Open Source Router Software

Software for building your own router/firewall/IDS/IPS appliance.

- OPNsense

OPNsense

https://opnsense.org/

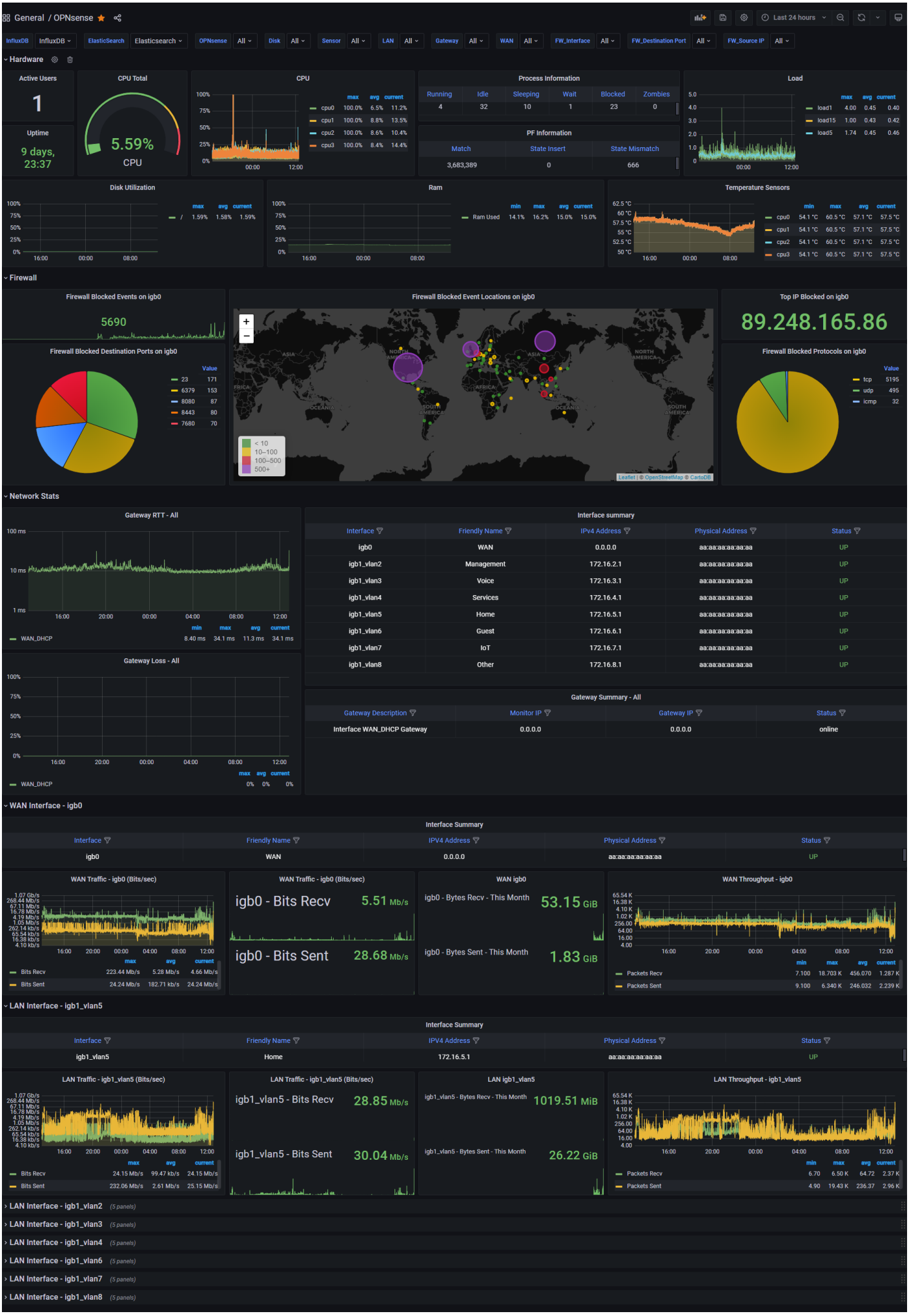
OPNsense is an open source, FreeBSD-based firewall and routing software.

Installed on appropriate hardware, it replaces SOHO routers with a much more robust, effective and powerful appliance to protect your home network. Using built-in and available add-ons, you can build a feature set as simple or complex as you require. Integrations such as intrusion detection/prevention, DHCP and DNS services, VPN services, Firewall with aliasing just to name a few, come standard with OPNsense. Add-ons, both free and subscription-based are available. Using the add-ons, referred to as plug-ins in OPNsense, you can setup proxys, reverse-proxys, web caching, and much more.

As an example, I have my OPNsense appliance setup with extra security measures using Crowdsec, Maltrail, Country Blocking and Zen Armor (Formerly Suricata). I also have a Wireguard VPN setup to permit secure access to my internal devices and servers should I need to access them remotely. I utilize OPNsense's built-in Unbound DNS application to manage and secure my domain name services.

Frankly, I had been using consumer routers (NetGear, ASUS, etc) with custom firmware (DD-WRT, Fresh Tomato, etc) for years. They just couldn't keep up with the demands placed on them and they had very little in the way of firewall and no instrusion detection/prevention ability. Using OPNsense, I have essentially future-proofed my home network from most bad actors and have noticed a SIGNIFICANT improvement in throughput as well. You are really only limited by the hardware you choose to run it, which, even on low end hardware, is substantially more powerful than any high-end consumer (SOHO) router.

