

OPCUG



Ottawa PC Users' Group

Wi-Fi making sense of it all.



Quick Service Announcement

In lieu of OPCUG Annual Food Drive

Please consider giving when
you can during this Holiday
season and whenever the
mood takes you



Casting Calls

Will need the following volunteers for a 2 slide presentation towards the end:

- Looking for a Hero dad
- Game loving son
- Daughter who'll be a famous scientist
- Mom (always providing good advice)



OPCUG



Users helping users

Ottawa PC Users' Group

Wi-Fi making sense of it all.



Wi-Fi making sense of it all.

Questions we'll be exploring:

Wireless works what's the big deal?

Quick History- 1st the difference in frequency

Quick History- 2nd the difference in standards

Wireless lament (or how money trumps technology, again)

Lets go shopping (wireless current landscape)

Brief overview of wireless extenders



Wi-Fi Quick History - Frequency

2.4 GHz

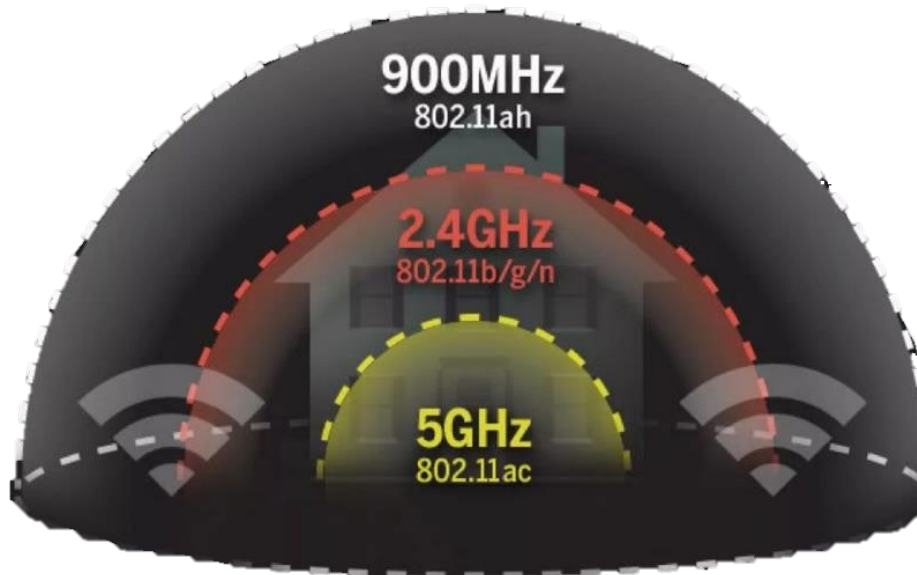
- Long range (the choice of cameras & other IOT devices)
- Slower speed
- Cheaper to manufacture (again another reason it is the choice of cameras & other IOT devices)
- Used by other non-wireless devices (microwave ovens, phones, car alarm, Bluetooth)

5 GHz

- Short range
- Higher speed
- Less obstacle penetration (walls)
- Not as much used or automatically selected (Why?)

900 MHz

- Commercial / industrial use
- Long range



Wi-Fi Quick History - Standards

IEEE Standard	Year	Frequency	Max Data Rate in Mbps	Positives	Negatives	General Comments
802.11a	1999	5 GHz	54	Faster	Poorer obstacle penetration	Not many devices (mainly business use)
802.11b	1999	2.4 GHz	11	Kick-started Wi-Fi's popularity	Slower Security Vulnerability	Was the choice of manufacturers for a decade
802.11g – Wi-Fi 3	2003	2.4 GHz	54	Jump in speed & compatible with 11B	Max speed (for all connected devices) depended on slowest device if on 11B	Fixed previous security issues
802.11n – Wi-Fi 4	2009	Both 2.4 & 5 GHz	600	Supported both frequencies, increase throughput – antennas & faster	Was introduced before it was a standard & had different flavours	Remembered the confusion between manufacturer claims & lack of compatibility issues
802.11ac – Wi-Fi 5	2014	Both 2.4 & 5 GHz	1,300	Overall improvement in compatibility and speeds		Lessons learned from 11n made it reliable
802.11ax – Wi-Fi 6	2019	Both 2.4 & 5 GHz	10,000 – 12,000	Similar improvements with “5G”, faster & better throughput		6E (extended is coming – possibly 2021)



