID (30)
Ad-Hoc
Infrastructure
AP (61)
STA (109)
Computer (105)
Smart Device (4)
AirWISE Advice
Security IDS/IPS (25,144,51,1)
Performance Violation (0,0,9,55)
Active Device Count
.11a (4%)
.11b (1%)
.11g (11%)
.11n (83%)
Top APs Based On Active Assoc.
Top APs
Total Clients
lap-beij-cn-tek 6
lap-beij-cn-tek 5
lap-beij-cn-tek 3
lap-beij-cn-tek 2
10:BF:48:D8:93:30 2
lap-beij-cn-tek 2
lap-beij-cn-tek 2
5C:63:BF:9D:E4:D0 2
E0:46:9A:58:91:3E 2
lap-beij-cn-tek 2
AP Security Settings
Encrypted [5]
Open [13]
Unknown [1]
WPA-P [1]
WPA2-E [21]
WPA2-P [20]
Search the web and Windows

Magnet WiFi Analyzer PRO - demo 54.5%

2.4/5 GHz | dBm | Refresh

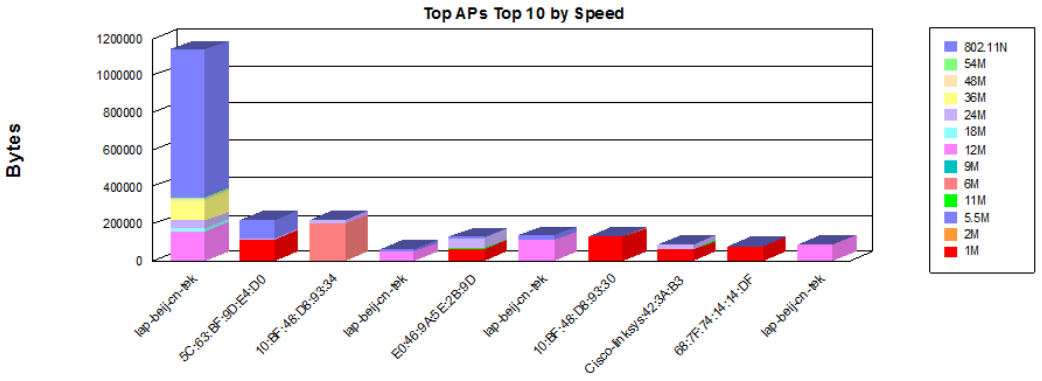
Traffic Analysis

Top 10 APs
- Speed
- Frame
- Retry/Frag
- Address
- Media

Top 10 Stations
- Speed
- Frame
- Retry/Frag
- Address
- Media

Top 10 Channels
- Speed
- Frame
- Retry/Frag
- Address
- Media

Top 10 Devices
- Speed
- Frame
- Retry/Frag



CH	Address/Name	SSID	1	5	6	11	12	13	18	19	24	26	36	39	48	52	54	58	65
6	lap-beij-cn-tek (Cisco:D3:2E:50)	DanaherTM	0%	0%	0%	0%	14%	0%	1%	0%	3%	0%	9%	0%	1%	18%	0%	43%	5%
11	5C:63:BF:9D:E4:D0	AME-TEST-SNR2011	51%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
161	10:BF:48:D8:93:34	AME-TEST-AP15-5G11AC	0%	0%	90%	0%	2%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	0%	0%
11	lap-beij-cn-tek (Cisco:D3:33:A0)	DanaherTM	0%	0%	0%	0%	81%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	E0:46:9A:5E:2B:9D	NETGEAR-CUSMZNG2	47%	0%	0%	4%	0%	0%	0%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%
40	lap-beij-cn-tek (Cisco:D3:2E:5F)	DanaherTM	0%	0%	0%	0%	82%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
11	10:BF:48:D8:93:30	AME-TEST-AP15-2.4G	97%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	Cisco-linksys:42:3A:B3	CSC_WiFi	64%	1%	0%	1%	0%	0%	0%	0%	28%	0%	2%	0%	0%	0%	0%	0%	0%
1	68:7F:74:14:14:DF	AME-TEST-AP6	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1	lap-beij-cn-tek (Cisco:D3:1C:30)	DanaherTM	0%	0%	0%	0%	99%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Search the web and Windows

6:29 PM
2/7/2016

Magnet WiFi Analyzer PRO - demo 60.6%

2.4/5 GHz | dBm

orts

lt Books
- Alarm Summary Reports
  - Security Alarm Summary
  - Performance Alarm Summary
  - All Alarm Summary
  - Alarm Statistics
- Chart View Device Reports - Top 10
  - Top 10 by Speed - Bytes
  - Top 10 by Frame - Bytes
  - Top 10 by Retry/Fragmented Frame
  - Top 10 by Address - Bytes
  - Top 10 by Media - Bytes
- Compliance Reports
  - Department of Defense Directive 81
  - Health Insurance Portability and Acc
  - Gramm-Leach Bliley Act Compliance
  - Sarbanes-Oxley Act Compliance Rep
  - Payment Card Industry Data Securi
  - FISMA Compliance Report
  - Basel II Compliance Report
  - European Union's Capital Requireme
  - International Standard for Informat

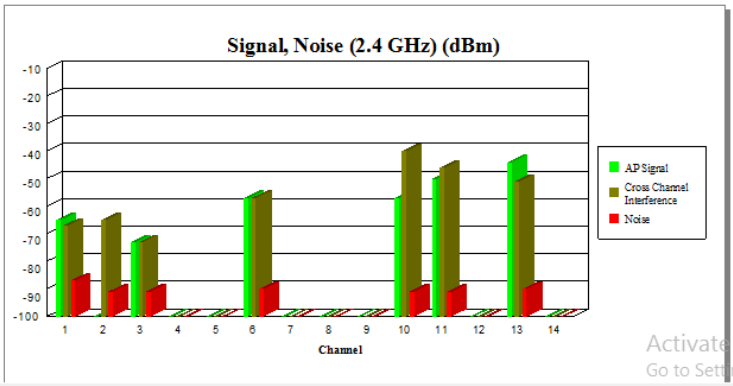
m Books
- International Standard for Informat
- Chart View Device Reports
  - Cover
  - Table of Contents
  - by Speed
  - by Frame
  - by Retry/Fragmented Frames
  - by Address
  - by Media

