



MUM-ID-2013
@Yogyakarta, Indonesia

Dynamic QoS

RouterOS v6.3



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About Me



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MikroTik Training Center

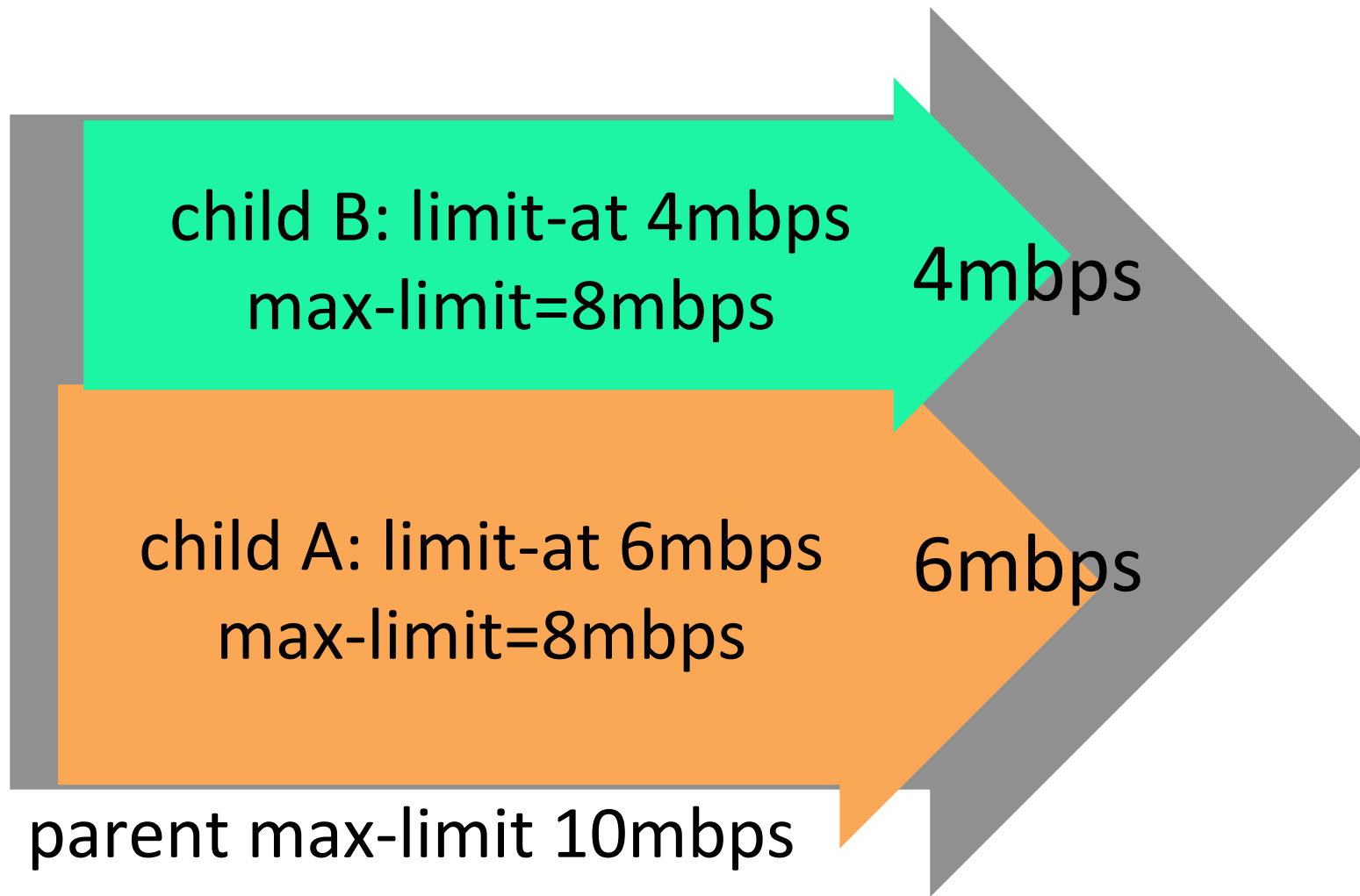
- The first MikroTik Training Center in Asia Pasific, has taught at least 2200 participants (112 classes).
- Mikrotik Academy Coordinator.