Wireless Lament



HP iPAQ Pocket PC – 802.11b

- in the mid 2000s it was nearly the answer to my mobile needs
- yet it had one significant problem

'Indefensible' Wi-Fi flaw discovered in 802.11b network protocol

The flaw could be used to jam wireless networks

By Bob Brewin

Computerworld | MAY 17, 2004 12:00 AM PST

The manufacturers indicated that the only solution would be for users to switch to devices using the 802.11a protocol.

It wasn't till iPAQ110 was out in 2008 that it offered 802.11b/g



Lets go Wi-Fi 6 shopping!

Compatible devices <https://www.cnet.com/news/wi-fi-6-devices-top-compatible-phones-laptops-gadgets-routers-thus-far/> Oct. 1, 2020

PHONES:

- Huawei P40 Pro
- iPhone 11, 11 Pro and 11 Pro Max
- iPhone SE
- LG V60 ThinQ
- Motorola Edge Plus
- OnePlus 8 and 8 Pro
- Samsung Galaxy S10 and S10E
- Samsung Galaxy Note 10
- Samsung Galaxy S20
- Samsung Galaxy Fold

LAPTOPS - DESKTOPS - MOBILE:

- Asus Chromebook Flip c436
- Dell XPS 13 (2020)
- HP Spectre x360
- Lenovo Yoga c940
- LG Gram 17
- Microsoft Surface Laptop Go
- ASUS Gaming Motherboards
- 8th Gen iPad & 4th Gen iPad Air

NOTABLE EXCEPTIONS:

- Samsung Galaxy Z Flip
- Google's Pixel lineup
- None of the Apple laptops
- And no TVs, streamers or IOTs



Lets go Wi-Fi 6 shopping!

ROUTERS – Dec, 6, 2020 - BestBuy

Best Buy Exclusive X



ASUS 6-Stream Wireless AX5400 Dual-Band Wi-Fi 6 Router (RT-AX82U) - Only at Best Buy

★★★★★ (63 Reviews)

\$349.99

- ✓ Available to ship
- ✓ Available at nearby stores



NETGEAR Nighthawk 6-Stream AX5400 Dual-Band Wi-Fi 6 Router (RAX50-100CNS) - Only at Best Buy

★★★★★ (58 Reviews)

\$249.99 **SAVE \$100**

- ✓ Available to ship
- ✓ Available at nearby stores



NETGEAR Nighthawk 12-Stream AX11000 Tri-Band Wi-Fi 6 Router (RAX200-100CNS) - Only at Best Buy

★★★★★ (519 Reviews)

\$599.99

- ✓ Available to ship
- ✓ Available at nearby stores



TP-Link Archer AX11000 Tri-Band Wi-Fi 6 Router - Only at Best Buy

★★★★★ (27 Reviews)

\$549.99

- ✓ Available to ship
- ✓ Available at nearby stores



Lets go Wi-Fi 6 shopping!

ROUTERS – Dec, 6, 2020 - Staples



ASUS RT-AX58U AX3000 Dual Band Wi-Fi 6 (802.11ax) Router...

★★★★★ (16)

~~\$259.99~~
\$199.99

ADD TO CART



ASUS RT-AX88U AX6000 Dual Band Wi-Fi 6 (802.11ax) Router...

