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Homelab Documentation

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Topology

Raspberry Pi
192.168.2.50

Asus Router
192.168.2.1

Proxmox Server
192.168.2.44

ISP Modem

VPN

Tailscale Container
192.168.2.106

My Device
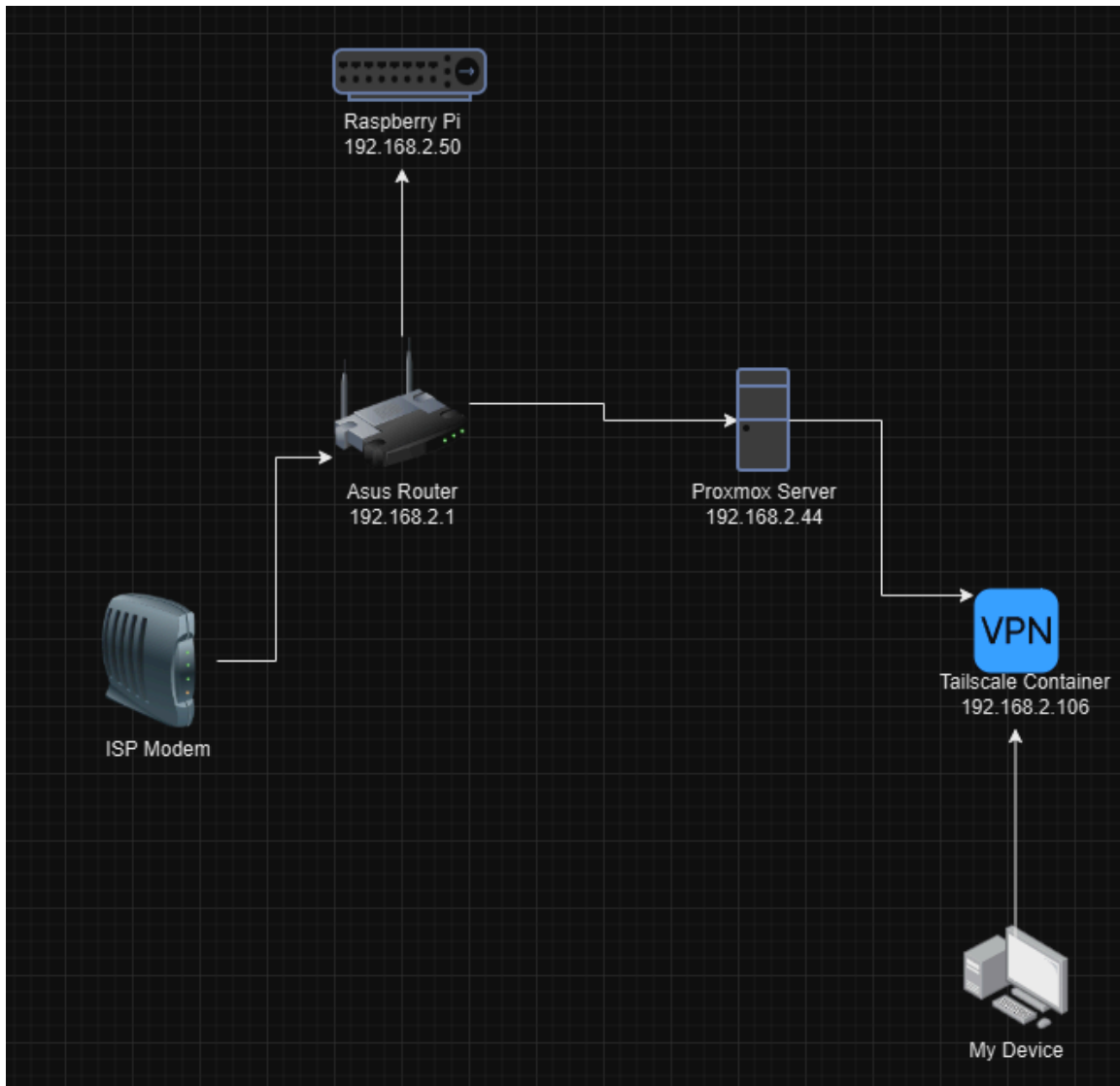
Proxmox

Old Gaming PC wiped and configured with Proxmox

Specs:

Cpu:

AMD R5 2500X

Graphics Card:

GTX 1050 TI

Ram:

12GB DDR4 Memory

Storage:

1TB SSD

Notes:

- Plans to upgrade soon.

