Router

The first thing you'll need is a router. Most people will, surprisingly, be fine with a basic cheap plastic piece of crap running proprietary firmware that acts as basically your entire network. Some will want to replace the official firmware with something like DD-WRT or OpenWrt. Unfortunately, recent WiFi chips don't have open source drivers, meaning this isn't going to be an option for most routers.

What I actually recommend is either buying an OPNSense router or buying hardware you can install OPNSense onto. Now, there's a whole discussion to be had on pfSense vs OPNSense. Particularly, related to pfSense being closed source and a bit scummy and OPNSense being gimped along with the free version of pfSense all because of the company Netgate but this isn't the place for that discussion. Suffice it to say, if you can install OPNSense on it, you can install pfSense or any other non-proprietary router OS you desire.

Unfortunately, I can't recommend specific hardware in this case. The problem is that low cost hardware changes all the time. Advice I give today will likely be meaningless tomorrow. The best I can say is what kind of specs you should look for and roughly what you should expect to pay (as of the time of this writing; 12/5/2024) and even that can be subject to change.

Anyways, currently, I'd recommend a minimum of 2x 2.5 Gb Ethernet ports and that's really it.

Why am I not recommending built-in WiFi? Well, there's a few reasons. The first is WiFi standards change all the time. So, expect to replace anything with WiFi every few years or so. You really shouldn't be replacing your primary router that frequently. The second reason is that you might not want/need to place your router in the place that is ideal for WiFi coverage. The third is that your primary router should be focused on basically two things, routing and filtering/firewall activities. Making it do the extra work of WiFi is just introducing another point of failure in what is very much the most important piece of networking equipment in your entire network.

Why am I not recommending 10 Gb or faster Ethernet? Simply put, it's the price. As a mild secondary concern, heat and electricity are also a factor. Simply put, 10 Gb over Ethernet is really pushing the limit of copper wire. You're basically better off switching to Fiber at that point.

Why am I not recommending 10 Gb or faster Fiber? The same reason as the Ethernet version of this question; cost. While fiber cable is certainly cheaper, everything else about it is an entire league more expensive. Take the prices of Ethernet and expect it to be a minimum of 4x the price, if not 40x the price. It's simply not cost effective for anyone not willing to spend "Enterprise" level money, aka around 5 figures minimum. Can you do it for cheaper and on the small scale? Sure. It's just not worth it when you aren't likely to actually utilize it in a useful way. If you're in a position to consider a fully fiber network financially viable, you probably shouldn't be wasting your time reading this in the first place.

The price of a device that can serve as a router with only 2x 2.5 Gb Ethernet ports is, currently, somewhere between $80-$200+. Personally, I recommend at least 3 Ethernet ports and at least two of them should be 2.5 Gbit. You need a WAN port, LAN port and, optionally, a WiFi port. The WiFi port is important for network segregation purposes. Sure, you could just connect any WiFi access points to a switch but, unless you are planning to pay extra and spend extra time setting up a layer 2 (aka a "managed") switch, it's better to just manage it on your router. Though, it's worth noting that you can setup a VPN and use it as a substitute for a VLAN.

Again, I can't recommend specific hardware because prices and availability change wildly even just day to day, especially this time of year. You'll have to do your own shopping around or, if you're desperate, ask Reddit the way this person did.

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