★★★★★ (5)

\$399.99

ADD TO CART



D-Link DIR-X1560 AX1500 Mesh Wi-Fi 6 Router

~~\$119.99~~
\$99.99

ADD TO CART



TP-Link AX3000 Dual Band Gigabit Wi-Fi 6 Router

★★★★★ (9)

\$199.99

ADD TO CART



D-Link AX5400 Mesh Wi-Fi 6 Router

★★★★★ (2)

\$329.99



Netgear Nighthawk AX4 4-Stream AX3000 Wi-Fi 6 Router

★★★★★ (105)

\$249.99



D-Link Wireless AX1800 Mesh Wi-Fi 6 Router - DIR-X1870

★★★★★ (2)

\$159.99



Linksys MAX-STREAM Mesh WiFi 6 Router

\$199.99



Wi-Fi 6 Family Scenario (Casting Call)

- Looking for a Hero dad
- Game loving son
- Daughter who'll be a famous scientist
- Mom (always providing good advice)



Wi-Fi 6 Family Scenario (All is good)



Heh kids, I've just bought the answers to our dreams, an astonishing 10,756Mbps Wi-Fi 6 router, with bright red wing things that'll answer all of our wireless slowness problems!



That's good dear, hopefully it didn't cost that much??



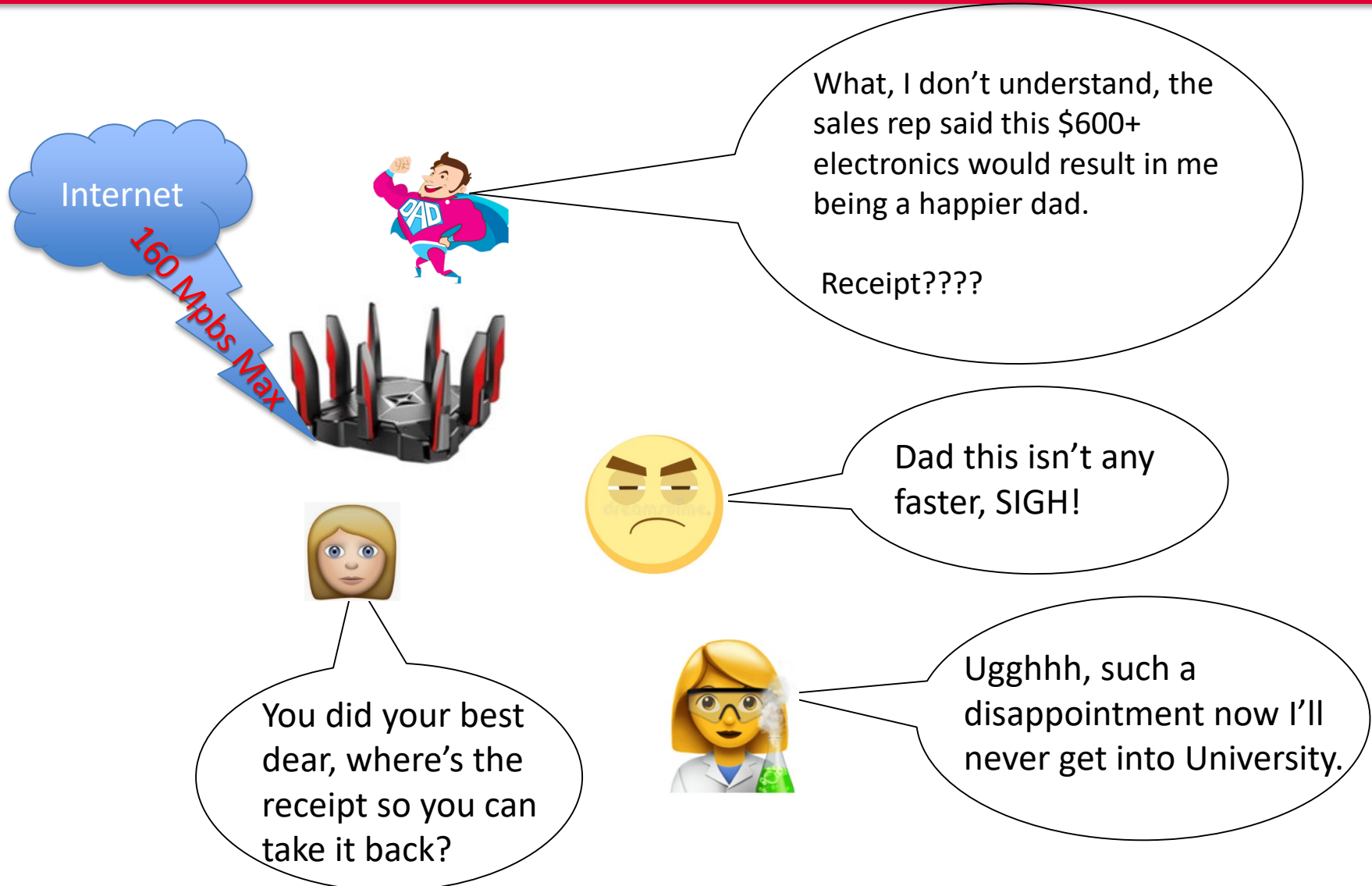
Way to go Dad, that is absolutely LIT!



