

Route “Redistribution”

Gulf Region Training Call



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What is Route “Redistribution”

- **Redistribution is really Cisco term**
 - They actually redistribute routes between protocol processes
 - It is a process by process basis
 - “Redistribution” happens on the router itself
- **How does Juniper “redistribute” routes**
 - We don’t – instead we choose which routes (that are installed in the RIB) to send to which neighbors.
 - It is a routing *policy* decision
 - “Redistribution” happens toward neighbors for a given routing protocol

Cisco Default Routing Behavior

- **Within a specific protocol - If you learned the route share the route**
- **This is a protocol by protocol operation**
- **“Cisco” people may think they understand redistribution after all these years, but route redistribution is probably the one thing that prevents most CCIE candidates from passing the CCIE lab.**

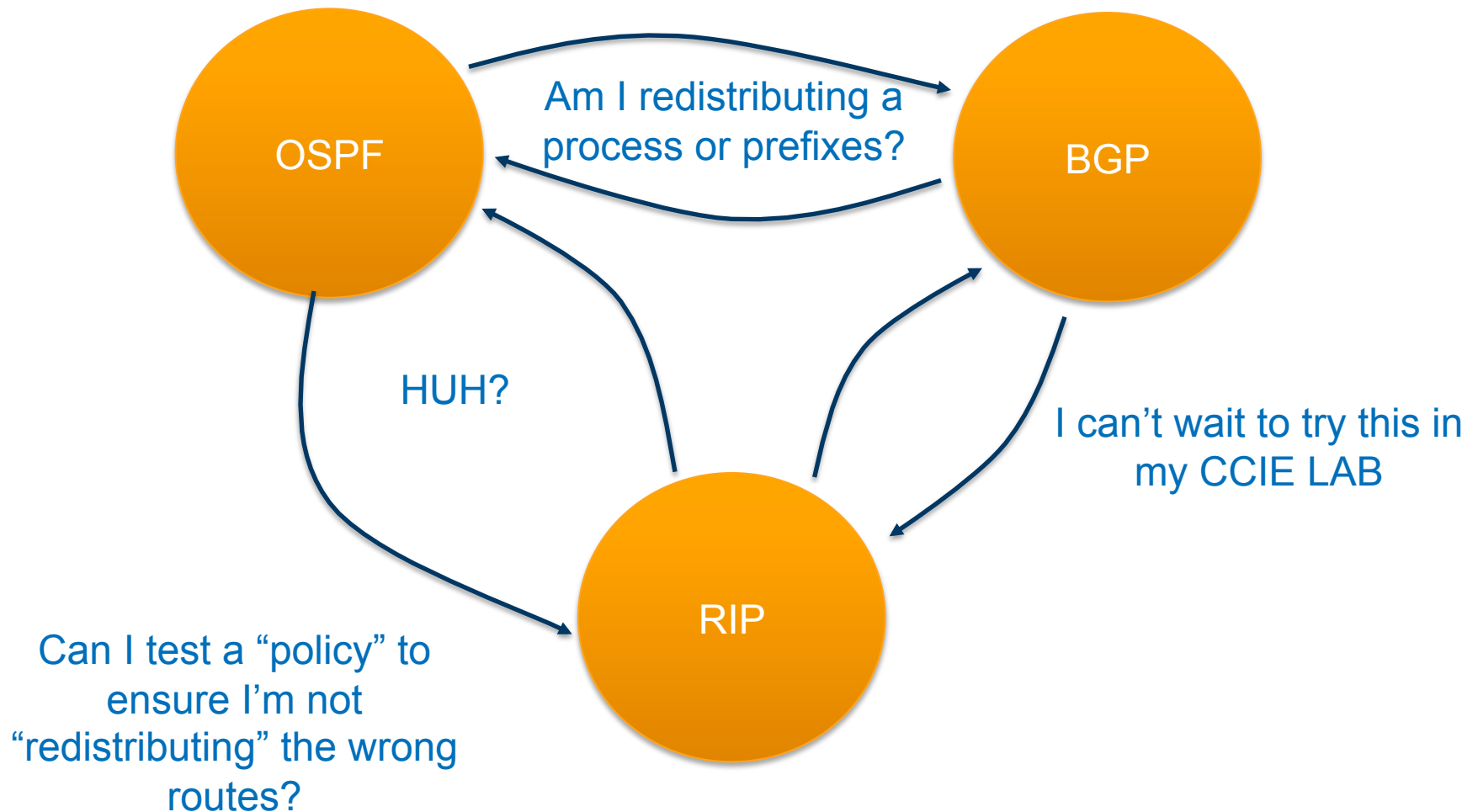
Juniper Default Routing Behavior

Protocol	Default Import Policy	Default Export Policy
BGP	Accept all BGP IPv4 routes learned from configured neighbors and import into the inet.0 routing table	Accept and export active BGP routes.
OSPF/ISIS	Accept all OSPF routes and import into the inet.0 routing table. (You cannot override or change this default policy.)	Reject everything. (The protocol uses flooding to announce local routes and any learned routes.)
RIP	Accept all RIP routes learned from configured neighbors and import into the inet.0 routing table	Reject everything. To export RIP routes, you must configure an export policy for RIP.

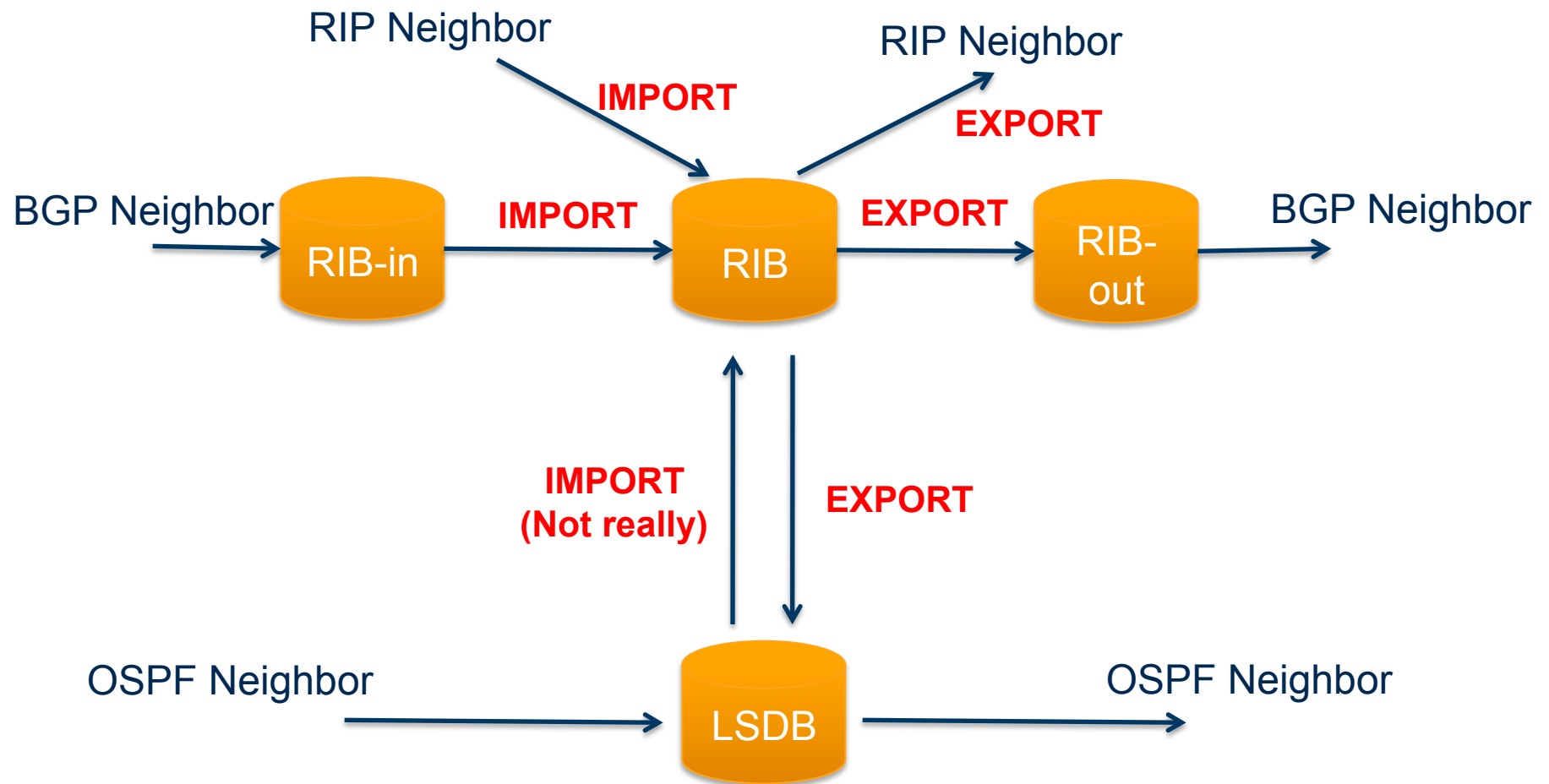
<http://www.juniper.net/techpubs/software/junos/junos91/swconfig-policy/default-routing-policies-and-actions.html>