1 / 10 | 100% | Add to book

802.11 RF Summary

Time Period: 2013/05/06 01:10:36

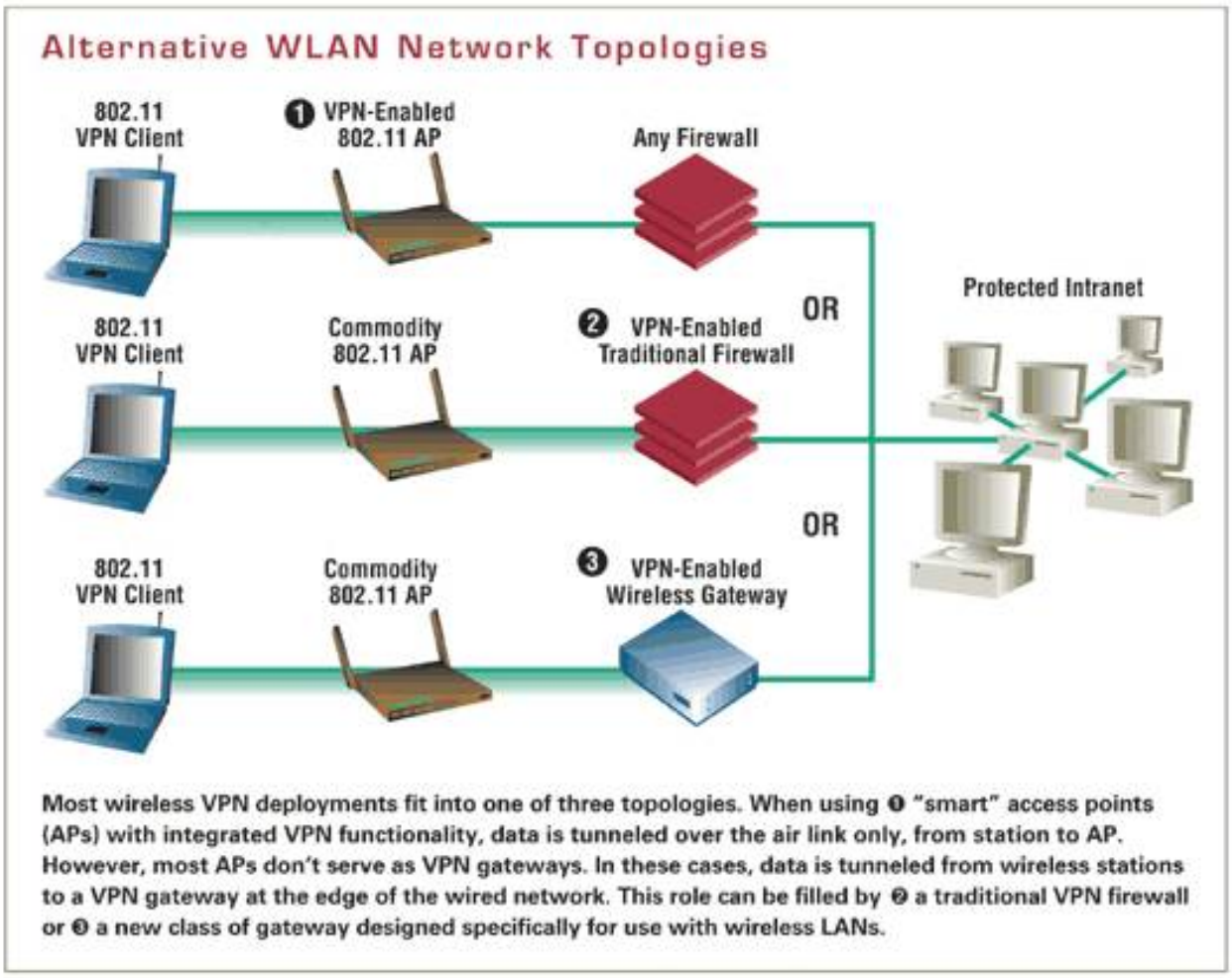
Description: This report contains data on the overall RF signal quality of the 802.11 network in terms of signal strength, noise level, and signal-to-noise ratio. It is very critical to note that there is sufficient coverage for all the devices and the RF environment has the minimum amount of noise possible. WLAN reliability and efficiency depend on the quality of the RF media. Be it 802.11 b/g/n at 2.4GHz or 802.11 a/n at the 5GHz RF spectrum, they are all susceptible to RF noise impact. A cordless phone, Bluetooth devices, microwave, wireless surveillance video camera, or baby monitor can all emit RF energy to disrupt WLAN service. Malicious attacks can manipulate the RF power at 2.4GHz or 5GHz spectrum with a high gain directional antenna to amplify the attack impact from a distance. Excessive noise causes WLAN devices in the target area to be out of wireless service.



Search the web and Windows

6:30 P
2/7/20

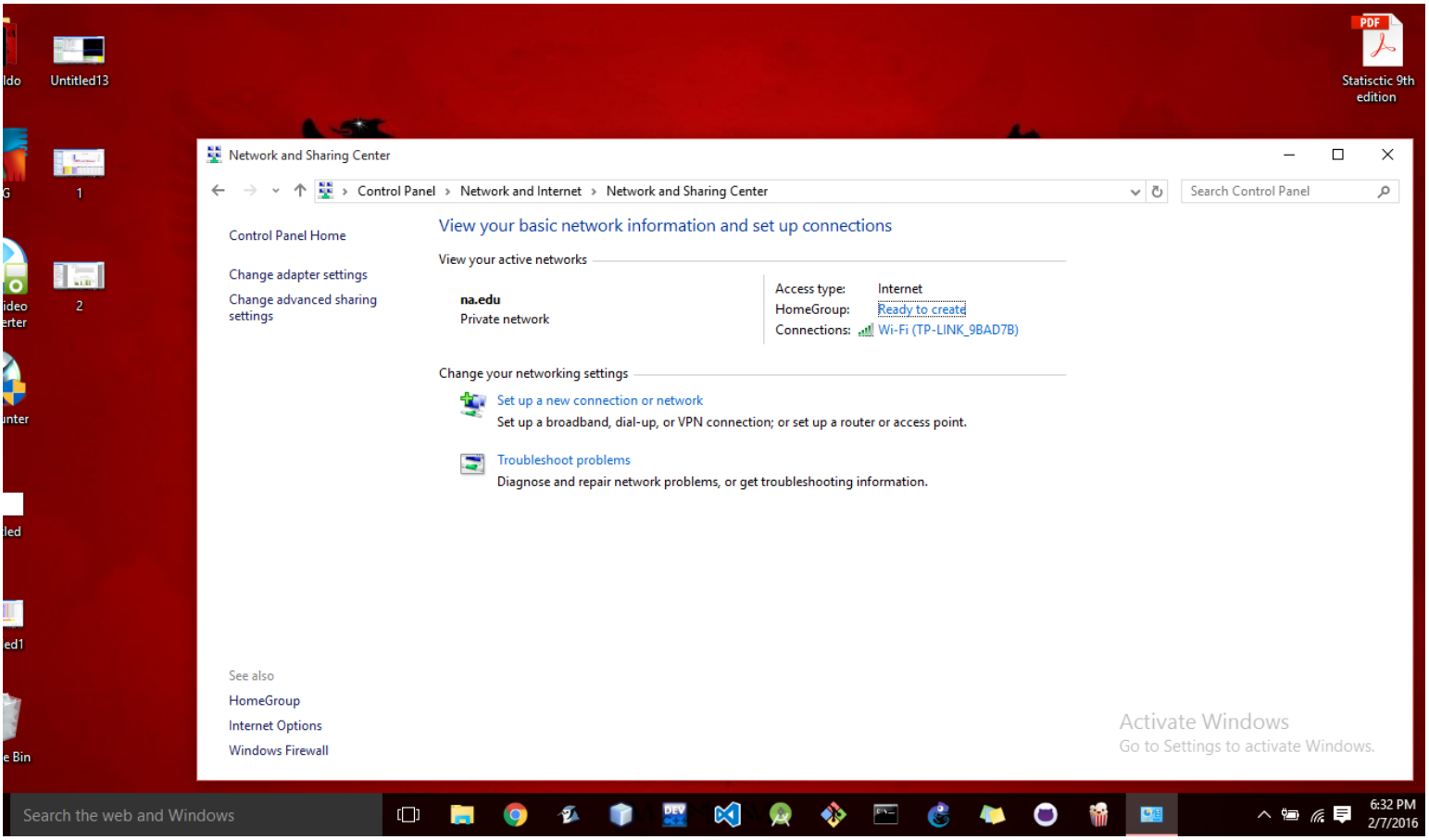
3. Cover the basics of a new design idea for a wireless inventory system. Include the advantages and disadvantages, as well as the specific wireless technologies that you could implement.



