netkit lab

EBTables in bridged VLAN environment

Version	1.0
Author(s)	Sandro Doro
E-mail	sandro.doro@istruzione.it
Web	http://www.tic.fdns.net/tic/html/lab.html
Description	Simple example in using EBTable in a bridge VLAN network.

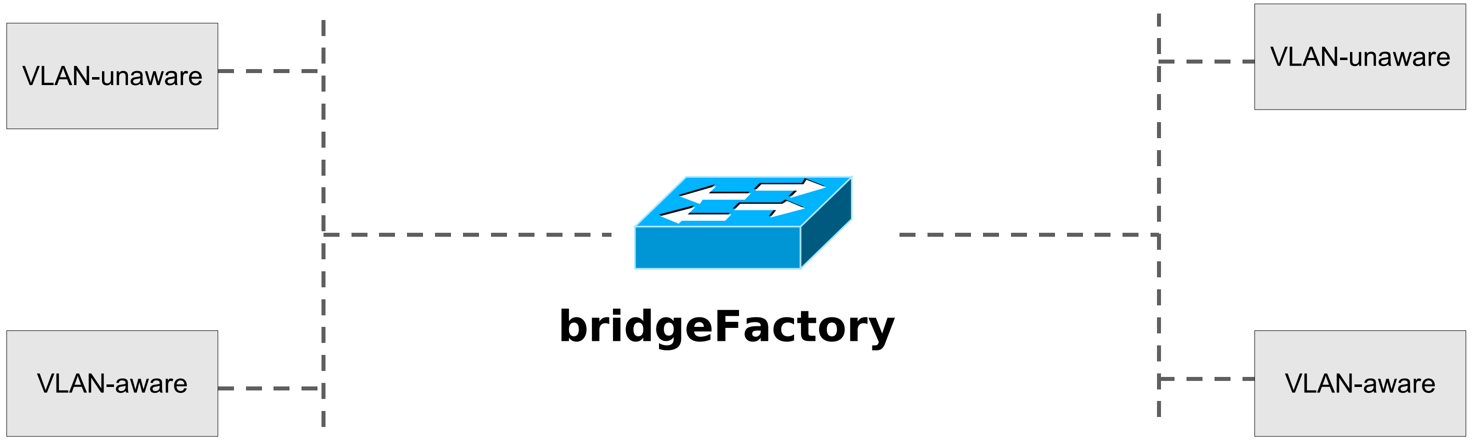
copyright notice

Separe traffic in hybrid link

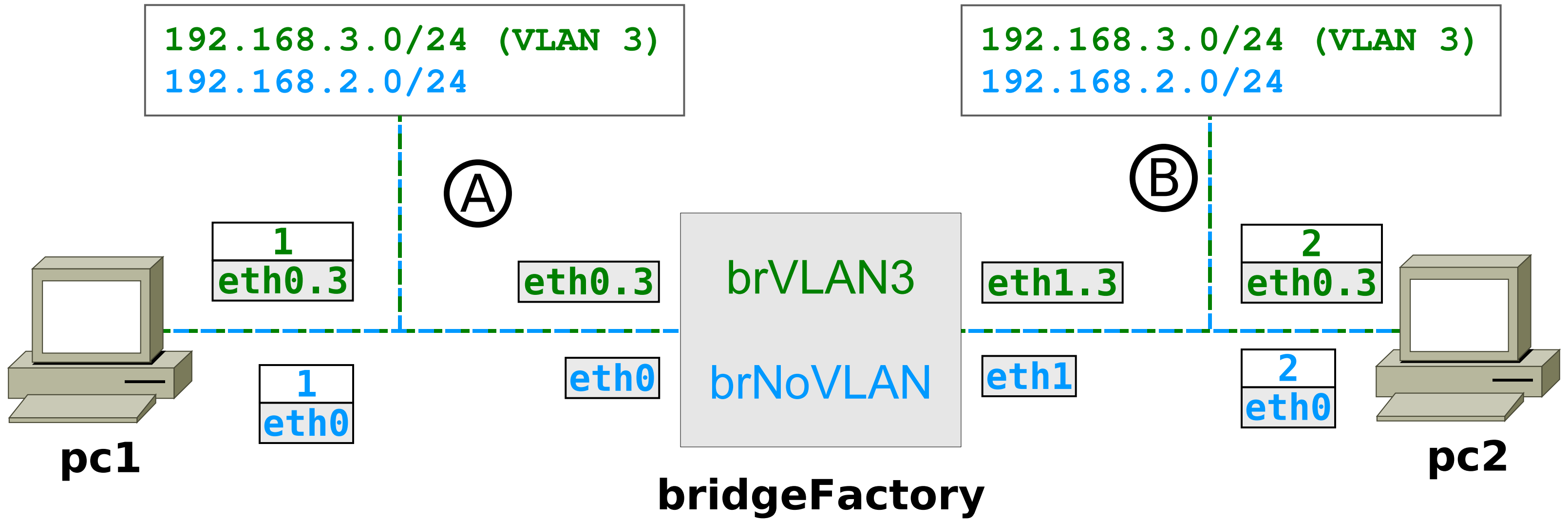
Assignment:

