

Όνομα εργασίας: Βρέζος Κωνσταντίνος | Όροφα PC: LAPTOP-RLRPLC
Όραση: 2 | Ημερομηνία: 13/03/2023

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Eργασία στην Ακαδημία 3

Tonmia Sifnou naia perasepeis LAN.

Akademias 1

1.1] Ιfconfig em0 met 192.168.1.1 naia Ιfconfig em0 met 192.168.1.2.

1.2] Ιfconfig em0 up naia Ιfconfig em1 up.

1.3] Ta PC₁, PC₂ fer enweswvoviv naiai bpiouvara, oē tlapagemei LAN

~~Τηλεφωνική γραμμή παραπομπής στον Επίκουρο Καθηγητή~~

1.4] Eto B1 naeappiavzai naeia ARP request aoi zo ping nae naies, ta PC1 oeo PC2, wozios auzi fer piaiou oeo PC2 naeis an naia bpiouvara, oeo ihsu unosikou xupis tēpupa eisai aronavpera

1.5] Ιfconfig bridge0 create

Ιfconfig bridge0 addm em0 addm em1 up

1.6] Naia zupi emweswvoviv

1.7] Ta PC₁ naia PC₂ anexou i tipa.

1.8] Tonio oeo PC1 oeo naia oeo PC2, oeo nivouo arp unapxer u MAC address naia PC1 naia naia PC2 idha oxi auzi zas tēpupas.

1.9] tcdump -i em0 -o em1 -vvv → Να πάρεται zo B1 npoundei za naeia perasi zw LAN1 naia LAN2, ~~naeappiavu~~ naia ICMP echo request naia ICMP echo reply

1.10] Oxi fer naies naiai alldayi oeoas siadivesz zw.

1.11] Oxi, Sev naparupi nomenia allapis

1.12] Oxi, Sev unapxesi enforzun unapxesi con B1 radius n traceroute dekrypti na IPv4 siendivay evi n reipipes diaresian zo Data layer nivo MAC address (exav fraperezies dekryptes).

1.13] ping 192.168.1.2
tcpdump -i eth1 -vvv

1.14] Ifconfig eth0 met 192.168.2.1

H reipipe responder za nomenia con siendivay na epirizor za PC (con 192.168.1.2) wortos zo PC2 n deon exi addresa IP nai exi con 192.168.2.1 (karakappiken nivo arp request).

1.15] Oxi, Sev eina enizxes. Dev unapxes puxamper con ip nai nomenie ping na voi anazieres.

1.16] Oxi, Sev puropi radius Sev exi nrootebei n siendipi eth2 con owsomeologia zns reipipes

1.17] Ifconfig bridge0eth0 eth2 up
ifconfig eth2 up

1.18] Nat

1.19] Oxi, Sev varzappaniza, nomezo ICMP ovo LAN2 radius 200m con ping ovo epirizma (1.18) n reipipes pumipfer nsi naq reipes na credita za nomeza, enapervus n puro nivnos tivai enapervus ova PC1 nai PC3 nivo zur LAN1 nai LAN3.

1.20] Karakterizime eva nomezo arp ovo LAN2 radius puro zur enedipion zur nivnos arp (arp-da) o B1 Sev pumipfer

1.21] Ifconfig bridge0

1.22] Ifconfig bridge0 addr.

1.23 | Arriauv oza PC1 na! PC3

1.24 | Pconfig bridge0 flush.

1.25 | Pconfig bridge0 deleteem em2

1.26 | Pconfig bridge0 destroy

1.27 | Pconfig em0 192.168.1.1 remove. (Napomains na! na za PC2 na PC3)

2)

2.1) ifconfig eth0 inet 192.168.1.1 netw to PC1. Arp responce was not seen.
on interface.

2.2) ifconfig bridge1 create

ifconfig eth0 up netw ifconfig eth1 up.

ifconfig bridge1 addm eth0 addm eth1 up.

2.3) ifconfig bridge2 create

ifconfig eth0 up netw ifconfig eth1 up

ifconfig bridge2 addm eth0 addm eth1 up

2.4) ifconfig bridge3 create

ifconfig eth0 up netw ifconfig eth1 up

ifconfig bridge3 addm eth0 addm eth1 up.