To Understand and explore more [READ MORE HERE]

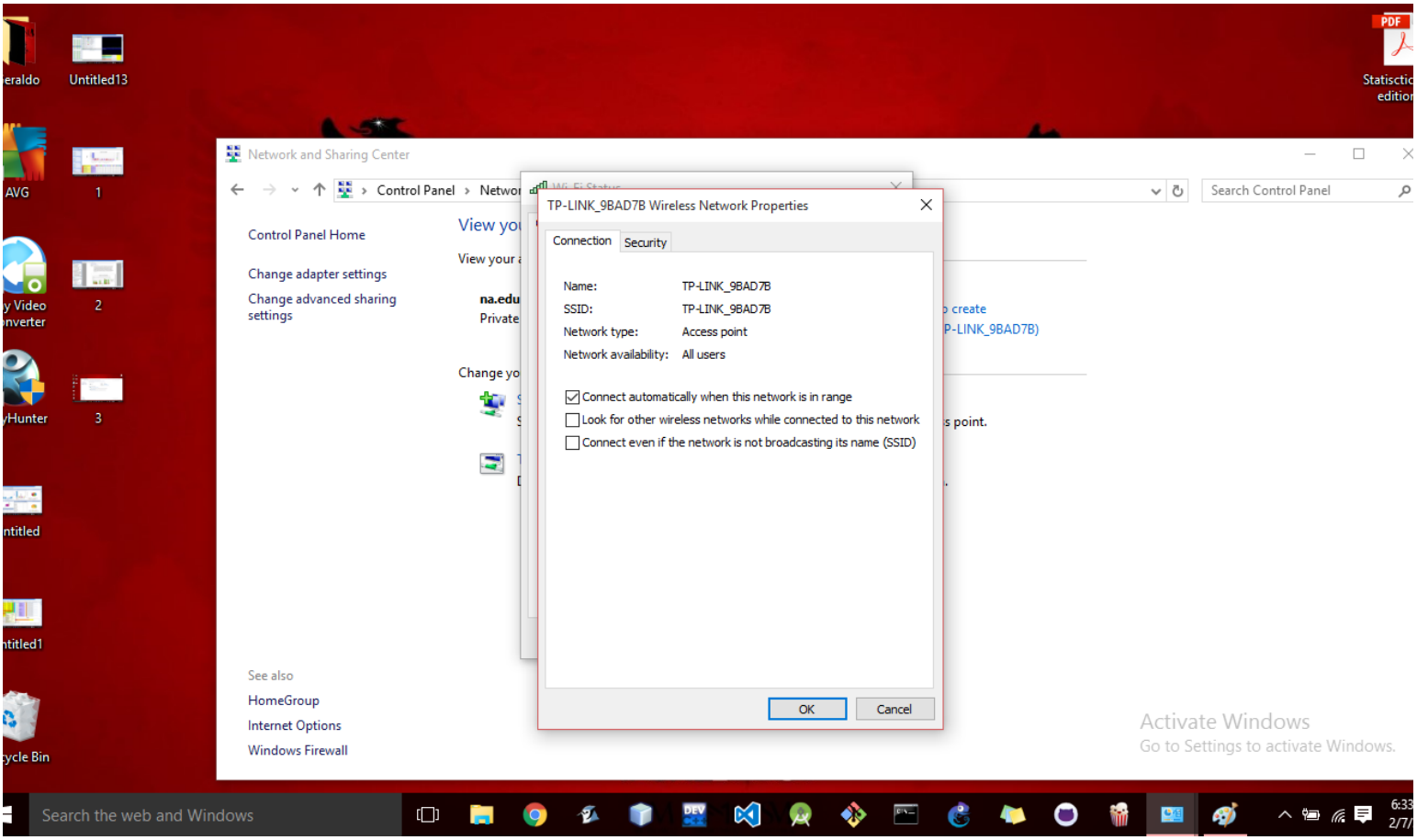
4. Find “Wireless Network Connection Status” in Windows Control Panel.

- Note of the value listed to the right of Description, which is the type of wireless NIC on this computer.

