Marionnet: networking for dummies.

Marco Stronati

2009

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a virtual network laboratory for teaching purposes

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- nice and clean GUI (french only)

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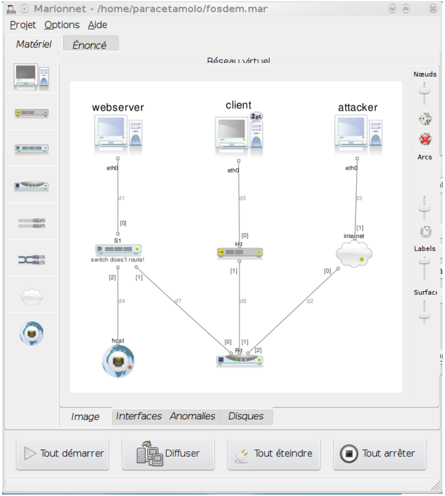
- OCaml
- GPLv2-or-later

Marionnet


Marionnet - /home/paracetamolo/fosdem.mar
Projet
Options
Aide
Matériel
Énoncé
Réseau virtuel
webserver
client
attacker
eth0
eth0
eth0
d1
d5
d3
[0]
[0]
[1]
S1
H1
internet
switch doesn't route!
[2]
[1]
[1]
[0]
d4
d7
d6
d2
host
[0]
[1]
[2]
R1
Nœuds
Arcs
Labels
Surface
Image
Interfaces
Anomalies
Disques
Tout démarrer
Diffuser
Tout éteindre
Tout arrêter

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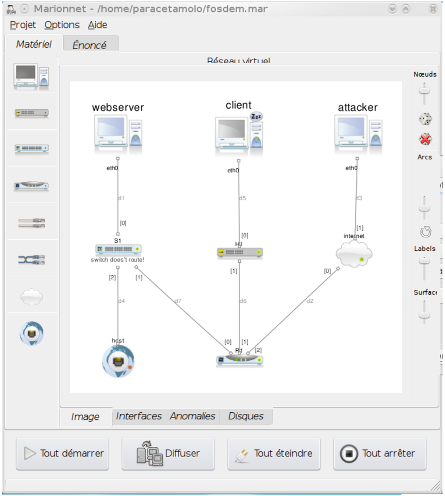
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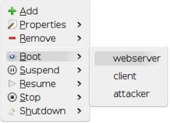
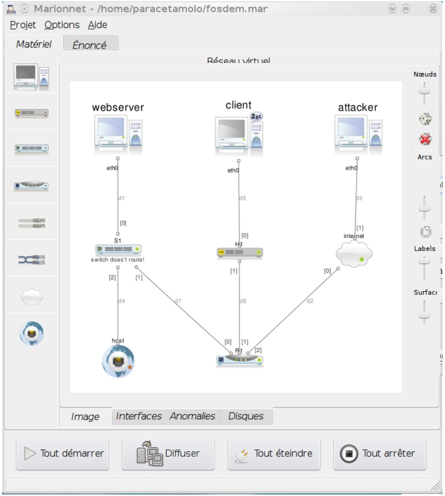
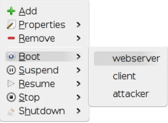
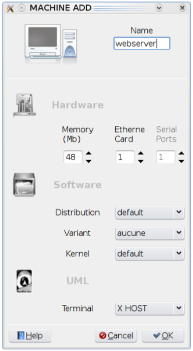

Add
Properties
Remove
Boot
Suspend
Resume
Stop
Shutdown
webserver
client
attacker

