

Příloha A – Tabulka naměřených výsledků

Příloha B – výpis standardních konfigurací

Konfigurace směrovače R1

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$IWhQ$K1F0IVSLs8bGOXPulyaWQ/
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
  rd 1:1
  route-target export 1:1
  route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
  log config
  hidekeys
!
interface Loopback0
  ip address 10.0.0.101 255.255.255.255
!
interface Loopback1
  ip vrf forwarding test
  ip address 192.168.0.1 255.255.255.255
!
interface GigabitEthernet0/1
  dampening
  ip address 10.0.0.1 255.255.255.252
  ip ospf network point-to-point
```

```
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.5 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
!
interface GigabitEthernet0/3
ip address 172.23.129.101 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
router ospf 1
log-adjacency-changes
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.102 remote-as 1
neighbor 10.0.0.102 update-source Loopback0
neighbor 10.0.0.103 remote-as 1
neighbor 10.0.0.103 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.102 activate
no neighbor 10.0.0.103 activate
no auto-summary
```

```
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
end
```

Konfigurace směrovače R2

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
```

```
no service password-encryption
!
hostname R2
!
boot-start-marker
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$./IC$ZEDOW7148OD.yKGM2sZ.U.
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
rd 1:1
route-target export 1:1
route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
log config
hidekeys
!
interface Loopback0
ip address 10.0.0.102 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.2 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.2 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
```

```
!  
interface GigabitEthernet0/2  
dampening  
ip address 10.0.0.9 255.255.255.252  
ip ospf network point-to-point  
ip ospf cost 200  
load-interval 30  
carrier-delay msec 0  
duplex full  
speed 100  
media-type rj45  
no negotiation auto  
mpls label protocol ldp  
mpls ip  
mpls mtu 1524  
!  
interface GigabitEthernet0/3  
ip address 172.23.129.102 255.255.255.128  
duplex auto  
speed auto  
media-type rj45  
no negotiation auto  
!  
interface FastEthernet1/0  
ip vrf forwarding test  
ip address 192.168.0.5 255.255.255.252  
duplex half  
!  
interface FastEthernet1/1  
no ip address  
shutdown  
duplex half  
!  
router ospf 1  
log-adjacency-changes  
passive-interface Loopback0  
network 10.0.0.0 0.0.0.255 area 0  
!  
router bgp 1  
bgp log-neighbor-changes  
neighbor 10.0.0.101 remote-as 1  
neighbor 10.0.0.101 update-source Loopback0  
neighbor 10.0.0.103 remote-as 1  
neighbor 10.0.0.103 update-source Loopback0  
!  
address-family ipv4
```

```
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.103 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
end
```

Konfigurace smerovače R3

```
upgrade fpd auto
```

```
version 12.4
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname R3
!
boot-start-marker
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
warm-reboot
boot-end-marker
!
enable secret 5 $1$MfqP$OErCPlynFq0Z6eqAPVNfu.
!
no aaa new-model
ip cef
!
ip vrf test
rd 1:1
route-target export 1:1
route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
memory-size iomem 16
archive
log config
hidekeys
!
interface Loopback0
ip address 10.0.0.103 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.3 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.10 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
```



```
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
no clns route-cache
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.6 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
no clns route-cache
!
interface GigabitEthernet0/3
ip address 172.23.129.103 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
no clns route-cache
!
router ospf 1
log-adjacency-changes
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.101 remote-as 1
neighbor 10.0.0.101 update-source Loopback0
neighbor 10.0.0.102 remote-as 1
neighbor 10.0.0.102 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.102 activate
```

```
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
dial-peer cor custom
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
end
```

Příloha C – výpis konfigurací s rychlým IGP

Konfigurace směrovače R1

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$IWhQ$K1F0IVSLs8bGOXPulyaWQ/
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
  rd 1:1
  route-target export 1:1
  route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
  log config
  hidekeys
!
interface Loopback0
  ip address 10.0.0.101 255.255.255.255
!
interface Loopback1
  ip vrf forwarding test
  ip address 192.168.0.1 255.255.255.255
!
interface GigabitEthernet0/1
  dampening
  ip address 10.0.0.1 255.255.255.252
  ip ospf network point-to-point
  load-interval 30
```