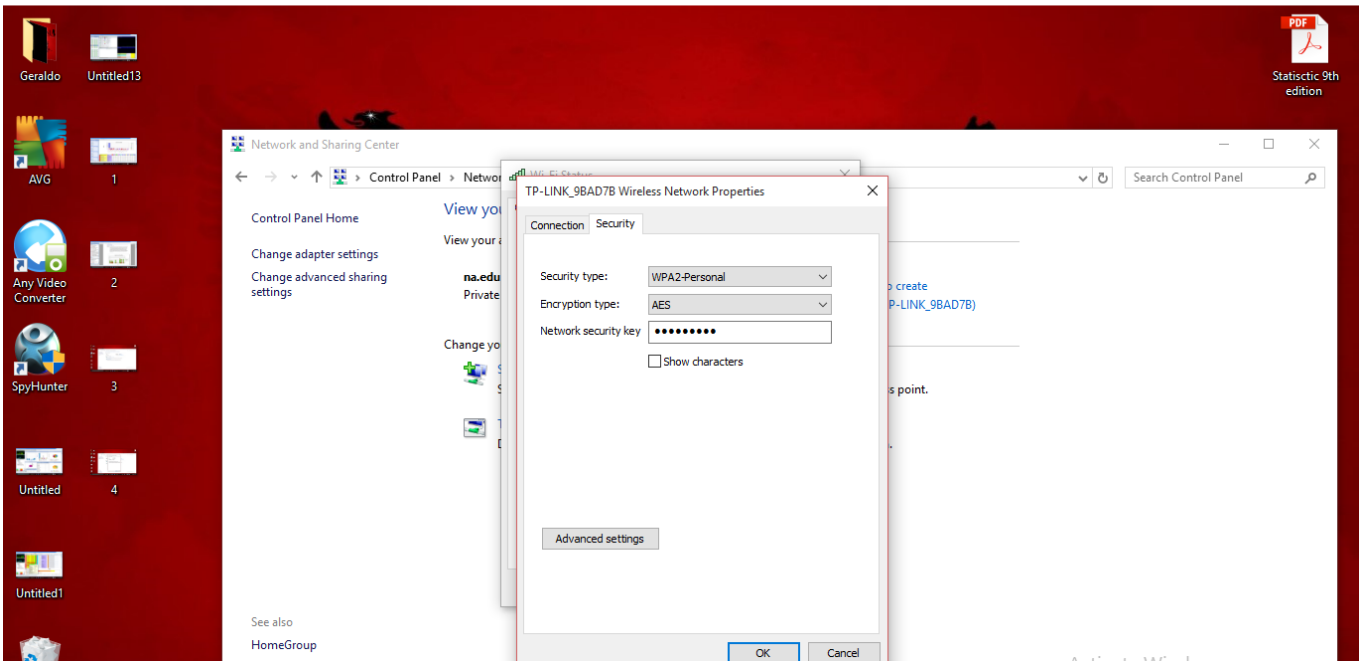


- Also record the SSID value, which is the name of the network.

- Click the Wireless Properties button to view the configuration properties of the current WLAN to which you are connected.



- Click the Security tab record the Security type and Encryption type.



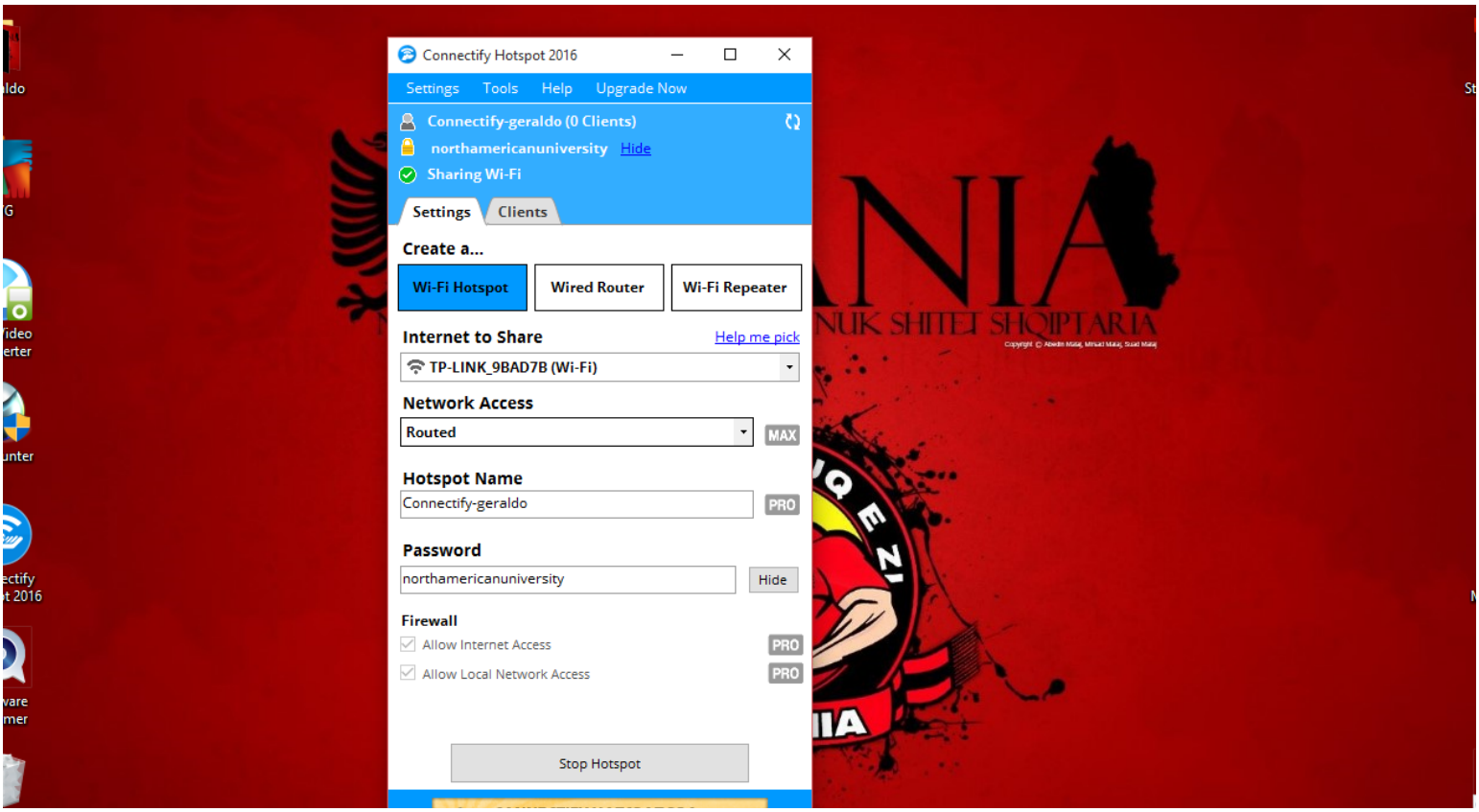
4.

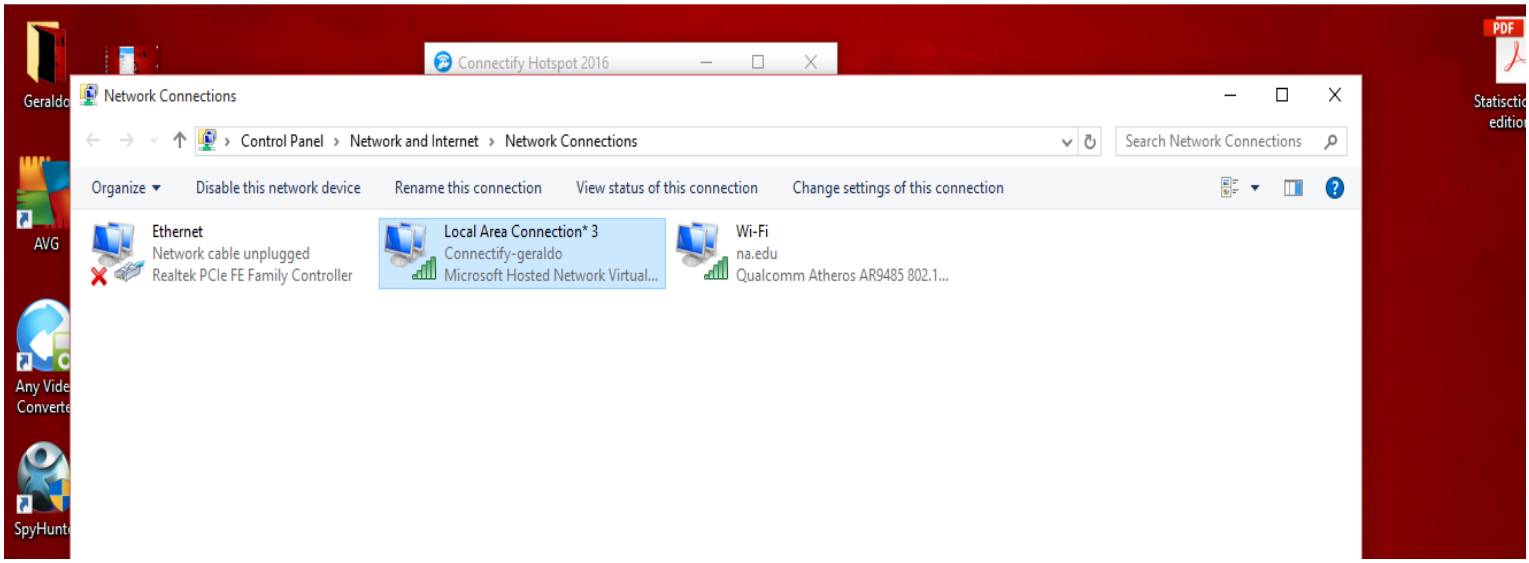
A software-based wireless access point (SoftAP) that uses a designated virtual wireless NIC. These features allow a laptop's single network connection to be shared by other computers and devices. Download and install any Virtual Router application (Connectify etc) to set up a virtual AP.

