

u3a Computing Group

Alan Hopwood, 1 September 2022

Agenda



New Members

Welcome

Current News, Issues and Questions

Topic List

Communications within the home (extending your broadband)

AOB and Next Meeting

Current News, Issues and Questions

Anything to discuss?

Topic List

What do you want covered in this topic?

Topic	Votes
Communications within the home	4
Which apps are great	3
Solid State drives	3
Thunderbird email vs alternatives	2
Android - laptop integrations (connectivity)	2
How to select data on a tablet for later use	1
Unicode	1
Computer alternatives e.g. Chromebook	0

Presentation

**Communications within the
home (extending your
broadband)**

Presentation Agenda

Communications within the home

- Introduction (assumptions)
- Home Broadband connection
- Options:
 - Cable
 - WIFI
 - Wi-Fi Extender
 - Wi-Fi Mesh system
 - PowerLine
- Suppliers

} Who has what?

Introduction

Communications within the home

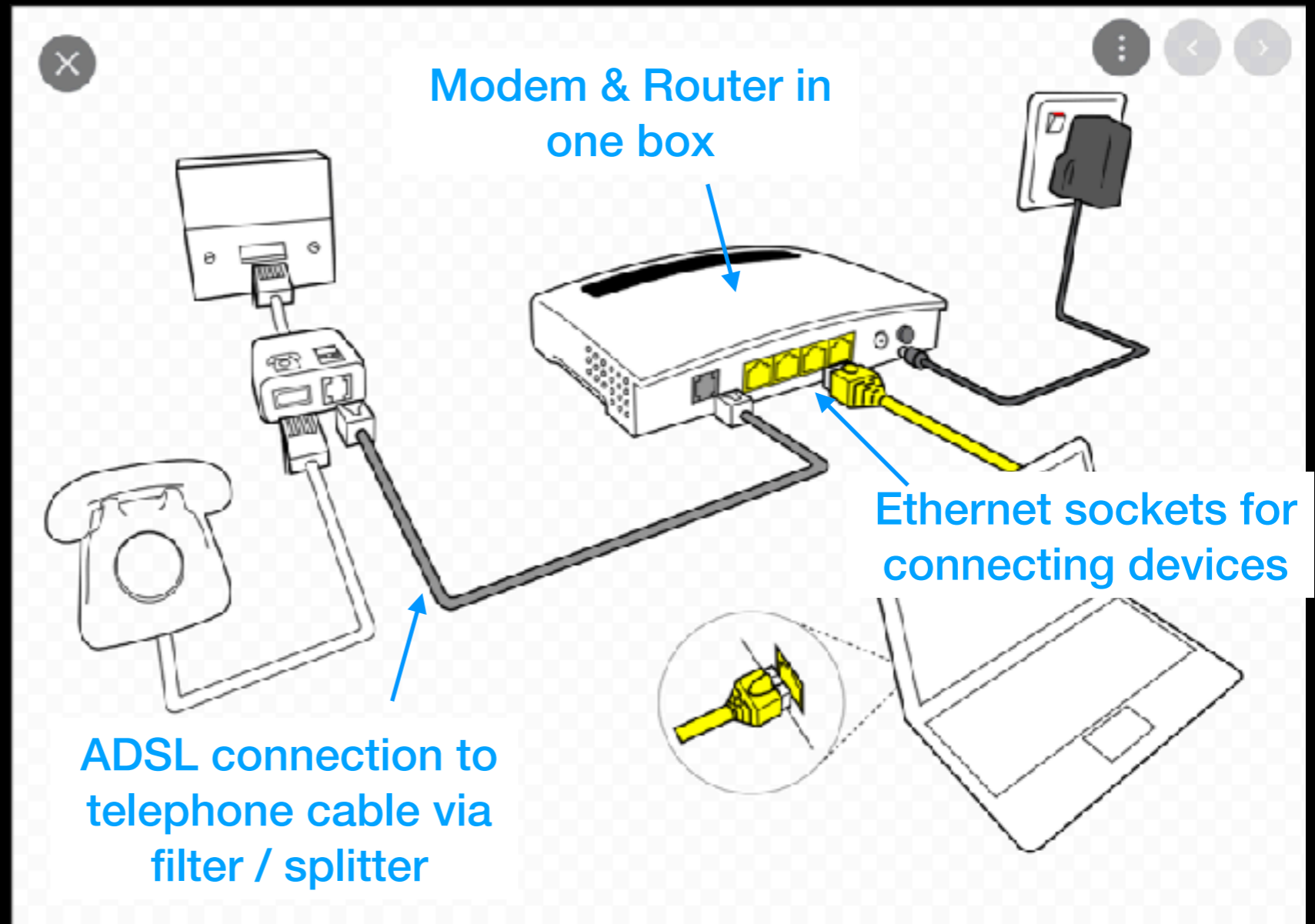
- Starting assumption is that you have a broadband connection into your home.
- The house builder or BT (or Post Office) installed a telephone socket in a corner of a room where you will never want to use a computer.
- and that is where your Broadband Modem/Router is.
- The objective of this presentation is to discuss connecting the devices all around your house to the router in the dark corner.

