

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

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Web location for this
presentation:

<http://aztcs.org>

Click on “Meeting Notes”

SUMMARY

A router that has "Wireless Internet Service Provider" ("WISP") capability can grab a wireless Wi-Fi signal and repackaging the signal in order to provide you with capabilities, cost savings, and security that you otherwise would not have with a wireless Internet service, especially when using a public or hotel Wi-Fi system.

TOPICS

- Basic Information about "WISP"
- Reasons to use a WISP router
- Evaluations of WISP router models
- "Wavlink" routers (Best of breed!)
- "Edimax" routers (Versions 1 & 2 but not 3)
- "Netis" routers (Do not use)
- "Travel routers" with a "WISP" mode

TOPICS (continued)

- Appendix 1: "Captive Portal" Screens
- Appendix 2: Workaround for Negotiating a "Captive Portal" screen
- Appendix 3: We do not recommend "Tenda" routers

BASIC INFORMATION ABOUT "WISP"

- "WISP" stands for "Wireless Internet Service Provider"
- When you activate the "WISP" capability for a router that has it, that router is configured so that the router does not have a wired Cat 5/6/7 connection to a broadband modem. Instead it uses a Wi-Fi signal (from another router) for an upstream connection to the Internet. 3

BASIC INFORMATION ABOUT "WISP" (continued)

- Instead of using the term "WISP", the manufacturers of some WISP routers use the terms "travel router" or "Wi-Fi client" instead
- Not all "travel routers" have "WISP" capability:
Some "travel routers" require a wired network connection to a "WAN" or "Internet" port

BASIC INFORMATION ABOUT "WISP" (continued)

- When you configure some WISP routers as a "Wi-Fi client", then it means that the WAN side of the router uses another router's "Wi-Fi Access Point" instead of the WISP router's "WAN" or "Internet" port.

BASIC INFORMATION ABOUT "WISP" (continued)

- However, the documentation and configuration screens in a WISP router does not always use the term "Wi-Fi client":
The documentation and configuration in most WISP routers refer to the WISP capability as "WISP" or "WISP mode".

REASONS TO USE A "WISP" ROUTER

- WiFi wireless Internet in the home or a small business network that is set up a "do it yourself" manner usually will NOT have "wireless isolation" while "public WiFi", hotel Internet service, and WiFi in restaurants, shopping malls, airports, schools, etc. will have "wireless isolation" 10

REASONS TO USE A "WISP" ROUTER (continued)

- "wireless isolation"
 - = "AP isolation"
 - = "Access Point isolation"
 - = "client isolation"
 - = "station isolation"
 - = "wireless client isolation"

REASONS TO USE A "WISP" ROUTER (continued)

- Even if a hotel, school, or commercial business has wired Internet, they will almost never allow file or printer sharing for you because of the liability issues and other problems that it would cause

REASONS TO USE A "WISP" ROUTER (continued)

- Some of the more expensive hotels have a tech support phone number that you can call if you want to have file or printer sharing capability activated for specific computers or other devices in your hotel room

REASONS TO USE A "WISP"

ROUTER (continued)

- There are two kinds of "wireless isolation":

Type 1:

Wireless computers cannot communicate with each other while all have access to the Internet

Type 2:

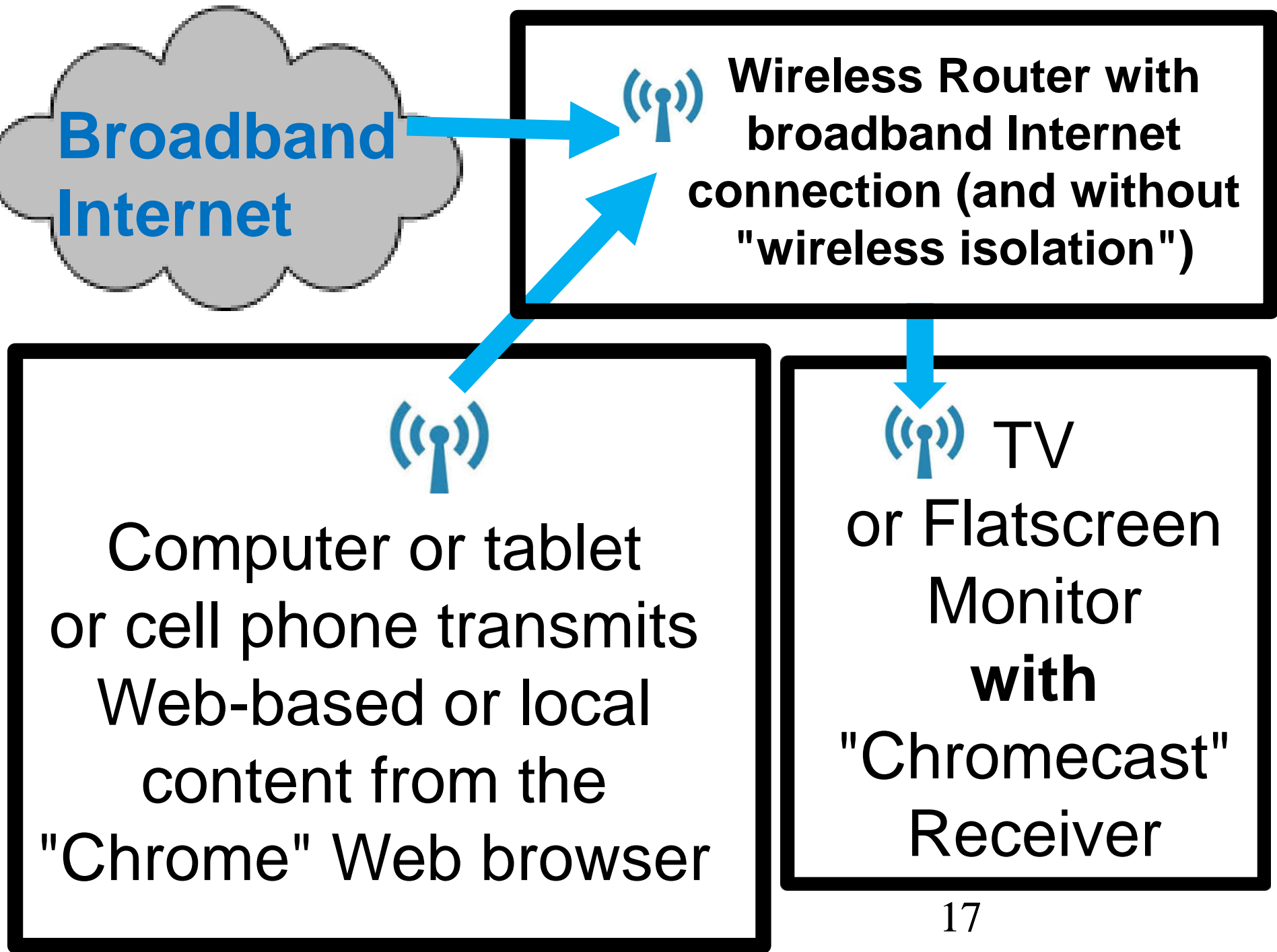
Wireless computers cannot communicate with each other but they can share files and printers with wired computers