2.5) PC1 : 08:00:27:4C:9E:60

PC2 : 08:00:27:25:3D:45

PC3 : 08:00:27:7D:EE:0F

PC4 : 08:00:27:E5:CD:CF

A few arp requests arp : arp -da

2.6) ifconfig bridge1 flush, netw B1, opinions netw B2 (bridge2) netw B3 (bridge3)

2.7) tcpdump -n on node PC

2.8) ifconfig bridge1 addr, numerous responses B1 netw (opinions netw B2, B3)

B1 : 08:00:27:25:3D:45 vlayer1 eth1 1139 flags=0<> (PC2)

08:00:27:4C:9E:60 vlayer1 eth0 1139 flags=0<> (PC1)

B2 : 08:00:27:25:3D:45 vlayer1 eth0 1143 flags=0<> (PC2)

08:00:27:4C:9E:60 vlayer1 eth0 1143 flags=0<> (PC1)

B3 : 08:00:27:4C:9E:60 vlayer1 eth1 1143 flags=0<> (PC1)

2.9 | To PC1 Da pwrivei plor ARP Request noio PC exer zw IP 192.168.1.2, o ploros now da anazwres pe ARP Reply Da eivalo PC2 kai kai zo ARP Request ides oj répues Da pwoedewon zw MAC address zw PC1 kai kai zo ARP Reply plor oj répues B₁ kai B₂ Da pwoedewon zw MAC address zw PC2. Exovras zw macaddrs nuparopria oras nivales spoodóprous, za ICMP echo request val ICMP echo reply Da audewinian zw ouvrii frapou.

2.10 | Oxi. Sev uniphar addres plor plor oj répues Da obyvion ouvrii za jumipaza ozo PC1 xapis va pwties mania nuparopria valo PC2 val B₃

2.11 | Plorues spoodóprous : B₁: MAC address PC1
MAC address PC2
MAC address PC4
B₂: MAC address PC1
MAC address PC2
MAC address PC4
B₃: MAC address PC1
MAC address PC4.

O nivales respondens zw B₁ nepiexi zw MAC zw PC4 plor ozo PC4 eunepne ARP Reply ozo B₂, zo lambevei co B₁ zo onio Sev co respondens addoi, alli co nivales respondens zw PC1, PC3 kai PC4.

2.12 | Oi nivales spoodóprous zw répues elva: O ~~B₁~~ val o ~~B₂~~ exav val ~~all~~ zw 4 PC zw MAC addresses Ei o B₃ exer zw MAC address zw PC1, PC3 kai PC4.

2.13] Ping 192.168.1.2 naia arnō zo PC4 van arnō zo PC1.

2.14] To ping arnō zo PC4 ozo PC2 ovexiTei va ozēles nōmeia naia nezā arnō zur allapri pazi nōeov eivai ovēsepeis ozo ihsu "radios"

2.15] Me zur allapri naia nōvare, to ping arnō zo PC1 ozaħarnej pazi n B2 żgħiex oqanduwa nraġi għad-dher. Ser spoudei zo nienet. ~~żgħid~~

2.16] To ping apixiTei vani nistax na jaċċevprej, pazi me to vixi ping naia arnō zo PC2 awreibu u o nivuwa nraġi għad-B2.

2.17] Tidher ipo oħra xpejżeżek na na listi u eppoupi pxi zo PC2 arnō zo nivuwa nraġi għad-B2.

Auronon 3]

3.1] 1) Routing bridge1 create

Routing bridge1 addm em0 addm em1 addm em2 up.

3.2] 1) Routing bridge2 create

Routing bridge2 addm em0 addm em1 addm em2 up.

3.3] PC1 : 08:00:27:4C:9E:60

PC2 : 08:00:27:25:3D:45

PC3 : 08:00:27:7D:EA:DF

Afuaqua nitana arp : arp - da

3.4] 0. replies B1 na B2 exar aferas nivales npoidens. To ARP request na
kazappapape ora PC1 eivai anocce Zogea flooding. (0. jepupes nivens
plead eo nivens ora).

