
MaxBIT
Maximum Business Information Technology

Internet Route Filter

MUM Cambodia

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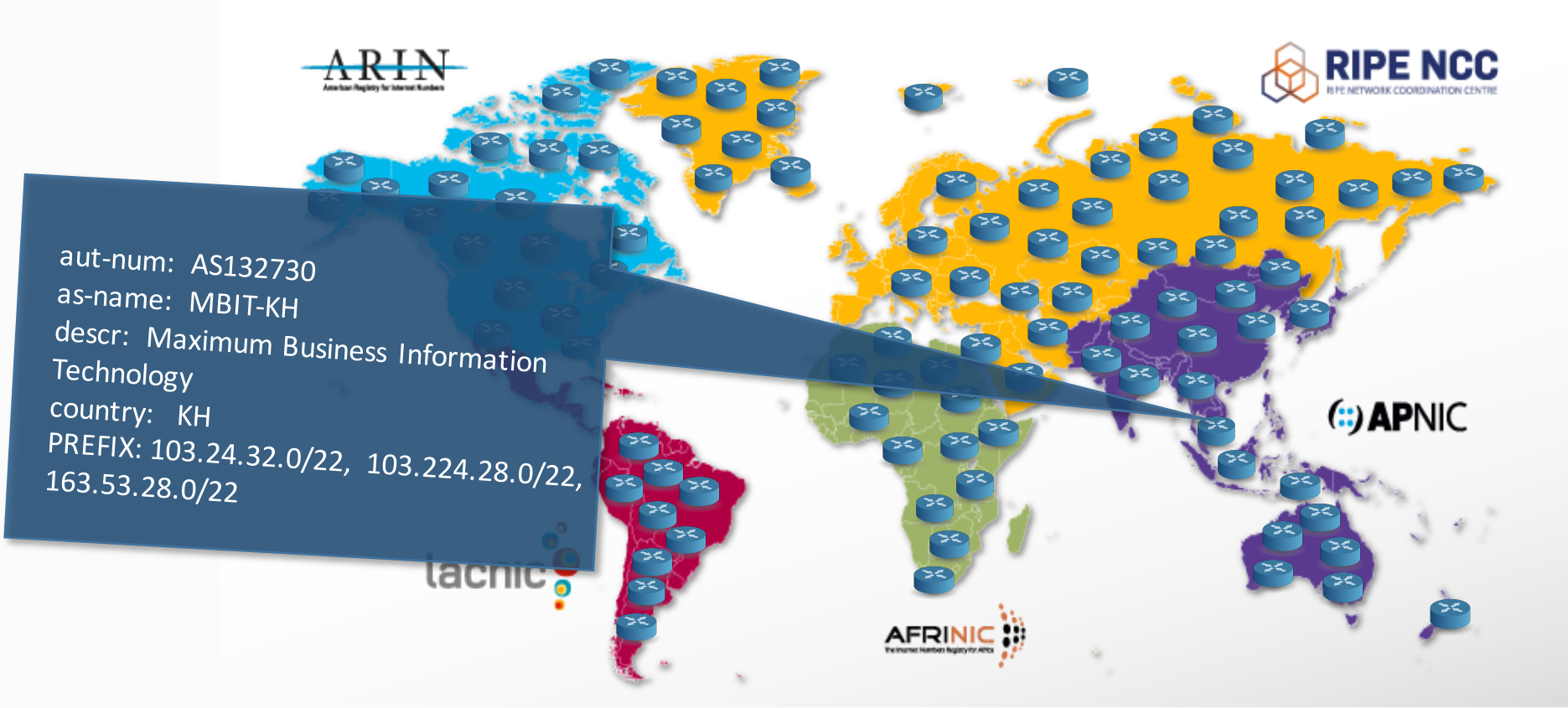
About Me