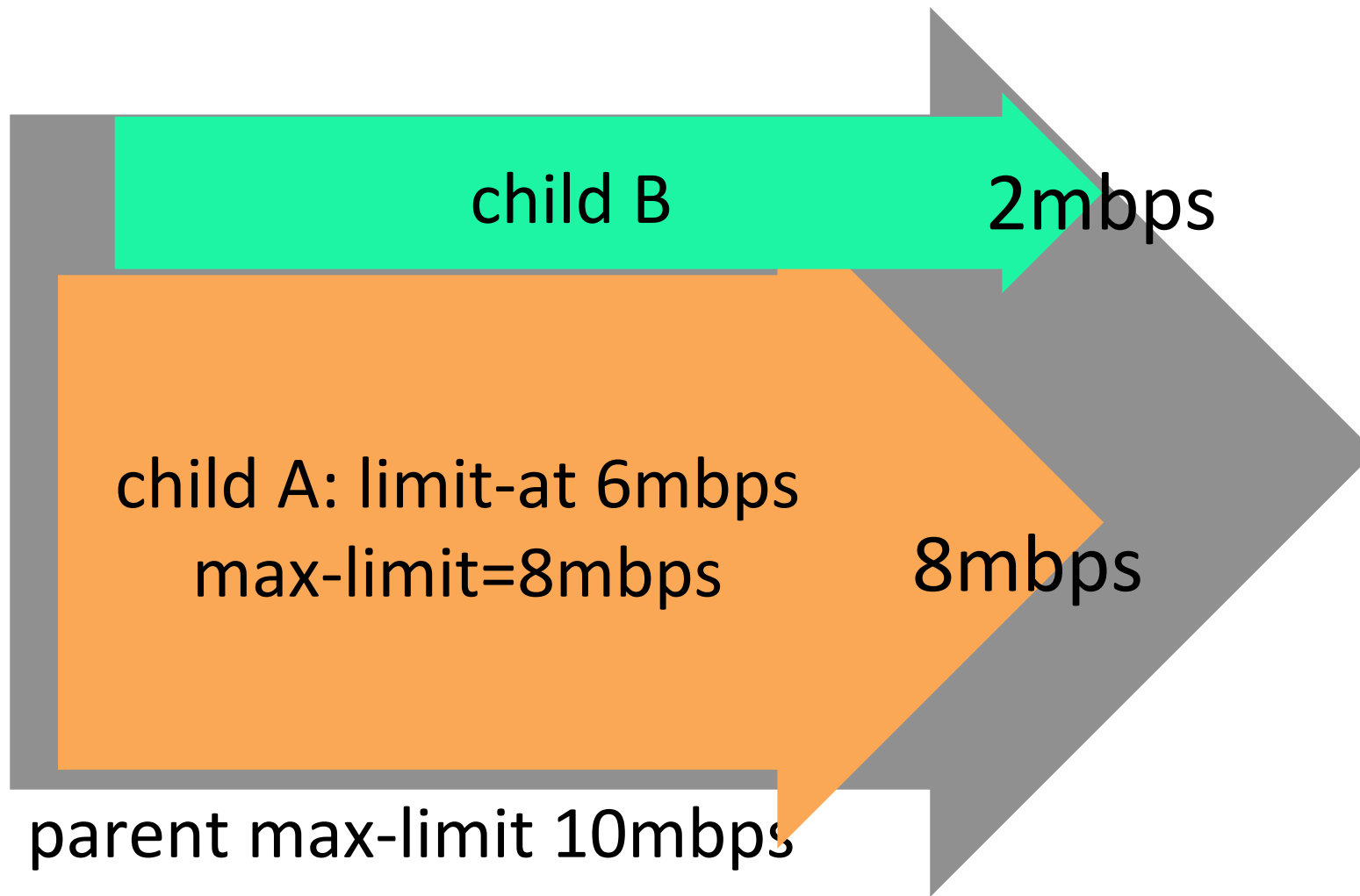


konsep dasar QoS

Parameter Queue

- limit-at (CIR)
- max-limit (MIR)
- burst (threshold, limit, time)
- queue type (FIFO, RED, SFQ, PCQ)
- parent





The diagram consists of a large grey arrow pointing right, representing a parent's bandwidth limit of 10mbps. Inside this arrow is a smaller orange arrow, also pointing right, representing child A's bandwidth. The text 'child B : 0mbps' is positioned above the orange arrow, 'child A: limit-at 6mbps max-limit=8mbps' is inside the orange arrow, and 'parent max-limit 10mbps' is below the orange arrow. The number '8mbps' is placed to the right of the orange arrow, indicating its actual bandwidth.

