BGP Graceful Shutdown

draft-ietf-grow-bgp-gshut-02

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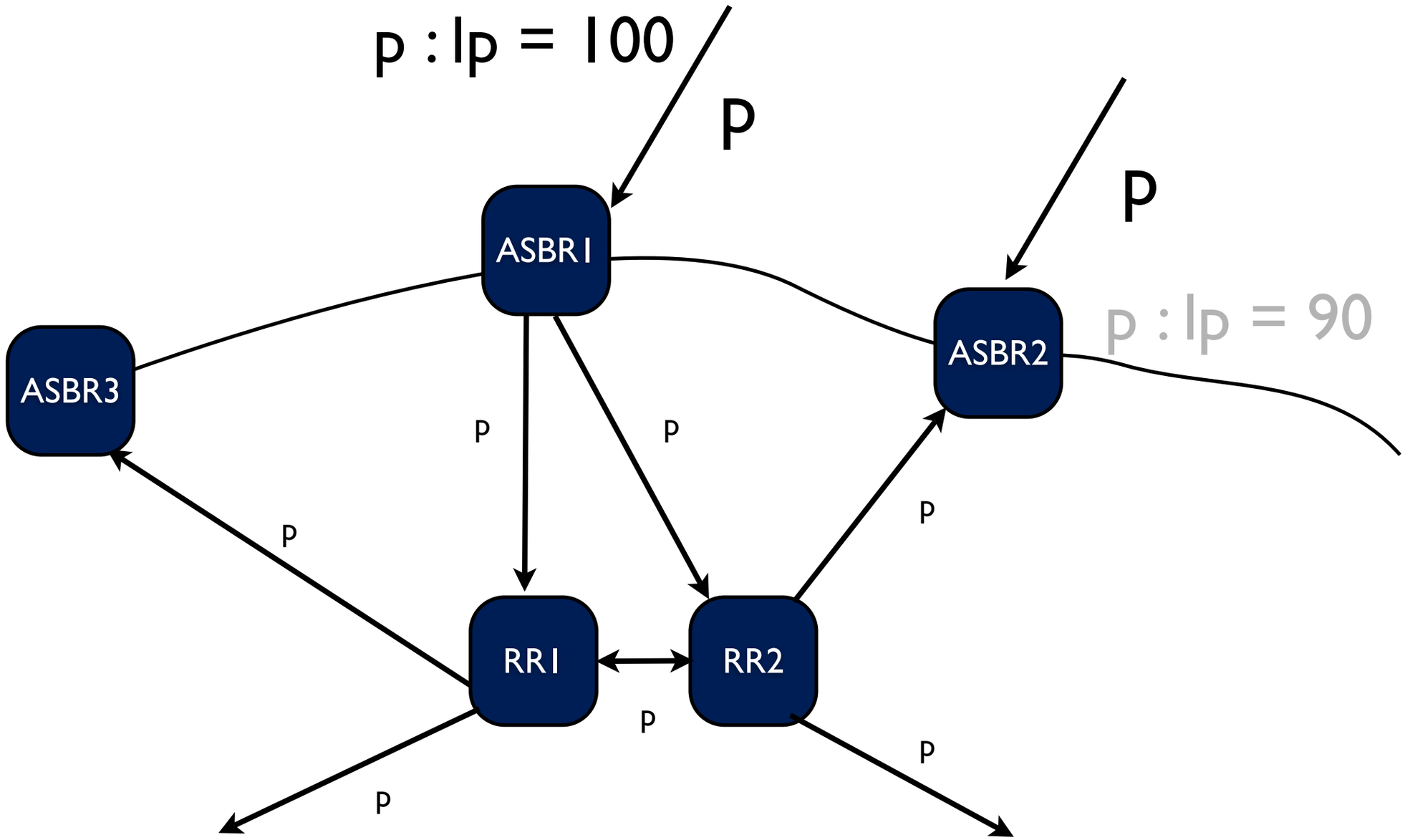
What is it about ?

- Avoid traffic loss upon planned BGP session shutdown
- Operational procedures
  - Pre-configuration set
  - At maintenance time
- *New*: Open option for a “simplified” procedure
- *New*: Vendor support considerations
  - Less configuration burden

