

2: Wi-Fi MESH UNITS AND EXTENDERS

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TuCS COMPUTER
son
SOCIETY



An International
Association of Technology
& Computer User Groups

**Web location for this
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Notes”**

SUMMARY

To increase the special range and signal strength of a Wi-Fi router, you can utilize "Wi-Fi extenders" and "Wi-Fi mesh extenders". This is a demonstration and explanation of this useful technique.

TOPICS

- Basic Configuration: Wi-Fi router plus mesh device or Wi-Fi extender

**Internet Service
Provider**

**Wi-Fi
Router**

**Wi-Fi
Extender**

Backhaul

**Internet Service
Provider**

**Wi-Fi
Router**

Backhaul

**Wi-Fi
Mesh
Device**

Wi-Fi ROUTER AND MESH UNITS AND EXTENDERS

- Basic coverage area of a Wi-Fi router is a horizontal circle
- Mesh unit or extenders connect to the Wi-Fi router via wired or wireless equivalent or Wi-Fi technologies (= "backhaul")
- Each additional mesh unit or extender adds in an additional horizontal circle

Wi-Fi ROUTER AND MESH UNITS AND EXTENDERS (continued)

- To use a Wi-Fi technology as a backhaul connection, you have to use routers and mesh units from the same manufacturer and "generation":
Linksys "Velop Whole Home Mesh"
Netgear "Orbi" & "NightHawk MK32"
mesh are compatible with each other
TP-Link "Deco"
Asus "ZenWiFi" & "AiMesh" are compatible with each other⁸

Wi-Fi ROUTER AND MESH UNITS AND EXTENDERS (continued)

- To use a wired technology as a backhaul connection, you can mix and/or match Cat 5 or Cat 6 or Cat 7 and/or Cat 8 cabling

Wi-Fi ROUTER AND MESH UNITS AND EXTENDERS (continued)

- To use a wired equivalent technology as a backhaul connection, you can use:
"Powerline Networking" links
and/or
"Multimedia Over Coax Alliance"
links

Wi-Fi ROUTER AND MESH UNITS AND EXTENDERS (continued)

- "Mesh units" are usually smarter than "Wi-Fi Extenders":

Mesh units automatically pick up the SSID's of the transceivers of the nearest Wi-Fi router when you install them.

Some Wi-Fi extenders add in the SSID of the nearest Wi-Fi router+ "_ext".

Wi-Fi ROUTER DEMO

- My "Windows 11" computer runs the free "VMware Workstation Player 16" which runs a "guest" "Windows 11" virtual machine which is connected to a Wi-Fi router