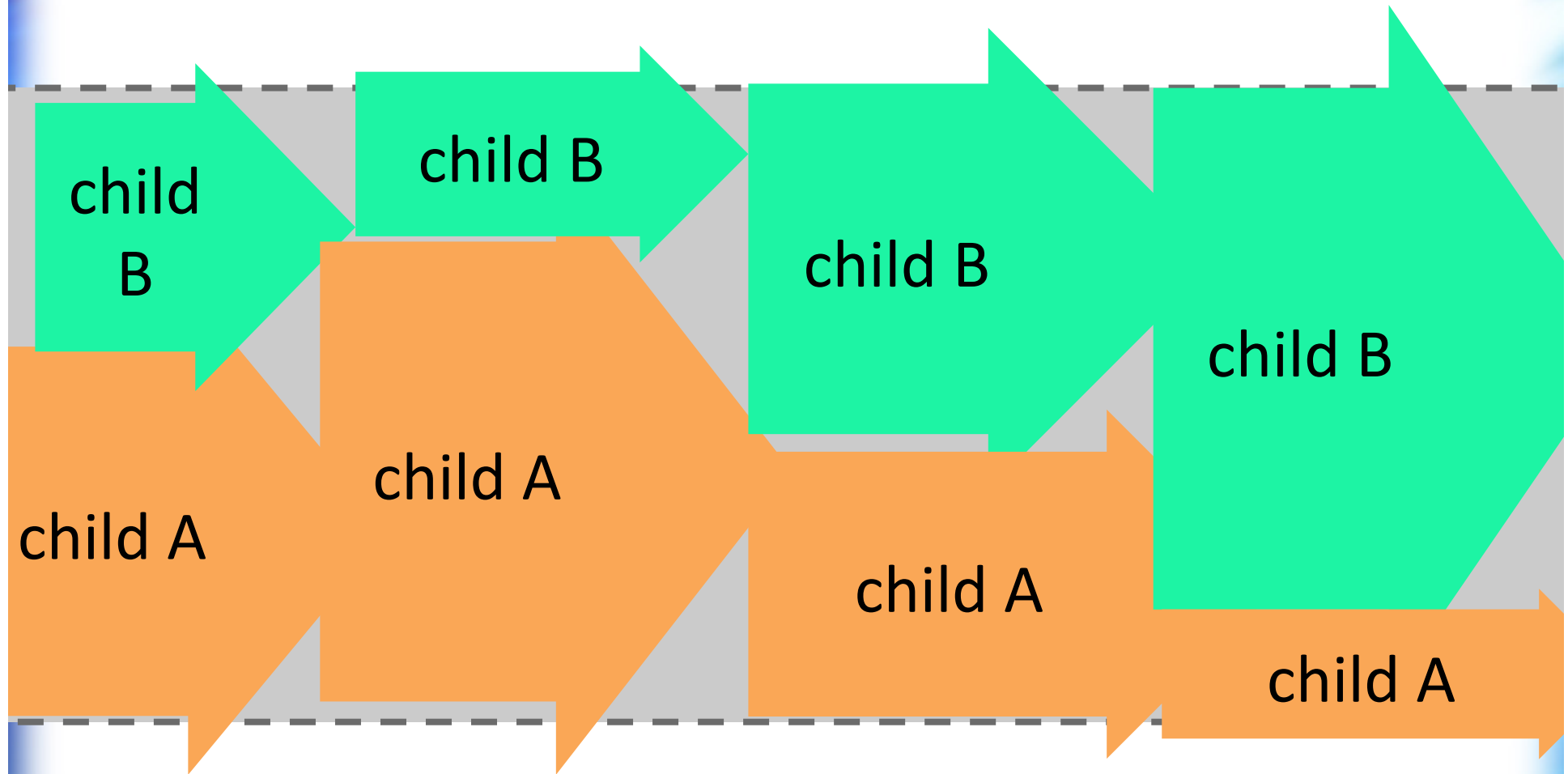
child B : 0mbps

child A: limit-at 6mbps
max-limit=8mbps

8mbps

parent max-limit 10mbps

tanpa parent, kapasitas 10mbps





Tanpa parent, maka parameter limit-at dan priority akan diabaikan (tidak berfungsi)

dynamic queue?