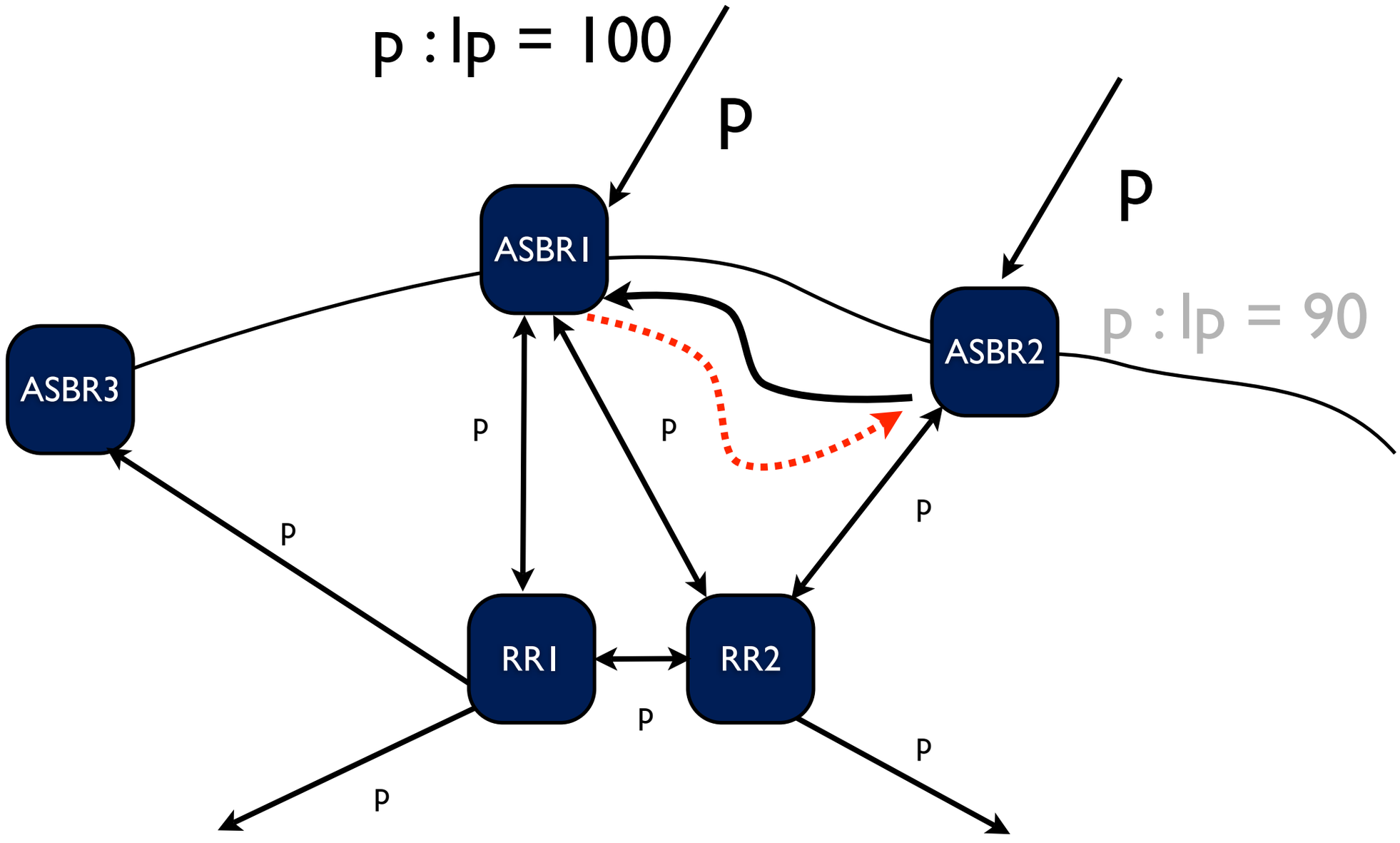
LoC

- Outbound :
  Path hiding in iBGP leads to LoC
  Transient inconsistencies lead to LoC
- Inbound :
  Same problem
  Need to trigger G-Shut at neighboring AS

