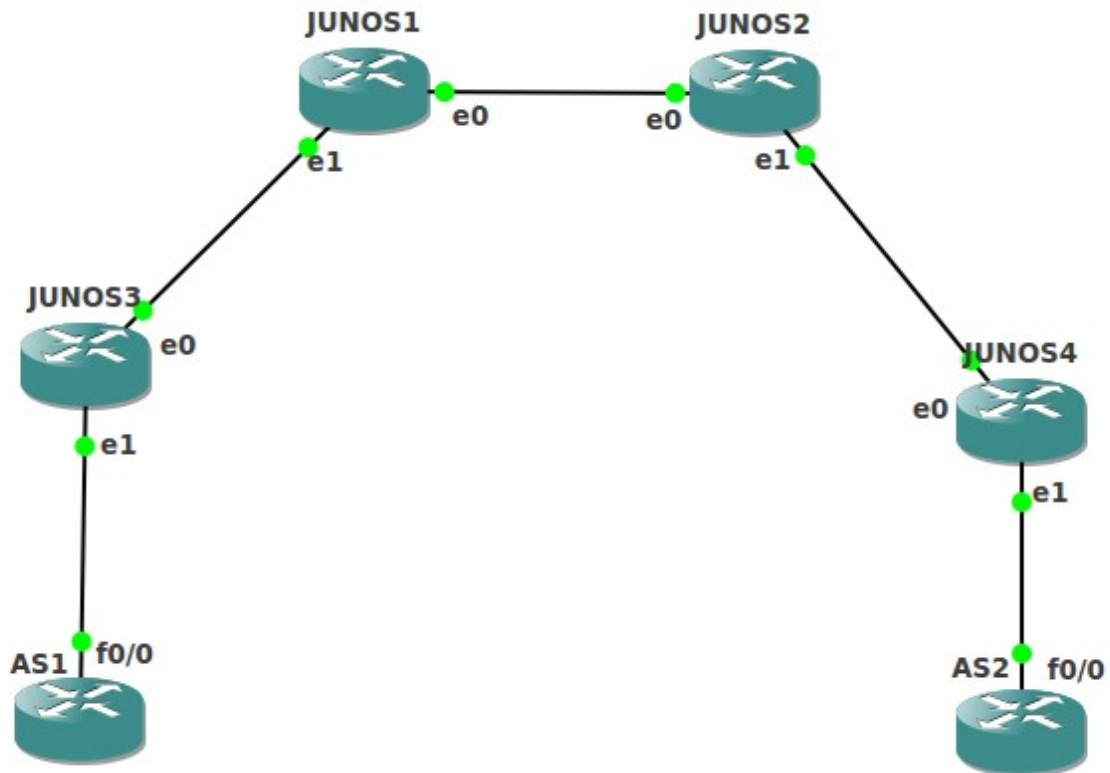# MPLS backbone per BGP peering

Junos 2 ha configurazione simile a Junos 1 (P router)
Junos 4 ha configurazione simile a Junos 3 (PE router + iBGP + eBGP)
AS2 ha configurazione simile a AS1 (eBGP)

Vengono qui rappresentate solo le parti salienti

JUNOS1:

```
interfaces {
    em0 {
        description "Double virtual link to JUNOS2"
        vlan-tagging;
        unit 0 {
            vlan-id 100;
            family inet {
                address 10.0.0.1/30;
            }
            family inet6 {
                address fec0:0:0:1002::1/64;
            }
            family mpls;
        }
        unit 101 {
            vlan-id 101;
            family inet {
                address 10.0.101.1/30;
            }
```

```
                family mpls;
            }
        }
        em1 {
            unit 0 {
                family inet {
                    address 192.168.1.254/24;
                }
                family mpls;
            }
        }
        lo0 {
            description loopback;
            unit 0 {
                family inet {
                    address 10.2.2.1/32;
                }
                family inet6 {
                    address fec0:0:0:1006::1/128;
                }
            }
        }
    }
}
protocols {
    mpls {
        traffic-engineering bgp-igp;
        interface em0.0;
        interface em0.101;
        interface em1.0;
    }
    ospf {
        area 0.0.0.0 {
            interface em0.0;
            interface em0.101;
            interface lo0.0 {
                passive;
            }
            interface em1.0;
        }
    }
    ldp {
        interface em0.0;
        interface em0.101;
        interface em1.0;
    }
}
```