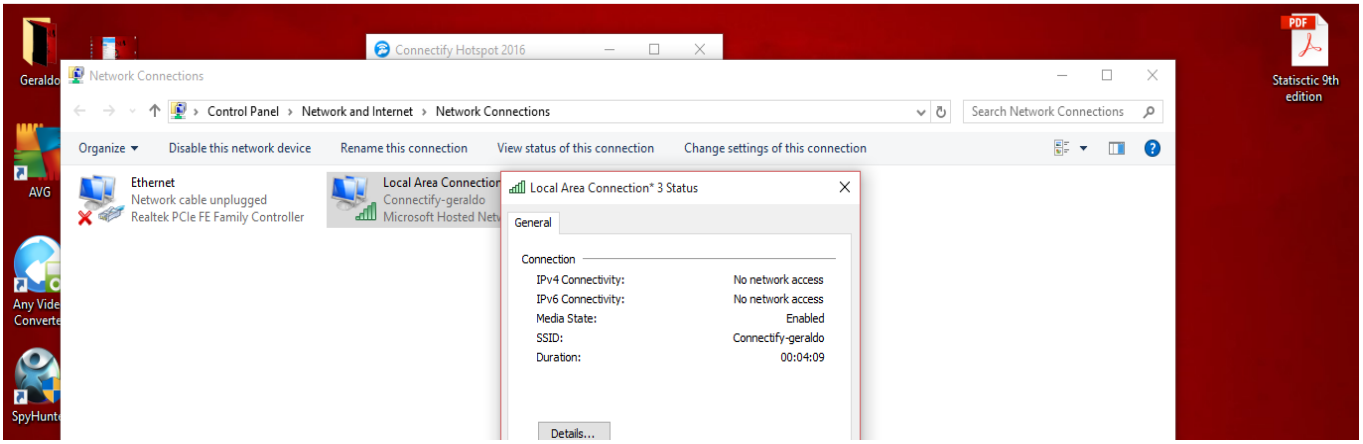
a. Click the WLAN icon in the system tray. You should see Virtual Router listed as one of the Wireless Network Connections. If it is not listed it may be necessary to restart the computer.

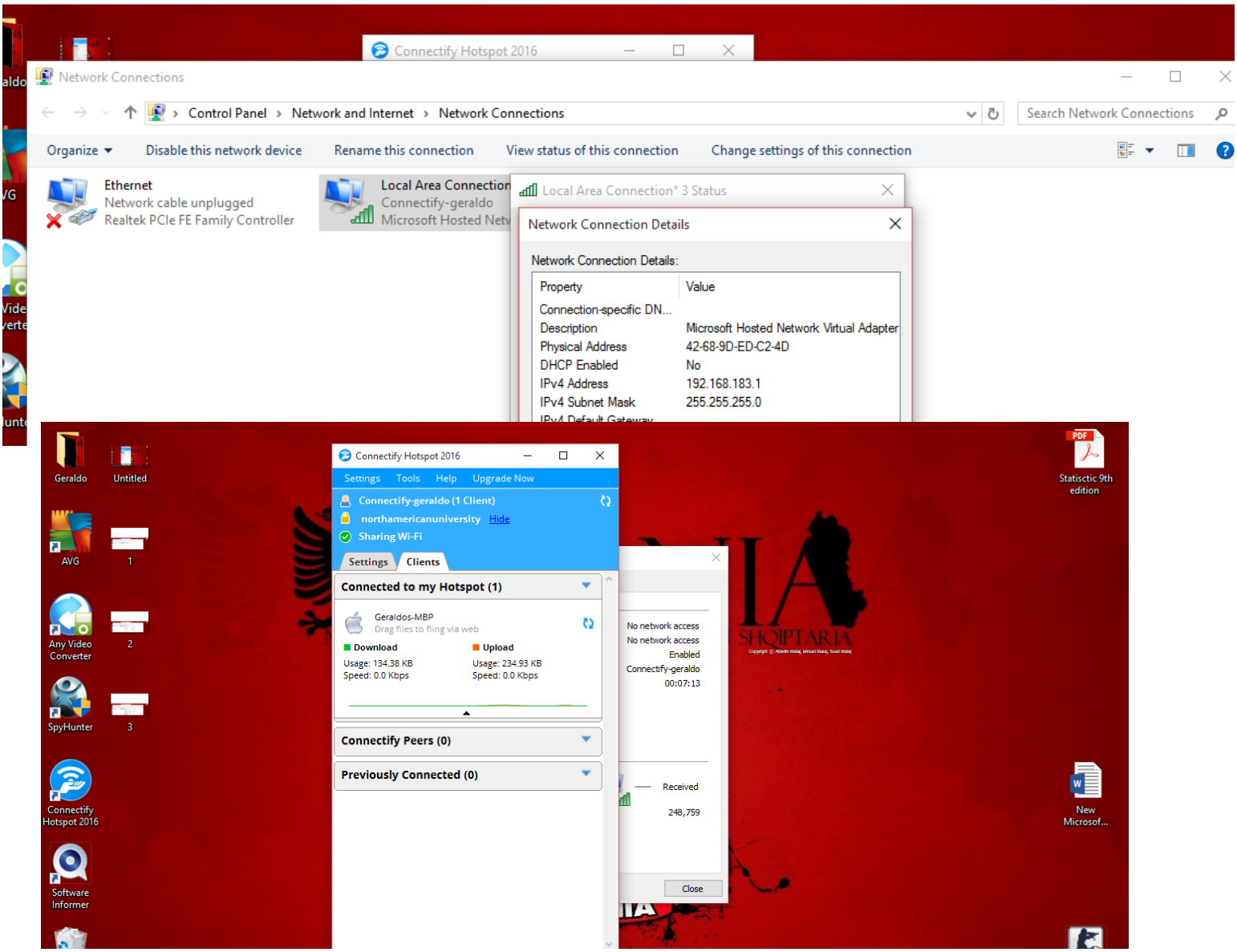
5. Click Details. How does this information differ from the details for the physical NIC? Close all windows. Now you will try to access Virtual Router from another wireless device, such as another computer.