Typical Home connection

Communications within the home

Every Broadband has:

- Modem - to connect to telephone cable or fibre.
- Router - to allow multiple devices to connect to the modem (and each other)



Option1: Ethernet Cable

Communications within the home

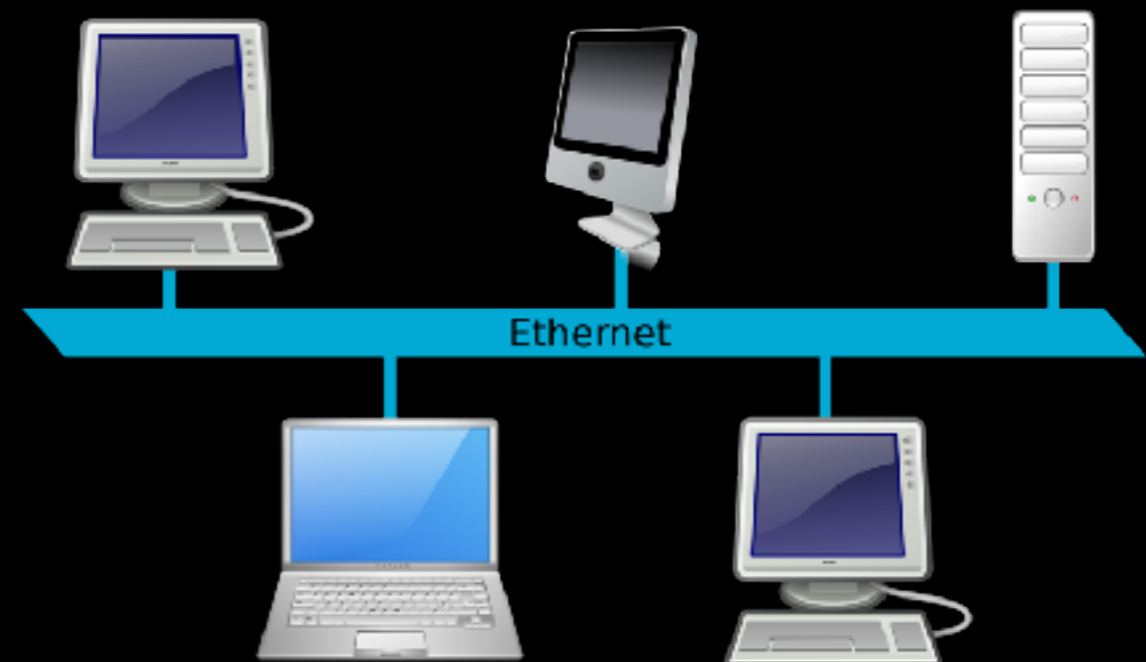
Disadvantages:

- Cable installation
- Some devices don't have an ethernet interface

Advantages:

- Everything else
 - Reliability
 - Speed

If possible connect your computer to router by cable even if you have Wi-Fi. This allows you to check if problems are internet or Wi-Fi



Option 2: Wi-Fi

Communications within the home

- Wi-Fi = Wireless Fidelity - now almost universal connection standard.
- Family of wireless network protocols - different versions

Version	Linkrate	Channel frequency
Wi-Fi 4	72-600 Mbps	2.4/5 GHz
Wi-Fi 5	433-6,933 Mbps	5 GHz
Wi-Fi 6	600-9,608 Mbps	2.4/5/6 GHz

- As per Ethernet, devices share the same channel
- Range is limited - typically 20-150m with line of sight
- Obstructions - walls, pillars, home appliances, etc. greatly reduce range

Use of Wi-Fi

Communications within the home

Many of us have a multiplicity of Wi-Fi connected devices

- Smart Phones & Tablets
- Laptops
- Printers
- Smart TVs
- Sky Q
- Music system (e.g. Sonos, Amazon Echo etc)
- Photo frames
- Door cameras
- Smart power sockets & Lighting
- Central heating thermostats & radiator valves

Option 2a: Integrated Wi-Fi

Communications within the home

- Most routers now have Wi-Fi built in.