Queue yang dibuat secara otomatis di simple queue, dari fitur lainnya, seperti DHCP, Hotspot, PPP, dll.

rate-limit

```
rx-rate[/tx-rate] [rx-burst-rate[/tx-burst-  
rate] [rx-burst-threshold[/tx-burst-  
threshold] [rx-burst-time[/tx-burst-  
time]]]].
```

All rates should be numbers with optional 'k' (1,000s) or 'M' (1,000,000s). If tx-rate is not specified, rx-rate is as tx-rate too. Same goes for tx-burst-rate and tx-burst-threshold and tx-burst-time. If both rx-burst-threshold and tx-burst-threshold are not specified (but burst-rate is specified), rx-rate and tx-rate is used as burst thresholds. If both rx-burst-time and tx-burst-time are not specified, 1s is used as default

Dynamic QoS

The image shows two configuration windows from Mikrotik WinBox. The left window is titled "DHCP Lease <202.65.114.132, 202.65.114.132>" and has tabs for "General" and "Active". It contains fields for Address (202.65.114.132), MAC Address (78:AC:C0:90:11:A2), Client ID, Server (dhcp_sec), Lease Time, and checkboxes for "Use Src. MAC Address", "Block Access", and "Always Broadcast". At the bottom, there is a "Rate Limit" dropdown menu with options: "5M/5M 10M/10M 3M/3M 8/8".

The right window is titled "Simple Queue <dhcp<78:AC:C0:90:11:A2//dhcp_sec>>" and has tabs for "General", "Advanced", "Statistics", "Traffic", "Total", and "...". It contains fields for Name (dhcp<78:AC:C0:90:11:A2//dhcp_sec>) and Target Address (202.65.114.132). A red box highlights the QoS settings in the "Advanced" tab, which include:

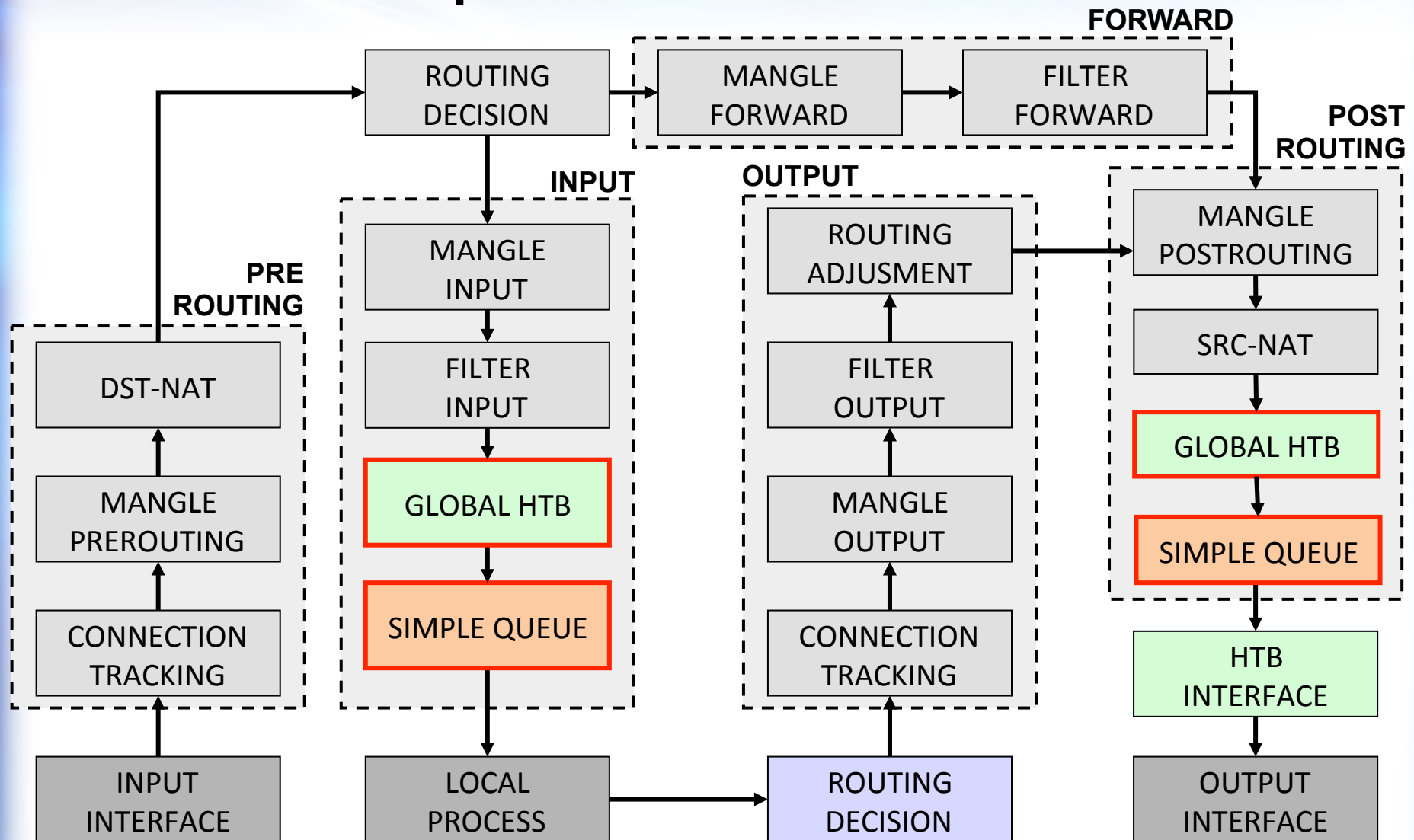
- Target Upload
- Target Download
- Max Limit: 5M
- Burst Limit: 10M
- Burst Threshold: 3M
- Burst Time: 8