Visual of Cisco “Redistribution”

Where is the route table in all of this “redistribution”?



Visual of Juniper Route Policy



Juniper route policy is always applied in the relationship to the RIB

Test Your Policy

- **Let's make sure I am going to get the results I expect BEFORE I apply this to my protocols**

```
test policy policy-name prefix
```

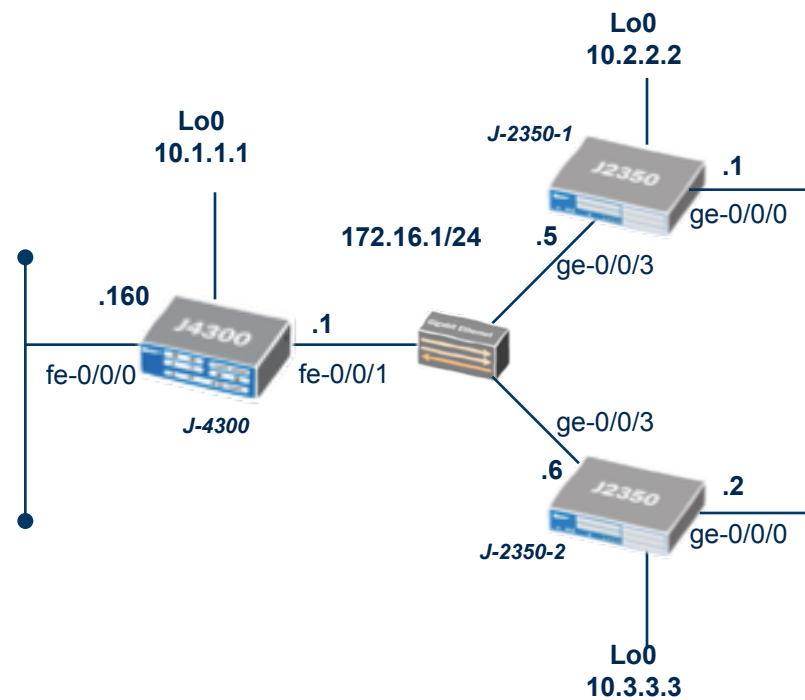
- **A positive policy match will be displayed in the output.**

<http://www.juniper.net/techpubs/software/junos/junos91/swconfig-policy/routing-policy-tests.html#id-10144672>

Lets put it to work!