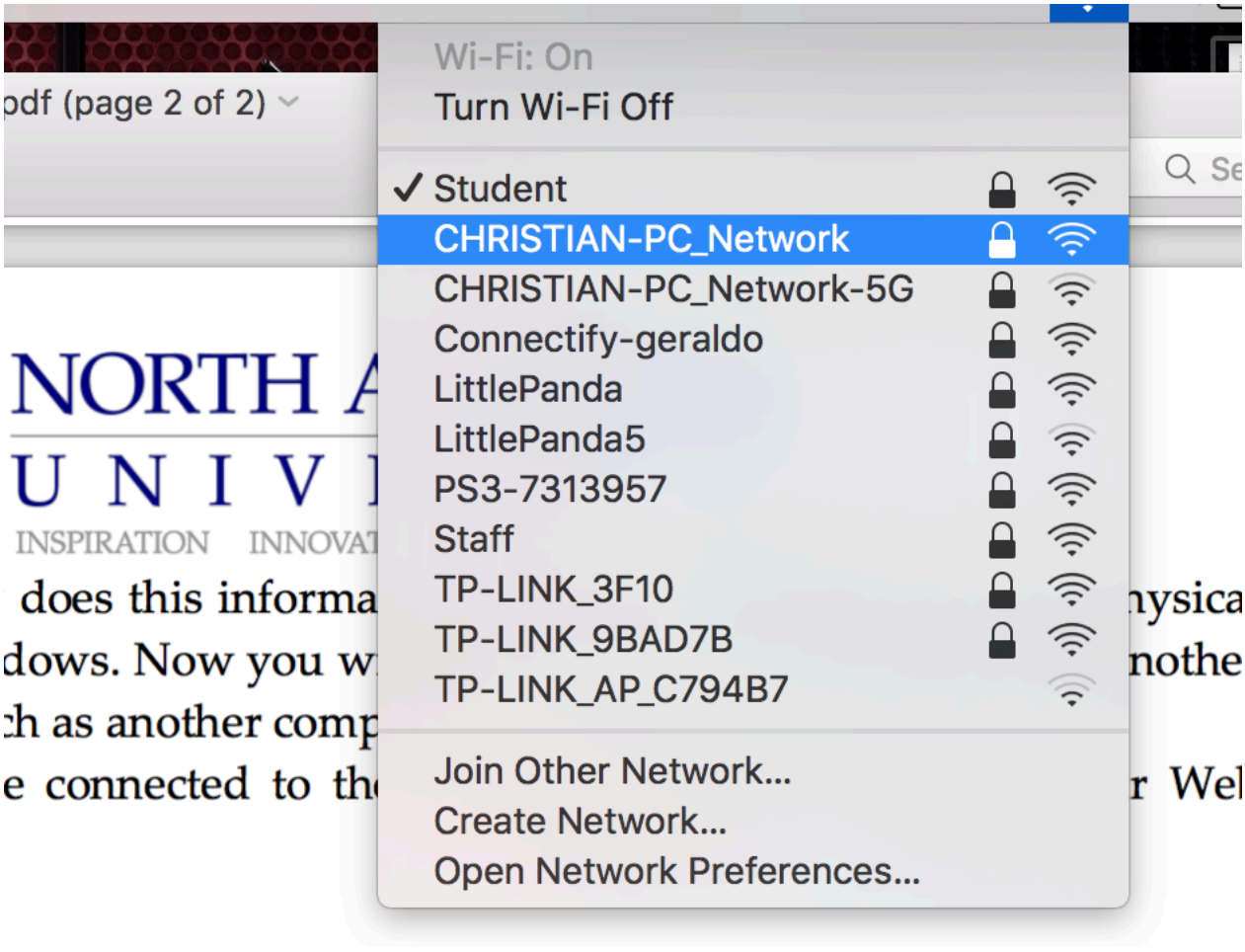
6. Verify that you are connected to the wireless network by opening your Web browser

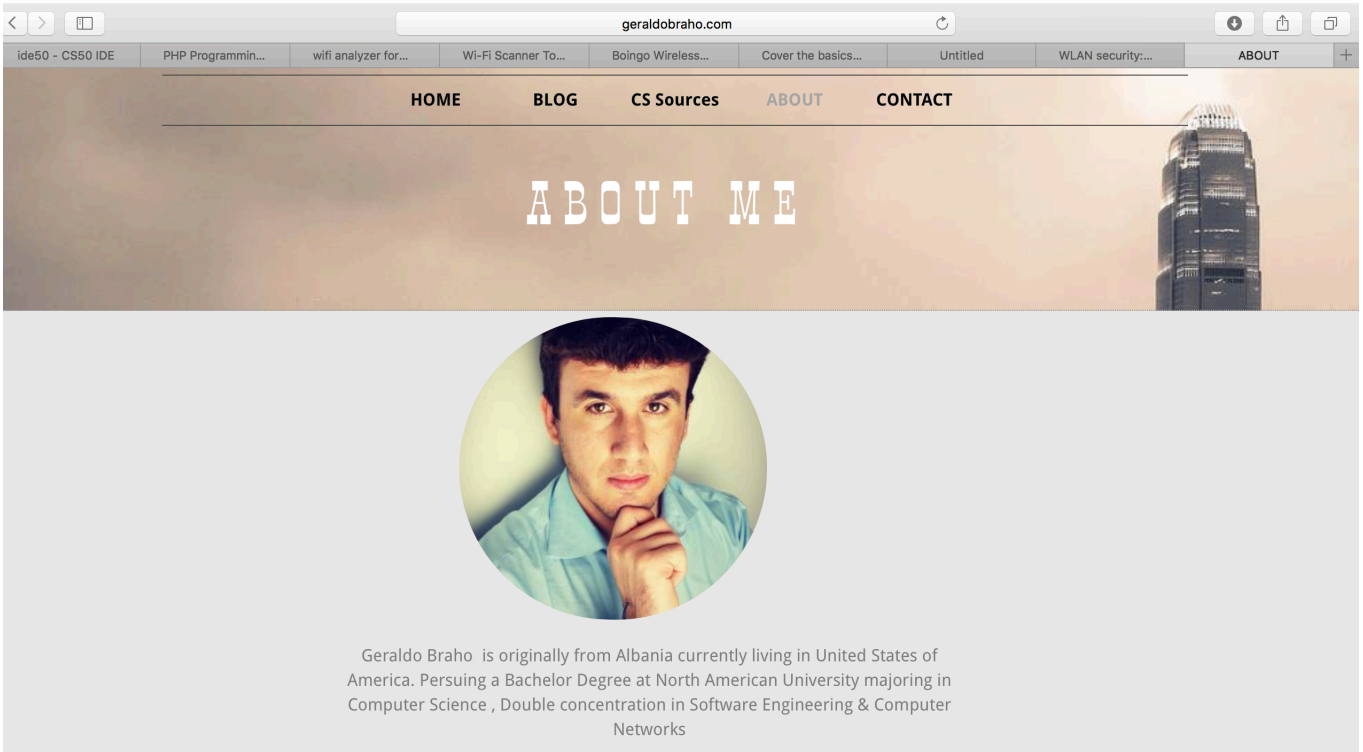



Connectify Hotspot 2016
Network Connections
Control Panel › Network and Internet › Network Connections
Search Network Connections
Organize
Disable this network device
Rename this connection
View status of this connection
Change settings of this connection
Ethernet
Network cable unplugged
Realtek PCIe FE Family Controller
Local Area Connection* 3
Connectify-geraldo
Microsoft Hosted Network Virtual...
Wi-Fi
na.edu
Qualcomm Atheros AR9485 802.1...