Virtual Machines

Overview:

Several virtual machines and containers have been deployed to simulate an internal enterprise network environment, including a domain controller and an active web server for pentesting purposes.

Windows Server:

- Installed Windows Server 2016.

- Hardware and options setup:

🖳	Memory	4.00 GiB
🖧	Processors	2 (1 sockets, 2 cores) [x86-64-v2-AES]
▮	BIOS	Default (SeaBIOS)
🖥	Display	Default
⚙	Machine	pc-i440fx-8.1
🗄	SCSI Controller	VirtIO SCSI single
🖴	Hard Disk (ide0)	local-lvm:vm-101-disk-0,discard=on,size=64G

Name	WindowsServer
Start at boot	Yes
Start/Shutdown order	order=any
OS Type	Microsoft Windows 10/2016/2019
Boot Order	ide0, ide2
Use tablet for pointer	Yes
Hotplug	Disk, Network, USB
ACPI support	Yes
KVM hardware virtualization	Yes
Freeze CPU at startup	No
Use local time for RTC	Default (Enabled for Windows)
RTC start date	now

- Added active directory domain service and promoted this server as a domain controller, adding windowsserver.local as the domain name.
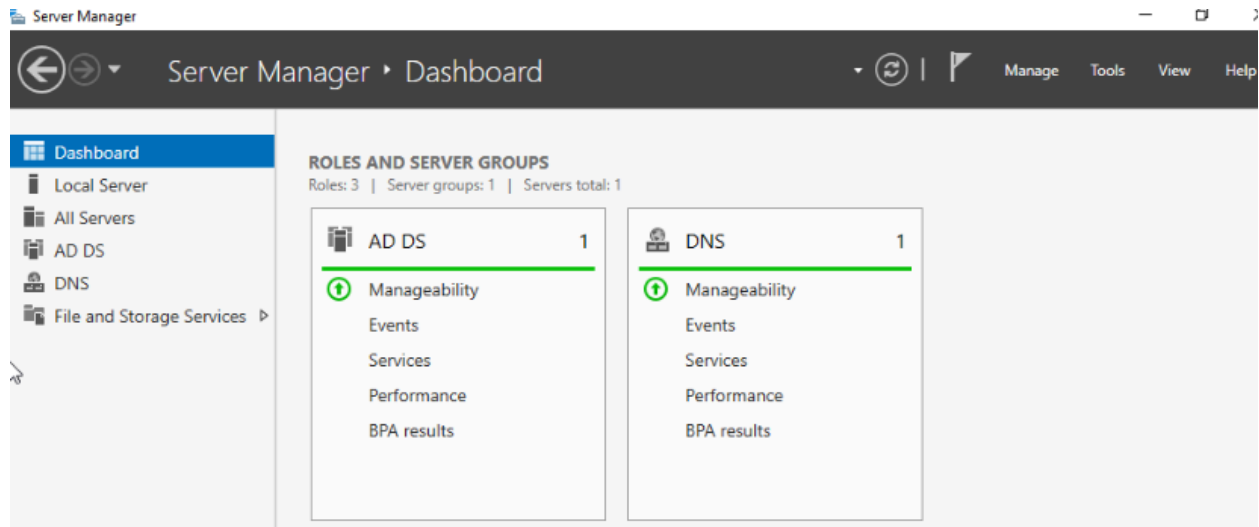
Pfsense:

- Installed and deployed a Pfsense vm on the Proxmox server.

- Configured the correct lan and wan interfaces.

- Had the router on the 192.168.2.0/24 subnet, leasing ip's through DHCP to all vms on the Proxmox server.

-Virtual Machine is now out of use and replaced with a physical router.

Ubuntu Server:

- Installed and configured Ubuntu Server.

