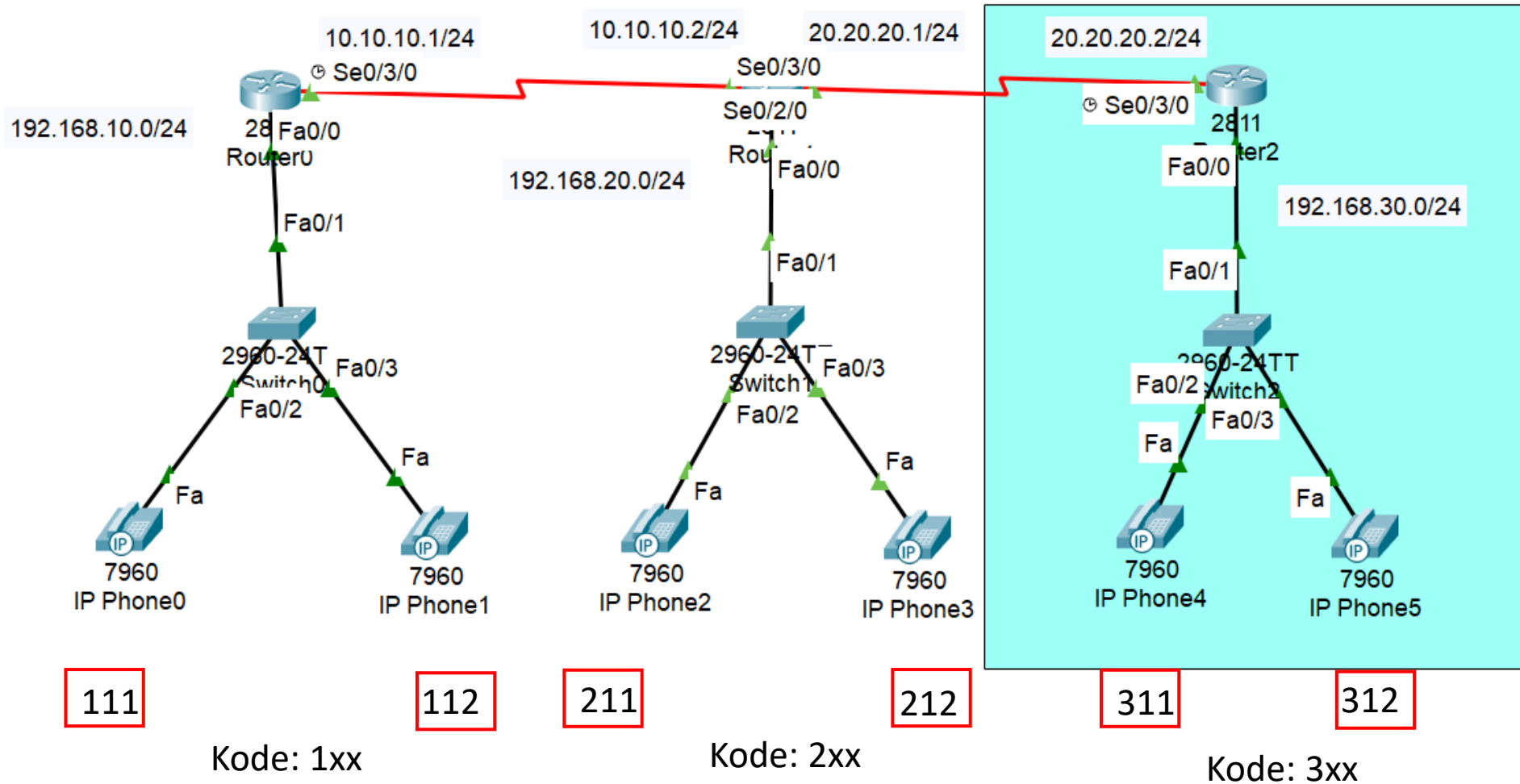# Modul Praktikum Jaringan Komunikasi Cisco VOIP (H.323) Interkoneksi 3 Router