- **Use policy to advertise a default route to OSPF neighbors**
- **Use a policy to advertise BGP prefixes to OSPF neighbors.**

Topology



OSPF Configs – J-4300

```
jparks@J-4300# show routing-options
static {
    route 0.0.0.0/0 next-hop 192.168.200.1;
}
```

```
jparks@J-4300# show policy-options
policy-statement adv-default-route {
    term 1 {
        from {
            protocol static;
            route-filter 0.0.0.0/0 exact;
        }
        then {
            accept;
        }
    }
    term default {
        then reject;
    }
}
```

OSPF Configs – J-4300 (cont)

```
jparks@J-4300# show protocols ospf
export adv-default-route;
area 0.0.0.1 {
    interface fe-0/0/0.0 {
        passive;
    }
    interface fe-0/0/1.0;
    interface lo0.0 {
        passive;
    }
}
```

OSPF – Route View – J-4300

```
jparks@J-4300# run show route
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[Static/5] 01:07:06
                   > to 192.168.200.1 via fe-0/0/0.0
10.1.1.1/32        *[Direct/0] 01:59:24
                   > via lo0.0
10.2.2.2/32        *[OSPF/10] 01:57:44, metric 1
                   > to 172.16.1.5 via fe-0/0/1.0
10.3.3.3/32        *[OSPF/10] 01:57:49, metric 1
                   > to 172.16.1.6 via fe-0/0/1.0
```

```
.....output omitted.....
```

OSPF – Route View – J-2350-1

```
jparks@J-2350-1# run show route
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[OSPF/150] 00:37:11, metric 1, tag 0
                   > to 172.16.1.1 via ge-0/0/3.0
10.1.1.1/32        *[OSPF/10] 00:55:15, metric 1
                   > to 172.16.1.1 via ge-0/0/3.0
10.2.2.2/32        *[Direct/0] 01:59:49
                   > via lo0.0
10.3.3.3/32        *[OSPF/10] 01:54:30, metric 1
                   > to 172.16.1.6 via ge-0/0/3.0
```

```
.....output omitted.....
```

BGP Configs – J-2350-2

```
[edit]
jparks@J-2350-2# show routing-options
static {
    route 100.100.100.0/24 reject;
}
```

```
[edit]
jparks@J-2350-2# show policy-options policy-statement adv-bgp-prefixes
term 1 {
    from {
        protocol static;
        route-filter 100.100.100.0/24 exact;
    }
    then accept;
}
term default {
    then reject;
}
```

BGP Configs – J-2350-2 (cont)

```
[edit]
jparks@J-2350-2# show protocols bgp
group ibgp {
    type internal;
    local-address 10.3.3.3;
    export adv-bgp-prefixes;
    neighbor 10.2.2.2;
}
```

BGP Configs – J-2350-1

```
[edit]
jparks@J-2350-1# show protocols
bgp {
    group ibgp {
        type internal;
        local-address 10.2.2.2;
        neighbor 10.3.3.3;
    }
}
ospf {
export adv-bgp-to-ospf;
    area 0.0.0.0 {
        interface lo0.0;
        interface ge-0/0/0.0;
    }
    area 0.0.0.1 {
        interface ge-0/0/3.0;
    }
}
```


BGP Configs – J-2350-1 (cont)

```
[edit]
jparkes@J-2350-1# show policy-options policy-statement adv-bgp-to-ospf
term 1 {
    from {
        protocol bgp;
        route-filter 100.100.100.0/24 exact;
    }
    then accept;
}
term default {
    then reject;
}
```