```
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.5 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
!
interface GigabitEthernet0/3
ip address 172.23.129.101 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
router ospf 1
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.102 remote-as 1
neighbor 10.0.0.102 update-source Loopback0
neighbor 10.0.0.103 remote-as 1
neighbor 10.0.0.103 update-source Loopback0
!
address-family ipv4
```

```
no neighbor 10.0.0.102 activate
no neighbor 10.0.0.103 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
end
```

Konfigurace směrovače R2

```
upgrade fpd auto
```

```
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$/IC$ZEDOW7148OD.yKGM2sZ.U.
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
  rd 1:1
  route-target export 1:1
  route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
  log config
  hidekeys
!
interface Loopback0
  ip address 10.0.0.102 255.255.255.255
!
interface Loopback1
  ip vrf forwarding test
  ip address 192.168.0.2 255.255.255.255
!
interface GigabitEthernet0/1
  dampening
  ip address 10.0.0.2 255.255.255.252
  ip ospf network point-to-point
  load-interval 30
  carrier-delay msec 0
  duplex full
  speed 100
  media-type rj45
```

```
no negotiation auto
mpls label protocol ldp
mpls ip
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.9 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
!
interface GigabitEthernet0/3
ip address 172.23.129.102 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
interface FastEthernet1/0
ip vrf forwarding test
ip address 192.168.0.5 255.255.255.252
duplex half
!
interface FastEthernet1/1
no ip address
shutdown
duplex half
!
router ospf 1
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
!
router bgp 1
```

```
bgp log-neighbor-changes
neighbor 10.0.0.101 remote-as 1
neighbor 10.0.0.101 update-source Loopback0
neighbor 10.0.0.103 remote-as 1
neighbor 10.0.0.103 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.103 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
```



```
webvpn cef
!  
end
```

Konfigurace směrovače R3

```
upgrade fpd auto  
version 12.4  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname R3  
!  
boot-start-marker  
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin  
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin  
warm-reboot  
boot-end-marker  
!  
enable secret 5 $1$Mfqp$OErCPlynFq0Z6eqAPVNfu.  
!  
no aaa new-model  
ip cef  
!  
ip vrf test  
rd 1:1  
route-target export 1:1  
route-target import 1:1  
!  
multilink bundle-name authenticated  
mpls label protocol ldp  
!  
memory-size iomem 16  
archive  
log config  
hidekeys  
!  
interface Loopback0  
ip address 10.0.0.103 255.255.255.255  
!  
interface Loopback1  
ip vrf forwarding test  
ip address 192.168.0.3 255.255.255.255  
!  
interface GigabitEthernet0/1
```

```
dampening
ip address 10.0.0.10 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
no clns route-cache
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.6 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
no clns route-cache
!
interface GigabitEthernet0/3
ip address 172.23.129.103 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
no clns route-cache
!
router ospf 1
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
```

```
!  
router bgp 1  
  bgp log-neighbor-changes  
  neighbor 10.0.0.101 remote-as 1  
  neighbor 10.0.0.101 update-source Loopback0  
  neighbor 10.0.0.102 remote-as 1  
  neighbor 10.0.0.102 update-source Loopback0  
!  
  address-family ipv4  
    no neighbor 10.0.0.101 activate  
    no neighbor 10.0.0.102 activate  
    no auto-summary  
    no synchronization  
  exit-address-family  
!  
  address-family vpnv4  
    neighbor 10.0.0.101 activate  
    neighbor 10.0.0.101 send-community extended  
    neighbor 10.0.0.102 activate  
    neighbor 10.0.0.102 send-community extended  
  exit-address-family  
!  
  address-family ipv4 vrf test  
    redistribute connected  
    redistribute static  
    no synchronization  
  exit-address-family  
!  
ip route 172.20.114.0 255.255.255.0 172.23.129.1  
no ip http server  
no ip http secure-server  
!  
logging alarm informational  
!  
control-plane  
!  
dial-peer cor custom  
!  
gatekeeper  
  shutdown  
!  
line con 0  
  stopbits 1  
line aux 0  
  stopbits 1  
line vty 0 4
```

