Figure 1
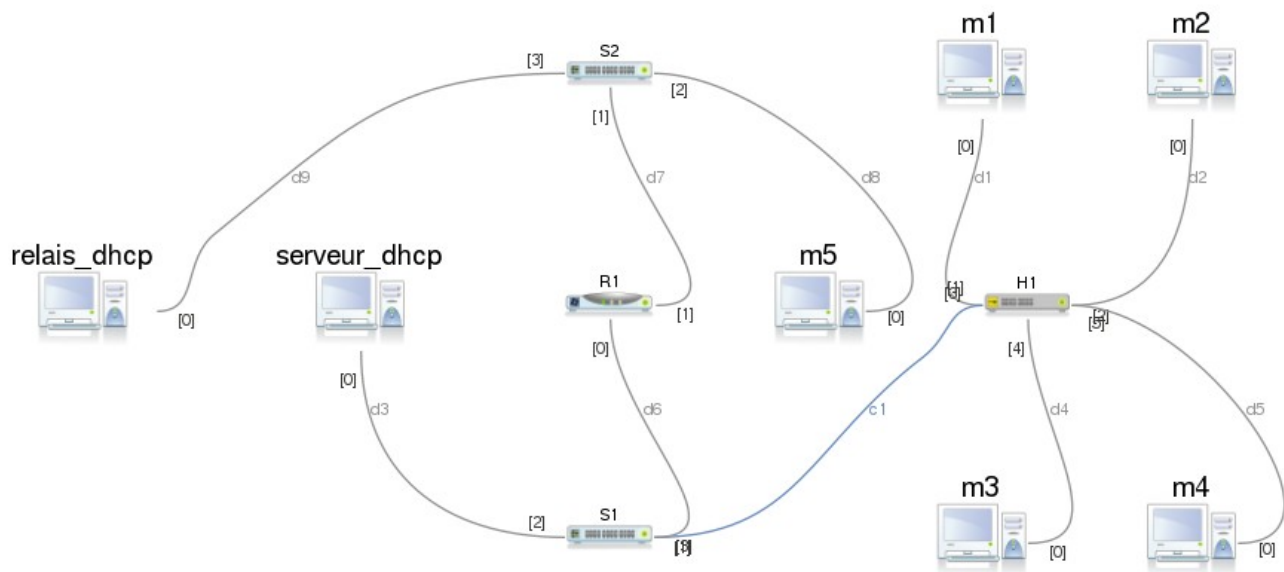

Figure 2

serveur_dhcp (machine-debian-lenny-sid-20...

```
# No service will be given on this subnet, but declaring it helps the
# DHCP server to understand the network topology.

#subnet 10.152.187.0 netmask 255.255.255.0 {
#}

# This is a very basic subnet declaration.

# ------------------------------
# ------------ my modification:
subnet 192.168.1.0 netmask 255.255.255.000 {
  range 192.168.1.1 192.168.1.10;
}
subnet 192.168.2.0 netmask 255.255.255.000 {
  range 192.168.2.1 192.168.2.10;
}

#subnet 10.254.239.0 netmask 255.255.255.224 {
"/etc/dhcp3/dhcpd.conf" 121L, 3782C written          42,8          26%
```

Figure 3


```
m5 (machine-debian-lenny-sid-2008)           _   □   ✕

m5:~# dhclient
Internet Systems Consortium DHCP Client V3.1.1
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For info, please visit http://www.isc.org/sw/dhcp/

ADDRCONF(NETDEV_UP): bond0: link is not ready
Listening on LPF/dummy0/2a:ce:f3:83:b6:7b
Sending on   LPF/dummy0/2a:ce:f3:83:b6:7b
Listening on LPF/bond0/00:00:00:00:00:00
Sending on   LPF/bond0/00:00:00:00:00:00
Listening on LPF/eth0/02:04:06:f0:88:0d
Sending on   LPF/eth0/02:04:06:f0:88:0d
Sending on   Socket/fallback
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 7
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 7
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 8
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 8
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 13
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 17

m5:~# route add -net 192.168.1.0 netmask 255.255.255.0 gw 192.168.2.100
SIOCADDRT: Network is unreachable
m5:~# 
```