Wi-Fi MESH DEVICE DEMO

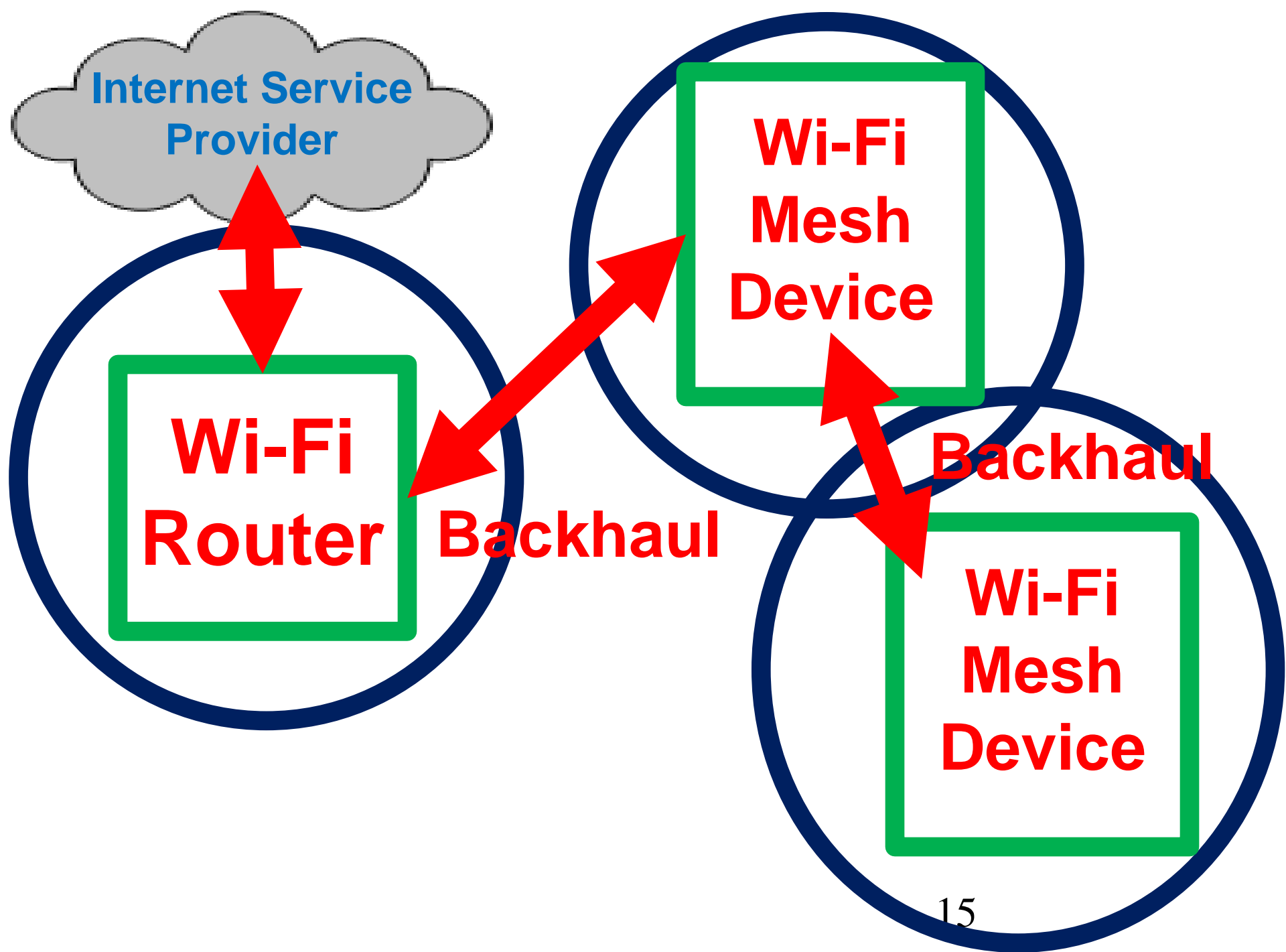
- My "Windows 11" computer runs a free "VNC Viewer" app which connects via Ethernet to a laptop in a remote part of the house which runs the free "VMware Workstation Player 16" which connects to a guest "Windows 11" virtual machine which is connected to a mesh Wi-Fi device