```
password rdc
no login
length 0
!
webvpn cef
!
end
```

Příloha D – výpis konfigurací se zapnutým BFD

Konfigurace směrovače R1

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$IWhQ$K1F0IVSLs8bGOXPulyaWQ/
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
  rd 1:1
  route-target export 1:1
  route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
  log config
  hidekeys
!
interface Loopback0
  ip address 10.0.0.101 255.255.255.255
!
interface Loopback1
  ip vrf forwarding test
  ip address 192.168.0.1 255.255.255.255
!
interface GigabitEthernet0/1
  dampening
  ip address 10.0.0.1 255.255.255.252
  ip ospf network point-to-point
  load-interval 30
```

```
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.2
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.5 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.6
!
interface GigabitEthernet0/3
ip address 172.23.129.101 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
router ospf 1
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
bfd all-interfaces
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.102 remote-as 1
```

```
neighbor 10.0.0.102 update-source Loopback0
neighbor 10.0.0.103 remote-as 1
neighbor 10.0.0.103 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.102 activate
no neighbor 10.0.0.103 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
```

```
end
```

Konfigurace směrovače R2

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$/IC$ZEDOW7148OD.yKGM2sZ.U.
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
rd 1:1
route-target export 1:1
route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
log config
hidekeys
!
interface Loopback0
ip address 10.0.0.102 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.2 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.2 255.255.255.252
ip ospf network point-to-point
```



```
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.1
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.9 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.10
!
interface GigabitEthernet0/3
ip address 172.23.129.102 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
interface FastEthernet1/0
ip vrf forwarding test
ip address 192.168.0.5 255.255.255.252
duplex half
!
interface FastEthernet1/1
no ip address
shutdown
duplex half
!
router ospf 1
```

```
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
bfd all-interfaces
!
router bgp 1
  bgp log-neighbor-changes
  neighbor 10.0.0.101 remote-as 1
  neighbor 10.0.0.101 update-source Loopback0
  neighbor 10.0.0.103 remote-as 1
  neighbor 10.0.0.103 update-source Loopback0
  !
  address-family ipv4
    no neighbor 10.0.0.101 activate
    no neighbor 10.0.0.103 activate
    no auto-summary
    no synchronization
  exit-address-family
  !
  address-family vpnv4
    neighbor 10.0.0.101 activate
    neighbor 10.0.0.101 send-community extended
    neighbor 10.0.0.103 activate
    neighbor 10.0.0.103 send-community extended
  exit-address-family
  !
  address-family ipv4 vrf test
    redistribute connected
    redistribute static
    no synchronization
  exit-address-family
  !
  ip route 172.20.114.0 255.255.255.0 172.23.129.1
  no ip http server
  no ip http secure-server
  !
  logging alarm informational
  !
  control-plane
  !
  gatekeeper
  shutdown
```

```
!  
line con 0  
  stopbits 1  
line aux 0  
  stopbits 1  
line vty 0 4  
  password rdc  
  no login  
  length 0  
!  
webvpn cef  
!  
end
```

Konfigurace směrovače R3

```
upgrade fpd auto  
version 12.4  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname R3  
!  
boot-start-marker  
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin  
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin  
warm-reboot  
boot-end-marker  
!  
enable secret 5 $1$Mfqp$OErCPlynFq0Z6eqAPVNfu.  
!  
no aaa new-model  
ip cef  
!  
ip vrf test  
  rd 1:1  
  route-target export 1:1  
  route-target import 1:1  
!  
multilink bundle-name authenticated  
mpls label protocol ldp  
!  
memory-size iomem 16  
archive  
  log config
```

```
hidekeys
!
interface Loopback0
ip address 10.0.0.103 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.3 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.10 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.9
no clns route-cache
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.6 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.5
no clns route-cache
!
interface GigabitEthernet0/3
ip address 172.23.129.103 255.255.255.128
```