REASONS TO USE A "WISP" ROUTER (continued)

- Both "Type 1" and "Type 2" wireless isolation will cause "Chromecast" and most wireless game console controllers to fail.

REASONS TO USE A "WISP" ROUTER (continued)

- "SSID"
= "Service Set Identifier"
which is broadcast by a
"Wireless Access Point"
of a "wireless router"



REASONS TO USE A "WISP" ROUTER (continued)

- For "Chromecast" and most wireless game console controllers to work, the wireless router cannot have "wireless isolation" turned on:

"WIRELESS ISOLATION" CANNOT BE TURNED ON IN THE EXISTING WIRELESS ROUTER



Wireless Router with broadband Internet connection



TV or Flatscreen Monitor with "Chromecast" Receiver

REASONS TO USE A "WISP" ROUTER (continued)

- "Public Wi-Fi" has "wireless isolation"
- Home routers default to no "wireless isolation"

REASONS TO USE A "WISP" ROUTER (continued)

- This means that it is easy to use a home network for connecting a computer to a "Chromecast", if the router in a home network has wireless Wi-Fi capability on the local network side of the router.

REASONS TO USE A "WISP" ROUTER (continued)

- This means that you cannot use a public Wi-Fi service to for connecting a computer to a "Chromecast" or for sharing files and/or printers between two laptop computers

REASONS TO USE A "WISP" ROUTER (continued)

- "Wireless isolation" means that client computers cannot discover each other and they cannot share files/printers, even if "File and Printer Sharing" or "SMB", or "Samba" or "Homegroups" are enabled inside the client computers.

REASONS TO USE A "WISP" ROUTER (continued)

- "Public Wi-Fi" (= "Public internet") has "wireless isolation":
Starbucks,
Barnes And Noble,
public libraries,
Panera Bread,
MacDonalds,
airports, etc.

REASONS TO USE A "WISP" ROUTER (continued)

- Home routers, by default, do not have "wireless isolation" (but some of them let you set up "wireless isolation" in their configuration screens).

REASONS TO USE A "WISP" ROUTER (continued)

- "wireless isolation"
 - = "AP isolation"
 - = "Access Point isolation"
 - = "client isolation"
 - = "station isolation"
 - = "wireless client isolation"

REASONS TO USE A "WISP"

ROUTER (continued)

- "Wireless isolation" means that even if "File and Printer Sharing" is explicitly turned on in a connected client computer, no data is transmitted from the connected client computer to any other computer on the same local network

REASONS TO USE A "WISP"

ROUTER (continued)

- Wireless routers used for public Internet always have "wireless isolation" turned on
- Home routers never have "wireless isolation" turned on
- Some home routers have "wireless isolation" capability that you can activate

REASONS TO USE A "WISP" ROUTER (continued)

- There are two kinds of "wireless isolation":
Type 1:
Wireless client computers cannot communicate with each other (and all wireless client computers have access to the Internet)

REASONS TO USE A "WISP" ROUTER (continued)

- There are two kinds of "wireless isolation" (continued):

Type 2:

Wireless client computers cannot communicate with each other but they can share files and printers with wired computers on the same local network

REASONS TO USE A "WISP"

ROUTER (continued)

- According to

<http://www.pcworld.com/article/2150741/tested-6-new-travel-routers-that-can-deploy-a-secure-wifi-network-almost-anywhere.html>

In WISP (Wireless Internet Service Provider) mode, the router becomes a client to a wireless Internet service (such as a Wi-Fi hotspot). The router shares that connection with its wireless clients.