**Internet Service
Provider**

**Wi-Fi
Router**

Backhaul

**Wi-Fi
Mesh
Device**



**Internet Service
Provider**

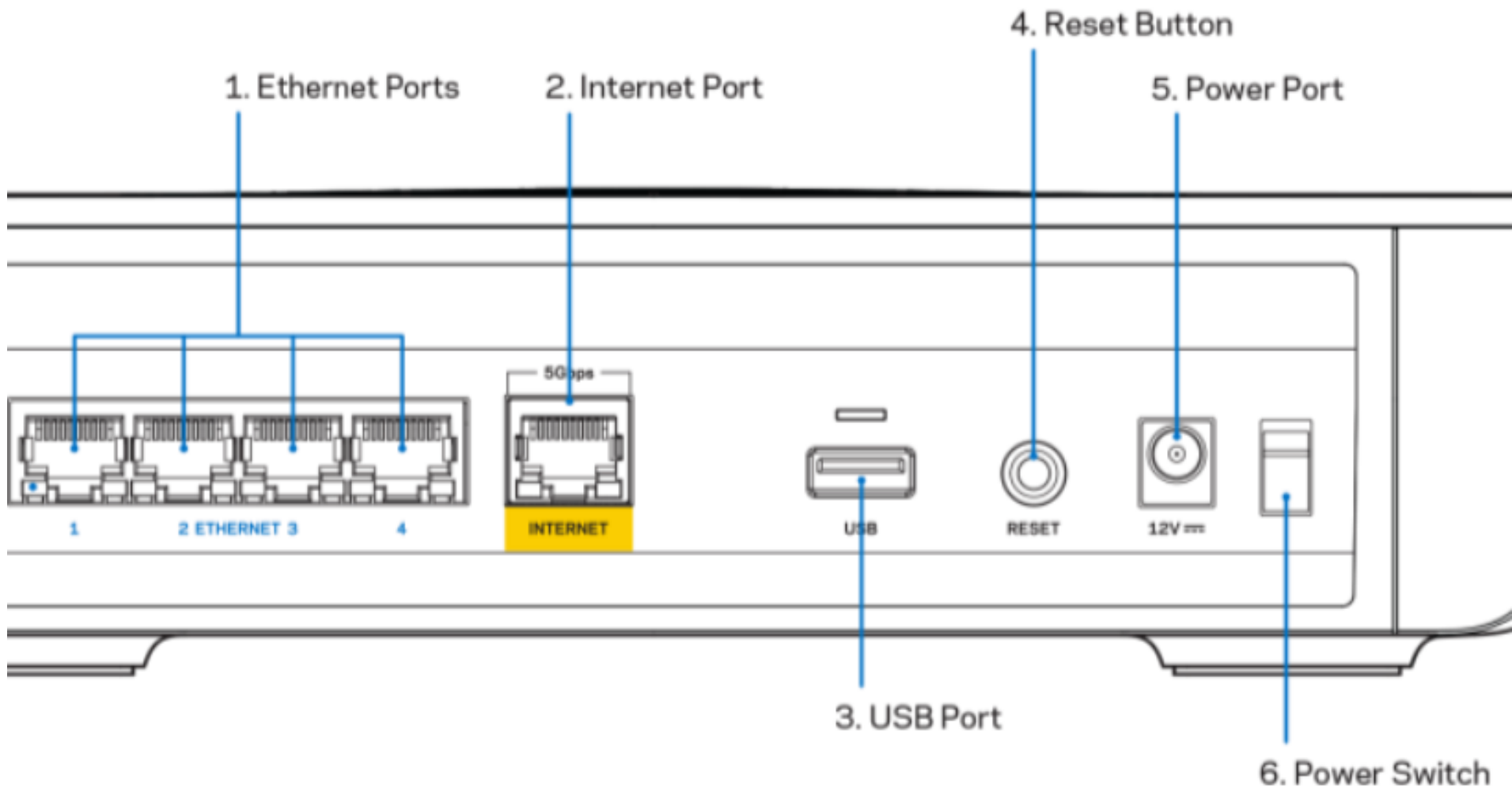
**Linksys
Router
("Velop")**

**Linksys
"Velop"
Wi-Fi
Mesh
Device**

**Backhaul
can be
wired or
wireless**

LINKSYS Wi-Fi ROUTER

- https://www.amazon.com/Linksys-MR7500-Hydra-Tri-Band-Router/dp/B09DRDWXWF/ref=sr_1_11?crid=5LTGYUPNA6TP&keywords=linksys+router+wi-fi+6e&qid=1646277024&sprefix=linksys+router+wi-fi+6%2Caps%2C255&sr=8-11