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Topik Bahasan

- Integrasi 3 router Cisco VoIP
- Setting IP Address dan DHCP
- Setting serial interface dan Routing Protocol
- Setting dial number IP Phone
- Setting dial interkoneksi antar router

Topologi VoIP

10.10.10.1/24   10.10.10.2/24   20.20.20.1/24   20.20.20.2/24

Se0/3/0   Se0/3/0   Se0/3/0

Se0/2/0

192.168.10.0/24   28 Fa0/0   2811

Router0   Fa0/0   Fa0/0

192.168.20.0/24   192.168.30.0/24

Fa0/1   Fa0/1   Fa0/1

2960-24T   2960-24T   2960-24TT

Switch0 Fa0/3   Switch1 Fa0/3   Fa0/2 Switch2

Fa0/2   Fa0/2   Fa0/3

Fa   Fa   Fa

Fa   Fa   Fa

7960   7960   7960   7960   7960   7960

IP Phone0   IP Phone1   IP Phone2   IP Phone3   IP Phone4   IP Phone5

| 111 | 112 | 211 | 212 | 311 | 312 |

Kode: 1xx   Kode: 2xx   Kode: 3xx

Konfigurasi Router0

Setting IP address dan DHCP

```
Router>en
Router#config terminal
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#ip dhcp excluded-address 192.168.10.1

Router(config)#ip dhcp pool voip1
Router(dhcp-config)#network 192.168.10.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#option 150 ip 192.168.10.1
Router(dhcp-config)#exit
Router(config)#
```

IP static

DHCP

Konfigurasi Router1

```
Router>en
Router#config terminal
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.20.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#ip dhcp excluded-address 192.168.20.1

Router(config)#ip dhcp pool voip2
Router(dhcp-config)#network 192.168.20.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.20.1
Router(dhcp-config)#option 150 ip 192.168.20.1
Router(dhcp-config)#exit
Router(config)#
```

IP static

DHCP

Menambahkan serial interface

- Matikan perangkat router
- Drag and drop WIC-1T
- Hidupkan kembali perankat

Konfigurasi Router0

Setting serial interface dan routing protocol

Router(config)#int se0/3/0   IP serial int.
Router(config-if)#ip address 10.10.10.1 255.255.255.0
Router(config-if)#clock rate 64000   sbg DCE
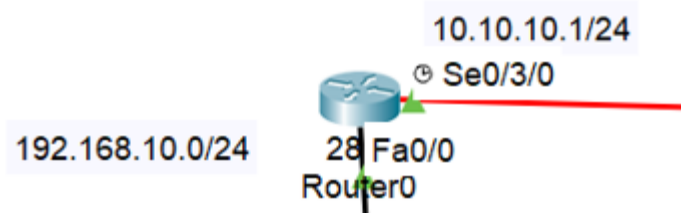Router(config-if)#no shutdown
Router(config-if)#exit

Router(config)#router rip   RIP routing prot.
Router(config-router)#version 2
Router(config-router)#no auto-summary   to adv. all network
Router(config-router)#network 192.168.10.0
Router(config-router)#network 10.10.10.0
Router(config-router)#exit
Router(config)#

10.10.10.1/24
Se0/3/0

192.168.10.0/24   28 Fa0/0
Router0

Konfigurasi Router1

Setting serial interface dan routing protocol
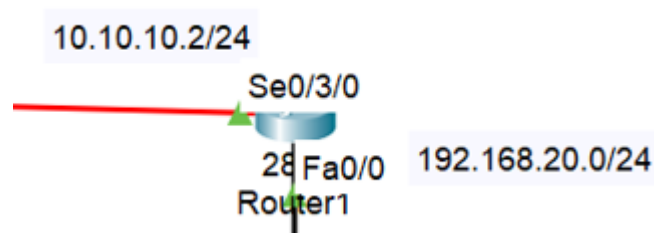
Router(config)#int se0/3/0   IP serial int.
Router(config-if)#ip address 10.10.10.2 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit

Router(config)#router rip   RIP routing prot.
Router(config-router)#version 2
Router(config-router)#no auto-summary   to adv. all network
Router(config-router)#network 192.168.20.0
Router(config-router)#network 10.10.10.0
Router(config-router)#exit
Router(config)#

10.10.10.2/24
Se0/3/0
28 Fa0/0   192.168.20.0/24
Router1

Konfigurasi Router0

Setting numbering

```
Router(config)#telephony-service
Router(config-telephony)#ip source-address 192.168.10.1 port 2001
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#auto assign 1 to 3
Router(config-telephony)#exit
```

```
Router(config)#telephony-service
Router(config-telephony)#ephone-dn 1
Router(config-ephone-dn)#number 111
Router(config-ephone-dn)#ephone-dn 2
Router(config-ephone-dn)#number 112
Router(config-ephone-dn)#
```

Kode: 1xx

Konfigurasi Router1

Setting numbering

Router(config)#telephony-service
Router(config-telephony)#ip source-address 192.168.20.1 port 2001
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#auto assign 1 to 3
Router(config-telephony)#exit

Router(config)#telephony-service
Router(config-telephony)#ephone-dn 1
Router(config-ephone-dn)#number 211
Router(config-ephone-dn)#ephone-dn 2
Router(config-ephone-dn)#number 212
Router(config-ephone-dn)#

Kode: 2xx

Konfigurasi 3 Switch (VLAN)

```
Switch>enable
Switch#conf t
Switch(config)#interface range f0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport voice vlan 1
Switch(config-if-range)#exit
Switch(config)#
```
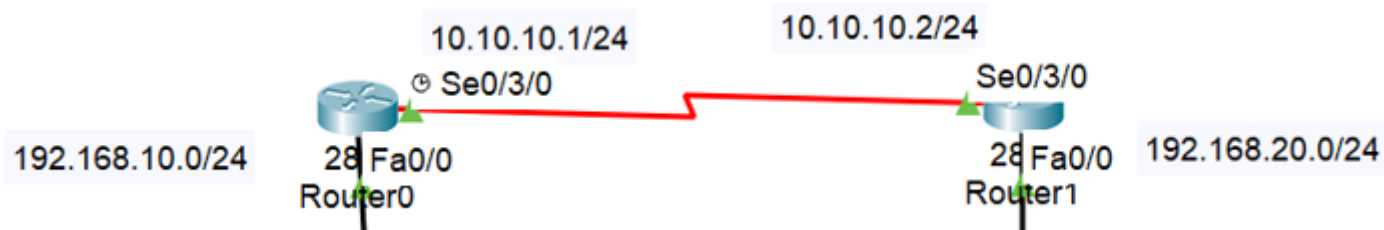
Konfigurasi Router0 dan Router1

Setting interkoneksi antara 2 router

Router(config)#dial-peer voice 1 voip
Router(config-dial-peer)#destination-pattern 2..
Router(config-dial-peer)#session target ipv4:192.168.20.1
Router(config-dial-peer)#exit
Router(config)#

Router0

Router(config)#dial-peer voice 1 voip
Router(config-dial-peer)#destination-pattern 1..
Router(config-dial-peer)#session target ipv4:192.168.10.1
Router(config-dial-peer)#exit
Router(config)#

Router1

TAMBAHAN SETTING
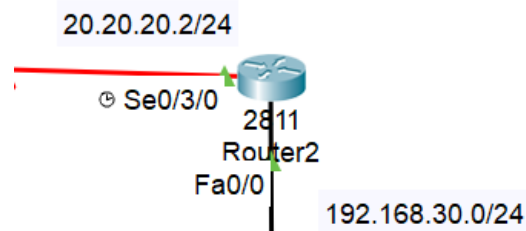
Konfigurasi Router2

Setting IP address dan DHCP

```
Router>en
Router#config terminal
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.30.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#ip dhcp excluded-address 192.168.30.1

Router(config)#ip dhcp pool voip3
Router(dhcp-config)#network 192.168.30.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.30.1
Router(dhcp-config)#option 150 ip 192.168.30.1
Router(dhcp-config)#exit
Router(config)#
```