LoC upon maintenance
Path hiding



LoC upon maintenance
Transient inconsistencies

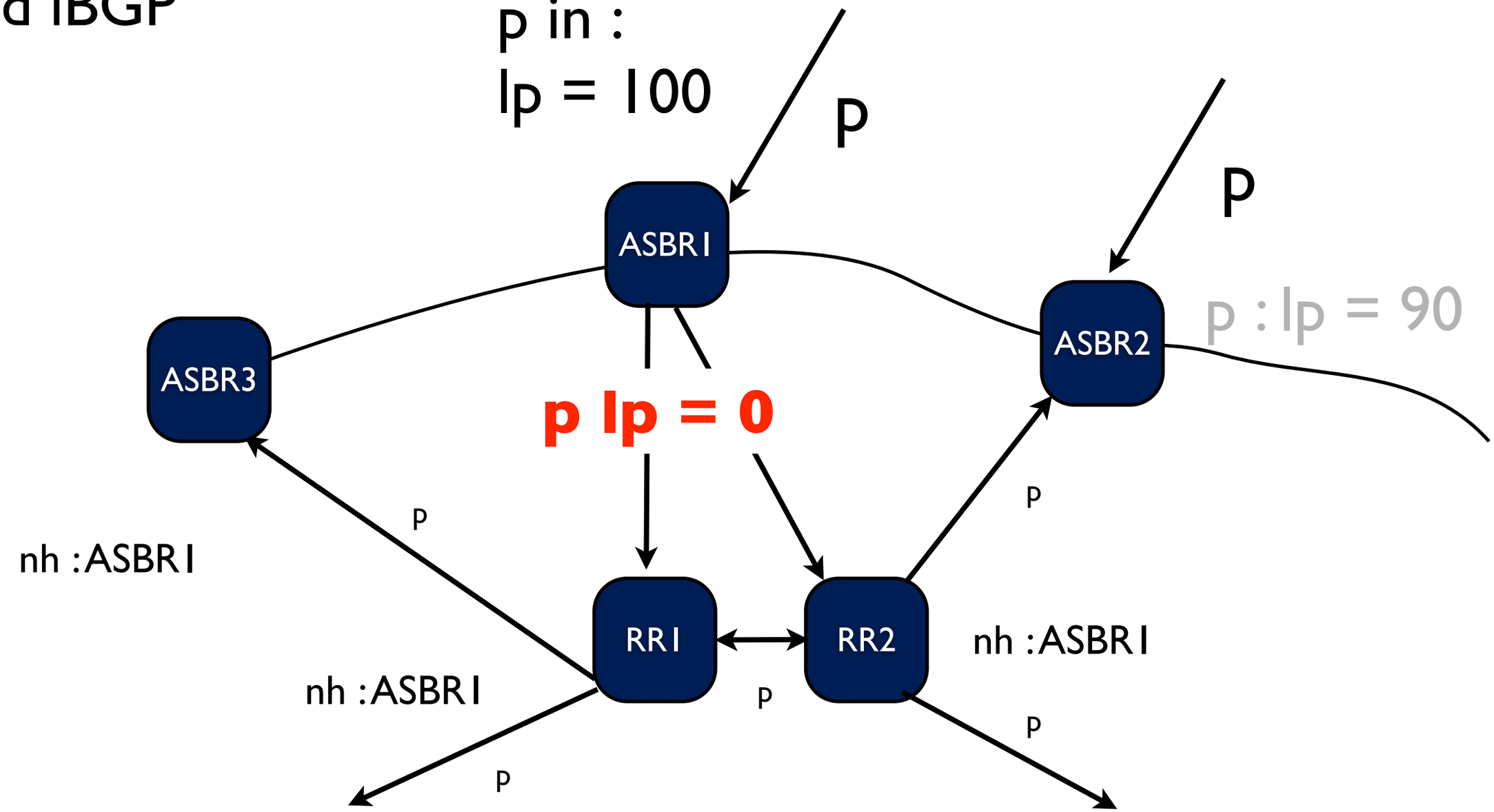


Outbound traffic
Outbound LP

Decrease LP on outbound iBGP session

Wait

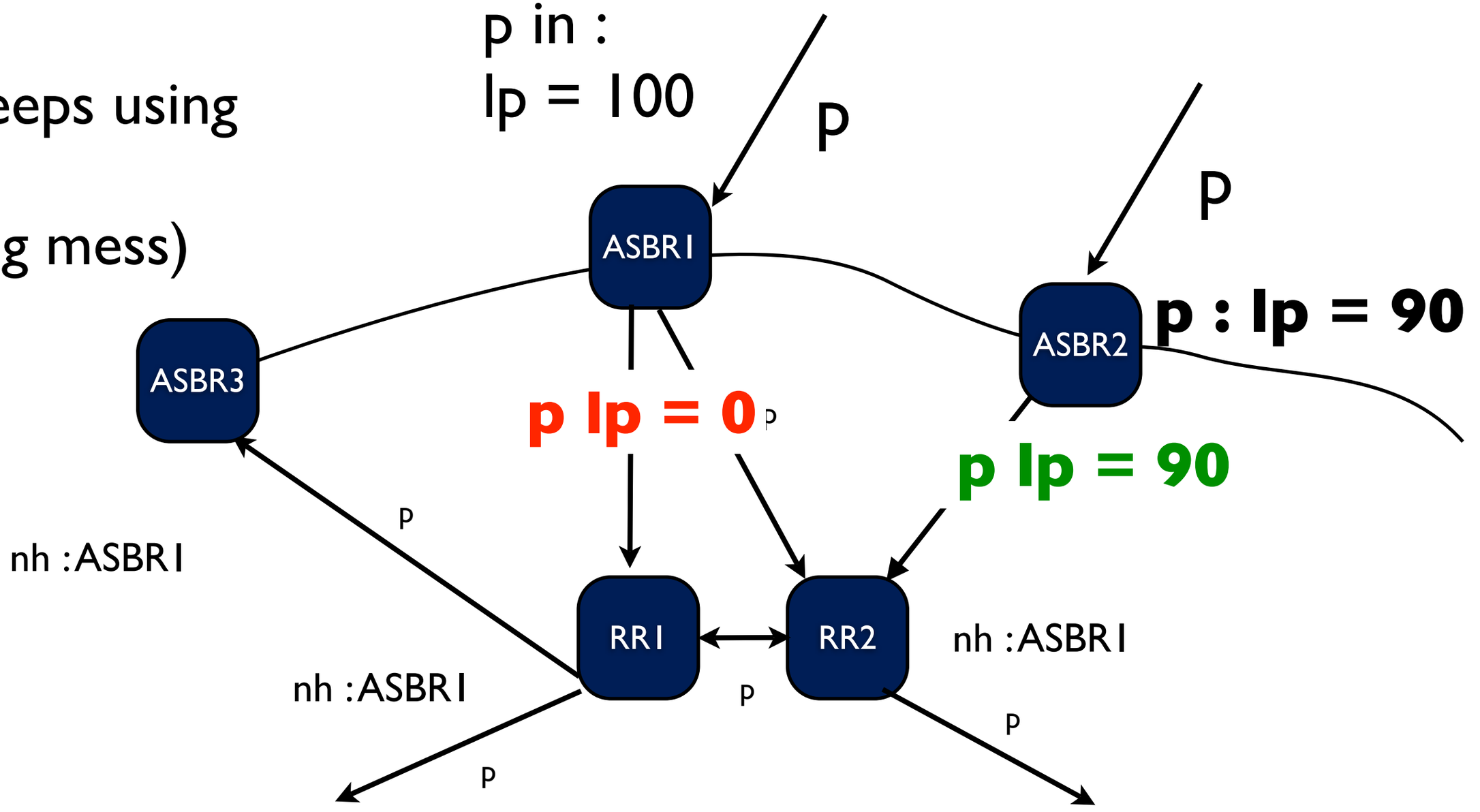
Shut



Outbound traffic
Outbound LP

No more lack of path

ASBR1 keeps using primary
(no fwding mess)