From two hybrid link (tagged and untagged) connected to a bridgeFactory node with two interfaces (eth0 and eth1), build two bridges: one for a VLAN (e.g #3) and the other for all untagged traffic.

abstract topology



detailed topology

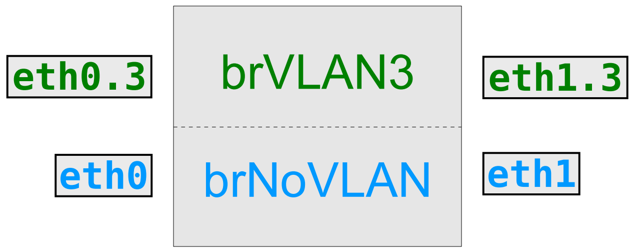


```
# brctl show
bridge name     bridge id               STP enabled     interfaces
brNoVLAN        8000.000000010000       no              eth0
                                                        eth1
brVLAN3         8000.000000010000       no              eth0.3
                                                        eth1.3
```

Problem

sniffing brNoVLAN

The traffic go all trough brNoVLAN bridge



bridgeFactory

Solution: EBTables

Kernel space

Integrated into kernel 2.6 and patchable into kernel 2.4 (LEAF/Bering ready)

Enable in “Bridge: Netfilter Configuration” section:

```
CONFIG_BRIDGE_NT_EBTABLES=m
CONFIG_BRIDGE_EBT_* =m
```

User space: http://ebtables.sourceforge.net/

arptables: is used to set up, maintain, and inspect the tables of ARP rules in the Linux kernel

ebtables: is used to set up, maintain, and inspect the tables of Ethernet frame rules in the Linux kernel.

Solution: EBTables

-t broute, is used to make a brouter, it has one built-in chain: BROUTING.

The targets DROP and ACCEPT have special meaning in the broute table. DROP actually means the frame has to be routed, while ACCEPT means the frame has to be bridged.

The BROUTING chain is traversed very early. It is only traversed by frames entering on a bridge enslaved NIC that is in forwarding state. Normally those frames would be bridged, but you can decide otherwise here.

EBTables commands

Filtering:

```
ebtables -t broute -A BROUTING -i eth0 -p 802_1q --vlan-id 3 -j DROP
ebtables -t broute -A BROUTING -i eth1 -p 802_1q --vlan-id 3 -j DROP
```

Counting purpose:

```
ebtables -t broute -A BROUTING -i eth0.3 -p ipv4 -j CONTINUE
ebtables -t broute -A BROUTING -i eth1.3 -p ipv4 -j CONTINUE
```

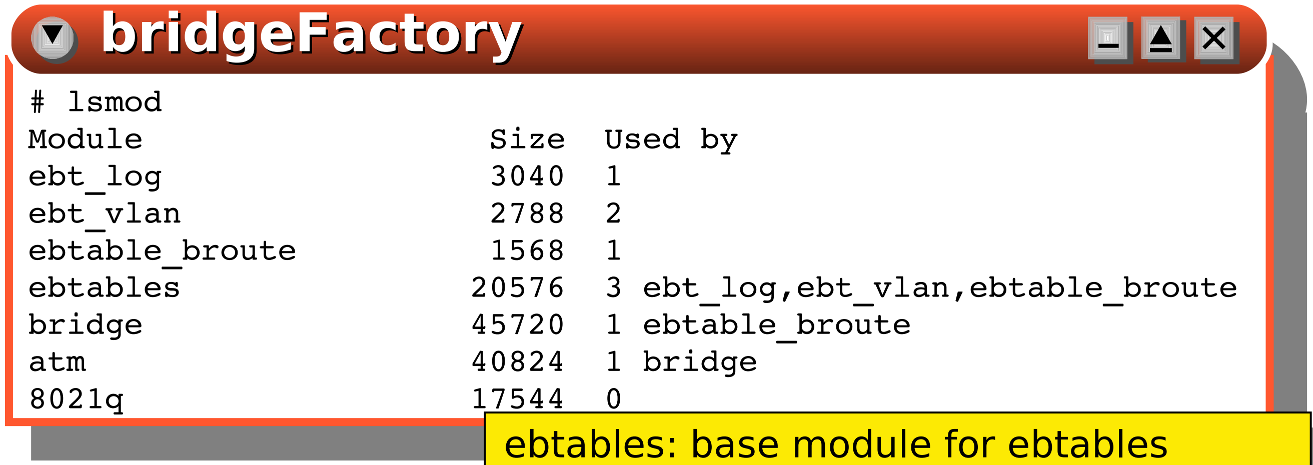
Logging:

```
ebtables -t broute -A BROUTING --log-ip --log-arp
```

