IPv6 prefix delegation using systemd-networkd

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Introduction

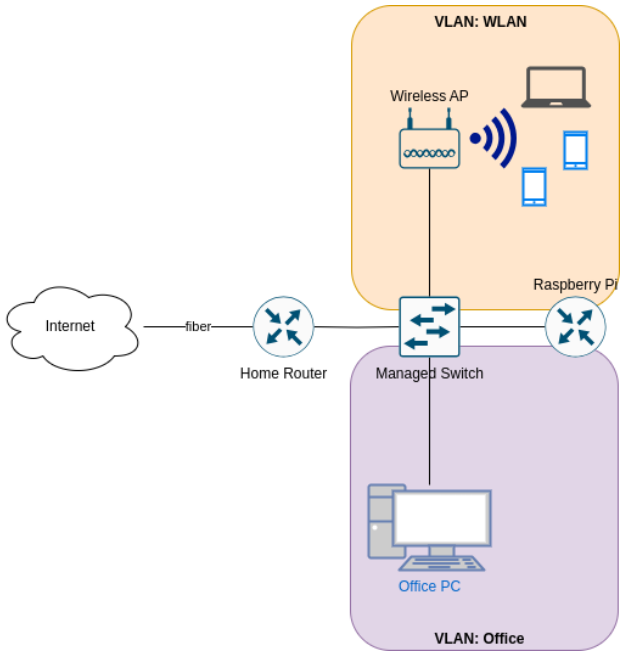
Recently my `ISP` (Internet Service Provider) finally provided me with modern `IPv6`. I at least got an `/60` prefix, which allows me to do subnetting, with up to 16 subnets, as the network identifier in `IPv6` has `64 bits`. So far so good. But I soon realized, that my prefix changes frequently, just as the `IPv4` prefix. That however is a problem. I do have two VLANs, beside my default network, that need their own `GUA` (Global Unicast Address) prefix. So whenever my prefix changes I would need to change my VLAN configurations and my routes. That's not feasible.

Gladly there is an solution to that problem: IPv6 Prefix delegation (`PD`).

Set up

This is how my network currently looks:

ATTR$_{\text{HTML}}$: :width 100% :alt Left: The Internet (as a cloud) is connected to a home router via fiber. From there an Ethernet connection is drawn to a switch, which is connected to a Raspberry Pi, that acts as a router. Above the switch is connected to a Wireless AP, that provides Wifi to various mobile devices in the VLAN "WLAN", which is colored light orange. Beneath a desktop PC is connected to the switch, which is in the VLAN "Office", colored in light purple.



Configuring the WAN-interface

`/etc/systemd/network/10--eth0.network` [breaklines=true,language=bash,showspaces=false,basicst
,caption= ,captionpos=b] [Match] Name=eth0 Type=ether
[Network] Description=WAN Ethernet port
DHCP=ipv6 IPv6AcceptRA=yes
VLAN=Office VLAN=WLAN
[Address] Address=192.168.178.254 Gateway=192.168.178.1
[DHCPv6] PrefixDelegationHint=::/60 UseDelegatedPrefix=yes UseAddress=no

[Route] Gateway=192.168.178.1