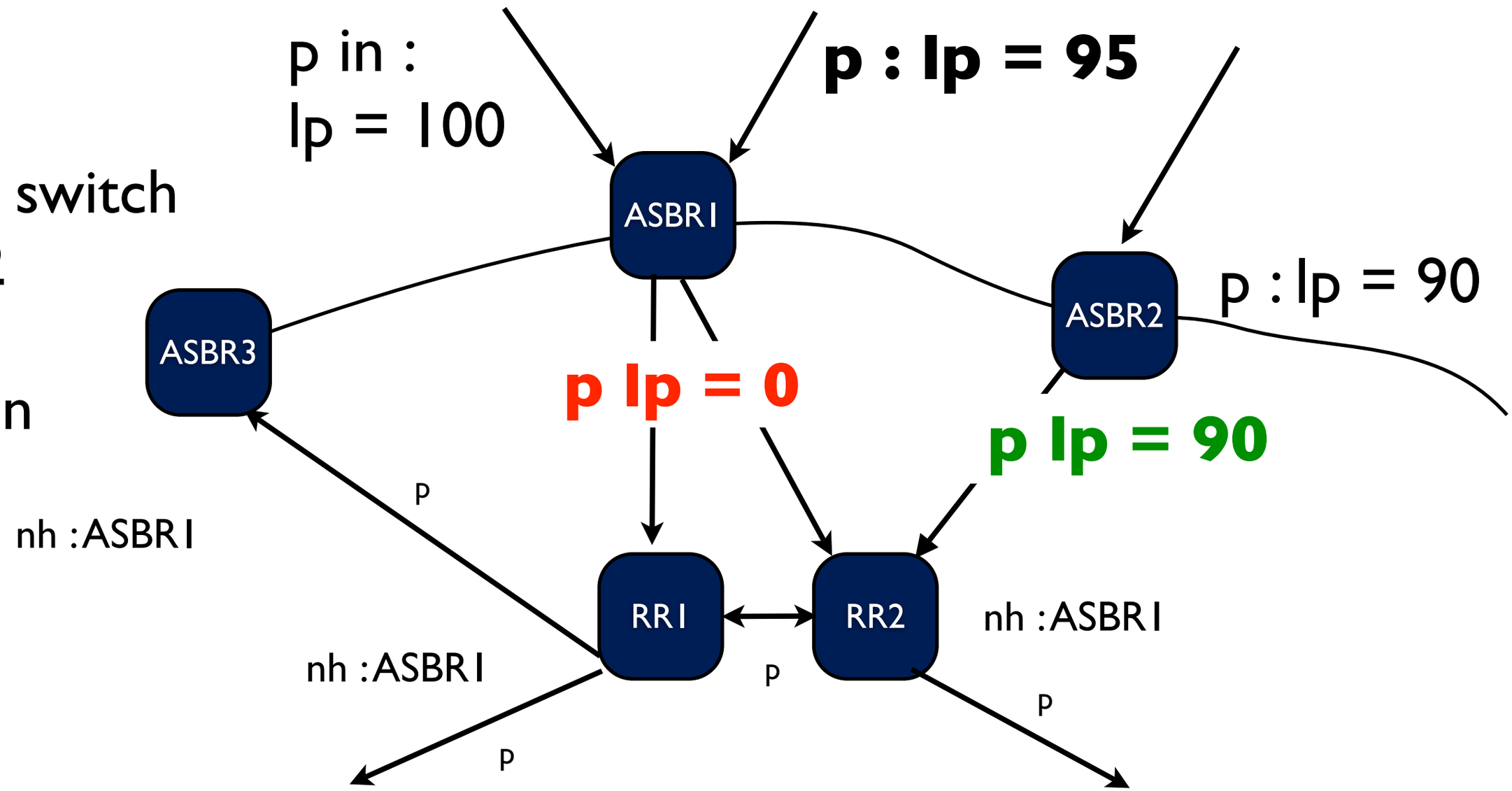


Outbound traffic
Outbound LP : glitch

Decrease LP on outbound iBGP session

Transient switch to ASBR2

Update on Shut

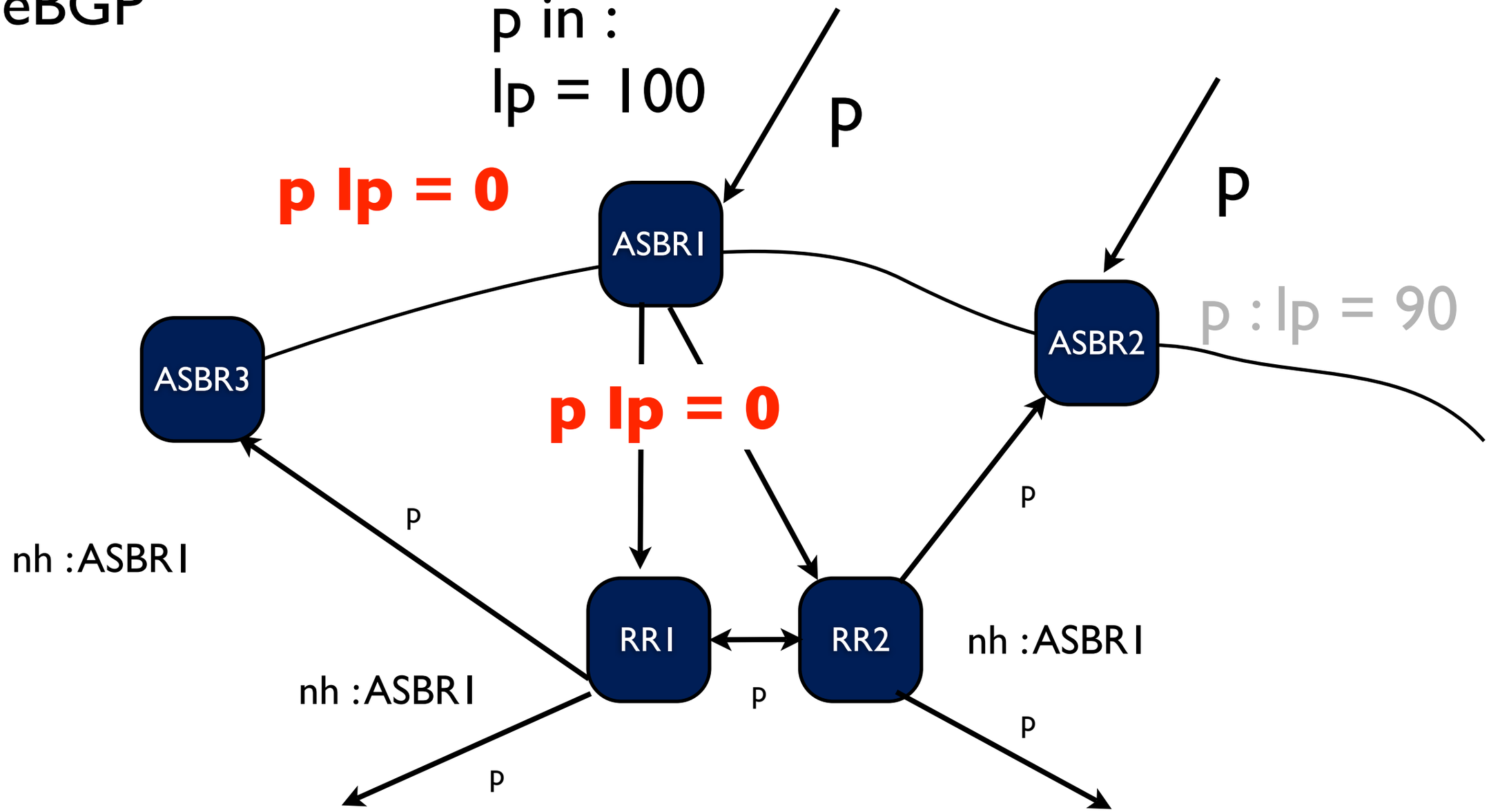