Advantages

- Low cost
- No additional delays

Disadvantages

- Range limited - especially with thick walls
- Built in Wi-Fi may not be high quality



Option 2b: Separate Wi-Fi Router

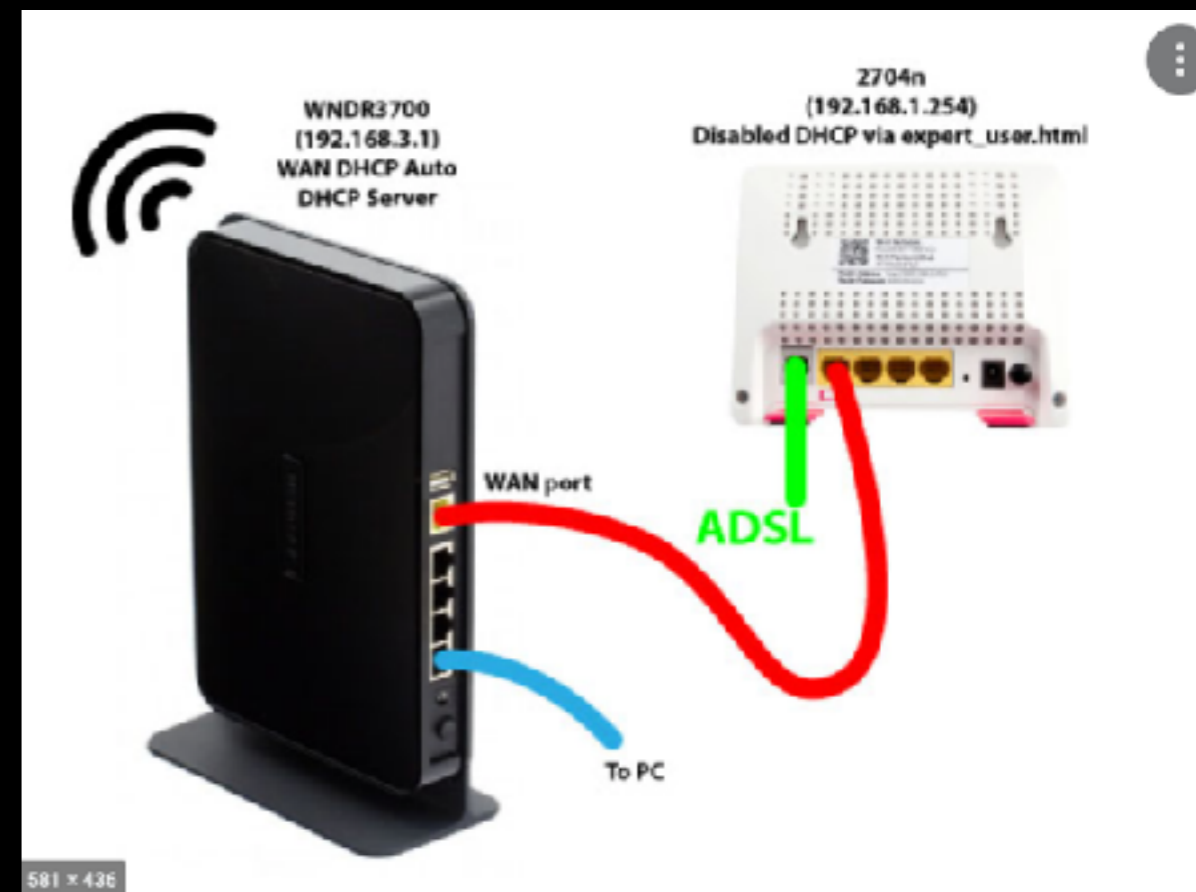
Communications within the home

- If you have an old modem/router, replacing the unit or adding a Wi-Fi router may provide the performance needed.
- If adding a Wi-Fi router:
 - Turn off Wi-Fi on the modem/router
 - Connect router with Ethernet cable

Advantages

- Simplicity & Cost
- Disadvantages

Range may not be enough



Option 2c: Wi-Fi Extender

Communications within the home

- Wi-Fi Extender may refer to various types - this option is about a device which connects to your primary Wi-Fi network and re-broadcasts data on a separate Wi-Fi network.