While OPNsense's default Lobby dashboard is pretty good, I'd recommend using a combination dashboard that utilizes InfuixDB, Grafana and Telegraph or Ansible. A really good example of this is Brendan Smith's implementation shown in the pic below and instructiions for this dashboard can be found on his website "How to Configure an OPNsense Dashboard"


General / OPNsense
Last 24 hours
InfluxDB
InfluxDB
ElasticSearch
Elasticsearch
OPNsense
All
Disk
All
Sensor
All
LAN
All
Gateway
All
WAN
All
FW_Interface
All
FW_Destination Port
All
FW_Source IP
All
Hardware
Active Users
1
Uptime
9 days, 23:37
CPU Total
5.59%
CPU
CPU
max avg current
cpu0 100.0% 6.5% 11.2%
cpu1 100.0% 8.8% 13.5%
cpu2 100.0% 8.6% 10.4%
cpu3 100.0% 8.4% 14.4%
Process Information
Running Idle Sleeping Wait Blocked Zombies
4 32 10 1 23 0
PF Information
Match State Insert State Mismatch
3,683,389 0 666
Load
max avg current
load1 4.00 0.45 0.40
load15 1.00 0.43 0.42
load5 1.74 0.45 0.46
Disk Utilization
max avg current
/ 1.59% 1.58% 1.59%
Ram
min max avg current
Ram Used 14.1% 16.2% 15.0% 15.0%
Temperature Sensors
min max avg current
cpu0 54.1 °C 60.5 °C 57.1 °C 57.5 °C
cpu1 54.1 °C 60.5 °C 57.1 °C 57.5 °C
cpu2 54.1 °C 60.5 °C 57.1 °C 57.5 °C
cpu3 54.1 °C 60.5 °C 57.1 °C 57.5 °C
Firewall
Firewall Blocked Events on igb0
5690
Firewall Blocked Destination Ports on igb0
Value
23 171
6379 153
8080 87
8443 80
7680 70
Firewall Blocked Event Locations on igb0
< 10
10–100
100–500
500+
Leaflet | © OpenStreetMap © CartoDB
Top IP Blocked on igb0
89.248.165.86
Firewall Blocked Protocols on igb0
Value
tcp 5195
udp 495
icmp 32
Network Stats
Gateway RTT - All
min max avg current
WAN_DHCP 8.40 ms 34.1 ms 11.3 ms 34.1 ms
Gateway Loss - All
max avg current
WAN_DHCP 0% 0% 0%
Interface summary
Interface Friendly Name IPv4 Address Physical Address Status
igb0 WAN 0.0.0.0 aa:aa:aa:aa:aa:aa UP
igb1_vlan2 Management 172.16.2.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan3 Voice 172.16.3.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan4 Services 172.16.4.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan5 Home 172.16.5.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan6 Guest 172.16.6.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan7 IoT 172.16.7.1 aa:aa:aa:aa:aa:aa UP
igb1_vlan8 Other 172.16.8.1 aa:aa:aa:aa:aa:aa UP
Gateway Summary - All
Gateway Description Monitor IP Gateway IP Status
Interface WAN_DHCP Gateway 0.0.0.0 0.0.0.0 online
WAN Interface - igb0
Interface Summary
Interface Friendly Name IPV4 Address Physical Address Status
igb0 WAN 0.0.0.0 aa:aa:aa:aa:aa:aa UP
WAN Traffic - igb0 (Bits/sec)
max avg current
Bits Recv 223.44 Mb/s 5.28 Mb/s 4.66 Mb/s
Bits Sent 24.24 Mb/s 182.71 kb/s 24.24 Mb/s
WAN Traffic - igb0 (Bits/sec)
igb0 - Bits Recv 5.51 Mb/s
igb0 - Bits Sent 28.68 Mb/s
WAN igb0
igb0 - Bytes Recv - This Month 53.15 GiB
igb0 - Bytes Sent - This Month 1.83 GiB
WAN Throughput - igb0
min max avg current
Packets Recv 7.100 18.703 K 456.070 1.287 K
Packets Sent 9.100 6.340 K 246.032 2.239 K
LAN Interface - igb1_vlan5
Interface Summary
Interface Friendly Name IPV4 Address Physical Address Status
igb1_vlan5 Home 172.16.5.1 aa:aa:aa:aa:aa:aa UP
LAN Traffic - igb1_vlan5 (Bits/sec)
max avg current
Bits Recv 24.15 Mb/s 99.47 kb/s 24.15 Mb/s
Bits Sent 232.06 Mb/s 2.61 Mb/s 25.15 Mb/s
LAN Traffic - igb1_vlan5 (Bits/sec)
igb1_vlan5 - Bits Recv 28.85 Mb/s
igb1_vlan5 - Bits Sent 30.04 Mb/s
LAN igb1_vlan5
igb1_vlan5 - Bytes Recv - This Month 1019.51 MiB
igb1_vlan5 - Bytes Sent - This Month 26.22 GiB
LAN Throughput - igb1_vlan5
min max avg current
Packets Recv 6.70 6.50 K 64.72 2.37 K
Packets Sent 4.90 19.43 K 236.37 2.96 K
LAN Interface - igb1_vlan2 (5 panels)
LAN Interface - igb1_vlan3 (5 panels)
LAN Interface - igb1_vlan4 (5 panels)
LAN Interface - igb1_vlan6 (5 panels)
LAN Interface - igb1_vlan7 (5 panels)
LAN Interface - igb1_vlan8 (5 panels)