Outbound traffic
Simple : Inbound LP

Decrease LP on inbound eBGP session

Wait

Shut

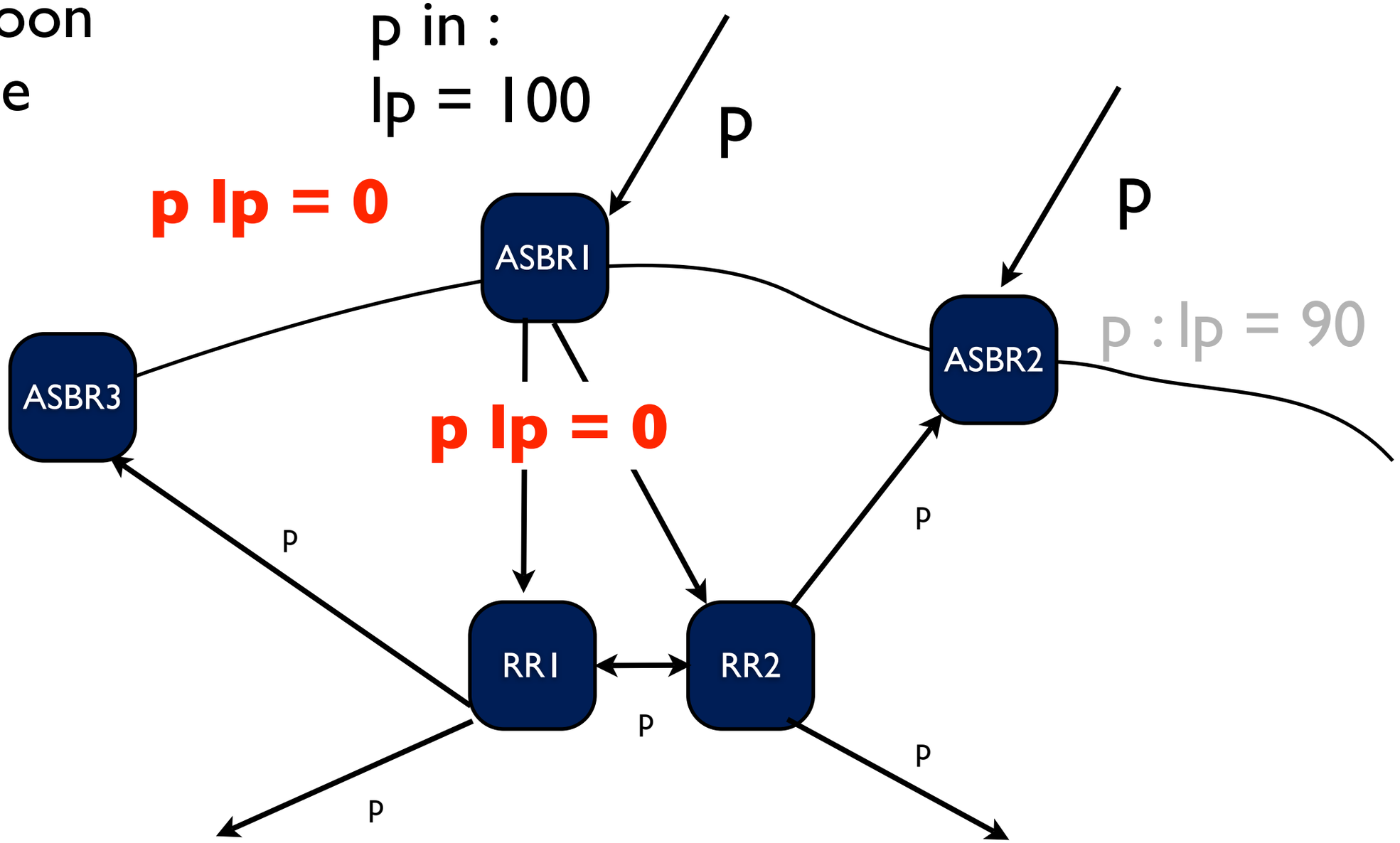


Outbound traffic
Inbound LP : glitches

