

The evolution of the wireless package (6.40-6.42)

By Lorenzo Busatti

mum

MUM EUROPE 2018
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About me

Lorenzo Busatti

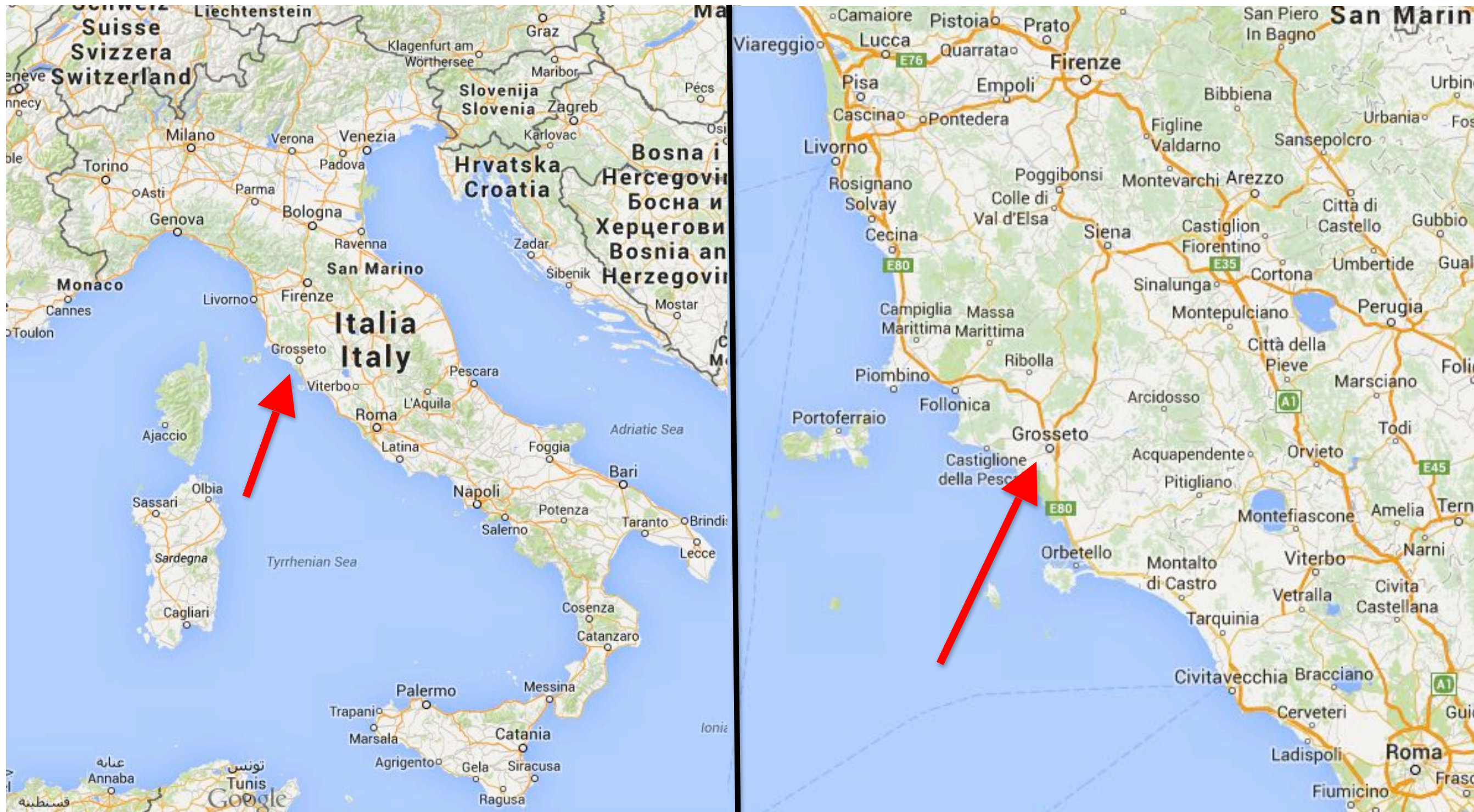
- Founder of Grifonline S.r.l. [ISP] 1997
- A user of MikroTik since 2006
- Founder of Linkwave [WISP] 2006
- MikroTik Trainer 2010
- Member of RIPE, AMS-IX, MIX-IT



About me



About me





I'm a MikroTik *enthusiast*

I'm a MikroTik *enthusiast*

I'm a MikroTik *evangelist*

About me

- Founder (2016) of the



Non Profit Organization for
High Quality Training Partners

Dedicated to Max

The new wireless package

The new wireless package (since vers. 6.37), in RouterOS brought these features:

- The DFS “settings”
- Background scan
- Wireless Scan features (on files, etc.)
- Station Roaming
- Repeater function
- New Wireless Interfaces

The new wireless package

My MUM presentation in Milan (2017) about the v 6.37 features :

PDF: <https://goo.gl/2TFtf8>

Youtube: <https://youtu.be/1MsbivitzEw>

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EUROPE ON MARCH 30 – 31, 2017

The new wireless package

and don't miss this amazing presentation
about "The mAP and mAP lite" as a Wireless
Swiss Knife

PDF: <https://goo.gl/gHw9MB>

Youtube: https://youtu.be/VeZetH9uX_Y

UNITED STATES ON APRIL 28 - 29, 2016

The evolution of the wireless package

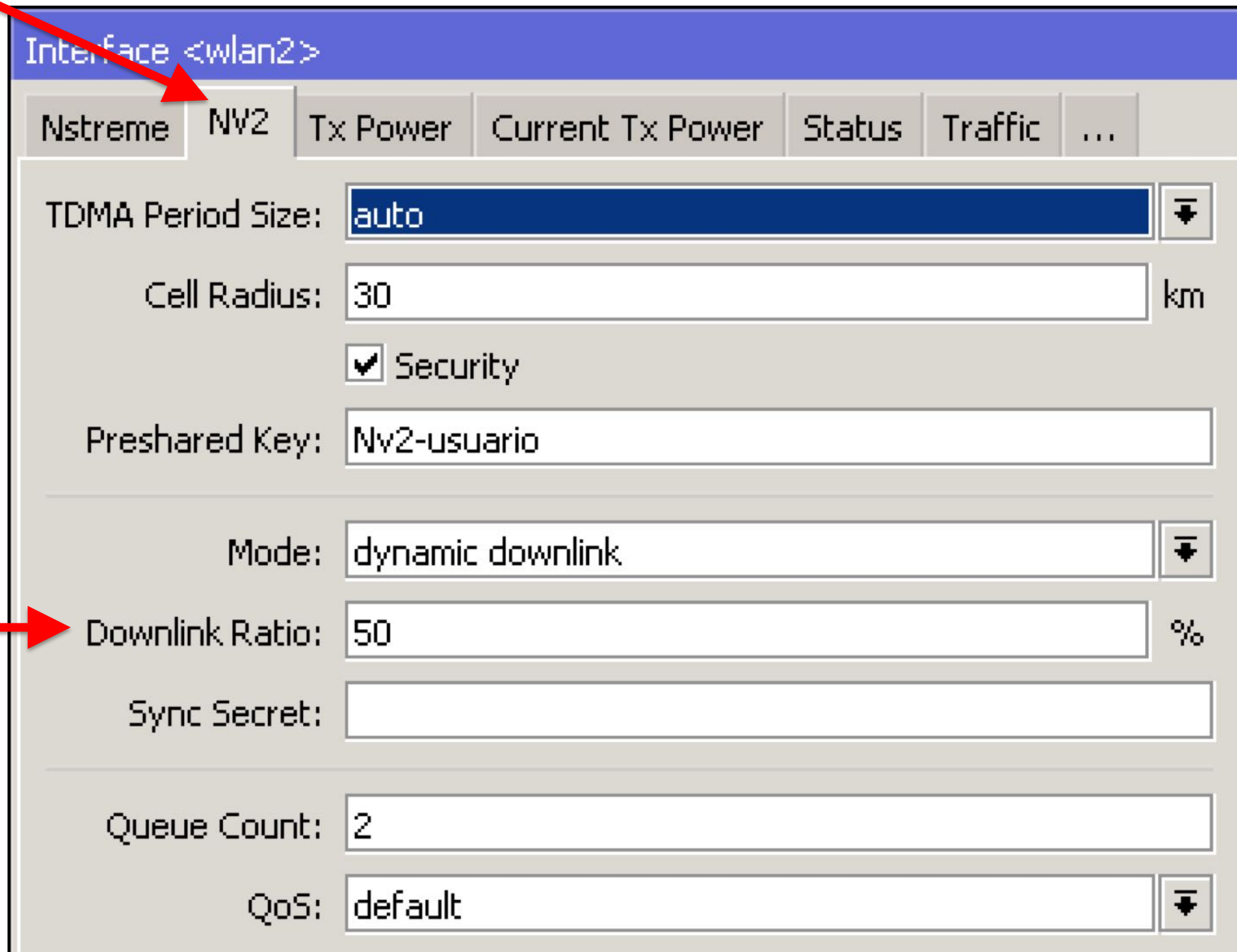
The new wireless features from
v 6.40:

- nv2-downlink-ratio
- NV2 APs synch
- and much more. .

nv2-downlink-ratio

- A new feature available since RouterOS 6.40
- Will allow you to setup the download/upload ratio from the AP to the stations.
- Can be setup in two ways:
 - Dynamic-downlink**
 - Fixed-downlink**

nv2-downlink-ratio



Interface <wlan2>

Nstreme NV2 Tx Power Current Tx Power Status Traffic ...