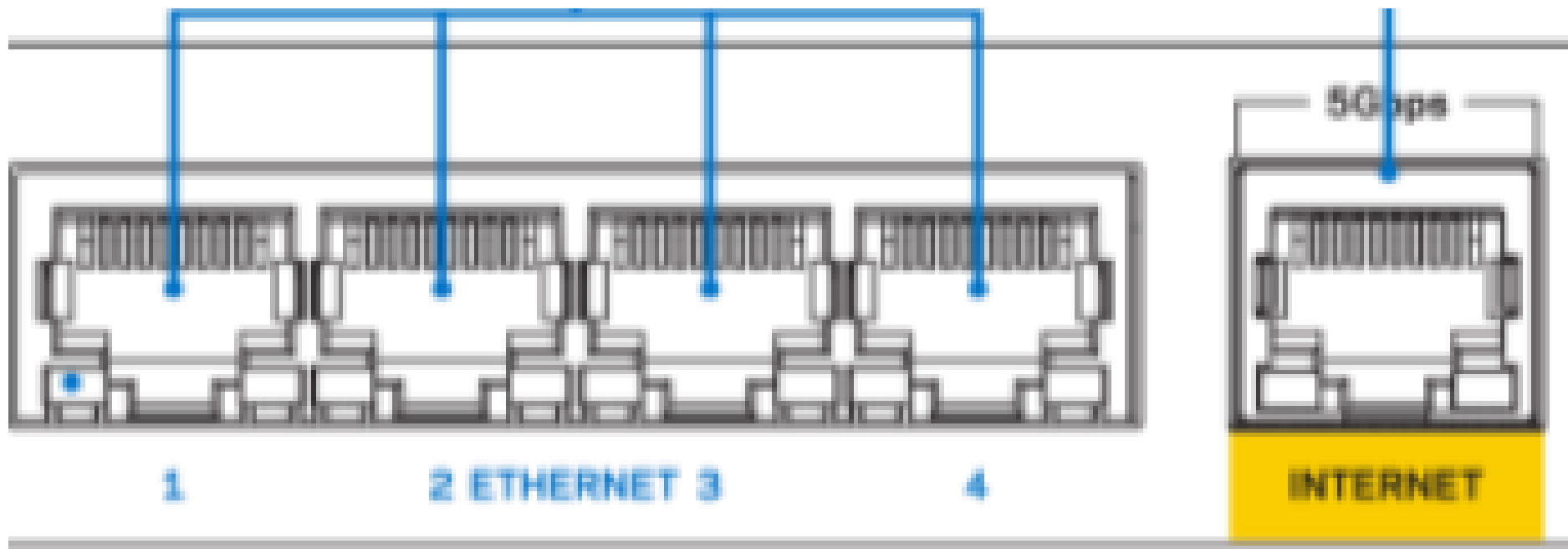


3. USB Port

6. Power Switch

LINKSYS MESH DEVICE DEMO

- https://www.amazon.com/gp/product/B09DRCJH3G/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1