A red arrow points from the "Rate Limit" dropdown in the DHCP Lease configuration to the highlighted QoS settings in the Simple Queue configuration.

Simple Queue di v6

- Dibuat ulang seluruhnya, build in kernel, lebih cepat
- 9 kali lebih cepat, jika memiliki setidaknya 32 parent queue pada router dengan multi processor
- Dilakukan setelah HTB global pada chain input dan postrouting

Simple Packet Flow v6



Dynamic Queue - DHCP

Dimungkinkan untuk menentukan posisi simple queue setelah dibuat secara otomatis

New DHCP Lease

General Active

Address: 0.0.0.0

MAC Address: 00:00:00:00:00:00

Use Src. MAC Address

Client ID:

Server: all

Lease Time:

Block Access

Always Broadcast

DHCP Options:

DHCP Option Set:

Rate Limit:

Insert Queue Before: first

Address List: first

hs- <hotspot1 >

queue1

PPP & Queue

- Mulai RoS versi 6.3, dimungkinkan untuk menambahkan parameter queue type dan parent queue.
- Hal ini memungkinkan HTB (limit-at dan priority) bisa berjalan dengan optimal.

PPP & Hotspot & Queue

- Mulai RoS versi 6.3, dimungkinkan untuk menambahkan parameter queue type dan parent queue.
- Hal ini memungkinkan HTB (limit-at dan priority) bisa berjalan dengan optimal.

PPPoE Server

PPPoE Service <service1>

Service Name:

Interface: ▼

Max MTU:

Max MRU:

MRRU: ▼

Keepalive Timeout: ▲

Default Profile: ▼

One Session Per Host

Max Sessions: ▼

— Authentication —

pap chap

mschap1 mschap2

enabled

PPP Secret <test>

Name:

Password: ▲

Service: ▼

Caller ID: ▼

Profile: ▼

Local Address: ▲

Remote Address: ▲

Remote IPv6 Prefix: ▼

Routes: ▼

Limit Bytes In: ▼

Limit Bytes Out: ▼

Last Logged Out:

enabled

PPP Profile - Limits

The image shows a screenshot of the Mikrotik WinBox configuration interface for a PPP Profile. The title bar reads "PPP Profile <default>". Below the title bar are four tabs: "General", "Protocols", "Limits", and "Queue". The "Limits" tab is currently selected. The configuration area shows several fields with callout boxes pointing to them:

- max-limit**: Points to the "Session Timeout" field.
- burst threshold**: Points to the "Rate Limit (rx/tx)" field.
- priority**: Points to the "Rate Limit (rx/tx)" field.
- burst-limit**: Points to the "Rate Limit (rx/tx)" field.
- burst-time**: Points to the "Rate Limit (rx/tx)" field.
- limit-at**: Points to the "Rate Limit (rx/tx)" field.