Figure 4


```
relais_dhcp (machine-debian-lenny-sid-2008)    _   □   ✕

lo         Link encap:Local Loopback
           inet addr:127.0.0.1  Mask:255.0.0.0
           inet6 addr: ::1/128 Scope:Host
           UP LOOPBACK RUNNING  MTU:16436  Metric:1
           RX packets:63 errors:0 dropped:0 overruns:0 frame:0
           TX packets:63 errors:0 dropped:0 overruns:0 carrier:0
           collisions:0 txqueuelen:0
           RX bytes:1550 (1.5 KiB)  TX bytes:1550 (1.5 KiB)

relais_dhcp:~# ping 192.168.1.250
PING 192.168.1.250 (192.168.1.250) 56(84) bytes of data.
64 bytes from 192.168.1.250: icmp_seq=1 ttl=63 time=35.3 ms
64 bytes from 192.168.1.250: icmp_seq=2 ttl=63 time=2.54 ms
64 bytes from 192.168.1.250: icmp_seq=3 ttl=63 time=2.33 ms
64 bytes from 192.168.1.250: icmp_seq=4 ttl=63 time=2.13 ms
64 bytes from 192.168.1.250: icmp_seq=5 ttl=63 time=2.20 ms
64 bytes from 192.168.1.250: icmp_seq=6 ttl=63 time=1.67 ms
64 bytes from 192.168.1.250: icmp_seq=7 ttl=63 time=2.11 ms
64 bytes from 192.168.1.250: icmp_seq=8 ttl=63 time=1.89 ms

--- 192.168.1.250 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7080ms
rtt min/avg/max/mdev = 1.679/6.279/35.322/10.980 ms
relais_dhcp:~# 
```

Figure 5

m5 (machine-debian-lenny-sid-2008)

```
          RX bytes:1550 (1.5 KiB)  TX bytes:1550 (1.5 KiB)

m5:~# dhclient
Internet Systems Consortium DHCP Client V3.1.1
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For info, please visit http://www.isc.org/sw/dhcp/

Listening on LPF/dummy0/2a:ce:f3:83:b6:7b
Sending on   LPF/dummy0/2a:ce:f3:83:b6:7b
Listening on LPF/bond0/00:00:00:00:00:00
Sending on   LPF/bond0/00:00:00:00:00:00
Listening on LPF/eth0/02:04:06:f0:88:0d
Sending on   LPF/eth0/02:04:06:f0:88:0d
Sending on   Socket/fallback
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 7
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 6
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 4
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 19
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 4
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 7
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 10

m5:~# 
```

serveur_dhcp (machine-debian-lenny-sid-20...)

```
Dec 13 11:34:17 serveur_dhcp dhcpd: Wrote 4 leases to leases file.
Dec 13 11:34:17 serveur_dhcp dhcpd: DHCPREQUEST for 192.168.1.4 from 02:04:
06:31:93:5e via eth0
Dec 13 11:34:17 serveur_dhcp dhcpd: ns1.example.org: temporary name server
failure
Dec 13 11:34:17 serveur_dhcp dhcpd: ns2.example.org: temporary name server
failure
Dec 13 11:34:17 serveur_dhcp dhcpd: DHCPACK on 192.168.1.4 to 02:04:06:31:9
3:5e via eth0
Dec 13 11:35:05 serveur_dhcp /USR/SBIN/CRON[2505]: (root) CMD (/usr/bin/tes
t -x /usr/sbin/autodns-dhcp-cron && /usr/sbin/autodns-dhcp_cron)
Dec 13 11:35:49 serveur_dhcp dhcpd: DHCPREQUEST for 192.168.1.1 from 02:04:
06:fe:b2:99 via eth0
Dec 13 11:35:49 serveur_dhcp dhcpd: ns1.example.org: temporary name server
failure
Dec 13 11:35:49 serveur_dhcp dhcpd: ns2.example.org: temporary name server
failure
Dec 13 11:35:49 serveur_dhcp dhcpd: DHCPACK on 192.168.1.1 to 02:04:06:fe:b
2:99 via eth0
Dec 13 11:36:05 serveur_dhcp /USR/SBIN/CRON[2509]: (root) CMD (/usr/bin/tes
t -x /usr/sbin/autodns-dhcp-cron && /usr/sbin/autodns-dhcp_cron)
Dec 13 11:36:11 serveur_dhcp dhcpd: DHCPDISCOVER from 02:04:06:f0:88:0d via
 192.168.2.250: unknown network segment
:
```