ASBR1 switches to alternates as soon as it knows one

Early primary withdraw

fwd mess if alternate was not installed (Ext. best)



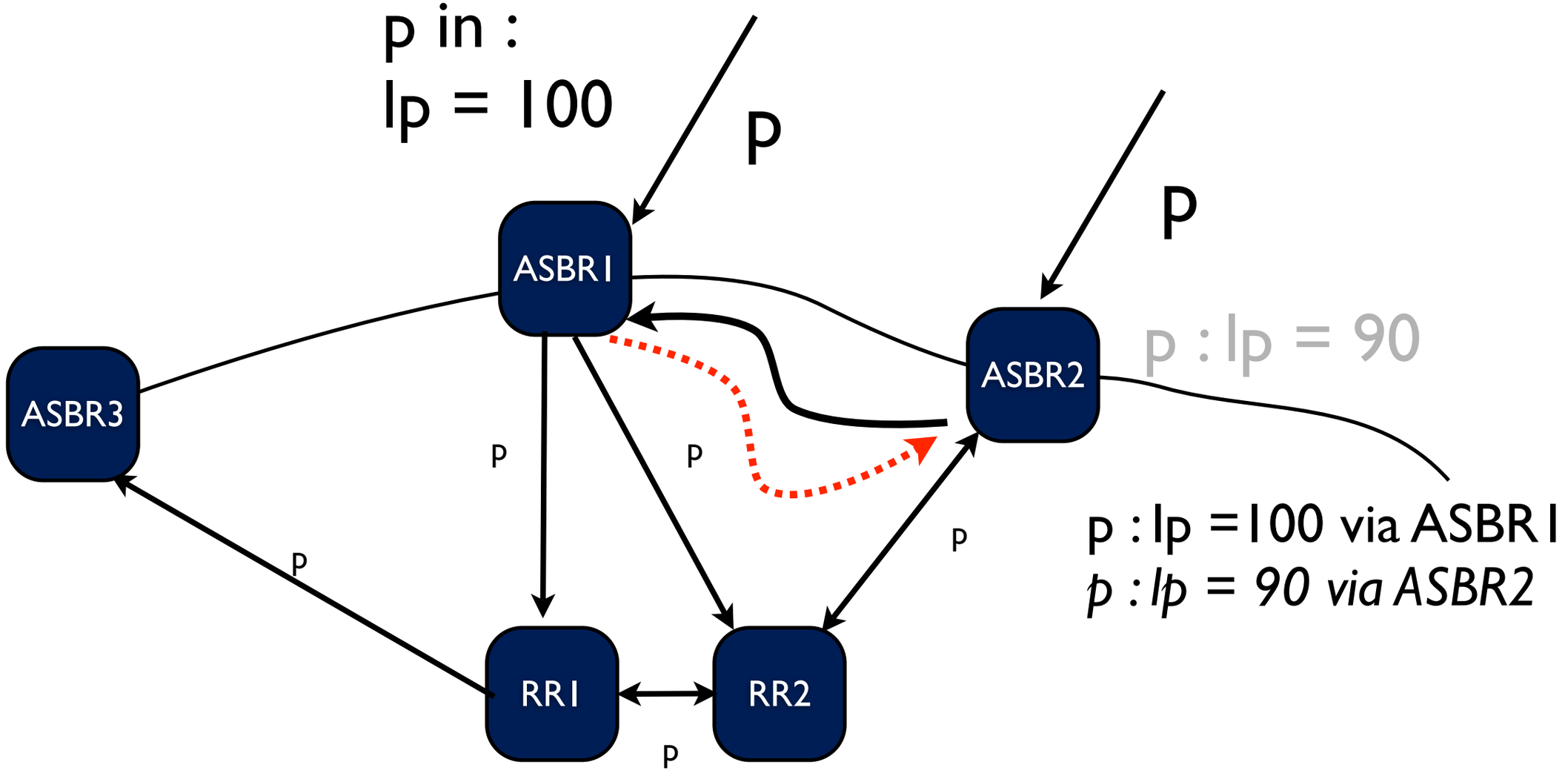
Outbound traffic
Inbound LP glitches: dilemma ?