TDMA Period Size: auto

Cell Radius: 30 km

☒ Security

Preshared Key: Nv2-usuario

Mode: dynamic downlink

Downlink Ratio: 50 %

Sync Secret:

Queue Count: 2

QoS: default

nv2-downlink-ratio

- This new feature will allow you to give “more [*transmission*] time” for the download (*or upload*) of the stations
- Giving your customer more download (*or upload*) bandwidth

nv2-downlink-ratio

- The default value is 50
- The minimum value is 20
- The maximum is 80

nv2-uplink-ratio

- The Uplink ratio is automatically calculated from the downlink-ratio value.

For example:

- With downlink-ratio=70 -> Uplink = 30
- With downlink-ratio=60 -> Uplink = 40

nv2-mode=fixed-downlink

- This new feature will allow you to **statically** schedule “more time” for the download of the stations.
- Setting up a value of 70 the AP will schedule:
 - 70% of the time for the download of the clients
 - 30% of the time for the upload of the clients

nv2-mode=fixed-downlink

Interface <wlan2>

Nstreme NV2 Tx Power Current Tx Power Status Traffic ...

TDMA Period Size: auto

Cell Radius: 30 km

☒ Security

Preshared Key: Nv2-usuario

Mode: fixed downlink

Downlink Ratio: 70 %

Sync Secret:

Queue Count: 2

QoS: default

nv2-mode=dynamic-downlink

- This feature will allow you to let the AP **dynamically** assign the time slots for the stations.
- **BUT:** when link get fully saturated it will use the `Nv2-downlink-ratio` that you specified (the default is 50)

nv2-mode=dynamic-downlink

Interface <wlan2>

Nstreme NV2 Tx Power Current Tx Power Status Traffic ...

TDMA Period Size: auto

Cell Radius: 30 km

☒ Security

Preshared Key: Nv2-usuario

Mode: dynamic downlink

Downlink Ratio: 50 %

Sync Secret:

Queue Count: 2

QoS: default

Real life bandwidth

Delivering bandwidth to one station is simple, to more stations is difficult, because of:

- Different distances of the stations
- Different setup and/or datarates
- Interference
- The time that the AP “loses” for managing time slots for the stations
- And so on

Real life test

We experimented different scenario using different settings, to show you how you can manage more bandwidth, specially in PtMP environment.

Lab1: dynamic-downlink 50

1 concurrent station

2 HT chains

N protocol Ce

Total bandwidth from the AP:

127 Mbps

Lab2: dynamic-downlink 50

9 concurrent stations

2 HT chains

N protocol Ce

Total bandwidth from the AP:

80 Mbps

Lab3: fixed-downlink 70

9 concurrent stations

2 HT chains

N protocol Ce

Total bandwidth from the AP:

106 Mbps

Lab3: fixed-downlink 70

admin@192.168.33.4 (MikroTik) - WinBox v6.40.5 on RB3011UiAS (arm)

Session Settings Dashboard

Safe Mode Session: 192.168.33.4 CPU: 5%

Quick Set CAPsMAN Interfaces Wireless Bridge PPP Switch Mesh IP MPLS Routing System Queues Files Log Radius Tools New Terminal LCD Partition Make Supout.rif Manual New WinBox Exit

Terminal

```
direction: transmit
tx-size: 1500

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.11

status: running
duration: 14m29s
tx-current: 8.9Mbps
tx-10-second-average: 9.3Mbps
```

Terminal

```
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.12

status: running
duration: 14m
tx-current: 8.4Mbps
tx-10-second-average: 9.1Mbps
```

Terminal

```
/ Move up to base level
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.13

status: running
duration: 13m57s
tx-current: 9.1Mbps
tx-10-second-average: 9.1Mbps
```

Interface List

Interface	Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)
R	bonding1	Bonding	1500	1598	106.3 Mbps	24.3 kbps	8 785	33	0 bps	23.8 kbps	0	
RS	ether1	Ethernet	1500	1598	53.1 Mbps	11.8 kbps	4 392	16	53.9 Mbps	13.4 kbps	4 465	
RS	ether2	Ethernet	1500	1598	53.2 Mbps	12.4 kbps	4 393	17	53.9 Mbps	12.0 kbps	4 465	
	ether3	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether4	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether5	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether6	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether7	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether8	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	