Marionnet







Name: webserver

Memory (Mb): 48

Etherne Card: 1

Serial Ports: 1

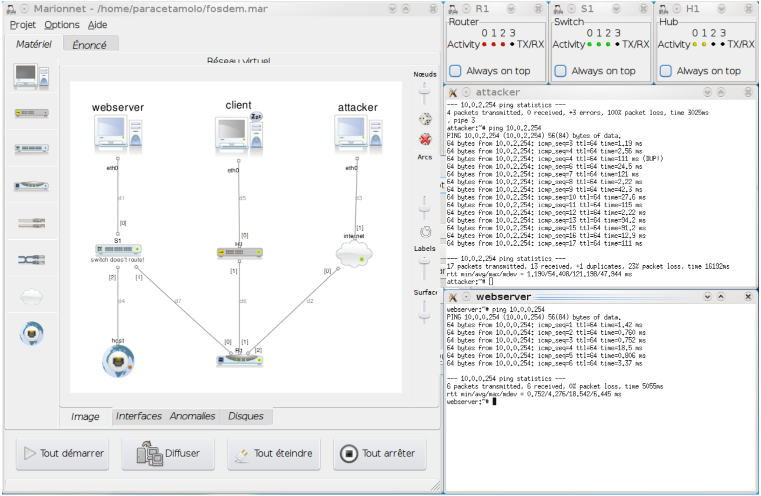
Distribution: default

Variant: aucune

Kernel: default

Terminal: X HOST

Marionnet



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4 packets transmitted, 0 received, +3 errors, 100% packet loss, time 3025ms
, pipe 3
attacker:~# ping 10.0.2.254
PING 10.0.2.254 (10.0.2.254) 56(84) bytes of data.
64 bytes from 10.0.2.254: icmp_seq=3 ttl=64 time=1.19 ms
64 bytes from 10.0.2.254: icmp_seq=4 ttl=64 time=2.56 ms
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64 bytes from 10.0.2.254: icmp_seq=9 ttl=64 time=42.3 ms
64 bytes from 10.0.2.254: icmp_seq=10 ttl=64 time=27.6 ms
64 bytes from 10.0.2.254: icmp_seq=11 ttl=64 time=115 ms
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64 bytes from 10.0.2.254: icmp_seq=17 ttl=64 time=111 ms

--- 10.0.2.254 ping statistics ---
17 packets transmitted, 13 received, +1 duplicates, 23% packet loss, time 16192ms
rtt min/avg/max/mdev = 1.190/54.408/121.198/47.944 ms
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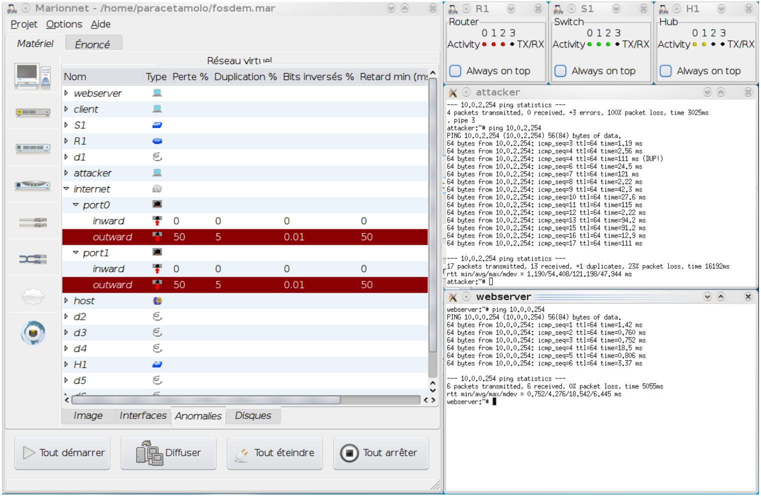
64 bytes from 10.0.0.254: icmp_seq=4 ttl=64 time=18.5 ms
64 bytes from 10.0.0.254: icmp_seq=5 ttl=64 time=0.806 ms
64 bytes from 10.0.0.254: icmp_seq=6 ttl=64 time=3.37 ms

--- 10.0.0.254 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5055ms
rtt min/avg/max/mdev = 0.752/4.276/18.542/6.445 ms
webserver:~# 
```

Defects



Nom	Type	Perte %	Duplication %	Bits inversés %	Retard min (m
webserver					
client					
S1					
R1					
d1					
attacker					
internet					
port0					
inward		0	0	0	0
outward		50	5	0.01	50
port1					
inward		0	0	0	0
outward		50	5	0.01	50
host					
d2					
d3					
d4					
H1					
d5					

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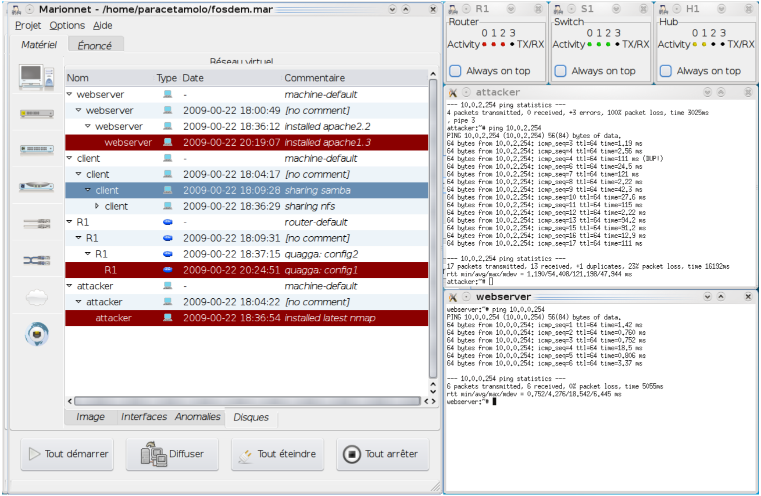
webserver:~# 
```

Disks



Nom	Type	Date	Commentaire
webserver		-	machine-default
webserver		2009-00-22 18:00:49	[no comment]
webserver		2009-00-22 18:36:12	installed apache2.2
webserver		2009-00-22 20:19:07	installed apache1.3
client		-	machine-default
client		2009-00-22 18:04:17	[no comment]
client		2009-00-22 18:09:28	sharing samba
client		2009-00-22 18:36:29	sharing nfs
R1		-	router-default
R1		2009-00-22 18:09:31	[no comment]
R1		2009-00-22 18:37:15	quagga: config2
R1		2009-00-22 20:24:51	quagga: config1
attacker		-	machine-default
attacker		2009-00-22 18:04:22	[no comment]
attacker		2009-00-22 18:36:54	installed latest nmap