3.5] ping 192.168.1.1

3.6] 1) Routing em2 up

Routing bridge1 addm em2, opoinis kou na co B2

3.7] Routing bridge1 addm ~> Tora n B1 ioo na n B2 exar ora nivale
npoidens kou kazappapape na na za 3 PC.

3.8] B1 : PC1 ~ em0, PC3 ~ em2

B2 : PC1 ~ em0, PC3 ~ em2

3.9] tcpcdump -e

3.10] Na! eival eniuxes

3.11] PC1 ~ em0

PC3 ~ em2

3.12] ARP request : who has 192.168.1.1

ARP reply : 192.168.1.1 is at 08:00:27:4C:9E:60

3.13] MAC src: 0B:0D:27:7d:ea:df (PC3)

3.14] Now flooding zur geupnir

3.15] fazi vor nivana npawmery zu B2 exi waçappoupi oti to ~~kommt~~
PC3 spicneza, oti Dipa em2 ~~o~~ (LNK2) na, ~~kommt~~ sev
ozelver nozé zu ARP reply zu owozi Dipa

Arouman 4 (now $X = 1, 2, \dots$)

4.1] If config bridge X destroy

1. config env down

1. config bridge create.

4.2] If config layer 0 create.

4.3] If config layer 0 up layerport env layerport out

4.4] If sides encode's me (4.2) war (4.3).

4.5] If config bridge 1 addm env addm layer 0

4.6] If config bridge 2 addm env addm layer 0

4.7] ~~For each bridge, send a configuration message. This message contains the number of ports, the port numbers, and the MAC addresses. The message is sent to the bridge's MAC address. The message is encrypted using the shared key between the two hosts.~~

4.8] ~~Configure -u~~

4.9] To ping address to numero addi envio for receiver, received and to PCI.
Ox, for para enviar para receiver ARP

~~For each host, send a configuration message. This message contains the number of ports, the port numbers, and the MAC addresses. The message is sent to the host's MAC address. The message is encrypted using the shared key between the two hosts.~~

4.10]

4.11] Para enviar ozi n numero para receptor and to LINK1 oro LINK2

4.12] If numero encripe war naid ozo LINK1,

Auron 5|

5.1) 1 feony bridgeX destroy
1 feony layer0 destroy.

5.2) 1 feony bridge1 create
1 feony bridge1 oldmu em0 oldmu em1 oldmu em2 up.

5.3) 1 feony bridge2 create
1 feony bridge2 oldmu em0 oldmu em1 oldmu em2 up.

5.4) 1 feony bridge1 stp em0 stp em1 stp em2

5.5) 1 feony bridge2 stp em0 stp em1 stp em2.

5.6) B1 ~ 08:00:27:14:51:03
B2 ~ 08:00:27:59:32:8d

5.7) 0. Siu yepes B1 vai B2 exov za ifro priority (32768) Enspies n yepes pita eivai awai pe zu mifozeps MAC, enideov pe 1 feony bridge1 mas epoyi, ter oas denzopepes zu "root id" n onia opinicek pe zu MAC address oao zu B1 oao B1, eivai zu B2 sioupeper

5.8) em0: role ~ designated state forwarding
em1: role ~ designated state forwarding
em2: role ~ designated state forwarding

5.9) H dpa em0 (role: root state forwarding) LINK1

5.10) H dpa, dpa LINK2 eivai alternate.

5.11) H dpa eivai designated

5.12) tcdmup -i em1 -e -vvv
Mode 2 seconds.

5.13] IEEE 802.3

5.14] MAC dst: 01:80:c2:00:00:00

MAC src: 08:00:27:14:51:a3 (Bridge ID)

5.15] Em Sienapu em!

5.16] Multicast.

5.17] Root ID: 8000.08:00:27:14:51:a3

bridge ID: 8000.08:00:27:14:51:a3.8001

root path cost: 0

5.18] tcptrace -i em -vvv -e ~> bridge bridge_id: 8000.08:00:27:14:51:a3:8003
To ... 8003 em1, n reservation ora zedz zu bridge id.