"WISP" FUNDAMENTALS (continued)

- "WISP"
 - = "Wireless Internet Service Provider"
 - = "WISP Mode"
 - = "WISP Client" (Fry's ad)
 - = "WISP Client Mode" (Fry's ad)
 - = "WISP Client Router"
 - = "AP Client Router Mode" (TP-Link)
 - = "WISP User Internet Sharing"
(TP-Link)
 - = "WISP Repeater" (D-Link)

ROUTER WITH "WISP" CAPABILITY



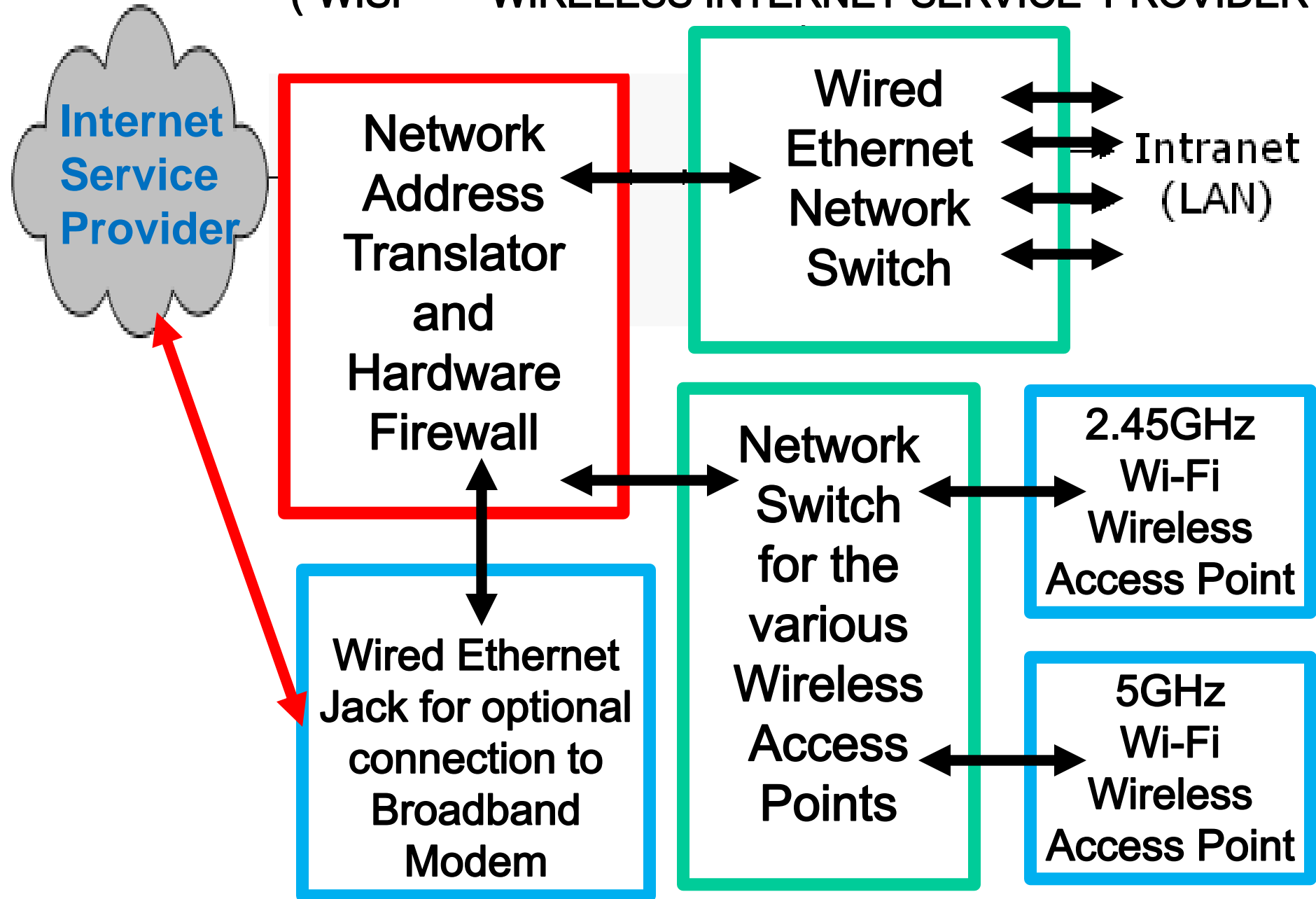
"WISP" FUNDAMENTALS (continued)

- Some of the older models of WISP-capable routers cannot connect wirelessly to client computers on the local network side. These older models of routers can only connect by means of wired Ethernet cables to client computers on the local network side. These older models are useless for "Chromecast" because "Chromecast" cannot connect by means of an Ethernet wire to a router:

"WISP" FUNDAMENTALS (continued)

- A typical router that does NOT have "WISP" mode:
Wired "Internet" or "WAN" jack connects a broadband modem that then connects to the Internet.
Wired and/or wireless computers, tablets, televisions, cell phones, etc. connect to the "Local Area Network" (LAN) side of the router:

TYPICAL ROUTER WITH NO "WISP" MODE ("WISP" = "WIRELESS INTERNET SERVICE PROVIDER")



"WISP" FUNDAMENTALS (continued)