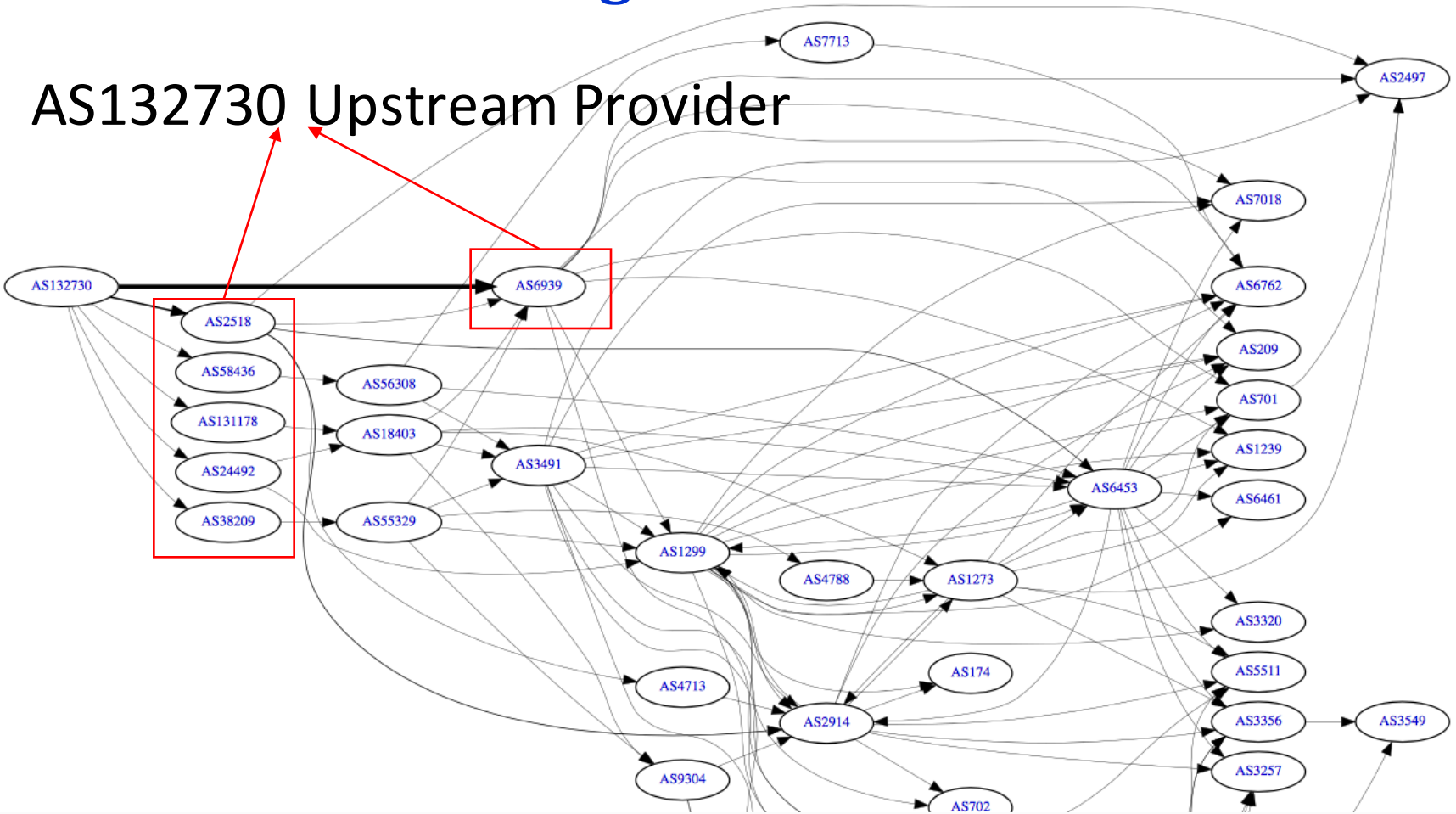
- I’m an NOC Manager at MaxBIT ISP
- I have experience working in IT industry for 6 years