Display counter:

```
ebtables -t broute -L BROUTING --Lc
```

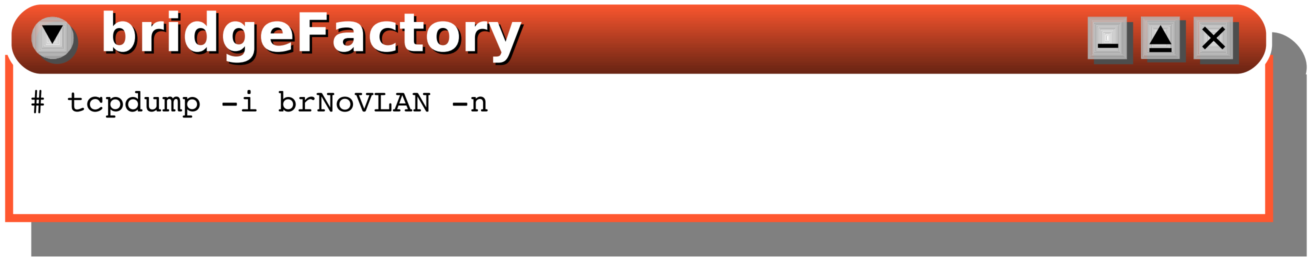
modules loaded



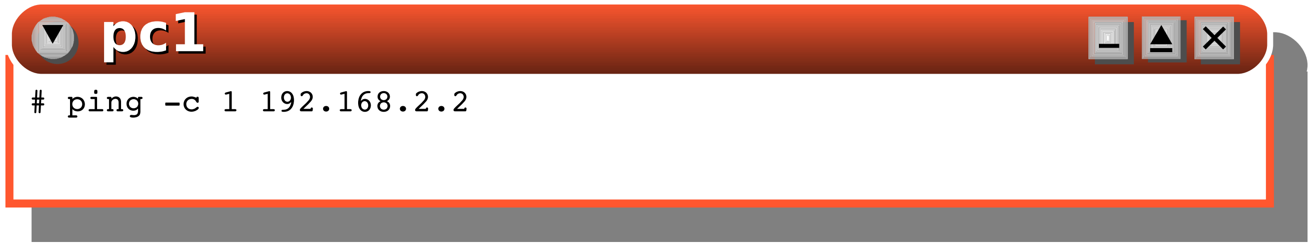
```
# lsmod
Module                  Size  Used by
ebt_log                 3040  1
ebt_vlan                2788  2
ebtable_broute          1568  1
ebtables               20576  3 ebt_log,ebt_vlan,ebtable_broute
bridge                 45720  1 ebtable_broute
atm                    40824  1 bridge
8021q                  17544  0
```

ebtables: base module for ebtables
ebtable_broute: bridge/routing decisions
ebtable_vlan: 802.1Q vlan match/filtering
ebtable_log: logging to the syslog

Testing brNoVLAN

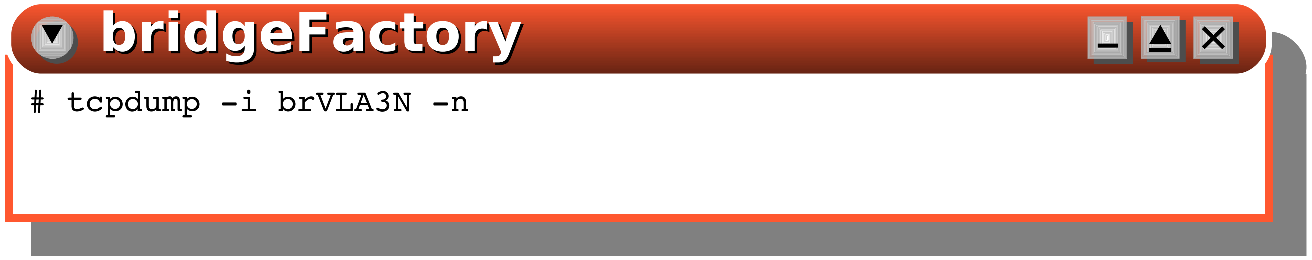


```
# tcpdump -i brNoVLAN -n
```

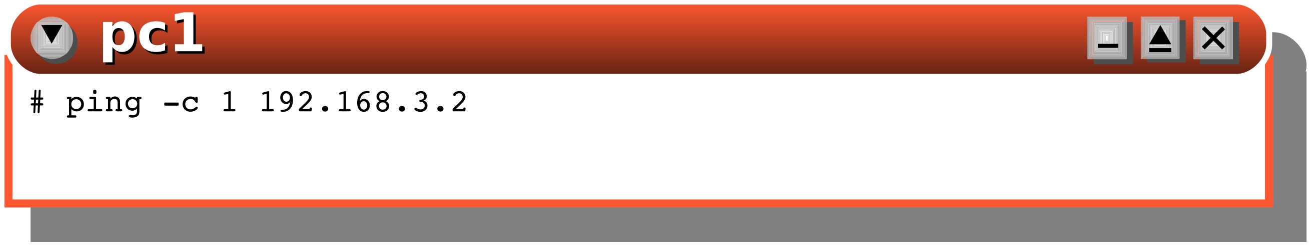


```
# ping -c 1 192.168.2.2
```

Testing brVLAN3



```
# tcpdump -i brVLA3N -n
```



```
# ping -c 1 192.168.3.2
```