5.19]

5.20] Ox1, 8ev nogaupaike himm

5.21] Emw em2

5.22] Emw em2

root ID: 8000.08:00:27:14:51:a3

bridge ID: 8000.08:00:27:59:39:8d.8003

root path cost: 20000

5.23] Nau em1 em2xies

5.24] Yeraznaw ngenow 6 seconds fuur em unoherderen, em emusuvias

5.25] Ox1, n emusuvias 8ev siawmizeren

Arcmon 6

6.1) 1Pconhg em3 up

1Pconhg bridge1 addm em3

1Pconhg bridge1 step em3

6.2) 1Pconhg em3 up

1Pconhg bridge2 addm em3

1Pconhg bridge2 step em3

6.3) 1Pconhg bridges create

1Pconhg bridge3 addm em1 addm em2 up

1Pconhg bridge3 step em0 step em1 step em2 up.

1Pconhg emX up.

6.4) 1Pconhg bridgeX flush.

Nai zo ping Eirai Enizwes

6.5) 1Pconhg bridge1 priority ~~0~~ 0

6.6) path cost ~ 20000. Azi npowinzer smo zo zino

onox 1Gbps eira, u zaxiwa zis wayra funer.

6.7) root path cost : 0

Root path cost : 20000

6.8) H Gips em0 (role root state forwarding).

6.9)

6.10) Root path cost : 20000

6.11) ping 192.168.1.3

6.12] Ifconfig bridge3 ipathcost em0 50000, bridgefauc 50000
maci u Sienapu na zo LINK uacis 40000 uai Delayer vair peralicepo.

6.13] Reparau nepinu 2 pe 3 Senzepodenca (hello time = 2 sec)

6.14] Einu ovo alternate role uai state discarding

6.15] Oj, oj apies zwu napaueizmu 8 en exen al lajz

6.16] Nai, zo ifcost nkon einai 40000

6.17] Reparau nepinu 6 pe 7 Senzepodenca

6.18] Reparau nepinu 2 Senzepodenca.

6.19] H vira Sienapu nau npocolecne einai role backup state discarding
uai naddy einai role alternate state discarding.

6.20] Ifconfig bridge3 ipathcost em

Answers 7 |

7.1| `!Pcunhy em0.5 create`

`!Pcunhy em0.5 192.168.5.1 up`

`!Pcunhy em0.6 create`

`!Pcunhy em0.6 192.168.6.1 up.`

7.2| `!Pcunhy em0.5 create`

`!Pcunhy em0.6 create`

7.3| `!Pcunhy em1.6 create`

`!Pcunhy em3.5 create.`

7.4| `!Pcunhy em0.6 create`

`!Pcunhy em0.6 192.168.6.2 up.`

7.5| `!Pcunhy em3 down`

`!Pcunhy em0.6 create`

`!Pcunhy em1.6 create.`

7.6| `!Pcunhy em0.5 create`

`!Pcunhy em0.5 192.168.5.3 up.`

7.7| `!Pcunhy em0.5 create`

`!Pcunhy em2.5 create`

7.8| `Nan, propose.`

7.9| `!Pcunhy bridge1 -stp em0`

7.10| `tcpdump -i em0 -vvv -e -x`

7.11| `arp -d`

`EtherType ARP ~ (0x0806)`

`EtherType IPv4 ~ (0x0800)`

7.12] Ta pdaiora nao uazapipovozai exar perafodei anio zo VLAN (ip src: 192.168.6.2 ip dst: 192.168.6.1). ~~errado~~ Fia zon dojo anio zo peredor zo nomezaw eival peralizepo uara 4 brite (VLAN tag).

~~tcpdump -i em0.5 -vvv -e -x~~

7.13] EtherType ~ 802.1Q (0x8100). Exar uai 2º nexo EtherType nao zo seixuei

7.14] 4 brite pera zo netio length.

7.15] tcpdump -i em0.5 -vvv -e -x

7.16] EtherType ARP ~ (0x0806)

EtherType IPv4 ~ (0x0800)

Oxi, Ser unapxei oxecimo netio.

7.17] Ifconfig bridge1 stop em0 up.

tcpdump -i em0 -vvv -e -x.

7.18] Em deos zo etherType exarpe zo 802.3

7.19] tcpdump not stp -i em0 -vvv -e -x.