- Certifications
  - MikroTik:
    - Trainer (TR0480)
    - MTCNA, MTCRE, MTCTCE, MTCWE, MTCUME, MTCINE, MTCIPV6E
  - Cisco: CCNA, CCNP
  - Juniper: JNCIA-Junos

The Internet Routing



The Internet Routing



The Internet Routing work

- Internet consist of many computer network combine together.
- Each network identify by unique autonomus system number (Asn)
- ISP advertise their prefix to the global network through transit provider.
- They also need to receive all global prefix from transit provider
- There is only one routing protocol called BGP (Border Gateway Protocol) can handle the Internet route
- Let's see http://bgp.he.net/AS132730#_graph4

The Internet Routing work

The are many problem happen on global Internet routing such as, route hijacking, route leaking, DOS attack

February 24, 2008: Pakistan's attempt to block YouTube access within their country takes down YouTube entirely.

April 8, 2010: Chinese ISP hijacks the Internet - China Telecom originated 37,000 prefixes not belonging to them in 15 minutes, causing massive outage of services globally.

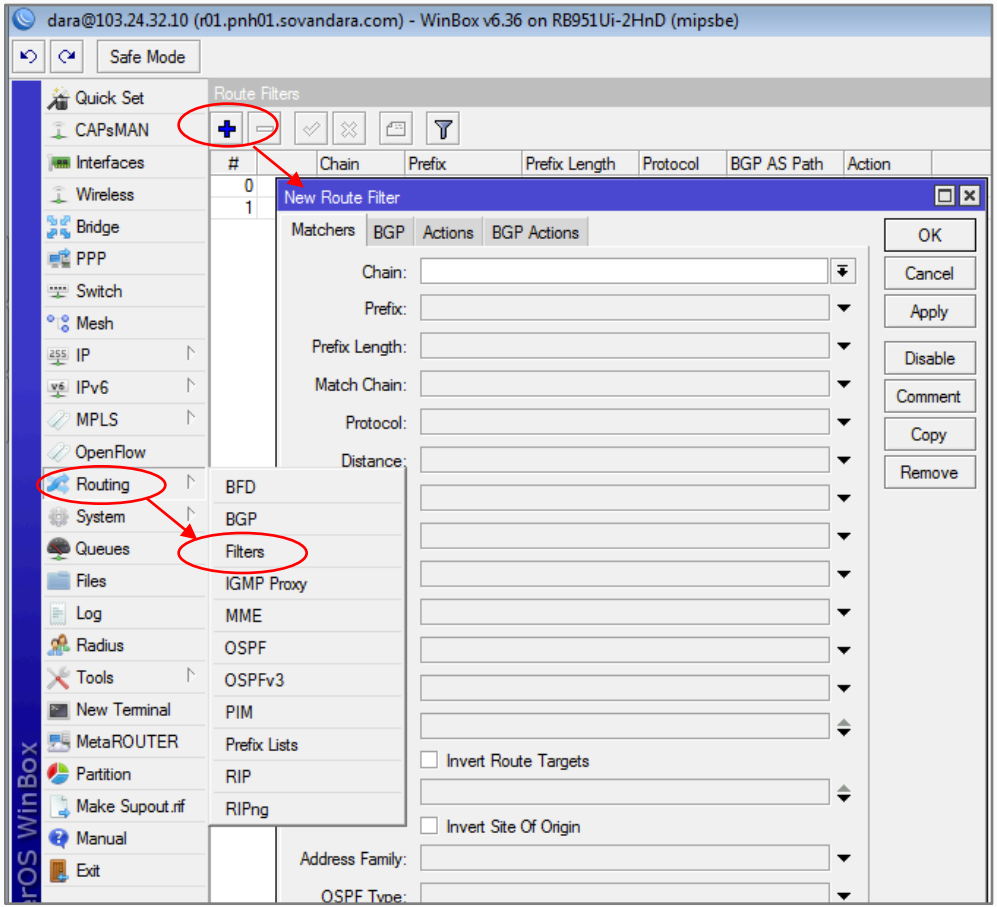
The Internet Routing

How to be the best Internet Service Provider with quality?