JUNOS3:

```
interfaces {
    em0 {
        unit 0 {
            family inet {
                address 192.168.1.1/24;
```

```
                }
                family mpls;
            }
        }
        em1 {
            unit 0 {
                family inet {
                    address 172.20.1.1/30;
                }
            }
        }
        lo0 {
            unit 0 {
                family inet {
                    address 10.2.2.3/32;
                }
            }
        }
    }
    routing-options {
        static {
            route 192.168.0.0/22 {
                discard;
                install;
            }
        }
        autonomous-system 100;
    }
    protocols {
        mpls {
            traffic-engineering bgp-igp;
            interface em0.0;
        }
        bgp {
            group ebgp {
                type external;
                export [ export-my export-bgp ];
                neighbor 172.20.1.2 {
                    peer-as 1;
                }
            }
            group ibgp {
                type internal;
                local-address 10.2.2.3;
                export [ nhs export-bgp ];
                peer-as 100;
                neighbor 10.2.2.4;
            }
        }
        ospf {
            area 0.0.0.0 {
                interface em0.0;
                interface lo0.0 {
                    passive;
                }
```

```
                }
            }
            ldp {
                interface em0.0;
            }
    }
    policy-options {
        policy-statement export-bgp {
            from protocol bgp;
            then accept;
        }
        policy-statement export-my {
            from {
                route-filter 192.168.0.0/22 exact;
            }
            then accept;
        }
        policy-statement nhs {
            then {
                next-hop self;
            }
        }
    }
}
```

AS2:

```
interface Loopback0
 ip address 172.16.2.1 255.255.255.255
!
interface FastEthernet0/0
 ip address 172.20.2.2 255.255.255.252
!
router bgp 2
 no synchronization
 network 172.16.2.0 mask 255.255.255.0
 neighbor 172.20.2.1 remote-as 100
 neighbor 172.20.2.1 soft-reconfiguration inbound
 no auto-summary
!
ip route 172.16.2.0 255.255.255.0 Null0
!
```

Alcuni output:

AS2#traceroute 172.16.1.1 source 172.16.2.1

Type escape sequence to abort.
Tracing the route to 172.16.1.1

  1 172.20.2.1 0 msec 0 msec 4 msec
  2 192.168.2.254 [AS 100] [MPLS: Label 299920 Exp 0] 4 msec 0 msec
4 msec
  3 10.0.101.1 [MPLS: Label 299920 Exp 0] 8 msec 4 msec 4 msec
  4 192.168.1.1 [AS 100] 4 msec 0 msec 4 msec
  5 172.20.1.2 4 msec 4 msec *

AS2#show ip route
Codes: C – connected, S – static, R – RIP, M – mobile, B – BGP
       D – EIGRP, EX – EIGRP external, O – OSPF, IA – OSPF inter
area
       N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type
2
       E1 – OSPF external type 1, E2 – OSPF external type 2
       i – IS-IS, su – IS-IS summary, L1 – IS-IS level-1, L2 – IS-
IS level-2
       ia – IS-IS inter area, * – candidate default, U – per-user
static route
       o – ODR, P – periodic downloaded static route

Gateway of last resort is not set

     172.16.0.0/16 is variably subnetted, 3 subnets, 2 masks
B   172.16.1.0/24 [20/0] via 172.20.2.1, 00:25:02
S   172.16.2.0/24 is directly connected, Null0
C   172.16.2.1/32 is directly connected, Loopback0
     172.20.0.0/30 is subnetted, 1 subnets
C   172.20.2.0 is directly connected, FastEthernet0/0
B   192.168.0.0/22 [20/0] via 172.20.2.1, 00:28:54