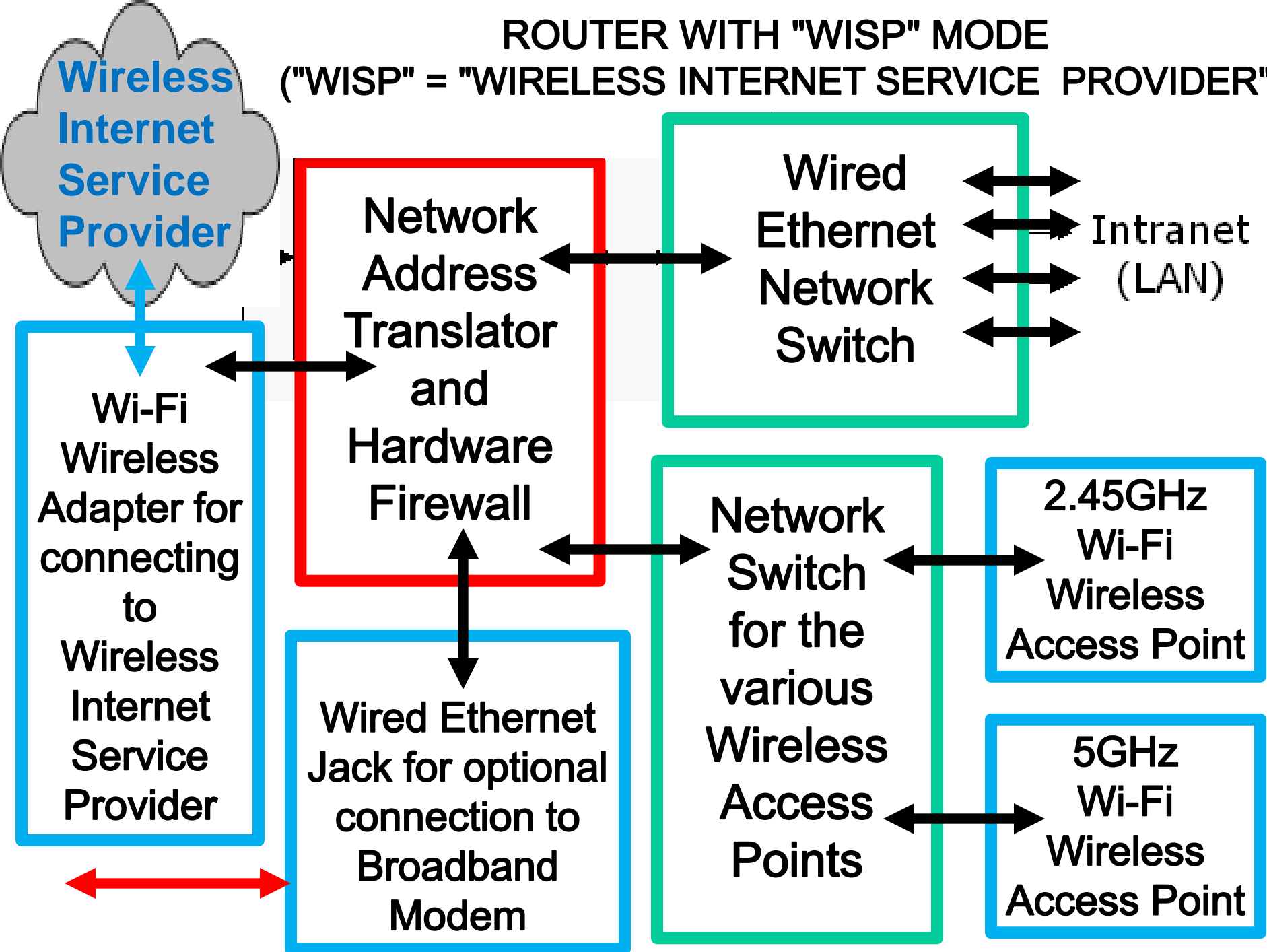
- A router that has "WISP" mode:
A wireless WiFi adapter on the "Internet" or "WAN" side of the router can be used to connect to a WiFi wireless access point that is provided by an Internet Service Provider (ISP).
Wired and/or wireless computers, tablets, televisions, cell phones, etc. connect to the "Local Area Network" (LAN) side of the router:

"WISP" FUNDAMENTALS (continued)

- A router that has "WISP" mode:
On the "Internet" or "WAN" side of the router, you can either connect to an Internet Service Provider (ISP) in a wired or a wireless manner, but you cannot utilize both the wired and the wireless network adapters at the same time:

ROUTER WITH "WISP" MODE

("WISP" = "WIRELESS INTERNET SERVICE PROVIDER")



USING A "WISP" ROUTER TO "FIX" CHROMCAST TO GET AROUND "WIRELESS ISOLATION"

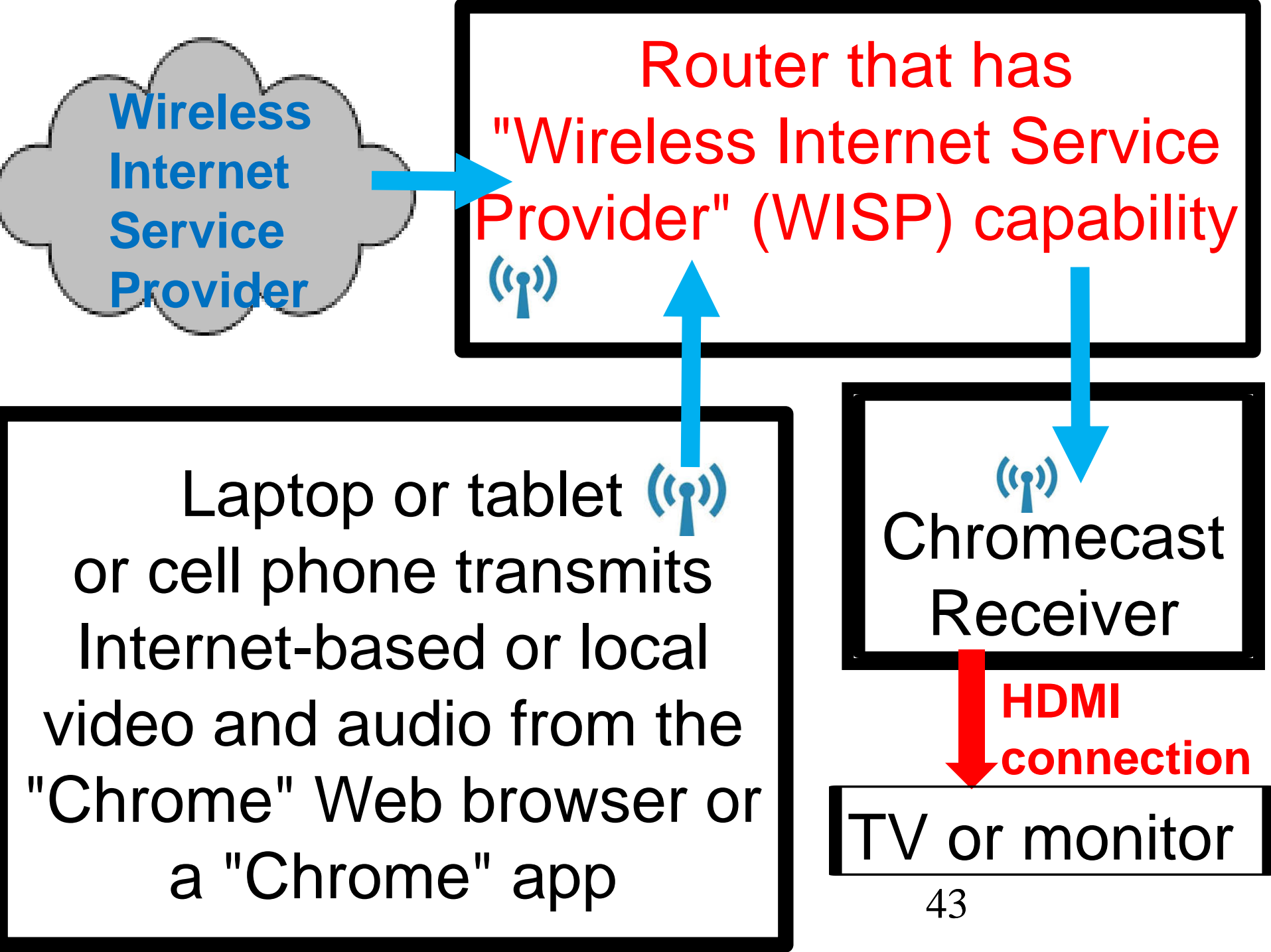
- Chromecast's requirements for an external wireless router without "wireless isolation" presents significant technical challenges because public Internet services almost always have "wireless isolation":