- Solving path hiding problem with Ext Best
  leads to transient forwarding loops with inbound LP

Outbound traffic
Inbound LP glitches: dilemma ?

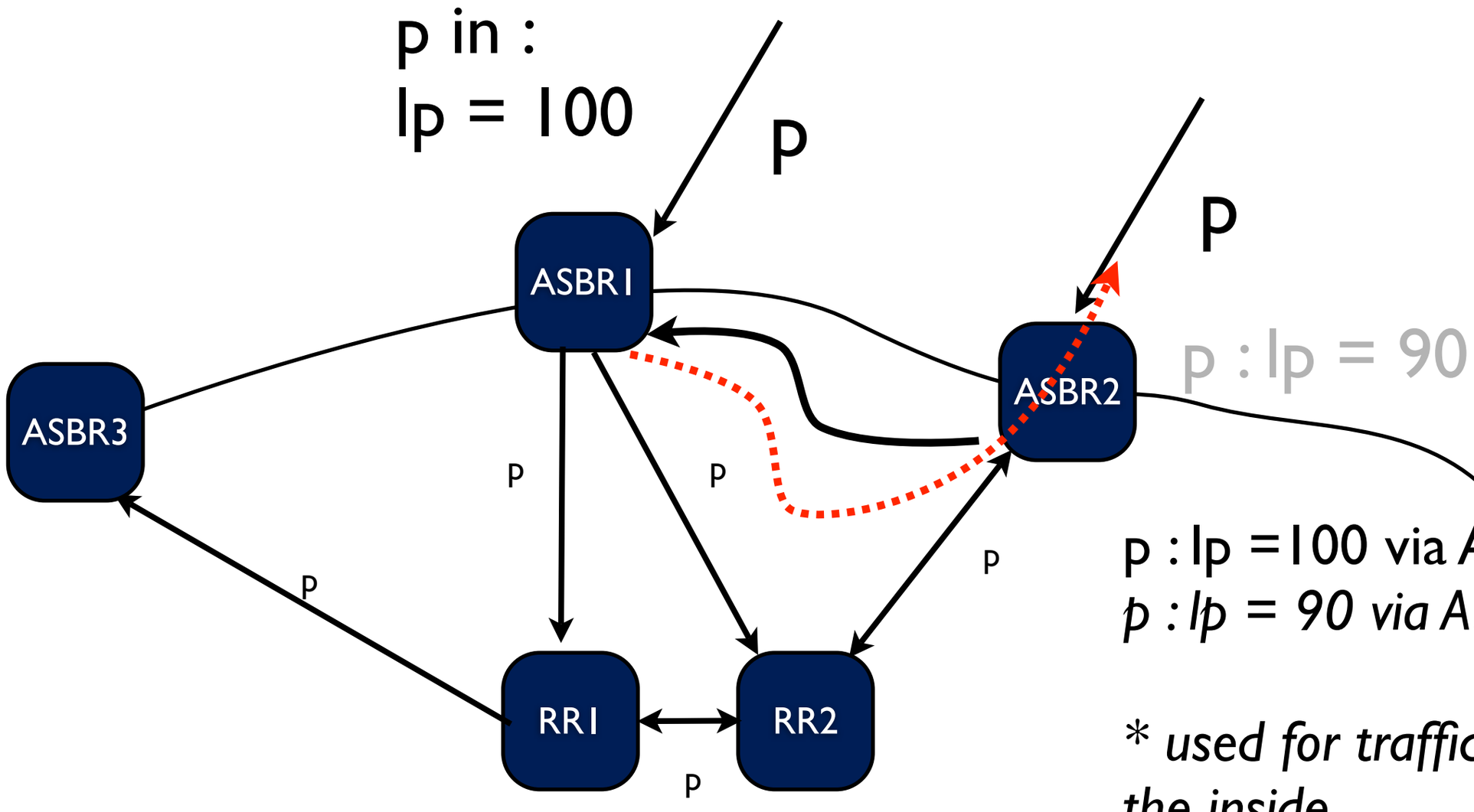
- Solving path hiding problem with Ext Best
  leads to transient forwarding loops with inbound LP
  Unless you have a proper PIC implementation !