IP static

DHCP

20.20.20.2/24

Se0/3/0   2811
          Router2
          Fa0/0
                  192.168.30.0/24

Konfigurasi Router2

Setting serial interface dan routing protocol

Router(config)#int se0/3/0   IP serial int.
Router(config-if)#ip address 20.20.20.2 255.255.255.0
Router(config-if)#clock rate 64000   sbg DCE
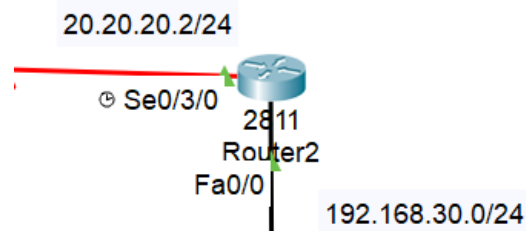Router(config-if)#no shutdown
Router(config-if)#exit

Router(config)#router rip   RIP routing prot.
Router(config-router)#version 2
Router(config-router)#no auto-summary   to adv. all network
Router(config-router)#network 192.168.30.0
Router(config-router)#network 20.20.20.0
Router(config-router)#exit
Router(config)#

20.20.20.2/24

Se0/3/0   2811
          Router2
Fa0/0
       192.168.30.0/24

Konfigurasi Router2

Setting numbering

```
Router(config)#telephony-service
Router(config-telephony)#ip source-address 192.168.30.1 port 2001
Router(config-telephony)#max-ephones 3
Router(config-telephony)#max-dn 3
Router(config-telephony)#auto assign 1 to 3
Router(config-telephony)#exit
```

```
Router(config)#telephony-service
Router(config-telephony)#ephone-dn 1
Router(config-ephone-dn)#number 311
Router(config-ephone-dn)#ephone-dn 2
Router(config-ephone-dn)#number 312
Router(config-ephone-dn)#
```
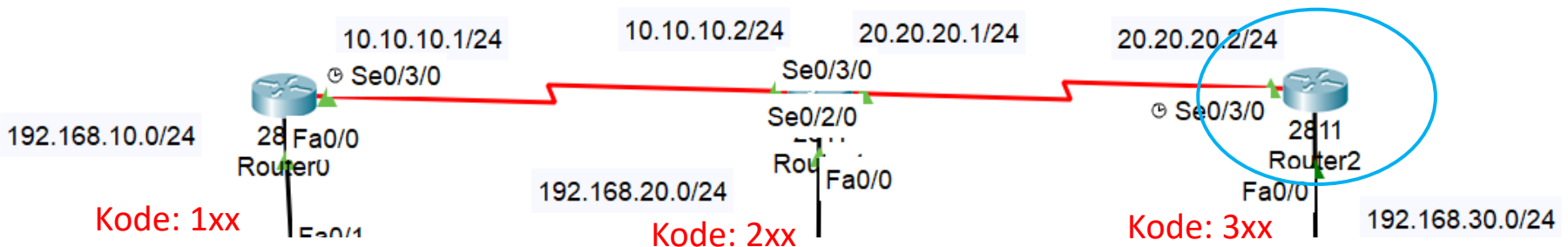
Kode: 3xx

Konfigurasi Router2

Setting interkoneksi antara 3 router

Router(config)#dial-peer voice 1 voip
Router(config-dial-peer)#destination-pattern 1..
Router(config-dial-peer)#session target ipv4:10.10.10.1
Router(config-dial-peer)#exit

Koneksi ke Router0

Router(config)#dial-peer voice 2 voip
Router(config-dial-peer)#destination-pattern 2..
Router(config-dial-peer)#session target ipv4:20.20.20.1
Router(config-dial-peer)#exit
Router(config)#