USING A "WISP" ROUTER TO "FIX"
CHROMCAST TO GET AROUND
"WIRELESS ISOLATION" (continued)

- Both "Type 1" and "Type 2" wireless isolation will cause "Chromecast" to fail.

USING A "WISP" ROUTER TO "FIX" CHROMCAST TO GET AROUND "WIRELESS ISOLATION" (continued)

- **The elegant fix for "Chromecast":**
Use a "router" that has "Wireless Internet Service Provider" (WISP) capability to connect between the public Wi-Fi Internet service, your laptop, and the Chromecast device



EVALUATIONS OF WISP ROUTERS

- WaveLink routers are the best WISP routers with different models having differing WISP capabilities
- Edimax routers are a mixed bag: Their older versions 1 and 2 models (which are gradually disappearing from retail) are great WISP routers but their version 3 model no longer has a true "WISP" mode

"<MANUFACTURER & MODEL OF WISP ROUTER>"

WISP FUNCTION CAN USE EXISTING 2.4 GHZ WIRELESS ACCESS POINT?	?
WISP FUNCTION CAN USE EXISTING 5 GHZ WIRELESS ACCESS POINT?	?
IF IT IS NOT NEEDED, THE WI-FI LAN SIDE OF THE ROUTER CAN BE DISABLED WHEN ROUTER IS RUNNING IN WISP MODE	?
THE WI-FI LAN SIDE OF THE ROUTER IS CAPABLE OF RUNNING IN "WI-FI 6" MODE	?

REGULAR-SIZED ROUTERS THAT HAVE A "WISP" MODE

- Most home and small-business routers DO NOT have a "WISP" mode:

Instead most routers require an "upstream" wired Ethernet connection with a network jack that is labelled "Internet" or "WAN" (with "WAN" standing for "Wide Area Network")

REGULAR-SIZED ROUTERS THAT HAVE A "WISP" MODE (continued)

- When shopping for a "WISP" router, be sure to read the manufacturer's specifications and user manuals to make sure that the specific router actually has a "WISP" mode and that the "WISP" mode has the set of features that you need.

REGULAR-SIZED ROUTERS THAT HAVE A "WISP" MODE (continued)

- Two brands of routers that have a well-implemented "WISP" mode are WavLink routers which are being currently manufactured and Edimax "version 2" routers which have been discontinued but are still available

REGULAR-SIZED ROUTERS THAT HAVE A "WISP" MODE (continued)

- "WavLink" routers are the best "WISP"-capable routers that we have ever tested in terms of both features and cost

REGULAR-SIZED ROUTERS THAT HAVE

A "WISP" MODE (continued)

- The version 2 editions of "Edimax" routers with "WISP" mode are the second best "WISP"-capable routers but they have been discontinued by the manufacturer. However the version 3 editions of "Edimax" routers no longer have a working "WISP" capability despite claims to the contrary in their documentation.

"WAVLINK" ROUTERS

- "Wavlink" routers are the only brand of "WISP" routers that have some models that have the ability grab a 5.x Gigahertz Wi-Fi signal and use it for the "WAN" side of the router. ("WAN" stands for "Wide Area Network")
The "WAN" side of a router is sometimes called the "Internet" side.

"WAVLINK" ROUTERS (continued)

- Not all models of "Wavlink" routers can use a 5.x Gigahertz Wi-Fi signal. The cheaper models of "Wavlink" routers can only use a 2.45 Gigahertz Wi-Fi signal for the "WAN" side.