Simply, you need to find the shortest path to the destination. But for some reason shortest path is not always the best one.
For recommendation, Internet Provider should be multihome, so you can do traffic engineering.

Route filter introduction

- Route filter is in Routing > Filters
- We can use route filter on OSPF, BGP, RIP ...ect
- We can change the attribute to the route via route filter. Ex: we set local preference to BGP route.
- With route filter we can manage which prefix, we accept which prefix we don't
- You can filtering route in two ways, Incoming and outgoing



Route filter introduction

- Route filter match from top to bottom follow the sequence number
- Route filter is if and then condition

  If

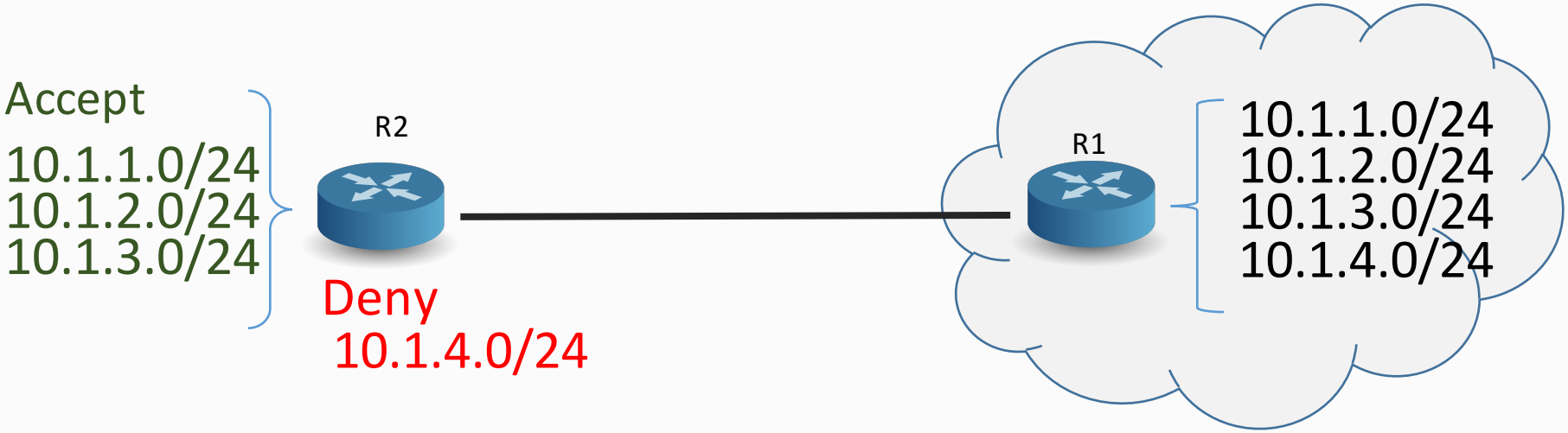
  Matcher

  then

  do action

- There are two filter techniques:
  - Permit some deny all
  - Deny some permit all

Route filter introduction



- Route filter to filter unwanted route. So the prefix that we filtered will not visible on routing table.

Route filter introduction

Change attribute on the route

Route List

Routes | Nexthops | Rules | VRF

	Dst. Address	Gateway	Distance	R..	Pre...	BGP Local Pref.	BGP Communities
DAb	103.224.28.4/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export
	;;; BGP: IBGP-CR01-PNH01-IPV4						
DAb	103.224.28.40/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export
	;;; BGP: IBGP-CR01-PNH01-IPV4						
DAb	103.224.28.76/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export
	;;; BGP: IBGP-CR01-PNH01-IPV4						
DAb	103.224.28.80/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export
	;;; BGP: IBGP-CR01-PNH01-IPV4						
DAb	103.224.28.96/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export
	;;; BGP: IBGP-CR01-PNH01-IPV4						
DAb	103.224.28.100/30	103.24.35.202 recursive via 103.24.35.45 AE-1	200			100	65522:10, no export