```
duplex auto
speed auto
media-type rj45
no negotiation auto
no clns route-cache
!
router ospf 1
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
passive-interface Loopback0
network 10.0.0.0 0.0.0.255 area 0
bfd all-interfaces
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.101 remote-as 1
neighbor 10.0.0.101 update-source Loopback0
neighbor 10.0.0.102 remote-as 1
neighbor 10.0.0.102 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.102 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
```

```
!  
logging alarm informational  
!  
control-plane  
!  
dial-peer cor custom  
!  
gatekeeper  
shutdown  
!  
line con 0  
stopbits 1  
line aux 0  
stopbits 1  
line vty 0 4  
password rdc  
no login  
length 0  
!  
webvpn cef  
!  
end
```

Příloha E – výpis konfigurací se zapnutou LDP-IGP synchronizací

Konfigurace směrovače R1

```
upgrade fpd auto
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin
boot-end-marker
!
enable secret 5 $1$IWhQ$K1F0IVSLs8bGOXPulyaWQ/
!
no aaa new-model
no ip source-route
ip cef
!
ip vrf test
rd 1:1
route-target export 1:1
route-target import 1:1
!
multilink bundle-name authenticated
mpls label protocol ldp
!
archive
log config
hidekeys
!
interface Loopback0
ip address 10.0.0.101 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.1 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.1 255.255.255.252
ip ospf network point-to-point
```

```
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.2
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.5 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.6
!
interface GigabitEthernet0/3
ip address 172.23.129.101 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
router ospf 1
mpls ldp sync
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
redistribute connected subnets
passive-interface Loopback0
network 10.0.0.0 0.0.0.31 area 0
bfd all-interfaces
!
```



```
router bgp 1
  bgp log-neighbor-changes
  neighbor 10.0.0.102 remote-as 1
  neighbor 10.0.0.102 update-source Loopback0
  neighbor 10.0.0.103 remote-as 1
  neighbor 10.0.0.103 update-source Loopback0
  !
  address-family ipv4
    no neighbor 10.0.0.102 activate
    no neighbor 10.0.0.103 activate
    no auto-summary
    no synchronization
  exit-address-family
  !
  address-family vpnv4
    neighbor 10.0.0.102 activate
    neighbor 10.0.0.102 send-community extended
    neighbor 10.0.0.103 activate
    neighbor 10.0.0.103 send-community extended
  exit-address-family
  !
  address-family ipv4 vrf test
    redistribute connected
    redistribute static
    no synchronization
  exit-address-family
  !
  ip route 172.20.114.0 255.255.255.0 172.23.129.1
  no ip http server
  no ip http secure-server
  !
  logging alarm informational
  !
  control-plane
  !
  gatekeeper
    shutdown
  !
  line con 0
    stopbits 1
  line aux 0
    stopbits 1
  line vty 0 4
    password rdc
    no login
    length 0
```

```
!  
webvpn cef  
!  
end
```

Konfigurace směrovače R2

```
upgrade fpd auto  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname R2  
!  
boot-start-marker  
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin  
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin  
boot-end-marker  
!  
enable secret 5 $1$./IC$ZEDOW7148OD.yKGM2sZ.U.  
!  
no aaa new-model  
no ip source-route  
ip cef  
!  
ip vrf test  
rd 1:1  
route-target export 1:1  
route-target import 1:1  
!  
multilink bundle-name authenticated  
mpls label protocol ldp  
!  
archive  
log config  
hidekeys  
!  
interface Loopback0  
ip address 10.0.0.102 255.255.255.255  
!  
interface Loopback1  
ip vrf forwarding test  
ip address 192.168.0.2 255.255.255.255  
!  
interface GigabitEthernet0/1
```

```
dampening
ip address 10.0.0.2 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.1
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.9 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.10
!
interface GigabitEthernet0/3
ip address 172.23.129.102 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
!
interface FastEthernet1/0
ip vrf forwarding test
ip address 192.168.0.5 255.255.255.252
duplex half
!
interface FastEthernet1/1
no ip address
shutdown
```