Advantages

- No changes to existing system needed
- Simple to set up

Disadvantages

- Add on network has different SSID and password
- New network delay is additive on top of existing.



Option 2d: Wi-Fi Mesh System

Communications within the home

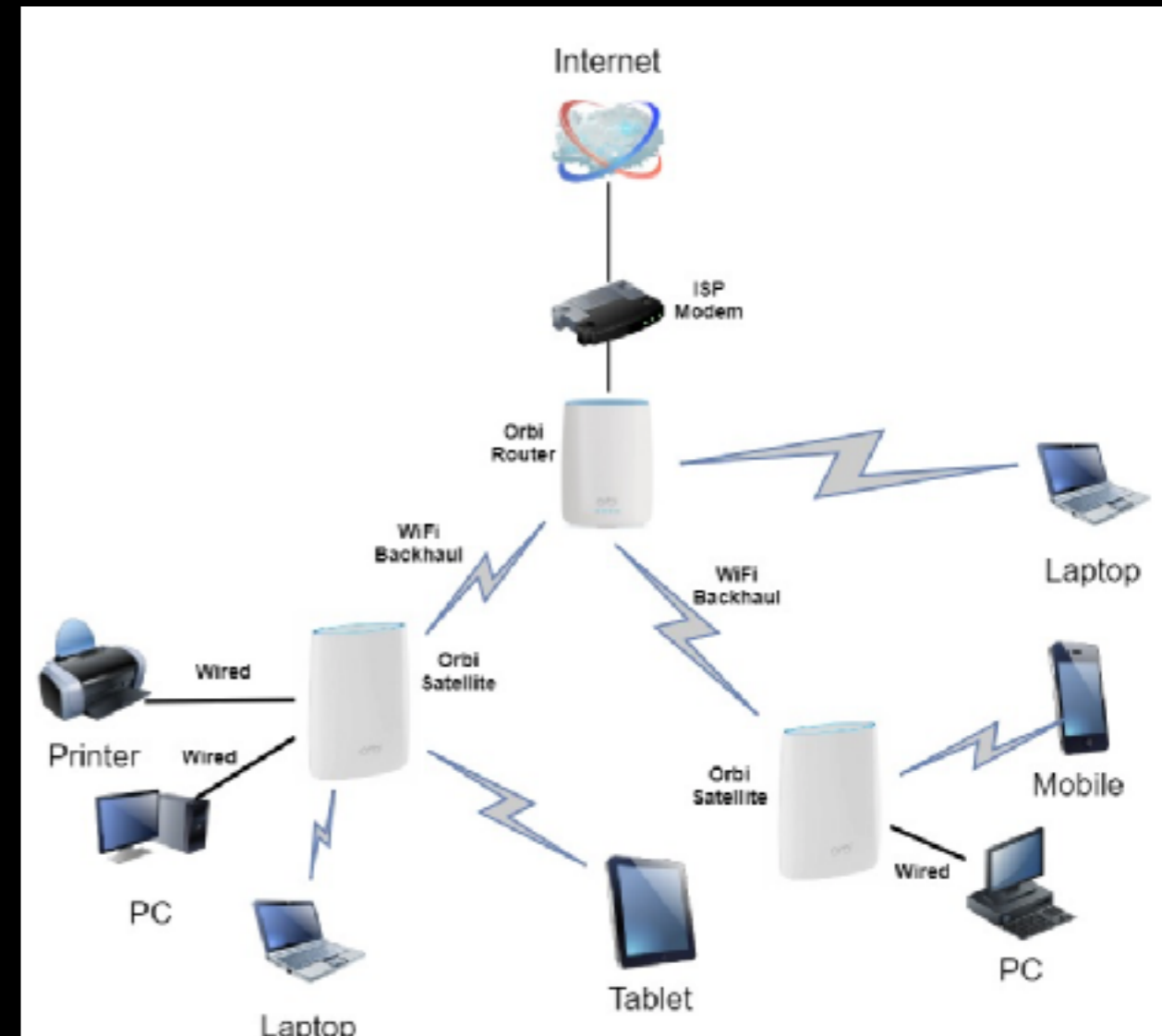
- Consists of a Wi-Fi router plus one or more satellites
- Communications between router and satellites is proprietary.
- Each node broadcasts Wi-Fi but use same SSID & password.
- delay “minimised”