Connectify Hotspot 2016
Network Connections
Control Panel › Network and Internet › Network Connections
Search Network Connections
Organize
Disable this network device
Rename this connection
View status of this connection
Change settings of this connection
Ethernet
Network cable unplugged
Realtek PCIe FE Family Controller
Local Area Connection* 3 Status
General
Connection
IPv4 Connectivity: No network access
IPv6 Connectivity: No network access
Media State: Enabled
SSID: Connectify-geraldo
Duration: 00:04:09
Details...


Connectify Hotspot 2016
Network Connections
Control Panel › Network and Internet › Network Connections
Search Network Connections
Organize
Disable this network device
Rename this connection
View status of this connection
Change settings of this connection
Ethernet
Network cable unplugged
Realtek PCIe FE Family Controller
Local Area Connection
Connectify-geraldo
Local Area Connection* 3 Status
Network Connection Details
Network Connection Details:
Property
Value
Connection-specific DN...
Description
Microsoft Hosted Network Virtual Adapter
Physical Address
42-68-9D-ED-C2-4D
DHCP Enabled
No
IPv4 Address
192.168.183.1
IPv4 Subnet Mask
255.255.255.0
Geraldo
Untitled
AVG
Any Video Converter
SpyHunter
Connectify Hotspot 2016
Software Informer
Statisctic 9th edition
New Microsof...
Settings
Tools
Help
Upgrade Now
Connectify-geraldo (1 Client)
northamericanuniversity
Hide
Sharing Wi-Fi
Settings
Clients
Connected to my Hotspot (1)
Geraldos-MBP
Drag files to fling via web
Download
Upload
Usage: 134.38 KB
Speed: 0.0 Kbps
Usage: 234.93 KB
Speed: 0.0 Kbps
Connectify Peers (0)
Previously Connected (0)
No network access
No network access
Enabled
Connectify-geraldo
00:07:13
Received
248,759
Close
SHQIPTARIA


pdf (page 2 of 2)
Wi-Fi: On
Turn Wi-Fi Off
Student
CHRISTIAN-PC_Network
CHRISTIAN-PC_Network-5G
Connectify-geraldo
LittlePanda
LittlePanda5
PS3-7313957
Staff
TP-LINK_3F10
TP-LINK_9BAD7B
TP-LINK_AP_C794B7
Join Other Network...
Create Network...
Open Network Preferences...
INSPIRATION
does this informa
dows. Now you w
ch as another comp
e connected to th


geraldobraho.com
ide50 - CS50 IDE
PHP Programmin...
wifi analyzer for...
Wi-Fi Scanner To...
Boingo Wireless...
Cover the basics...
Untitled
WLAN security:...
ABOUT
HOME
BLOG
CS Sources
ABOUT
CONTACT
ABOUT ME
Geraldo Braho is originally from Albania currently living in United States of America. Persuing a Bachelor Degree at North American University majoring in Computer Science , Double concentration in Software Engineering & Computer Networks

4. Using the Internet, identify five different APs, each from a different manufacturer. Create a table that lists each AP, its features, and costs. Which would you choose for home use? Which would you choose for a SOHO of 25 employees? Why?

	 **OM2P** *External antenna, great value*	 **OM2P-HS** *High speed, long range*	 **OM5P-AN** *Higher speed, dual-band*	 **MR1750** *802.11ac, best performance.*
Radio Speed (Max)	150 Mbps	300 Mbps	150+300 Mbps	450+1300 Mbps
Power at max speed	23 dBm (200 mW)	23 dBm (200 mW)	19 dBm (79 mW)	20 dBm (100 mW)
Antenna	Single external	Dual internal	Three internal	Six internal
Band	2.4 GHz	2.4 GHz	2.4 + 5 GHz concurrent	2.4 + 5 GHz .11ac concurrent
Max range (recommended)	3-4 walls (indoor) 400-600ft (outdoor)	3-4 walls (indoor) 400-600ft (outdoor)	2-3 walls (indoor) 200-400ft (outdoor)	3-4 walls (indoor) 400-600ft (outdoor)
Max users (recommended)	20-50 per AP	20-50 per AP	20-50 per AP	50-100 per AP
Enclosure options	OM Wall Plug, Outdoor	OM Wall Plug, Ethernet, Ceiling, Outdoor	OM Wall Plug, Ethernet, Ceiling, Outdoor	Wall/Ceiling (included), MR Outdoor
MSRP	$75	$95	$135	$225

For a home use I would use OM2P because its enough to cover my house .
and for a SOHO I would use OM2P-HS because its fast enough for 25 employees

5. Using the Internet, research at least three different real-world implementations of wireless mesh networks. Why were they installed? What were their advantages? What were their disadvantages? Summarize your research in a one-page document.

   Mesh networks **are a paradigm shift. They remove the wired connectivity requirement by having only a few of the access points connected to a wired network, and allowing the others to forward packets over multiple wireless hops. In a practical setting, a mesh network needs to:**

6. **i) Provide seamless access to its users.**

7. **ii) Maintain users connections and handoff them quickly from one access point to another when users roam in the coverage area of the mesh.**

8. **iii) Be easy to deploy.**

9. **iv) v)**

10. **Be robust and continue to operate even if part of the network is not available.**

11. **Be cost-effective, i.e., it must perform well using off-the-shelf low cost wireless routers.**