```
duplex half
!
router ospf 1
mpls ldp sync
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
redistribute connected subnets
passive-interface Loopback0
network 10.0.0.0 0.0.0.31 area 0
bfd all-interfaces
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.101 remote-as 1
neighbor 10.0.0.101 update-source Loopback0
neighbor 10.0.0.103 remote-as 1
neighbor 10.0.0.103 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.103 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.103 activate
neighbor 10.0.0.103 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
```

```
!  
control-plane  
!  
gatekeeper  
shutdown  
!  
line con 0  
stopbits 1  
line aux 0  
stopbits 1  
line vty 0 4  
password rdc  
no login  
length 0  
!  
webvpn cef  
!  
end
```

Konfigurace směrovače R3

```
upgrade fpd auto  
version 12.4  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname R3  
!  
boot-start-marker  
boot system flash c7200-advipservicesk9-mz.124-15.T1.bin  
boot bootldr disk2:c7200-boot-mz.124-15.T1.bin  
warm-reboot  
boot-end-marker  
!  
enable secret 5 $1$Mfq$OErcPIynFq0Z6eqAPVNfu.  
!  
no aaa new-model  
ip cef  
!  
ip vrf test  
rd 1:1  
route-target export 1:1  
route-target import 1:1  
!  
multilink bundle-name authenticated
```

```
mpls label protocol ldp
!
memory-size iomem 16
archive
log config
hidekeys
!
interface Loopback0
ip address 10.0.0.103 255.255.255.255
!
interface Loopback1
ip vrf forwarding test
ip address 192.168.0.3 255.255.255.255
!
interface GigabitEthernet0/1
dampening
ip address 10.0.0.10 255.255.255.252
ip ospf network point-to-point
ip ospf cost 200
load-interval 30
carrier-delay msec 0
duplex full
speed 100
media-type rj45
no negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
bfd neighbor 10.0.0.9
no clns route-cache
!
interface GigabitEthernet0/2
dampening
ip address 10.0.0.6 255.255.255.252
ip ospf network point-to-point
load-interval 30
carrier-delay msec 0
duplex full
speed 1000
media-type gbic
negotiation auto
mpls label protocol ldp
mpls ip
mpls mtu 1524
bfd interval 50 min_rx 50 multiplier 3
```

```
bfd neighbor 10.0.0.5
no clns route-cache
!
interface GigabitEthernet0/3
ip address 172.23.129.103 255.255.255.128
duplex auto
speed auto
media-type rj45
no negotiation auto
no clns route-cache
!
router ospf 1
mpls ldp sync
log-adjacency-changes
timers throttle spf 50 50 5000
timers throttle lsa all 0 20 5000
timers lsa arrival 15
timers pacing flood 15
redistribute connected subnets
passive-interface Loopback0
network 10.0.0.0 0.0.0.31 area 0
bfd all-interfaces
!
router bgp 1
bgp log-neighbor-changes
neighbor 10.0.0.101 remote-as 1
neighbor 10.0.0.101 update-source Loopback0
neighbor 10.0.0.102 remote-as 1
neighbor 10.0.0.102 update-source Loopback0
!
address-family ipv4
no neighbor 10.0.0.101 activate
no neighbor 10.0.0.102 activate
no auto-summary
no synchronization
exit-address-family
!
address-family vpnv4
neighbor 10.0.0.101 activate
neighbor 10.0.0.101 send-community extended
neighbor 10.0.0.102 activate
neighbor 10.0.0.102 send-community extended
exit-address-family
!
address-family ipv4 vrf test
redistribute connected
```

```
redistribute static
no synchronization
exit-address-family
!
ip route 172.20.114.0 255.255.255.0 172.23.129.1
no ip http server
no ip http secure-server
!
logging alarm informational
!
control-plane
!
dial-peer cor custom
!
gatekeeper
shutdown
!
line con 0
stopbits 1
line aux 0
stopbits 1
line vty 0 4
password rdc
no login
length 0
!
webvpn cef
!
end
```