Lab budget $600

Hardware

Rack - 15U, 36 inch height rack $150
Rack mount home lab power supply-ADJ Powerstrip $55
Cooling fans- griffin rack mount cooling fans $55
Router- tp link safe stream $60
Switches - tp link 8 port $40
Patch panels - intellinet 16 port CAT6 $33
Network cables - GEAR IT CAT6 10 pack 4ft $22 or $44 if needed more
Motherboard-ASRock H310CM-DVS S1151 Intel H310 Max 32 GB DDR4 PCIE DVI-D&D-Sub mATX Motherboard $60
CPU-Intel core I3 $82
RAM- team group T-force vulcan z $44
Hard drive/NAS-Lenovo Iomega IX2 (on sale price) $49 (original price $300)
Micro computer- HP Elite desk 800 $109
Monitor- Sceptre 22 inch LED Monitor $75
Total $834

I found this image on google and i think this would be the closest to what my small home lab would look like as a good diagram
https://i.pinimg.com/736x/e7/68/d8/e768d85d5c3c28e2839b5692497bb6fd.jpg

Software:
Microsoft Azure- Azure is a virtualization server that allows your physical server to be divided into many virtual servers and Azure has many cheap plans allowing you to pay as you go.
pfSense- firewall
Kentik- traffic monitoring software
Linux- OS to run the computer

Attacking Machine

- Kali Linux mainly supports as many wireless devices as possible, allowing it to run properly on a wide variety of hardware and making it compatible with numerous USB and other wireless devices. It has 600 penetration tools for the user to dispose, its also completely customizable.

Log traffic

- A network security group (NSG) enables you to filter inbound traffic to, and outbound traffic from, a virtual machine (VM). You can log network traffic that flows through an NSG with Network Watcher's NSG flow log capability.

IP Addressing

- Use of subnet mask to have APIPA (Automatic IP Private Address) to the network
- Example IP Address for this project: 137.92.12.0 /24 which allows 64 hosts on the network

Network traffic monitoring

- I've researched that Kentik is a great traffic monitoring software. It is a cloud platform dedicated to "network observability." The Kentik platform combines traditional flow monitoring with advanced analytics and "AIOps." Kentik supports monitoring of resources on-premises and in the cloud, and layers in security features like DDoS detection and defense.

Switch Config:

- Connect to the console
- Set a management IP and default gateway
- Set hostname and domain name
- Set logins on VTY lines and console port
- Set Privileged EXEC password
- Enable SSH
- Create VLANs

- Add access ports to a VLAN
- Configure trunk ports
- Save configuration

Fire wall

- One firewall I've researched is pfSense, it is a free open source software that allows my computer to be very protected, it includes a long list of related features and a package system allowing further expandability without adding bloat and potential security vulnerabilities to the base distribution.

  Virtual Machine

  -Virtual Box to Run Linux OS, such as Ubuntu or Kali Linux
  -Allows me to create and run Virtual Machines, manage virtual network and storage of the VM's