The "Rate Limit (rx/tx)" field contains the following values: 5M/5M 10M/10M 2M/2M 8/8 1 2M/2M. The "Session Timeout" field is empty. The "Queue" field is set to "no".

PPP Profile - Queue

PPP Profile <default>

General Protocols Limits Queue

Insert Queue Before: ▼

Parent Queue: ▼ ▲

Queue Type: ▼ ▲

PPPoE Client

PPP

Interface | PPPoE Servers | Secrets | Profiles | Active Connections

+ - ✓ ✗ [icon] [icon] PPP Scanner PPTP Server SSTP Server L2TP Server OVPN

	Name	Type	L2 MTU	Tx	Rx	Tx
DR	<<pppoe-test>	PPPoE Server Binding			0 bps	352 bps

Queue List

Simple Queues | Interface Queues | Queue Tree | Queue Types

+ - ✓ ✗ [icon] [icon] Reset Counters **00** Reset All Counters

#	Name	Target	Upload Max Limit	Download Max Limit	Pa
0	queue1	0.0.0.0/0	unlimited	unlimited	
1 D	<pppoe-test>	<pppoe-test>	5M	5M	

Dynamic Queue from PPPoE

Simple Queue <<pppoe-test>>

General | Advanced | Statistics | Traffic | Total | ...

Name: <pppoe-test>

Target: <pppoe-test>

Dst.:

	Target Upload	Target Download
Max Limit:	5M	5M

▲ Burst

Burst Limit:	10M	10M
Burst Threshold:	2M	2M
Burst Time:	8	8

Simple Queue <<pppoe-test>>

General | Advanced | Statistics | Traffic | Total | ...

Packet Marks:

	Target Upload	Target Download
Limit At:	2M	2M
Priority:	1	1
Queue Type:	default-small	default-small

Parent: queue1

Hotspot User Profile

Hotspot User Profile <default>

General Queue Advertise Scripts

Name: default

Address Pool: none

Session Timeout:

Idle Timeout: none

Keepalive Timeout: 00:00

Shared Users:

Rate Limit (rx/tx): 5M/5M 10M/10M 2M/2M 8/8 1 2M/2M

max-limit

burst threshold

priority

burst-limit

burst-time

limit-at

Hotspot User Profile <default>

General Queue Advertise Scripts

Insert Queue Before:



Parent Queue: queue1


Queue Type: ethernet-default




Hotspot Client

Hotspot

Users User Profiles Active Hosts IP Bindings Service Ports Walled Garden Walled Garden IP

	Server	User	Domain	Address	Uptime	Idle Time	Session
	 hotspot1	user		10.3.3.3	00:00:30	00:00:01	

#		Name	Target	Upload Max Limit	Download Max Limit	Pa
2	D	 hs- <hotspot1 >	ether5	unlimited	unlimited	
1		 queue1	0.0.0.0/0	unlimited	unlimited	
0	D	 <hotspot-user >	10.3.3.3	5M	5M	

Dynamic Queue

Simple Queue <<hotspot-user>>

General | Advanced | Statistics | Traffic | Total | ...

Name: <hotspot-user>

Target: 10.3.3.3

Dst.:

	Target Upload	Target Download
Max Limit:	5M	5M

--▲-- Burst

Burst Limit:	10M	10M
Burst Threshold:	2M	2M
Burst Time:	8	8

--▼-- Time

Simple Queue <<hotspot-user>>

General | Advanced | Statistics | Traffic | Total | ...

Packet Marks:

	Target Upload	Target Download
Limit At:	2M	2M
Priority:	1	1
Queue Type:	ethernet-default	ethernet-default

Parent: queue1

HTB with Dynamic Queue

Jika kita bisa menentukan limit-at, parent, dan priority, maka HTB bisa berjalan dengan baik, dan banyak skenario yang dapat dijalankan.