"WAVLINK" ROUTERS (continued)

- "Wavlink" model WN533A8 is the best WISP router that is currently available at retail. It can use 2.45GHz or 5.0 GHZ Wi-Fi "Wireless Access Points" for it's "WAN" side:

AC3000

MU-MIMO Tri-Band Wifi Router



5G

1733Mbps



5G

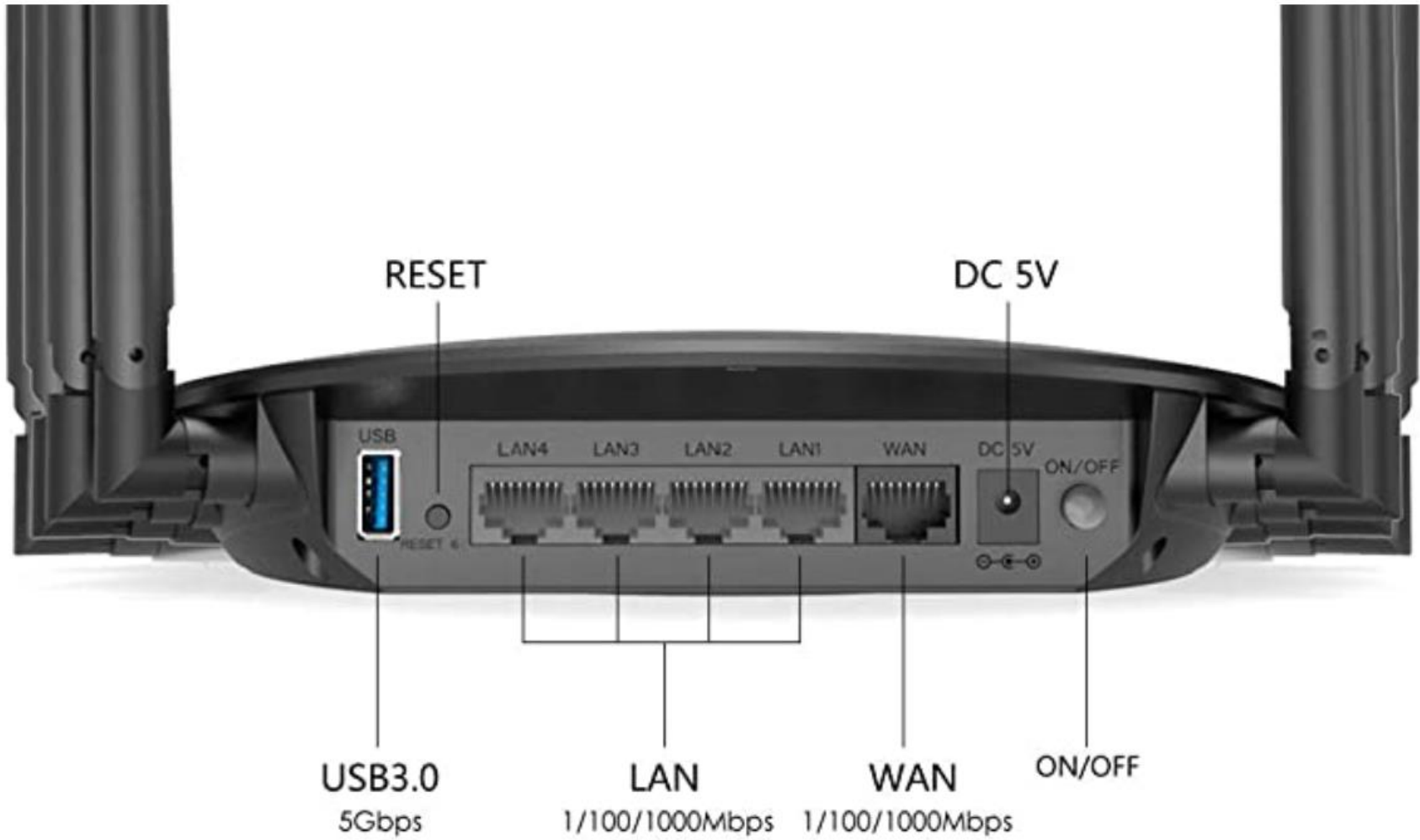
867Mbps



2.4G

400Mbps








WAVLINK WiFi Router AC3000 Wireless Tri-Band Gigabit Router/High Speed WiFi Range Extender,4K Streaming and Gaming with USB 3.0 Ports Wireless Internet Router,Parental Control&QoS

Brand: WAVLINK



113 ratings | 32 answered questions

Price: **\$109.99** ✓prime & FREE Returns

Product Dimensions	1.18 x 0.44 x 1.13 inches
Item Weight	3.72 pounds
ASIN	B07SN2H12X
Customer Reviews	 113 ratings 3.8 out of 5 stars
Best Sellers Rank	#27,223 in Electronics (See Top 100 in Electronics) #310 in Computer Routers
Date First Available	June 2, 2019
Manufacturer	Wirelessforce

WL-WN533A8 REV.A

"EDIMAX" ROUTERS

- "Edimax" is the only brand of "WISP" routers that have the ability to negotiate a "captive portal" screen (like the "End User Agreement" Web pages at many schools and colleges OR the Web pages with password or PIN number challenges at many hotels)

"EDIMAX" ROUTERS (continued)

- The ability to help you get past a "captive portal" screen can provide you with cost savings when hotel Internet services have a "per-device" charge (where there is a separate daily charge for each "MAC address" that you connect to the Internet)

"EDIMAX" ROUTERS (continued)

- Both small "travel routers" and regular-sized routers are available from "Edimax":
However, their regular-sized routers run cooler and are more reliable relative to their "travel routers":

"EDIMAX" ROUTERS (continued)

- According to <http://www.amazon.com/Edimax-Wireless-Personal-Hotspot-BR-6258nL/product-reviews/B00ADHPP6Y>, the smaller Edimax BR-6258nL router:

It works fine with hotel systems that require authentication through a web interface. All you do is 1) connect to the router; 2) through the configuration screen, tell the router to connect to the hotel's Wi-Fi network in WISP mode; 3) you'll see the hotel's login screen popup in your browser. Once you authenticate, all your devices will have internet.

"EDIMAX" ROUTERS (continued)

- All "Version 2" models of Edimax's wireless routers can connect you to the authentication "splash" Web page of a hotel's Wi-Fi Internet service during the setup of "WISP".