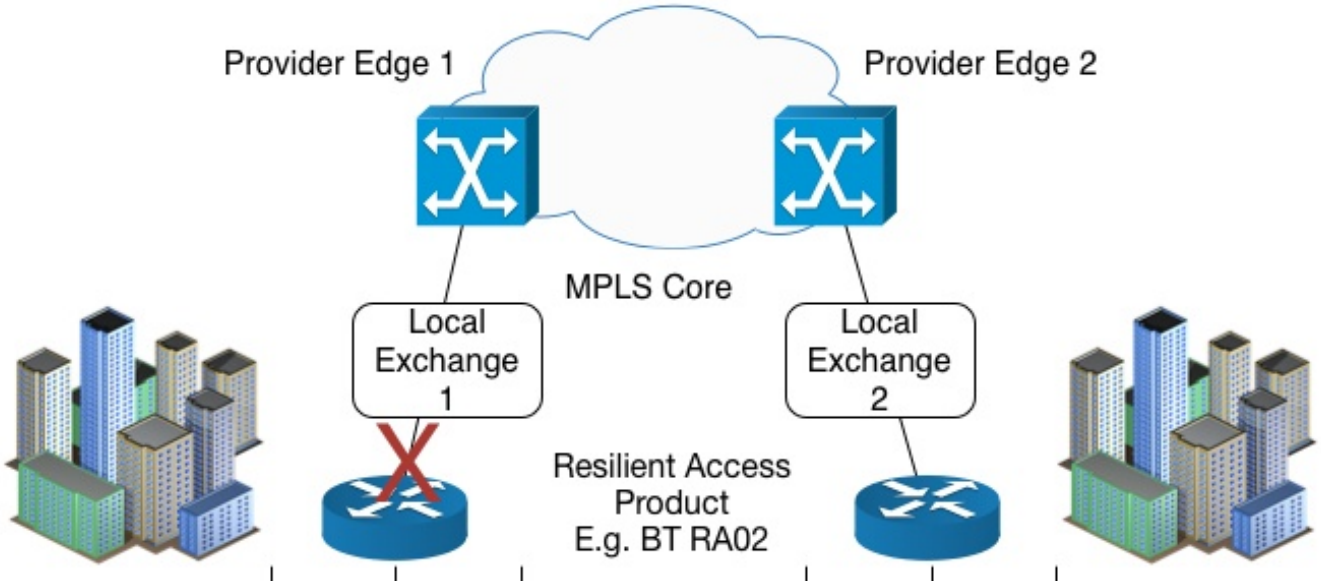
    Etc for more READ MORE HERE

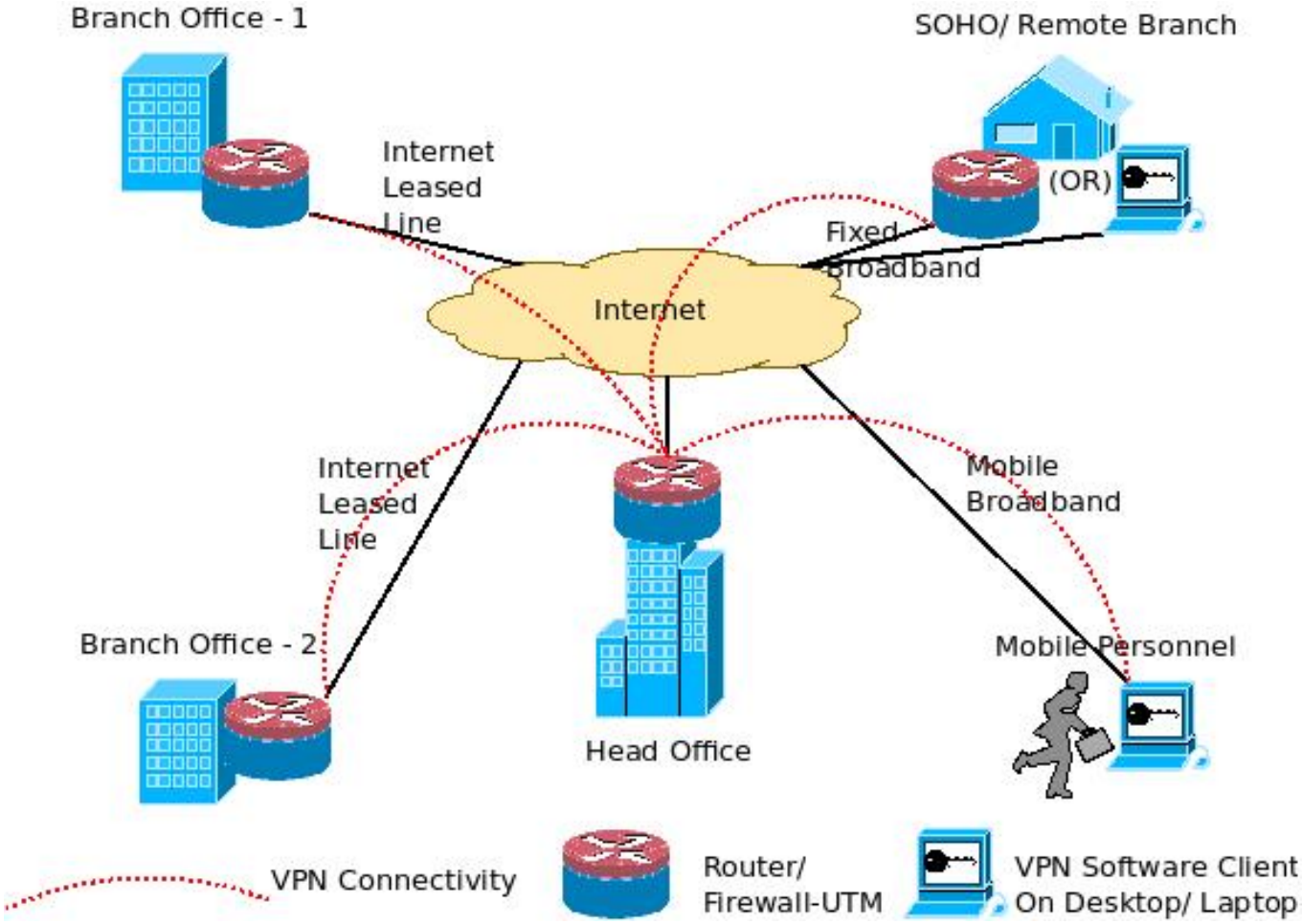
12. Nautilus IT Consulting (NITC) is a computer technology business that assists organizations in developing IT solutions. NITC has asked you to help with new customers a local construction company, RDC Construction (RDC), wants to install a wireless LAN in both its showroom as well as in its warehouse, which is located half a mile (.8 kilometer) away in a remote area. Because of a slowdown in construction, RDC is very cost-conscious and needs an economical solution to provide wireless connectivity both within the two buildings and between the buildings as well.

- Cover the advantages and disadvantages of your design ideas. In addition, include additional figure that outline how the two sites could be connected with a wireless solution. Conclude your presentation with your recommendations for RDC.

- RDC announces that it is interested in your solutions, yet is concerned that their warehouse has limited electrical outlets. Write a memo to RDC that lists the advantages of PoE and include costs for both midspan and endpoint PSEs. Use the Internet to research costs for implementing PoE, and include those in your memo.

Me personally would do something like this




Branch Office - 1
SOHO/ Remote Branch
Internet
Leased
Line
(OR)
Fixed
Broadband
Internet
Internet
Leased
Line
Mobile
Broadband
Branch Office - 2
Mobile Personnel
Head Office
VPN Connectivity
Router/
Firewall-UTM
VPN Software Client
On Desktop/ Laptop