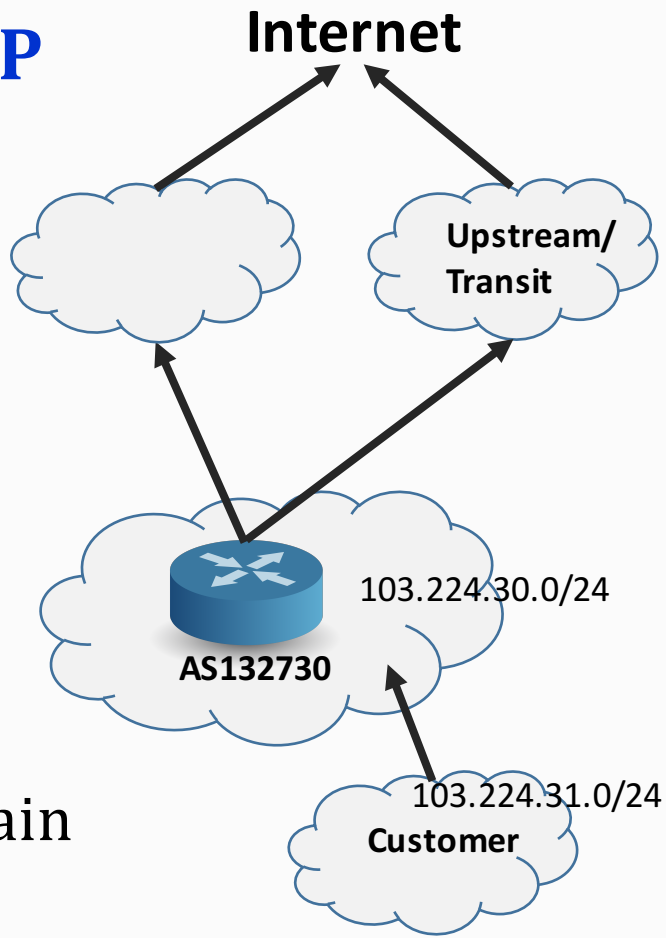
Route filter implementation in BGP

➢ Out Policy

- Announce only own prefix and customer prefix to upstream and peering

➢ In Policy

- Accept default route only you need it
- Do not accept own prefix
- Don’t accept private (rfc1918) and certain special use prefix
- Don’t accept prefix longer then /24



Route filter implementation in BGP

➢ Out Policy

- *add action=accept chain=EBGP-OUT prefix=103.224.30.0/24*
- *add action=accept chain=EBGP-OUT prefix=103.224.31.0/24*
- *add action=discard chain=EBGP-OUT*

➢ In Policy

- add action=discard chain=EBGP-IN prefix=103.224.30.0/24
- add action=discard chain=EBGP-IN prefix=103.224.31.0/24
- add action=discard chain=EBGP-IN prefix=10.0.0.0/8 prefix-length=8-32
- add action=discard chain=EBGP-IN prefix=172.16.0.0/12 prefix-length=12-32
- add action=discard chain=EBGP-IN prefix=192.168.0.0/16 prefix-length=16-32
- add action=discard chain=EBGP-IN prefix=0.0.0.0/0 prefix-length=25-32
- add action=accept chain=EBGP-IN

EBGP filter on transit link

Route filter implementation in BGP

➢ Out Policy

- *add action=discard chain=EBGP-CUS-OUT prefix=103.224.31.0/24*
- *add action=accept chain=EBGP-CUS-OUT*

➢ In Policy

- *add action=accept chain=EBGP-IN prefix=103.224.31.0/24*
- *add action=discard chain=EBGP-IN*

EBGP filter on customer link

Contact Our – IT Consulting & Support

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Thanks for Your Attention