- Installed nginx, mysql and php to create an application server.

```
s can be applied immediately.
se updates are standard security updates.
ese additional updates run: apt list --upgradable

M Apps to receive additional future security updates.
://ubuntu.com/esm or run: sudo pro status


of available updates is more than a week old.
for new updates run: sudo apt update

n: Sun Mar 31 19:49:20 UTC 2024 on tty1
@applicationserver:~$ ls
@applicationserver:~$
@applicationserver:~$
@applicationserver:~$ ls
@applicationserver:~$ cd etc
: etc: No such file or directory
@applicationserver:~$ sudo apt-get install nginx mysql-server php-fpm php-mysql_
```

- Navigated to sites-enabled directory.

```
@applicationserver:~$ sudo nano /etc/nginx/sites-enabled/default_
```

- Commented out necessary lines to enable php.

```
        root /var/www/html;

        # Add index.php to the list if you are using PHP
        index index.html index.htm index.nginx-debian.html;

        server_name _;

        location / {
                # First attempt to serve request as file, then
                # as directory, then fall back to displaying a 404.
                try_files $uri $uri/ =404;
        }

        # pass PHP scripts to FastCGI server
        #
        location ~ \.php$ {
                include snippets/fastcgi-php.conf;
        #
        #       # With php-fpm (or other unix sockets):
                fastcgi_pass unix:/run/php/php8.1-fpm.sock;
        #       # With php-cgi (or other tcp sockets):
        #       fastcgi_pass 127.0.0.1:9000;
        }

        # deny access to .htaccess files, if Apache's document root
        # concurs with nginx's one
        #
        #location ~ /\.ht {
        #       deny all;
        #}
```
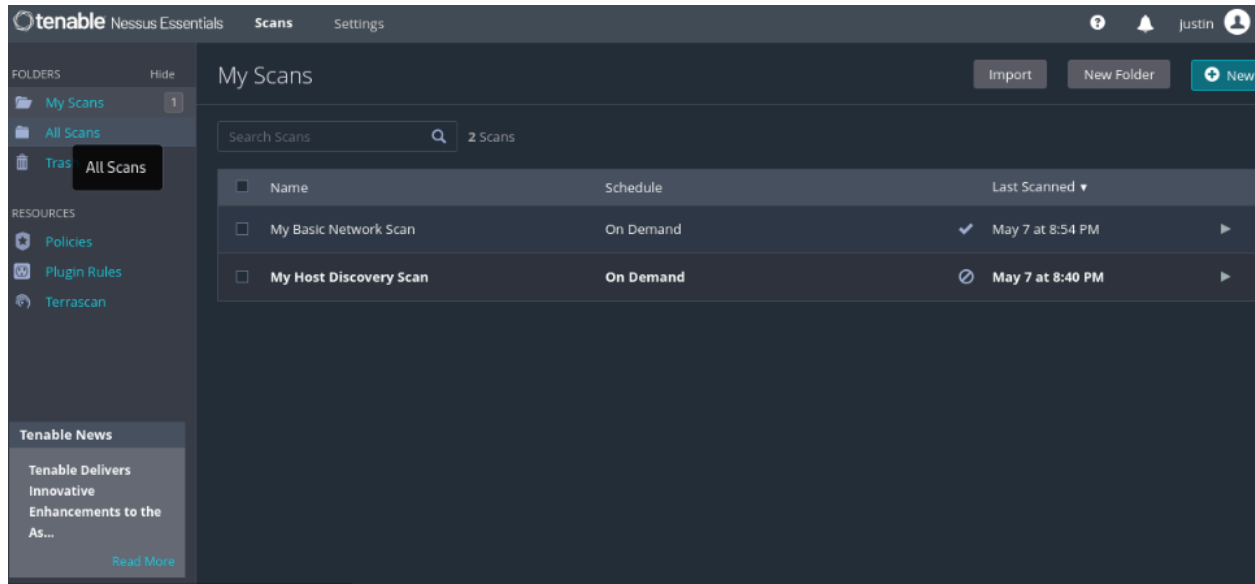
Windows Web Server:

- Installed Windows Server 2016

- Added Web Server(IIS) server role.
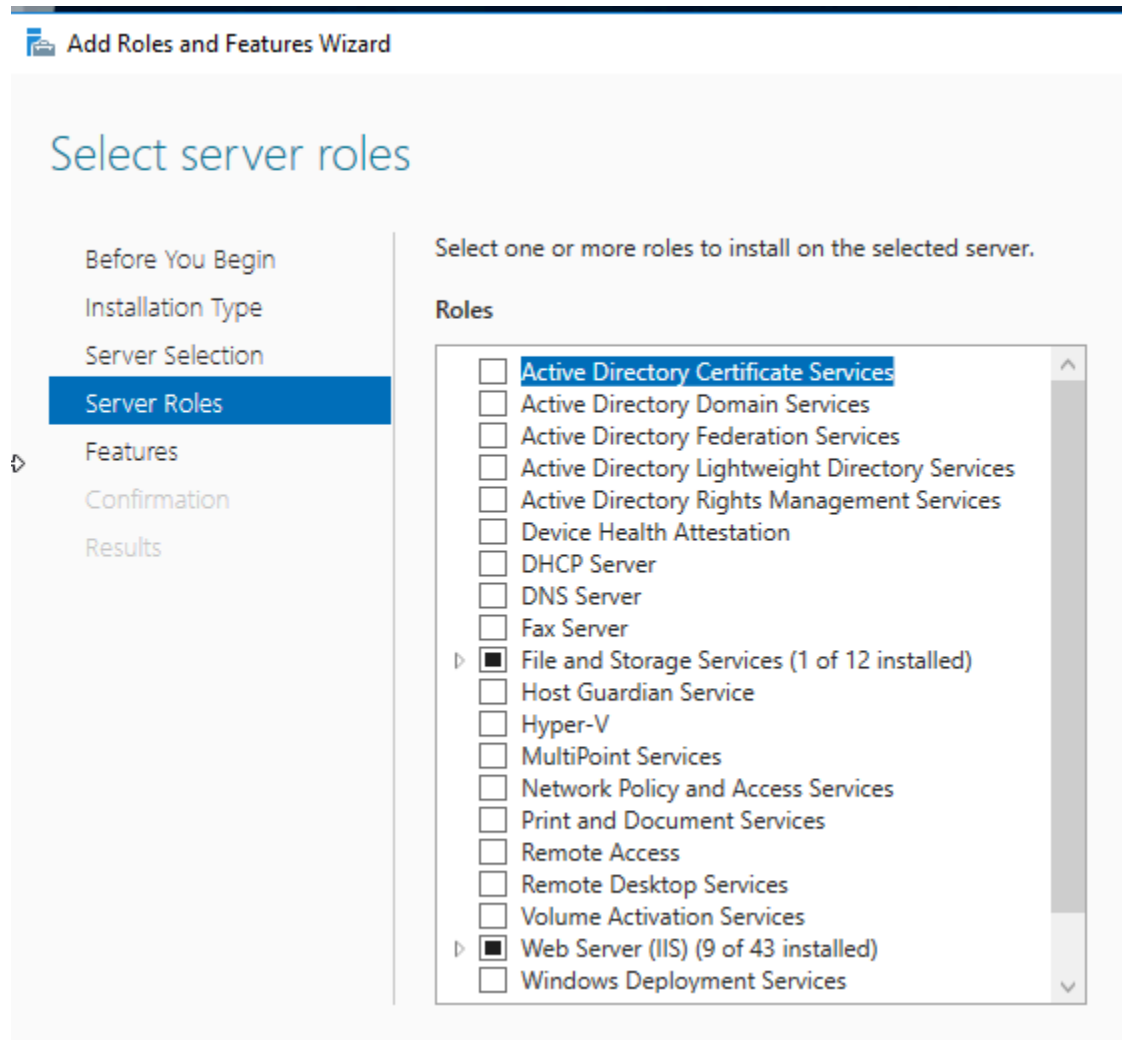
- Joined the web server to the domain.

Kali Linux:

- Setup Kali Linux to be used as a pen testing machine.

- Installed Nessus.

- Used tools such as nmap, Metasploit, aircrack ng, and others to exploit the Windows Server machine as well as the website running on the Ubuntu Server/Windows Web Server

Windows Machines:

- Created 2 basic Windows 10 machines

- Joined them to the domain.

Projects

Completed:

- Deploy virtual machines to learn the in's and out's of Proxmox: Finished 2024-04-5
- Convert pfsense router into asus router: Finished 2024-05-11
- Access homelab outside of lan through https://tailscale.com/: Finished 2024-05-11

In Progress:

- Implement SIEM: In Progress
- Implement Raspberry Pi: In Progress