LINKSYS®

Model No. MX8500

ip0B9

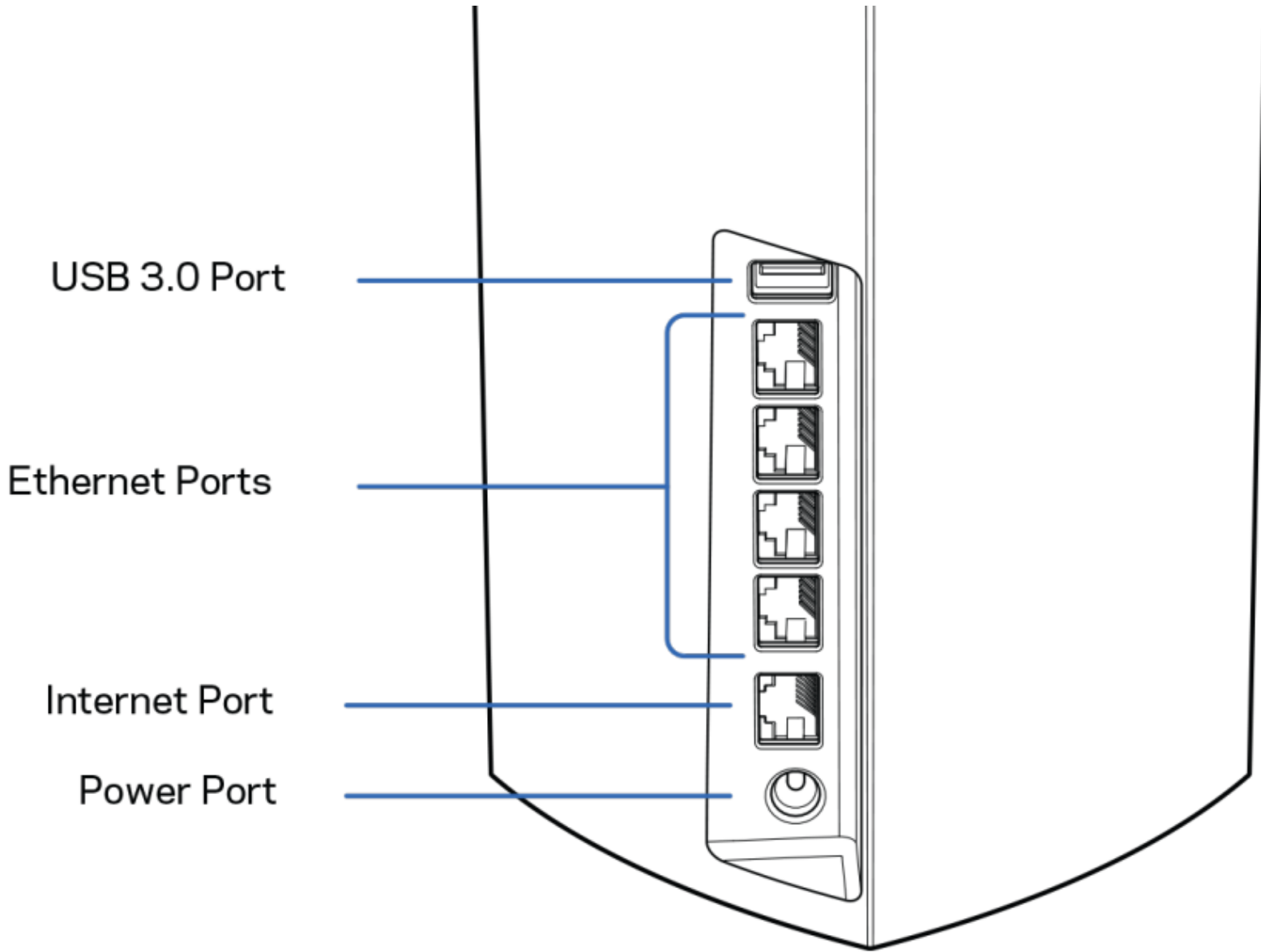
oqqub

50

Reset

WPS

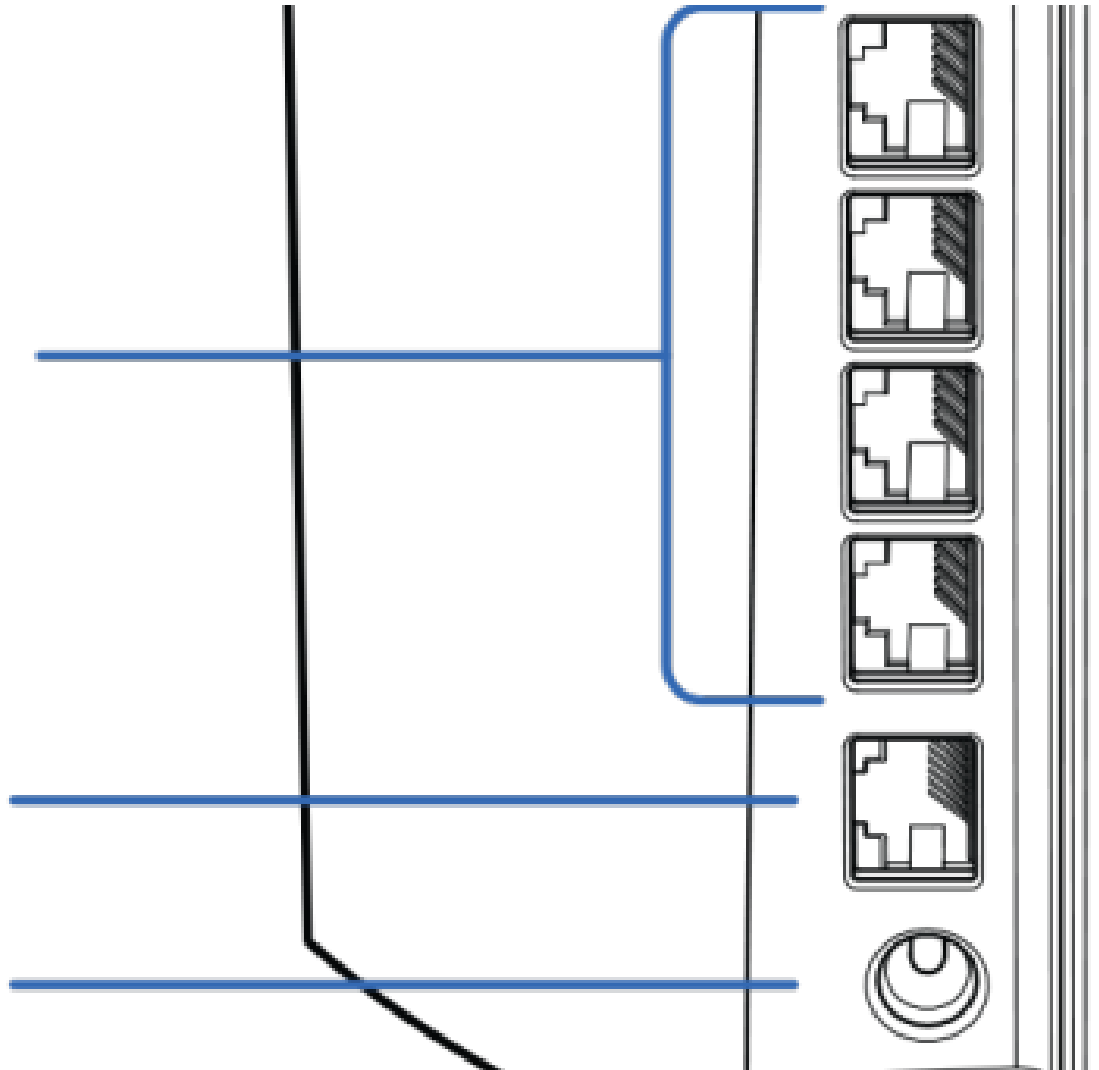




Ethernet Ports

Internet Port

Power Port



FIRST ASUS ROUTER ACTING AS A Wi-Fi ROUTER AND SECOND ASUS ROUTER ACTING AS A MESH NODE

- https://www.amazon.com/gp/product/B08RWBPBBR/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1

Internet Service
Provider

**Asus Wi-Fi
Router
("AiMesh")**

**Backhaul
can be
wired or
wireless**

**Second
Asus
Wi-Fi
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a Wi-Fi
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Mesh
Device**

Wi-Fi MESH DEVICE DEMO

- https://www.amazon.com/gp/product/B08RWBPBBR/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1

MOVING "USER EQUIPMENT" DOES NOT ALWAYS TRIGGER A "HANDOFF"

- When you move a laptop, tablet, or cell phone from the zone of one Wi-Fi transceiver device to the zone of a related Wi-Fi transceiver device, a handoff is not always triggered so you might have to force the handoff.

USING WIRED EQUIVALENT TECHNOLOGIES INSTEAD OF WIRED NETWORKING

- Instead of running Cat 5/6/7/8 wires as backhaul connections, you can use one of two wired equivalent technologies:
"Powerline Networking" links
or
"Multimedia Over Coax Alliance" links

USING WIRED EQUIVALENT TECHNOLOGIES INSTEAD OF WIRED NETWORKING (continued)

- https://www.amazon.com/gp/product/B0778Y6K6N/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1

USING WIRED EQUIVALENT TECHNOLOGIES INSTEAD OF WIRED NETWORKING (continued)

- https://www.amazon.com/gp/product/B08ML1TSXC/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1

USING EXISTING Wi-Fi ROUTERS INSTEAD OF BUYING NEW ONES