User 1 Configuration

Hotspot User <user1 >		Hotspot User Profile <default >				
General	Limits	Statistics	General	Queue	Advertise	Scripts
Server:	all		Name:	default		
Name:	user1		Address Pool:	none		
Password:	user		Session Timeout:			
Address:			Idle Timeout:	none		
MAC Address:			Keepalive Timeout:	00:02:00		
Profile:	default		Status Autorefresh:	00:01:00		
Routes:			Shared Users:	1		
Email:			Rate Limit (rx/tx):	1M/1M 1M/1M 1M/1M 8/8 1 512k/512k		

User 2 Configuration

Hotspot User <user2>		Hotspot User Profile <prof2>				
General	Limits	Statistics	General	Queue	Advertise	Scripts
Server:	all		Name:	prof2		
Name:	user2		Address Pool:	none		
Password:	user		Session Timeout:			
Address:			Idle Timeout:	none		
MAC Address:			Keepalive Timeout:	00:02:00		
Profile:	prof2		Status Autorefresh:	00:01:00		
Routes:			Shared Users:	1		
Email:			Rate Limit (rx/tx):	1M/1M 1M/1M 1M/1M 8/8 2 512k/512k		

Queue Parent

Hotspot User Profile <prof2>

General Queue Advertise Scripts

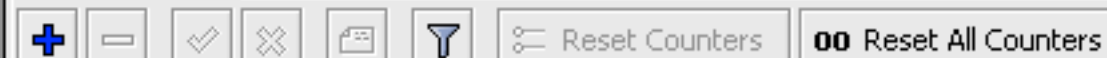
Insert Queue Before: ▼





Parent Queue: ▼ ▲

Queue Type: ▼ ▲

Queue List

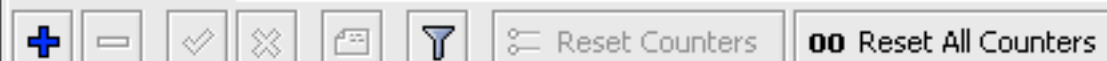
Simple Queues Interface Queues Queue Tree Queue Types







#	Name	Target	Upload Max Limit	Download Max Limit	Upload Avg. Rate	Download Avg. R...	To
0	 queue1	0.0.0.0/0	1500k	1500k	1272 bps	5.3 kbps	
0 D	 <hotspot-user2>	10.3.3.5	1M	1M	1272 bps	5.1 kbps	
0 D	 <hotspot-user1>	10.3.3.4	1M	1M		168 bps	
1 D	 hs-<hotspot1>	bridge-hs	unlimited	unlimited			

Queue List

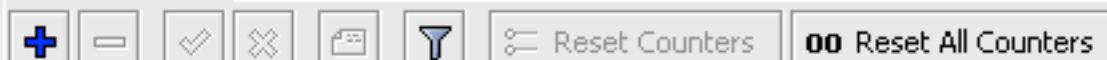
Simple Queues Interface Queues Queue Tree Queue Types







#	Name	Target	Upload Max Limit	Download Max Limit	Upload Avg. Rate	Download Avg. R...	To
0	 queue1	0.0.0.0/0	1500k	1500k	1005.0 kbps	1005.6 kbps	
0 D	 <hotspot-user2>	10.3.3.5	1M	1M	1005.0 kbps	1005.0 kbps	
0 D	 <hotspot-user1>	10.3.3.4	1M	1M		656 bps	
1 D	 hs-<hotspot1>	bridge-hs	unlimited	unlimited			

Queue List

Simple Queues Interface Queues Queue Tree Queue Types



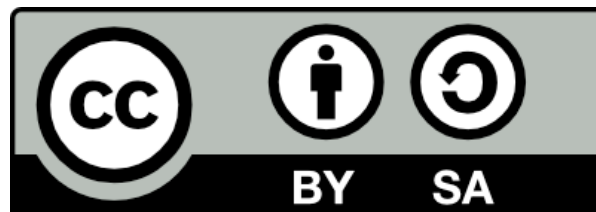
#	Name	Target	Upload Max Limit	Download Max Limit	Upload Avg. Rate	Download Avg. R...	To
0	 queue1	0.0.0.0/0	1500k	1500k	1494.3 kbps	1484.0 kbps	
0 D	 <hotspot-user2>	10.3.3.5	1M	1M	660.1 kbps	408.6 kbps	
0 D	 <hotspot-user1>	10.3.3.4	1M	1M	963.9 kbps	959.9 kbps	
1 D	 hs-<hotspot1>	bridge-hs	unlimited	unlimited			

Thank you

Comments and suggestions:

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