Advantages

- Extensive coverage & good performance

Disadvantage

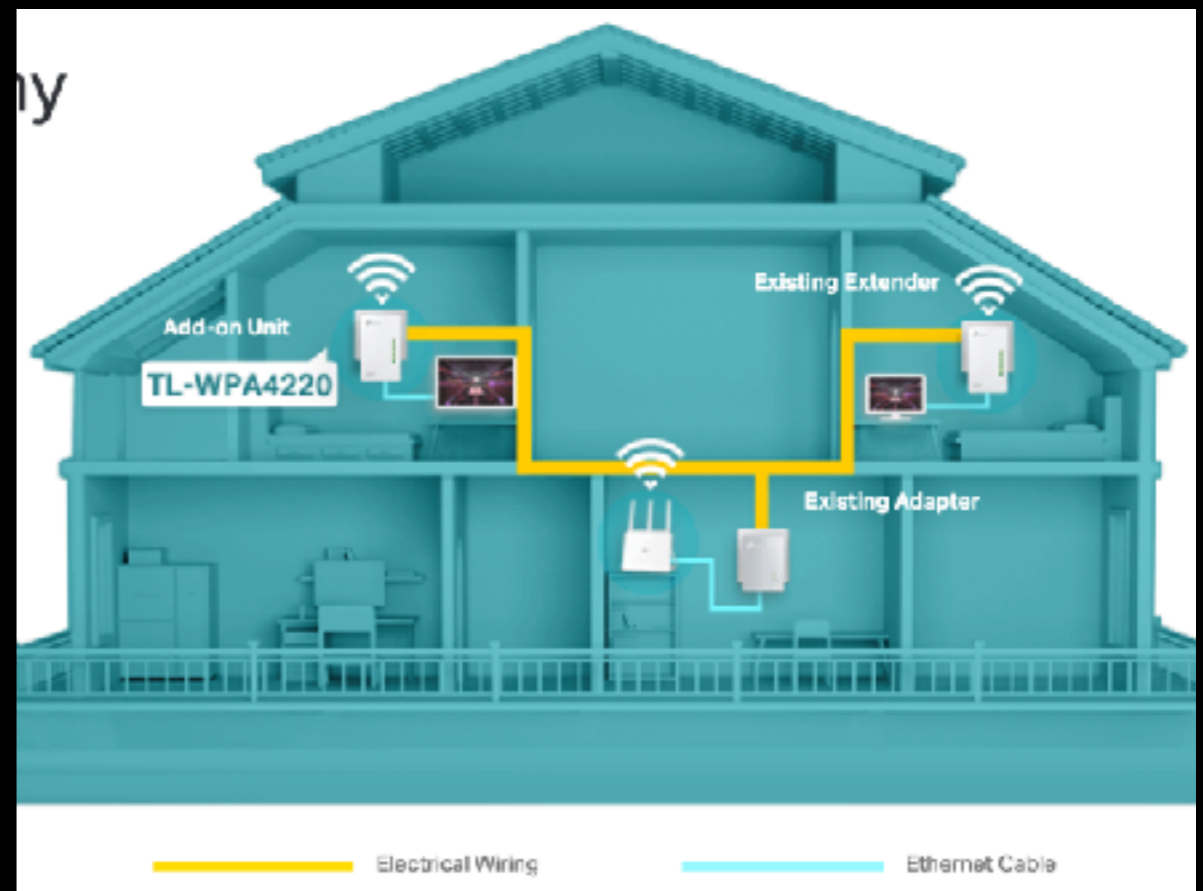
- Cost



Option 3: PowerLine

Communications within the home

- Uses house electric circuits for data between nodes.
- each node can have Ethernet ports and/or Wi-Fi capability (can use same SSID/password like Mesh Network)
- Data speed - up to 2000 Mbps
- Range - up to 300 metres cable distance
- Advantage: Walls are not an issue
- Disadvantage: Electrical interference & house wiring standard can be an issue.



Brands to Look at

Communications within the home

- Netgear
- Asus
- TP-Link
- Linksys

Questions & Clarifications

Communications within the home

- Any Questions?

AOB

- AoB: Would anyone like to raise anything?
- Meeting Follow up - notes etc.
- Meeting review: More, Less, Continue?

Thank You