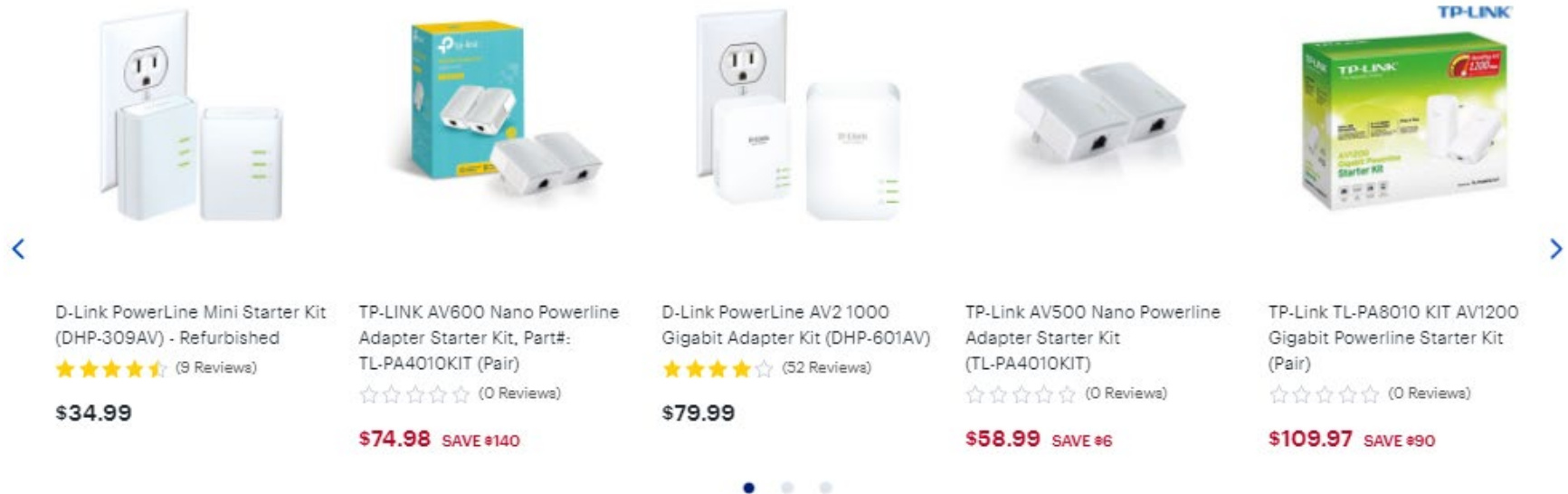
OMG, finally, my cure for cancer won't be slowed by some silly game!



Wi-Fi 6 Family Scenario (Oh, oh)



Powerline Networking



Access the same streamlined Internet quality in the deepest corners and furthest reaches of your home. The D-Link PowerLine AV2 1000 Gigabit Adapter (DHP-601AV) delivers the ultimate in wired connectivity for hard-to-reach areas, utilizing your home's existing electrical wiring as a reliable high-speed network without running additional cables.



