

Firewall pfSense

IPv6 v praxi

Seminář IPv6 - 2019 - Lukáš Malý

O projektu pfSense

- Firewall distribuce – vystavěná na FreeBSD
- Využívá mnoho dalších Open Source projektů
- **pf** (Packet Filter) **Sense** – stavový firewall
- DHCPv6 Server/RA – dhcp6-20080615.2 KAME
- DHCPv4 – ISC DHCP server 4.3.6P1_1

Firewall pfSense

- Obraz (ISO) s instalátorem
- Memstick obraz s instalátorem – USB Flash
- Embedded (NanoBSD) pro CF – bude ukončena podpora
- amd64, i386
- **pfSense 2.4.4-RELEASE-p3** - FreeBSD 11.2-RELEASE-p10
- ARM – Netgate modely SG-1100 a SG-3100

WebGUI - Login



apu.hide.lukasmaly.net

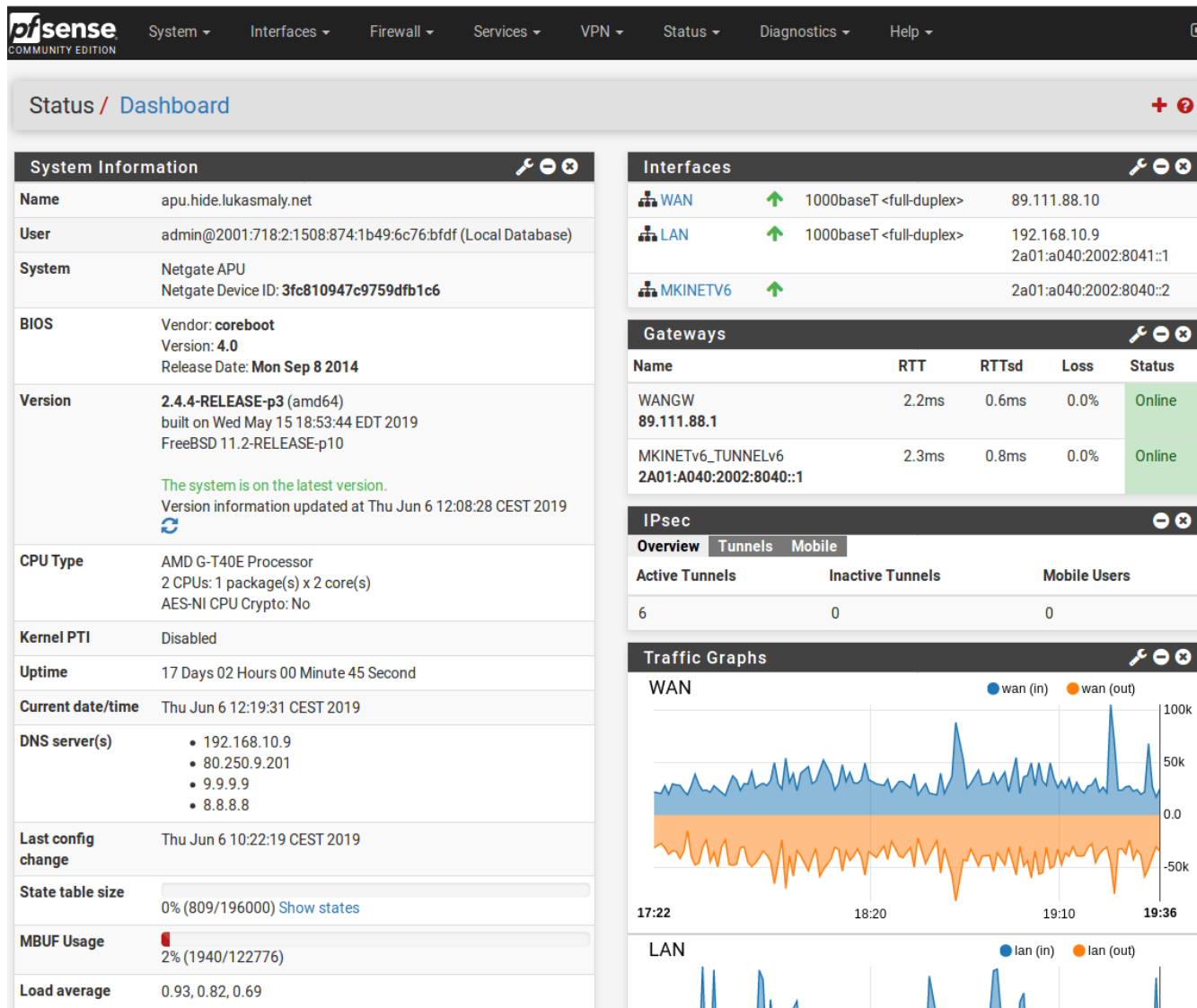
SIGN IN

Username

Password

SIGN IN

Dashboard



Tunnel IPv6 over IPv4

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Interfaces / GIFs / Edit

GIF Configuration

Parent Interface	WAN	This interface serves as the local address to be used for the GIF tunnel.
GIF Remote Address	89.111.88.1	Peer address where encapsulated gif packets will be sent.
GIF tunnel local address	2A01:A040:2002:8040::2	Local gif tunnel endpoint.
GIF tunnel remote address	2A01:A040:2002:8040::1	Remote GIF address endpoint.
GIF tunnel subnet	64	The subnet is used for determining the network that is tunnelled.
ECN friendly behavior	☐ ECN friendly behavior violates RFC2893. This should be used in mutual agreement with the peer.	