"EDIMAX" ROUTERS (continued)

- However, the version 2 models of Edimax routers have been "discontinued".
- Do not buy the version 3 model of Edimax routers since they do not have a "WISP" mode despite the claims that they actually have a "WISP" mode in their specifications and manuals.





Edimax BR-6478AC V2 AC1200 Gigabit Dual-Band Router, White

Brand: Edimax

★★★★☆ 47 ratings | 31 answered questions

Available from these sellers.

- AC1200 High-Speed: Next generation 802.11ac Wi-Fi standard
- 5 Modes in 1: Router, Access Point, Wi-Fi Range Extender, Wi-Fi Bridge and WISP
- Concurrent Dual-Band: Wireless connectivity for 2.4GHz and 5GHz
- VPN (Virtual Private Network): Access secure, remote networks from anywhere and protect privacy on public Wi-Fi and bypass Internet censorship
- USB Port: Storage & FTP file or printer sharing as your own private, secure cloud

[Compare with similar items](#)

New (10) from **\$49.90** + \$8.48 Shipping

- Dual Band Gigabit Wi-Fi Router Mode
- Access Point Mode
- Wi-Fi Range Extender (Repeater) Mode
- Wi-Fi Bridge Mode
- WISP Mode

^ Summary

Wireless Type

802.11a/b/g/n, 802.11ac

^ Other Technical Details

Brand

Edimax

Item model number

BR-6478AC_V2

Operating System

Windows 10, Mac OS

Item Weight

11.4 ounces

Product Dimensions

7.52 x 1.69 x 6.81 inches

Item Dimensions L x W x H

7.52 x 1.69 x 6.81 inches

Color

White

Manufacturer

Edimax Computer Company

ASIN

B018IZ9WZM

Is Discontinued By Manufacturer



Date First Available

October 21, 2017

"TRAVEL ROUTERS"

- Small in size and weight for travel
- Less suspicion at TSA checkpoints at airports
- Run hotter than regular-sized routers
- Less features than regular-sized routers

"TRAVEL ROUTERS" (continued)

- "Travel routers" have less data throughput speeds and lower Wi-Fi speeds relative to regular-sized routers

"TRAVEL ROUTERS" WITH "WISP" CAPABILITY

- Not all "travel routers" have "WISP" capability
- If the documentation of a "travel router" does not spell out "WISP", then that model does not have "WISP" capability

"TRAVEL ROUTERS" WITH "WISP" CAPABILITY

- Here are some models of "travel routers" that have "WISP" capability:



TP-Link

TP-Link AC750 Wireless Wi-Fi Travel Router (TL-WR902AC)

★★★★☆ ▾ 59 customer reviews

| 55 answered questions

List Price: \$44.99

Price: **\$40.99** & **FREE Shipping**. [Details](#)

You Save: **\$4.00 (9%)**

Get \$50 off instantly: Pay \$0.00 upon approval for the Amazon Rewards Visa Card.

prime | Try Fast, Free Shipping ▾

In Stock.

Want it Friday, March 23? Order within **20 hrs 25 mins** and choose **One-Day Shipping** at checkout.

[Details](#)

Ships from and sold by Amazon.com.

Setup options: **Get expert setup and hands-on training**[Details](#)

Without expert setup

Expert setup
+\$99.00

▾ [See more](#)

- Travel-Sized Design – Conveniently small and light

TP-Link AC750 Wireless Wi-Fi Travel Router (TL-WR902AC)

- Travel-Sized Design – Conveniently small and light to pack and take on the road, creating Wi-Fi network via Ethernet
- Dual Band AC750 Wi-Fi – Strong, fast connection for HD streaming on all your devices
- One Switch for Multiple Modes – Perfect for Wi-Fi at home, your hotel room or on the road
- Flexible Power – Micro USB port to an adapter, portable charger or laptop
- Industry-leading 2-year warranty and unlimited 24/7 technical support





"TRAVEL ROUTERS" WITH "WISP" CAPABILITY

- See

[https://www.tp-](https://www.tp-link.com/us/download/TL-WR902AC.html)

[link.com/us/download/TL-](https://www.tp-link.com/us/download/TL-WR902AC.html)

[WR902AC.html](https://www.tp-link.com/us/download/TL-WR902AC.html)



TRENDnet

TRENDnet AC750 Wireless Dual Band Travel Router, Share a Single Internet Connection with Multiple Users, WPS for Security, Plug & Play, WISP, AP, Repeater Mode, TEW-817DTR

★★★★☆ ▾ 45 customer reviews

| 11 answered questions

Amazon's Choice for "trendnet travel router"

Price: **\$34.99** & **FREE Shipping**. [Details](#)

Get \$50 off instantly: Pay \$0.00 upon approval for the Amazon Rewards Visa Card.

✓prime | Try Fast, Free Shipping ▾

In Stock.