Koneksi ke Router1

10.10.10.1/24 Se0/3/0   10.10.10.2/24   20.20.20.1/24   20.20.20.2/24
                          Se0/3/0   Se0/3/0   2811
192.168.10.0/24 28 Fa0/0 Se0/2/0   Router2
Router0   Rou Fa0/0   Fa0/0
Kode: 1xx   Fa0/1   192.168.20.0/24   Kode: 3xx   192.168.30.0/24
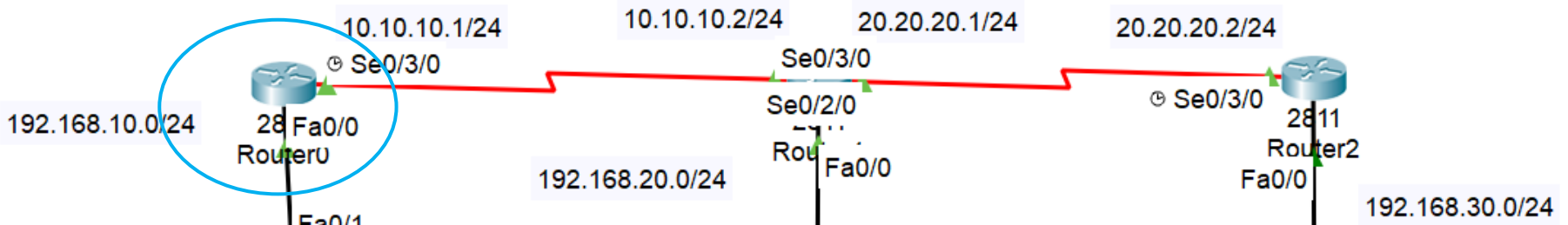   Kode: 2xx

Konfigurasi Router0

Setting dial-peer

Router(config)#dial-peer voice 2 voip
Router(config-dial-peer)#destination-pattern 3..
Router(config-dial-peer)#session target ipv4:20.20.20.2
Router(config-dial-peer)#exit
Router(config)#

Kode: 3xx

Konfigurasi Router1

```
Router(config)#interface se0/2/0
Router(config-if)#ip address 20.20.20.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```
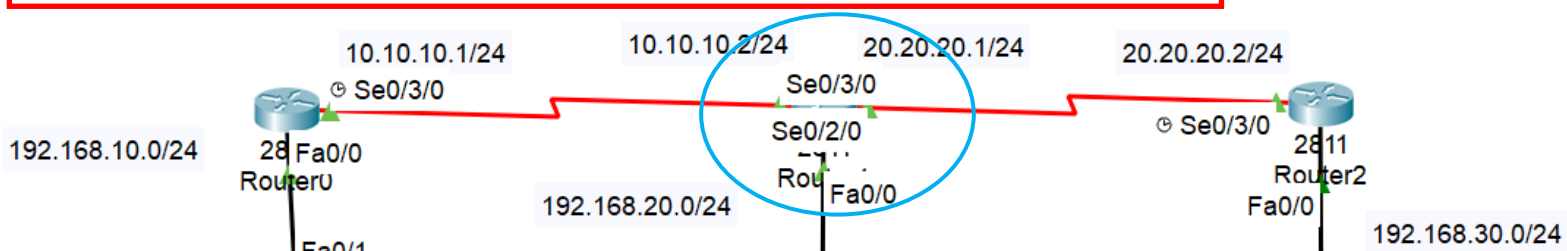
Setting serial interface