Best External behavior



p : lp =100 via ASBR1
p : lp = 90 via ASBR2

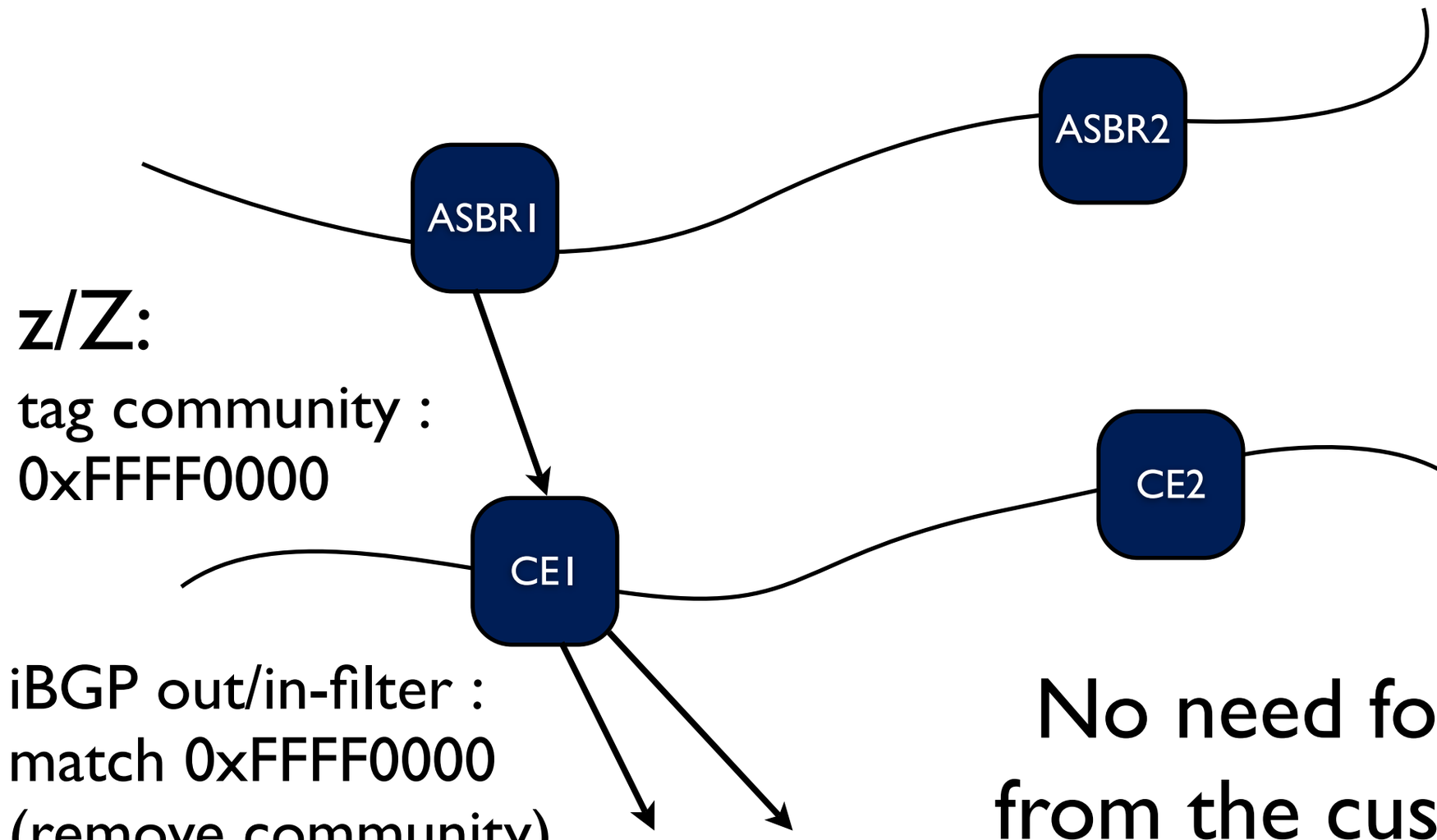
Clever Best External behavior



p : lp =100 via ASBR1
p : lp = 90 via ASBR2

Inbound traffic

Trigger outbound g-shut at the other side of the peering link



z/Z:

tag community :
0xFFFF0000

iBGP out/in-filter :
match 0xFFFF0000
(remove community)
set local pref 0

No need for action from the customer at maintenance time

Inbound traffic

Boring aspect of GSHUT community

- Need to handle its non-transitive essence
- Option to use a *non transitive* extended community
  `draft-decraene-idr-reserved-extended-communities-00`

Next steps

- Radical draft verbosity decrease
- Simplified procedure when obtained FCFS non transitive extended community
  - Needs IDR agreement