BGP - Route View – J-2350-2

```
[edit]
```

```
jparks@J-2350-2# run show route
```

```
inet.0: 10 destinations, 11 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[OSPF/150] 00:46:06, metric 1, tag 0
```

```
> to 172.16.1.1 via ge-0/0/3.0
```

```
10.1.1.1/32        *[OSPF/10] 01:04:11, metric 1
```

```
> to 172.16.1.1 via ge-0/0/3.0
```

```
10.2.2.2/32        *[OSPF/10] 02:03:27, metric 1
```

```
> to 172.16.1.5 via ge-0/0/3.0
```

```
10.3.3.3/32        *[Direct/0] 02:08:44
```

```
> via lo0.0
```

```
100.100.100.0/24  *[Static/5] 00:40:59
```

```
Reject
```

```
172.16.1.0/24      *[Direct/0] 02:08:20
```

```
> via ge-0/0/3.0
```

```
.....output omitted.....
```

BGP - Route View – J-2350-1

```
[edit]
```

```
jparks@J-2350-1# run show route
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[OSPF/150] 00:47:48, metric 1, tag 0
                   > to 172.16.1.1 via ge-0/0/3.0
10.1.1.1/32        *[OSPF/10] 01:05:52, metric 1
                   > to 172.16.1.1 via ge-0/0/3.0
10.2.2.2/32        *[Direct/0] 02:10:26
                   > via lo0.0
10.3.3.3/32        *[OSPF/10] 02:05:07, metric 1
                   > to 172.16.1.6 via ge-0/0/3.0
100.100.100.0/24   *[BGP/170] 00:38:03, localpref 100, from 10.3.3.3
                   AS path: I
                   > to 172.16.1.6 via ge-0/0/3.0
172.16.1.0/24      *[Direct/0] 02:10:04
                   > via ge-0/0/3.0
```

```
.....output omitted.....
```

BGP - Route View – J-4300

```
[edit]
```

```
jparks@J-4300# run show route
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[Static/5] 01:19:18
                   > to 192.168.200.1 via fe-0/0/0.0
10.1.1.1/32        *[Direct/0] 02:11:36
                   > via lo0.0
10.2.2.2/32        *[OSPF/10] 02:09:56, metric 1
                   > to 172.16.1.5 via fe-0/0/1.0
10.3.3.3/32        *[OSPF/10] 02:10:01, metric 1
                   > to 172.16.1.6 via fe-0/0/1.0
100.100.100.0/24   *[OSPF/150] 00:33:04, metric 0, tag 0
                   > to 172.16.1.5 via fe-0/0/1.0
172.16.1.0/24      *[Direct/0] 02:11:07
                   > via fe-0/0/1.0
```

```
.....output omitted.....
```

Bonus Config – “Floating Static Route”

```
[edit]
jparks@J-2350-2# show routing-options
static {
route 200.200.200.0/32 {
    qualified-next-hop 1.1.1.1 {
        metric 10;
    }
    qualified-next-hop 2.2.2.2 {
        metric 20;
    }
}
}
```

Double Prizes – Test Policy

```
[edit]
jparkes@J-4300# show policy-options
policy-statement adv-default-route {
    term 1 {
        from {
            protocol static;
            route-filter 0.0.0.0/0 exact;
        }
        then {
            accept;
        }
    }
    term default {
        then reject;
    }
}
policy-statement test-policy {
    from {
        route-filter 0.0.0.0/0 orlonger;
    }
    then accept;
}
```

We have two policies that look similar – but affect the route table differently

Double Prizes – Test Policy (cont)

```
jparks@J-4300> test policy adv-default-route 0/0
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[Static/5] 01:38:25  
                   > to 192.168.200.1 via fe-0/0/0.0
```

That's what we
are expecting

```
Policy adv-default-route: 1 prefix accepted, 11 prefix rejected
```

```
jparks@J-4300> test policy test-policy 0/0
```

```
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
```

```
+ = Active Route, - = Last Active, * = Both
```

```
0.0.0.0/0          *[Static/5] 01:39:08  
                   > to 192.168.200.1 via fe-0/0/0.0  
10.1.1.1/32        *[Direct/0] 02:31:26  
                   > via lo0.0
```

Ooopppsss! I need to
work on my policy

```
.....output omitted.....
```

```
Policy test-policy: 12 prefix accepted, 0 prefix rejected
```

THANK YOU