DHCPv6

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Services / DHCPv6 Server & RA / LAN / DHCPv6 Server

LAN

DHCPv6 Server

Router Advertisements

DHCPv6 Options

DHCPv6 Server	☒ Enable DHCPv6 server on interface LAN	
Subnet	2a01:a040:2002:8041::	
Subnet Mask	64 bits	
Available Range	2a01:a040:2002:8041:: to 2a01:a040:2002:8041:ffff:ffff:ffff:ffff	
Range	2a01:a040:2002:8041:10::f000 From	2a01:a040:2002:8041:10::ff00 To
Prefix Delegation Range	 From	 To
Prefix Delegation Size	64 A Prefix range can be defined here for DHCP Prefix Delegation. This allows for assigning networks to subrouters. The start and end of the range must end on boundaries of the prefix delegation size.	

DHCPv6 - Status Leases

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Status / DHCPv6 Leases

Leases

IPv6 address	IAID	DUID	MAC address	Hostname	Start	End	Online	Lease Type	Actions
2a01:a040:2002:8041:10::fe1f	66597604	00:01:00:01:1d:f9:ad:0c:f8:32:e4:70:0e:8e			2019/06/06 10:21:30	2019/06/06 12:21:30	offline	active	
2a01:a040:2002:8041:10::ff00	3955395461	00:01:00:01:1e:62:73:18:b8:27:eb:c2:8b:85			2019/06/06 09:59:01	2019/06/06 11:59:01	offline	active	
2a01:a040:2002:8041:10::feea		00:01:00:01:21:8b:64:0a:00:1d:7d:a9:cb:67		deti-pc	n/a	n/a	offline	static	

Delegated Prefixes

IPv6 Prefix	Routed To	IAID	DUID	Start	End	State
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Show all configured leases

Firewall Rules

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Firewall / Rules / MKINETV6

Floating WAN LAN MKINETV6 IPsec OpenVPN

Rules (Drag to Change Order)

☐	States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
☐	✓ 0 / 11.83 MiB	IPv6 TCP	ip6_ADMIN	*	ip6_KALI	22 (SSH)	*	none		Allow SSH from ADMINS to Kali	   
☐	✓ 1 / 20 KiB	IPv6 ICMP <u>echorep</u> <u>echoreq</u>	ip6_MONITOR	*	ip6_KALI	*	*	none		Allow ICMPv6 from MONITOR to Kali	   
☐	✓ 1 / 14.27 MiB	IPv6 TCP	ip6_ADMIN	*	MKINETV6 address	p_ADMIN	*	none		Allow ADMINS v6	   
☐	✓ 1 / 2 KiB	IPv6 ICMP <u>echorep</u> <u>echoreq</u>	ip6_MONITOR	*	MKINETV6 address	*	*	none		Allow ICMP from MONITOR6	   

 Add
  Add
  Delete
  Save
  Separator

ICMPv6 ze semináře domu na Kali

```
malyt@lmlntb: ~  
My traceroute [v0.86]  
lmlntb (::)  
Keys:  Help    Display mode  Restart statistics  Order of fields  quit  
Packets  
Host      Loss%  Snt    Last   Avg    Best   Wrst   StDev  
1. 2001:718:2:1508::1 0.0% 640 1.1 2.4 0.8 85.8 5.9  
2. 2001:718:2:1506::1 0.0% 640 1.9 6.4 1.1 235.4 21.4  
3. 2001:718:2:1f15::1 0.0% 640 4.0 4.6 1.7 100.1 10.7  
4. 2001:718:2:1f01::2 0.0% 640 1.8 3.4 1.3 261.0 12.6  
5. r1-pm-tun.ipv6.cesnet.cz 13.1% 640 4.4 8.3 1.6 183.5 13.5  
6. nix4-ipv6.cesnet.cz 0.0% 640 1.8 5.1 1.4 86.4 10.4  
7. 2a01:a040:7fff::e 7.7% 639 2.4 4.3 2.1 114.1 9.9  
8. ::ffff:10.3.7.13 0.0% 639 7.3 12.4 5.0 136.1 15.3  
9. ::ffff:10.3.5.1 0.0% 639 9.5 7.1 4.9 76.2 6.0  
10. ::ffff:10.3.1.2 0.0% 639 5.1 6.9 4.6 122.7 9.8  
11. ::ffff:10.3.4.81 0.0% 639 5.3 7.7 4.8 219.8 11.8  
12. 2a01:a040:7ffe::9 0.0% 639 6.4 7.7 4.9 628.2 26.2  
13. 2a01:a040:2002:8041:ba27:ebff:fef4:5d43 0.0% 639 7.6 8.9 5.6 123.2 12.2
```

Dotazy?



Děkuji za pozornost.