Wi-Fi Extenders



TP-Link Wireless AC1200 Wi-Fi 5 Range Extender (RE305)

★★★★☆ (115 Reviews)

\$39.99 SAVE \$10

- ✓ Available to ship
- ⊗ Sold out in nearby stores



NETGEAR AC1200 Wi-Fi 5 Range Extender Essentials Edition (EX6120-100CNS)

★★★★★ (380 Reviews)

\$79.99

- ✓ Available to ship
- ✓ Available at nearby stores



TP-Link Wireless AC2600 Wi-Fi 5 Range Extender (RE650)

★★★★★ (98 Reviews)

\$119.99 SAVE \$20

- ✓ Available to ship
- ⊗ Sold out in nearby stores



TP-Link Wireless AC1750 Wi-Fi 5 Range Extender (RE450)

★★★★★ (196 Reviews)

\$89.99

- ✓ Available to ship
- ⊗ Sold out in nearby stores

To get the best results, you have to plug the extender into a power outlet midway between your router and the dead-zone area. The extender can then pick up the Wi-Fi signal from your router and push it deeper into your home. If your goal is to get Wi-Fi in that one dead zone in your home so you can browse the web and check email, a Wi-Fi range extender can be useful. <https://www.consumerreports.org/wifi-extenders/should-you-buy-a-wifi-range-extender/>



Wi-Fi Mesh



NETGEAR Orbi AC3000 Mesh Whole-Home Wi-Fi 5 System (RBK50-100CNS) - 2 Pack
★★★★★ (15001 Reviews)

Boxing Day Price Now

\$379.99 SAVE \$120

- ✓ Available to ship
- ✓ Available at nearby stores



NETGEAR Nighthawk Dual-Band AX1800 Whole Home Mesh Wi-Fi 6 System (MK62-100CNS) - 2 Pack
★★★★★ (1404 Reviews)

\$229.99 SAVE \$70

- ✓ Available to ship
- ✓ Available at nearby stores



Linksys Velop AC2200 Whole-Home Mesh Wi-Fi 5 System (VHW0303-CA) - 3 Pack
★★★★★ (4607 Reviews)

\$499.99

- ✓ Available to ship
- ✓ Available at nearby stores



Linksys Wireless AC2200 Tri-Band Mesh Wi-Fi 5 Router (MR8300-CA)
★★★★★ (1633 Reviews)

\$199.99

- ✓ Available to ship
- ✓ Available at nearby stores

If your problem is bigger than a single room where you can't connect -- say, an entire floor where your speeds are spotty -- then your best move is almost certainly to upgrade to a mesh router. With multiple devices spread throughout your home, a good mesh router can sling a speedy signal from room to room, and you won't have to juggle multiple networks like you will with a range extender. <https://www.cnet.com/news/mesh-router-vs-wi-fi-range-extender-which-one-is-best-for-your-home-network/#:~:text=Mesh%20routers%3A%20Best%20for%20whole,upgrade%20to%20a%20mesh%20router.>



Wire in another Wireless Router



Belkin AC1600 Wi-Fi Dual-Band AC+ Gigabit Router

☆☆☆☆☆ (0 Reviews)

\$101.94

✓ Available online only

🛒 Marketplace seller



NETGEAR Nighthawk Wireless AC2100 Dual-Band Gigabit Wi-Fi 5 Router (R7200-100CNS)

★★★★★ (229 Reviews)

\$149.99 SAVE \$50

✓ Available to ship

⊗ Sold out in nearby stores



NETGEAR Wireless AC2000 Dual-Band Gigabit Wi-Fi 5 Router (R6850-100CNS)

★★★★★ (5 Reviews)

\$99.99 SAVE \$60

✓ Available to ship

✓ Available at nearby stores



Linksys MAX-STREAM Wireless AC1750 Dual-Band Wi-Fi 5 Router (EA7300-CA)

★★★★★ (2950 Reviews)

\$99.99 SAVE \$20

✓ Available to ship

✓ Available at nearby stores

This is / was my solution, in fact I happened to purchase the Netgear Nighthawk (not sure if same model) wired it from the basement to our bedrooms / office and then set it up as wireless access point.



Thank you for
your time.