- If you have routers of various brands and model years, you can usually wire them together to expand your existing Wi-Fi coverage:

Run Ethernet or other wired technologies to connect the "WAN" jack of the older Wi-Fi routers to the "LAN" jacks of the newer upstream Wi-Fi routers

USING EXISTING Wi-Fi ROUTERS INSTEAD OF BUYING NEW ONES (continued)

- Here are two configurations that I have successfully installed into homes in the past:

Internet Service Provider

**Linksys
Wi-Fi
Router**

**Netgear
Wi-Fi
Router
acting as
an
extender**

**Backhaul
must be
wired or
wired
equivalent**

**Internet Service
Provider**

**D-Link
Wi-Fi
Router**

**Asus
Wi-Fi
Router
acting as
an
extender**

**Backhaul
must be
wired or
wired
equivalent**

USING EXISTING Wi-Fi ROUTERS INSTEAD OF BUYING NEW ONES (continued)

- Not all routers of different brands or even different models of the same brands of routers will always get along with each other but you will usually get the WAN jacks of an older router to communicate with a LAN jack of a newer router

USING EXISTING Wi-Fi ROUTERS INSTEAD OF BUYING NEW ONES

(continued)

- When you use a spare or older router as a Wi-Fi extender, do not expect the existing upstream router to immediately get chummy with the spare or older router:
Just "lie" to the spare or older router and act like you are connecting it to a broadband Internet modem of an Internet provider.

USING EXISTING WI-FI ROUTERS INSTEAD OF BUYING NEW ONES

(continued)

- In addition to running Category 5/6/7/8 cabling between your routers, you can also use Powerline Networking links and Multimedia Over Coax Alliance "Wave 2" links to connect LAN jack of an upstream router to WAN jack of a downstream router