```
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto-summary
Router(config-router)#network 20.20.20.0
Router(config-router)#exit
Router(config)#
```
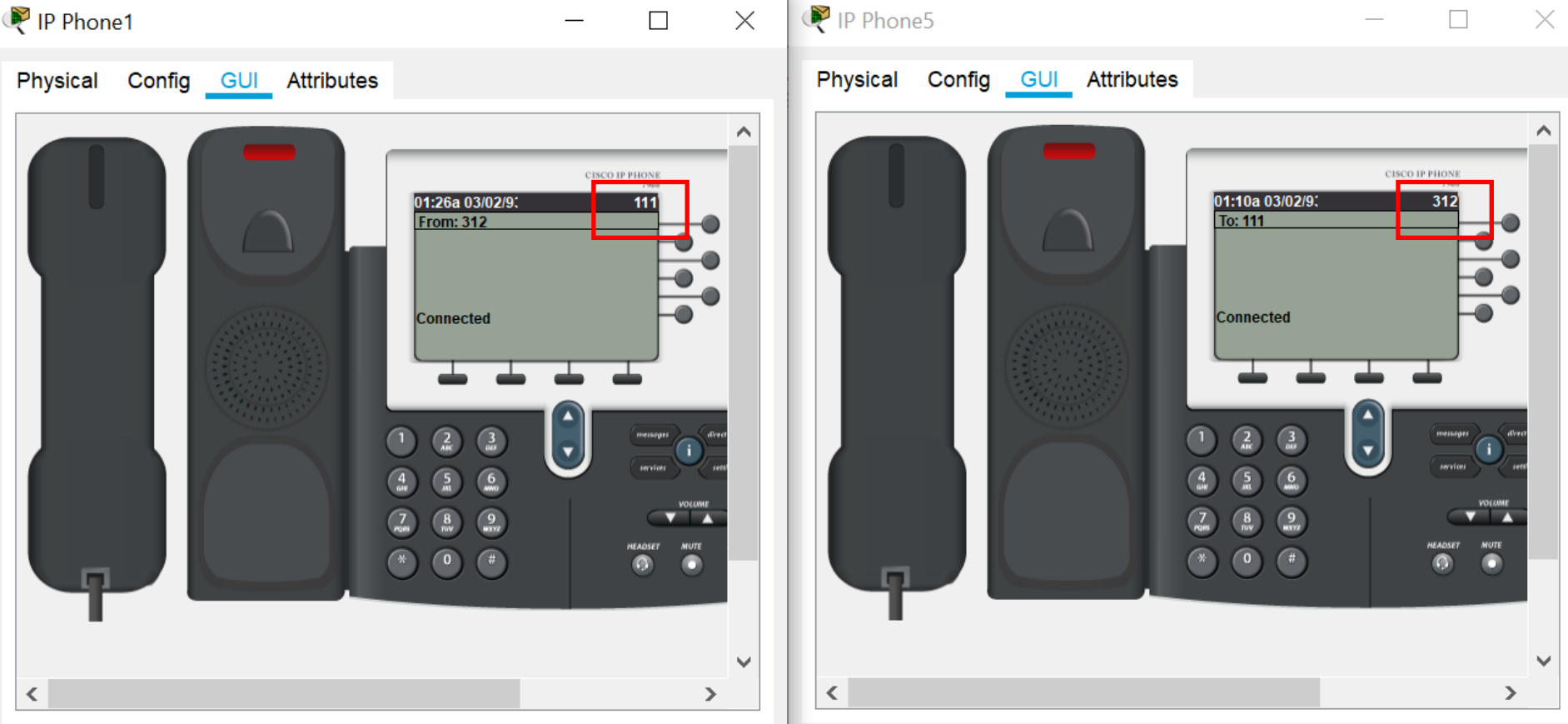
Setting routing protocol

```
Router(config)#dial-peer voice 2 voip
Router(config-dial-peer)#destination-pattern 3..
Router(config-dial-peer)#session target ipv4:20.20.20.2
Router(config-dial-peer)#exit
Router(config)#
```

Kode: 3xx

Interkoneksi antara 3 router

PERCOBAAN

- Lakukan percobaan pada topologi di contoh
- Lakukan interkoneksi semuanya, dan buatlah laporan resminya (topologi, konfigurasi, hasil, analisa dan kesimpulan)

TUGAS

- Designlah jaringan Cisco VoIP seperti berikut.
- Lakukan interkoneksi semuanya dan buat laporannya (topologi, setting masing-masing perangkat, tes koneksi, analisa dan kesimpulan)