□ Always on top

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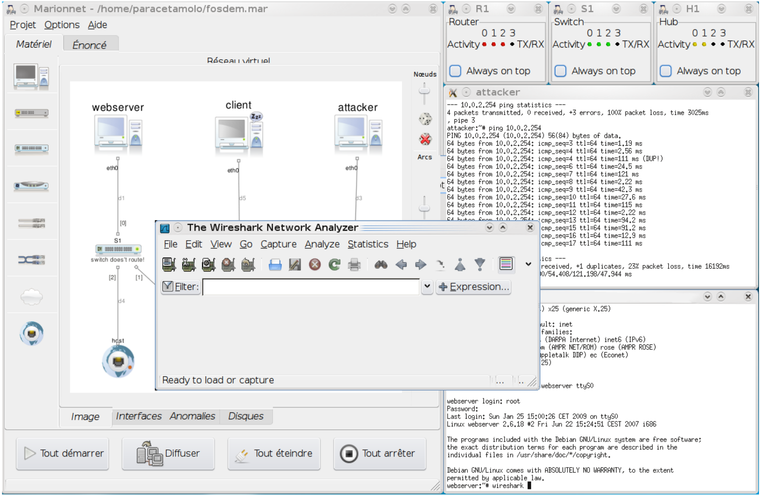
Host X server



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```

```
                          ) x25 (generic X.25)

                          ult: inet
                          families:
                          (DARPA Internet) inet6 (IPv6)
                          m (AMPR NET/ROM) rose (AMPR ROSE)
                          ppletalk DDP) ec (Econet)
                          25)

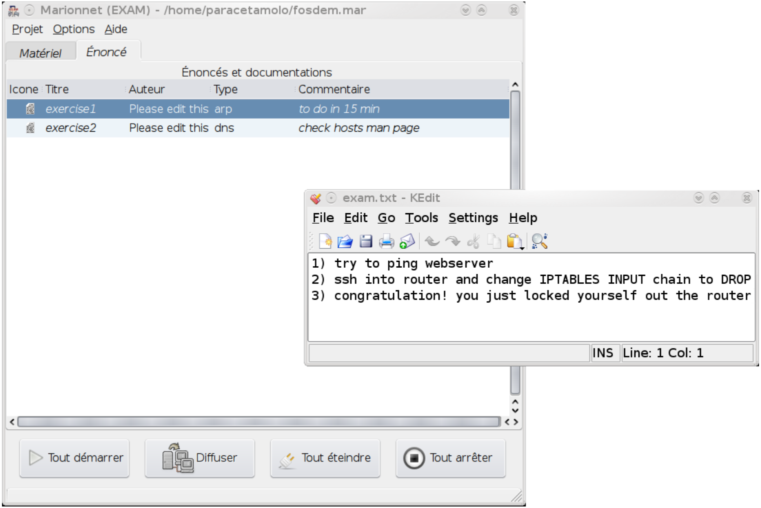

                          webserver ttyS0

webserver login: root
Password:
Last login: Sun Jan 25 15:00:26 CET 2009 on ttyS0
Linux webserver 2.6.18 #2 Fri Jun 22 15:24:51 CEST 2007 i686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
webserver:~# wireshark
```

Exam mode



Icone	Titre	Auteur	Type	Commentaire
	exercise1	Please edit this	arp	*to do in 15 min*
	exercise2	Please edit this	dns	*check hosts man page*

```
1) try to ping webserver
2) ssh into router and change IPTABLES INPUT chain to DROP
3) congratulation! you just locked yourself out the router
```

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Personal note: I spent 2 days to try a point-to-point connection, with Marionnet you can explore the most obscure iptables configurations!!

Université de Paris 13.

IUT de Villetaneuse and L.I.P.N. are supporting the project.

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I'm working on developer documentation and i18n.

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They both are strong advocates of functional programming and free software.

Under the hood

We love free software:

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- Marionnet GUI (GTK+, dot)

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- graphical applications (wireshark)
- GUI(set up, feedback)
- exam mode (retrieve student info)
- file format back-forth-compatible
- pinocchio (100mb of what you need)

Future

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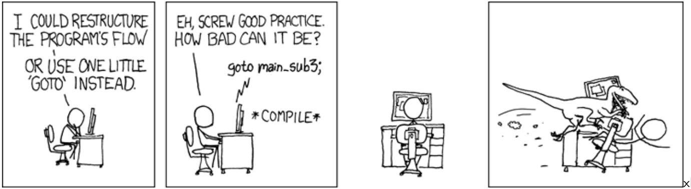
- new devices: IP phone

Thanks

Problems you don't have in OCaml...


I COULD RESTRUCTURE THE PROGRAM'S FLOW
OR USE ONE LITTLE 'GOTO' INSTEAD.
EH, SCREW GOOD PRACTICE. HOW BAD CAN IT BE?
goto main_sub3;
COMPILE

xkcd.com