relais_dhcp (machine-debian-lenny-sid-2008)

```
PING 192.168.1.250 (192.168.1.250) 56(84) bytes of data.
64 bytes from 192.168.1.250: icmp_seq=1 ttl=63 time=35.3 ms
64 bytes from 192.168.1.250: icmp_seq=2 ttl=63 time=2.54 ms
64 bytes from 192.168.1.250: icmp_seq=3 ttl=63 time=2.33 ms
64 bytes from 192.168.1.250: icmp_seq=4 ttl=63 time=2.13 ms
64 bytes from 192.168.1.250: icmp_seq=5 ttl=63 time=2.20 ms
64 bytes from 192.168.1.250: icmp_seq=6 ttl=63 time=1.67 ms
64 bytes from 192.168.1.250: icmp_seq=7 ttl=63 time=2.11 ms
64 bytes from 192.168.1.250: icmp_seq=8 ttl=63 time=1.89 ms

--- 192.168.1.250 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7080ms
rtt min/avg/max/mdev = 1.679/6.279/35.322/10.980 ms
relais_dhcp:~# dhcrelay3 192.168.1.250 -d
Internet Systems Consortium DHCP Relay Agent V3.1.1
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For info, please visit http://www.isc.org/sw/dhcp/
Listening on LPF/eth0/02:04:06:bc:fb:2f
Sending on   LPF/eth0/02:04:06:bc:fb:2f
Sending on   Socket/fallback
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
```

Figure 6

m5 (machine-debian-lenny-sid-2008)

```
killed old client process, removed PID file
Internet Systems Consortium DHCP Client V3.1.1
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For info, please visit http://www.isc.org/sw/dhcp/

Listening on LPF/dummy0/2a:ce:f3:83:b6:7b
Sending on   LPF/dummy0/2a:ce:f3:83:b6:7b
Listening on LPF/bond0/00:00:00:00:00:00
Sending on   LPF/bond0/00:00:00:00:00:00
Listening on LPF/eth0/02:04:06:f0:88:0d
Sending on   LPF/eth0/02:04:06:f0:88:0d
Sending on   Socket/fallback
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 8
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 3
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 6
DHCPDISCOVER on dummy0 to 255.255.255.255 port 67 interval 6
DHCPDISCOVER on bond0 to 255.255.255.255 port 67 interval 8
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 11
DHCPOFFER from 192.168.2.250
DHCPREQUEST on eth0 to 255.255.255.255 port 67
DHCPACK from 192.168.2.250
bound to 192.168.2.1 -- renewal in 300 seconds.
m5:~#
```

relais_dhcp (machine-debian-lenny-sid-2008)

```
Sending on   Socket/fallback
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250

relais_dhcp:~# dhcrelay3 192.168.1.250 -d
Internet Systems Consortium DHCP Relay Agent V3.1.1
Copyright 2004-2008 Internet Systems Consortium.
All rights reserved.
For info, please visit http://www.isc.org/sw/dhcp/
Listening on LPF/eth0/02:04:06:bc:fb:2f
Sending on   LPF/eth0/02:04:06:bc:fb:2f
Sending on   Socket/fallback
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREPLY for 02:04:06:f0:88:0d to 192.168.2.1
forwarded BOOTREQUEST for 02:04:06:f0:88:0d to 192.168.1.250
forwarded BOOTREPLY for 02:04:06:f0:88:0d to 192.168.2.1
```