

Wired vs Wireless

Cable if you can. Wireless if you can't.

Cable

- Predictable
- Not shared
- Immune to walls
- Powers the AP too

Radio

- Convenient
- Shared by everyone
- Blocked by walls
- Free to move

They are not rivals. Cable carries the load; radio carries the people.

The Short Answer

Every wireless network is only as good as the wire feeding it. WiFi is how devices join; cable is how the network actually moves.

Key Points:

- Cable wherever a device does not move
- WiFi for everything that walks around
- One cable per access point is the real upgrade
- More radios on a weak backbone makes things worse
- The best WiFi you have ever used was well cabled

Good WiFi is a wiring achievement.

Why that room is slow

It is physics, not brand

What radio has to fight:

1. Walls - concrete and rebar absorb signal hard
2. Distance - signal strength falls away fast
3. Neighbours - everyone shares the same air
4. Airtime - one slow device slows the whole channel
5. Interference - microwaves, other APs, even mirrors

A faster router cannot make a wall thinner.

The Hop Tax

What a wireless hop actually costs

Cabled to the AP  full speed

One wireless hop  about half

Two wireless hops  about a quarter

A repeater or mesh node with no cable must talk to the router AND to you, taking turns. Each hop roughly halves what is left.

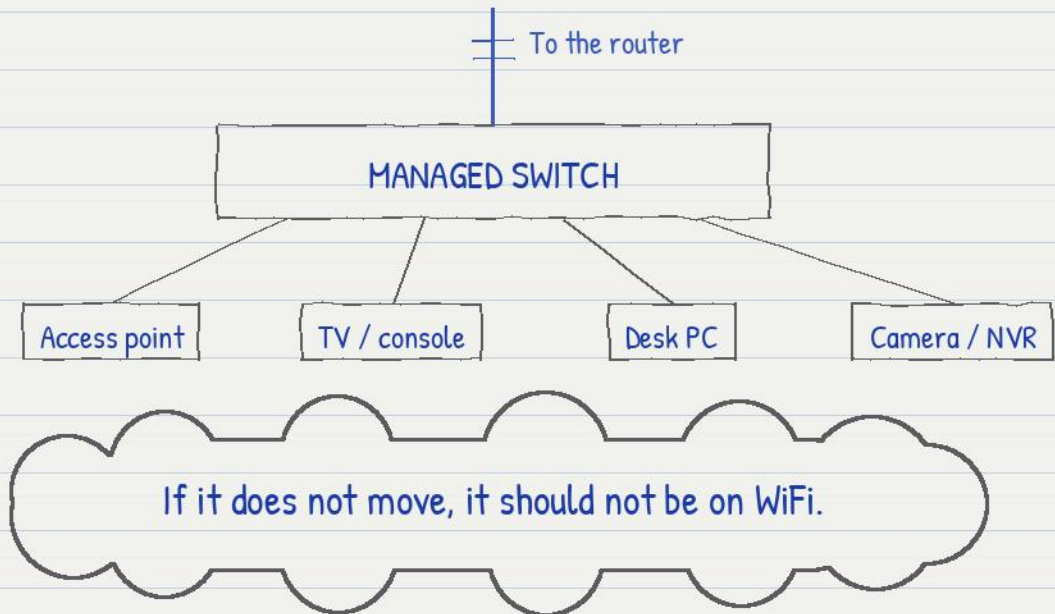
An extender does not add capacity. It divides it.

Cable vs Radio

Feature	Cable	WiFi
Speed	As specified	Shared, varies
Consistency	Very high	Depends on air
Latency	Low and stable	Higher, jittery
Walls	Unaffected	Big problem
Neighbours	No effect	Compete for air
Moves around	No	Yes
Powers devices	Yes, with PoE	No

Cable is boring. Boring is the point.

What to cable



Will an extender fix it?

Usually not, and here is why

The honest picture:

- An extender repeats a weak signal - weakly
- It halves throughput on every device behind it
- It often keeps devices clinging to the wrong radio
- Mesh with a CABLED backhaul is a different story
- One cabled access point beats three extenders

The cure for a weak room is a cable and an AP.

The Renovation Window

Fix it once, while the walls are open

Cable is cheap while walls are open and expensive afterwards. This is the single highest-value decision in the whole project.

Run cable to:

- Every ceiling where an access point might go
- Behind every TV and media wall
- Every desk position, two drops each
- Every camera location, plus two spares
- The cabinet - and make it ventilated

Nobody has ever regretted running one cable too many.

Which cable?

Cat6 is the floor, not the ceiling

Cable	Good for	Verdict
Cat5e	1 Gb	Do not install new
Cat6	1-10 Gb short	The sensible floor
Cat6a	10 Gb full run	Worth it in walls
Fibre	Long or between buildings	For backbone runs

Specify Cat6 minimum. Cat6a where it is buried.

One brand, one dashboard

Mixing brands of access point loses the thing that makes wireless feel good: devices being handed smoothly from one radio to the next.

Why it matters:

- Roaming between APs needs them to cooperate
- One controller means one place to see faults
- Firmware stays consistent across the estate
- Remote support becomes possible at all
- Mixed extenders from different brands rarely roam

■ One ecosystem is worth more than one extra radio.

Decide for yourself

Four questions

1. Does the device move? No, then cable it.
2. Is the complaint one room, or everywhere? One room means an AP and a cable.
3. Are walls open right now? Then run cable, even spare cable.
4. Is the backbone already cabled? If not, more radios will not help.

Answer those four and the design writes itself.

Mistakes We See

1. Buying a bigger router to fix one weak room
2. Stacking extenders until nothing is reliable
3. Mesh with no cable between the nodes
4. Powerline adapters on old or noisy wiring
5. Cat5e installed new, in a wall, in 2026

Radios are the cheap part. Cable is the part you cannot redo.

Quick Revision

Cable if it does not move
WiFi for anything that walks
Good WiFi is a wiring achievement
Walls and neighbours beat brand names
One wireless hop costs about half the speed
Two hops cost about three quarters
One cabled AP beats three extenders
Cable every ceiling during renovation
Cat6 minimum, Cat6a inside walls
PoE means one cable does data and power
Keep the whole estate on one controller
A switch or router cannot thin a wall

Cable if you can. Wireless if you can't.

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- quicksurfnetwork.com
- info@quicksurfnetwork.com
- +971 4 288 2335
- Suite 115, Al Makateb Building, Port Saeed, Deira, Dubai

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