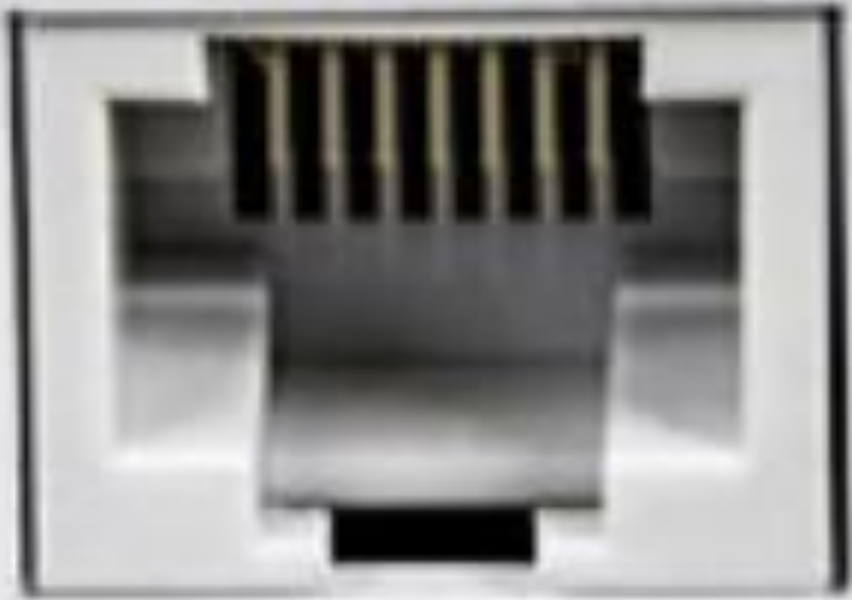
Want it tomorrow, March 22 to 92646? Order within **19 hrs 1 min** and choose **One-Day Shipping** at checkout.

Ship from and sold by Amazon.com. Gift wrap

TRENDnet AC750 Wireless Dual Band Travel Router, Share a Single Internet Connection with Multiple Users, WPS for Security, Plug & Play, WISP, AP, Repeater Mode, TEW-817DTR







ROUTER
AP+WISP
OFF



Price: **\$34.99** & **FREE Shipping**

"TRAVEL ROUTERS" WITH "WISP" CAPABILITY

- See [https://www.trendnet.com/pr
oducts/wifi/AC-
routers/AC750/TEW-
817DTR](https://www.trendnet.com/products/wifi/AC-routers/AC750/TEW-817DTR)

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS

- <https://afiavillage.com/wisp-wifi-router/>
(Warning: we do not agree with their ranking of the various WISP routers that they tested.)

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <http://www.pcworld.com/article/2150741/tested-6-new-travel-routers-that-can-deploy-a-secure-wifi-network-almost-anywhere.html>
(Warning: this article has good general information but the models of WISP routers that they describe are obsolete.)

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://wifi-settings.com/wireless-routers/wisp-mode/>

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://www.youtube.com/watch?v=5YDHsVi5RUQ>
- <https://www.youtube.com/watch?v=750p-ehc4Ko>
- <https://www.youtube.com/watch?v=QBhBHeuLhrg>

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://www.youtube.com/watch?v=ObK0R75AdGc>
- <https://www.youtube.com/watch?v=ydWq2uyDkgM>

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://www.youtube.com/watch?v=5YDHsVi5RUQ>
- <https://www.youtube.com/watch?v=750p-ehc4Ko>
- <https://www.youtube.com/watch?v=QBhBHeuLhrg>

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://www.tp-link.com/us/support/faq/617/>
- <https://www.tendacn.com/en/faq/1780.html>

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- https://www.dipolnet.com/wisp_access_point_tl-wr743nd_with_router_and_4-port_switch_N2956.htm

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- https://eu.dlink.com/uk/en/-/media/consumer_products/dap/dap-1360/datasheet/dap_1360_f1_datasheet_en_eu.pdf

(but do not buy a WISP router that only runs at 802.11abcn Wi-Fi mode and cannot run in 802.11ac mode)

APPENDIX 1

MORE INFORMATION ABOUT "WISP" ROUTERS (continued)

- <https://www.lifewire.com/top-travel-wireless-routers-2377742>
(but only some of the listed routers have a WISP capability)

APPENDIX 2

"CAPTIVE PORTAL" SCREENS

- See https://en.wikipedia.org/wiki/Captive_portal

Free access with your OurHotel Rewards membership

Username

Password

Submit

Not an OurHotel Rewards member, join now

Tomato Captive Portal

Wifi Network & Internet conditions:

You are solely responsible for any illegal activities once you click the "OK, I AGREE" button.

We are not responsible for faulty operation of your computer or equipment. You may be asked to stop using your equipment if it causes interference to other residents.

A service charge will be made if you require assistance to connect to our routers.

This banner will appear again periodically.

To renew your access time, you must agree once again to these conditions.

Ok, I Agree!



Powered by [Tomato Firmware](#) and [NoCat Splash](#)



Authentication Required

Please enter your username and password to continue.

Username:

Password:

Continue

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN

- If your "travel router" cannot negotiate a "login screen" (is not a "Edimax" router) you can use a laptop or a virtual machine to "spoof" the MAC address of your "travel router" during the setup process for a "WISP" router.

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- This procedure is called "spoofing a MAC address" or "MAC cloning"
- "MAC" stands for "Media Access Control"
- A "MAC address" is also known as a "physical address" or a "hardware address"

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- **SPOOFING OR CLONING A
"MAC ADDRESS" STEP 1:**
Determine the MAC address for
the WAN or Internet (RJ45) port
of the travel router.

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- **SPOOFING OR CLONING A
"MAC ADDRESS" STEP 2:**
Use the appropriate tool or settings menu on your computer's network adapter to change its MAC address to the MAC address of the router.

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- SPOOFING OR CLONING A "MAC ADDRESS" STEP 3:
Using your computer, log into a Web browser and complete the authentication process.

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- SPOOFING OR CLONING A "MAC ADDRESS" STEP 4:
Change your computer's MAC address back to its default MAC address and then reboot your computer.

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- SPOOFING OR CLONING A "MAC ADDRESS" STEP 5:
Power on your router and then complete the "WISP" setup

APPENDIX 3

WORKAROUND FOR NEGOTIATING A "CAPTIVE PORTAL" SCREEN (continued)

- SPOOFING OR CLONING A
"MAC ADDRESS" (continued):

See

<http://www.howtogeek.com/195762/ask-htg-how-can-i-use-my-google-chromecast-in-a-hotel-room/>