

Switches Made Easy

Unmanaged vs Layer 2 vs Layer 3

- TIER 1
UNMANAGED

Plug in. It forwards traffic. No settings.

- TIER 2
MANAGED L2

Adds VLANs, priority, PoE control, monitoring.

- TIER 3
MANAGED L3

Adds routing between VLANs, in hardware.

Same ports. Same cables. Different amount of thinking.

What a switch does

A switch is the post room of your network. It learns which device is on which port, then sends traffic out one port instead of shouting down every corridor.

Key Points:

- Every device plugs into a port
- Every device has a hardware address - a MAC
- The switch notes which port each address arrived on
- It builds an address table automatically
- EVERY switch does this, even the cheapest one

▪ Address learning is the baseline, not the upgrade.

The Unmanaged Switch

Honest and underrated

Good at

- More ports for the price of a meal
- Nothing to configure wrong
- Silent and fanless
- Perfect at the far end of a run

Runs out at

- No VLANs at all
- No priority for calls or games
- No logs, no statistics
- No remote access, ever

There is no shame in it. There is only a limit.

The Layer 2 Switch

Where control begins

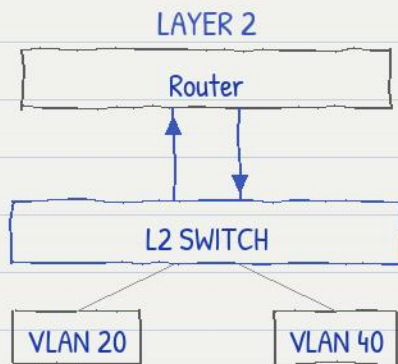
What you gain:

- VLANs - separate lanes on the cabling you already have
- Priority so voice and video jump the queue
- PoE you can budget, schedule and power-cycle remotely
- Link aggregation - two cables bonded into one
- Loop protection, so one bad patch cannot down the network
- Logs and per-port counters when something breaks

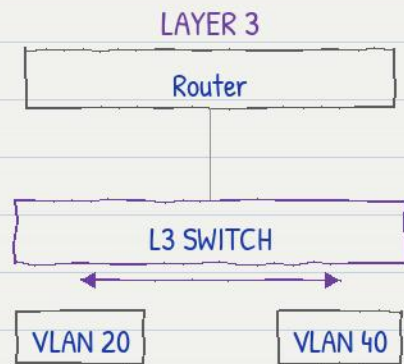
For most homes and small offices, this is the last tier you need.

The Layer 3 Switch

One capability, and it is a journey



Up to the router and back. The uplink becomes the ceiling.



Routed inside the switch. Traffic never leaves it.

This is the whole difference between L2 and L3.

What L3 really adds

Beyond routing between VLANs:

- Routing done in the switching chip, at wire speed
- The switch becomes the gateway for each VLAN
- Static routes, and OSPF or BGP on larger models
- DHCP relay, so one server can serve every VLAN
- Access control lists between the VLANs

But it is NOT:

- A firewall – no inspection, no filtering, no VPN
- A speed upgrade for a small network

It routes. It does not inspect.

The Three Tiers

Feature	Unmanaged	L2	L3
Setup	Plug in	Configured	Designed
VLANs	No	Yes	Yes
Routing	No	No	Yes
Priority	No	Yes	Yes
PoE control	No	Yes	Yes
Monitoring	No	Yes	Yes
Remote mgmt	No	Yes	Yes
A firewall?	No	No	No

Each tier keeps everything the tier below it does.

Which one is yours?

- SIMPLE HOME
UNMANAGED

Router, laptops, a TV. Nothing to separate.

- SMART HOME
MANAGED L2

Cameras, IoT, guests, a NAS. VLANs pay off.

- SMB OR VILLA
MANAGED L2

POS, staff, guest WiFi, CCTV. The right default.

- MULTI-FLOOR
○ L3 CORE + L2 EDGE

Many VLANs, servers, heavy internal traffic.

Match the site, not the budget.



The Honest Answer

Almost nobody needs Layer 3 first

The useful question is not which is best. It is how much traffic crosses BETWEEN your VLANs, and where it gets inspected.

In a home or small office:

- Very little traffic crosses between VLANs
- The router handles it comfortably
- Managed L2 gives every practical benefit
- At a fraction of the cost and complexity

We will tell you when the cheaper one is the right answer.

When L3 IS right

Layer 3 earns its place when:

1. An NVR pulls constant streams from cameras on another VLAN
2. Servers and workstations sit on different segments
3. Several switches are spread across floors
4. Many VLANs carry constant traffic between each other
5. The uplink between switch and router is measurably saturated

L3 is a traffic answer, not a status symbol.

Mistakes We See

1. Buying L3 to fix slow WiFi - a switch cannot see a coverage problem
2. Routing past the firewall - enable L3 and VLAN traffic stops passing it, so rebuild those rules as ACLs
3. An unmanaged switch mid-path on tagged traffic - works on one floor, dead on the next
4. Counting PoE ports instead of the PoE budget in watts
5. Forgetting the management VLAN and locking yourself out

Check the watts, not the number of PoE ports.

Before you buy

Five things on the spec sheet:

- PoE budget in WATTS, not the port count
- Uplink speed - multi-gig or fibre, or it becomes the ceiling
- Is L3 real hardware routing with a throughput figure?
- Controller compatibility with your access points
- Fan noise - it matters a great deal in a villa

Eight PoE ports rarely powers eight cameras.

Quick Revision

Every switch learns MAC addresses - even unmanaged

Unmanaged = forwards traffic, no settings

L2 = adds VLANs, priority, PoE control, logs

L3 = adds routing between VLANs in hardware

Each tier keeps everything below it

L2 is the right default for most sites

L3 removes the trip up to the router and back

L3 is NOT a firewall

L3 traffic BYPASSES your firewall rules

Never put unmanaged mid-path on tagged traffic

Check PoE budget in watts

A switch cannot fix weak WiFi

Most people are one tier lower than they are being sold.

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