12 items

tx-total-average: 6.4Mbps
random-data: no
direction: transmit
tx-size: 1500

Terminal

```
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.17

status: running
duration: 13m37s
tx-current: 9.1Mbps
tx-10-second-average: 9.2Mbps
tx-total-average: 6.4Mbps
random-data: no
direction: transmit
tx-size: 1500

-- [Q quit|D dump|C-z pause]
```

Terminal

```
random-data: no
direction: transmit
tx-size: 1500

-- [Q quit|D dump|C-z pause]
```

Terminal

```
status: can not connect
duration: 0s
tx-current: 0bps
tx-10-second-average: 0bps
tx-total-average: 0bps
random-data: no
direction: transmit
tx-size: 1500

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.18
```

Terminal

```
/ Move up to base level
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.19

status: running
duration: 13m28s
tx-current: 9.3Mbps
tx-10-second-average: 9.3Mbps
tx-total-average: 6.5Mbps
random-data: no
direction: transmit
tx-size: 1500

-- [Q quit|D dump|C-z pause]
```

Lab4: fixed-downlink 80

9 concurrent stations

2 HT chains

N protocol Ce

Total bandwidth from the AP:

125 Mbps

Lab4: fixed-downlink 80

admin@192.168.33.4 (MikroTik) - WinBox v6.40.5 on RB3011UiAS (arm)

Session Settings Dashboard

Safe Mode Session: 192.168.33.4 CPU: 2%

Quick Set CAPsMAN Interfaces Wireless Bridge PPP Switch Mesh IP MPLS Routing System Queues Files Log Radius Tools New Terminal LCD Partition Make Supout.rif Manual New WinBox Exit

Terminal

```
direction: transmit
tx-size: 1500

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.11

status: running
duration: 18m15s
tx-current: 11.4Mbps
tx-10-second-average: 11.3Mbps
```

Terminal

```
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.12

status: running
duration: 17m44s
tx-current: 10.6Mbps
tx-10-second-average: 11.2Mbps
```

Terminal

```
/ Move up to base level
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.13

status: running
duration: 17m41s
tx-current: 11.3Mbps
tx-10-second-average: 11.3Mbps
```

Interface List

Interface	Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx	FP Rx	FP Tx Packet (p/s)	FP Rx Packet (p/s)
R	bonding1	Bonding	1500	1598	125.5 Mbps	36.5 kbps	10 364	45	0 bps	39.6 kbps	0	
RS	ether1	Ethernet	1500	1598	62.7 Mbps	17.5 kbps	5 182	22	61.2 Mbps	18.0 kbps	5 067	
RS	ether2	Ethernet	1500	1598	62.7 Mbps	19.0 kbps	5 182	23	61.1 Mbps	17.0 kbps	5 065	
	ether3	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether4	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether5	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether6	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether7	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	
	ether8	Ethernet	1500	1598	0 bps	0 bps	0	0	0 bps	0 bps	0	

12 items

tx-total-average: 6.9Mbps
random-data: no
direction: transmit
tx-size: 1500

Terminal

```
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.17

status: running
duration: 17m21s
tx-current: 10.9Mbps
tx-10-second-average: 11.2Mbps
tx-total-average: 6.9Mbps
random-data: no
direction: transmit
tx-size: 1500

[Q quit|D dump|C-z pause]
```

Terminal

```
random-data: no
direction: transmit
tx-size: 1500

[Q quit|D dump|C-z pause]
```

Terminal

```
status: can not connect
duration: 0s
tx-current: 0bps
tx-10-second-average: 0bps
tx-total-average: 0bps
random-data: no
direction: transmit
tx-size: 1500

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.18
```

Terminal

```
tx-current: 10.6Mbps
tx-10-second-average: 11.1Mbps

/ Move up to base level
.. Move up one level
/command Use command at the base level

[admin@MikroTik] > tool bandwidth-test protocol=udp user=admin password="" direction=transmit address=192.168.33.19

status: running
duration: 17m14s
tx-current: 11.5Mbps
tx-10-second-average: 11.3Mbps
tx-total-average: 6.9Mbps
random-data: no
direction: transmit
tx-size: 1500

[Q quit|D dump|C-z pause]
```

Labs results

1 station, ratio d 50 -> 127 Mbps

9 stations, ratio d 50 -> 80 Mbps

9 stations, ratio f 70 -> 106 Mbps

9 stations, ratio f 80 -> 125 Mbps

Nv2 AP synchronization

[experimental support]

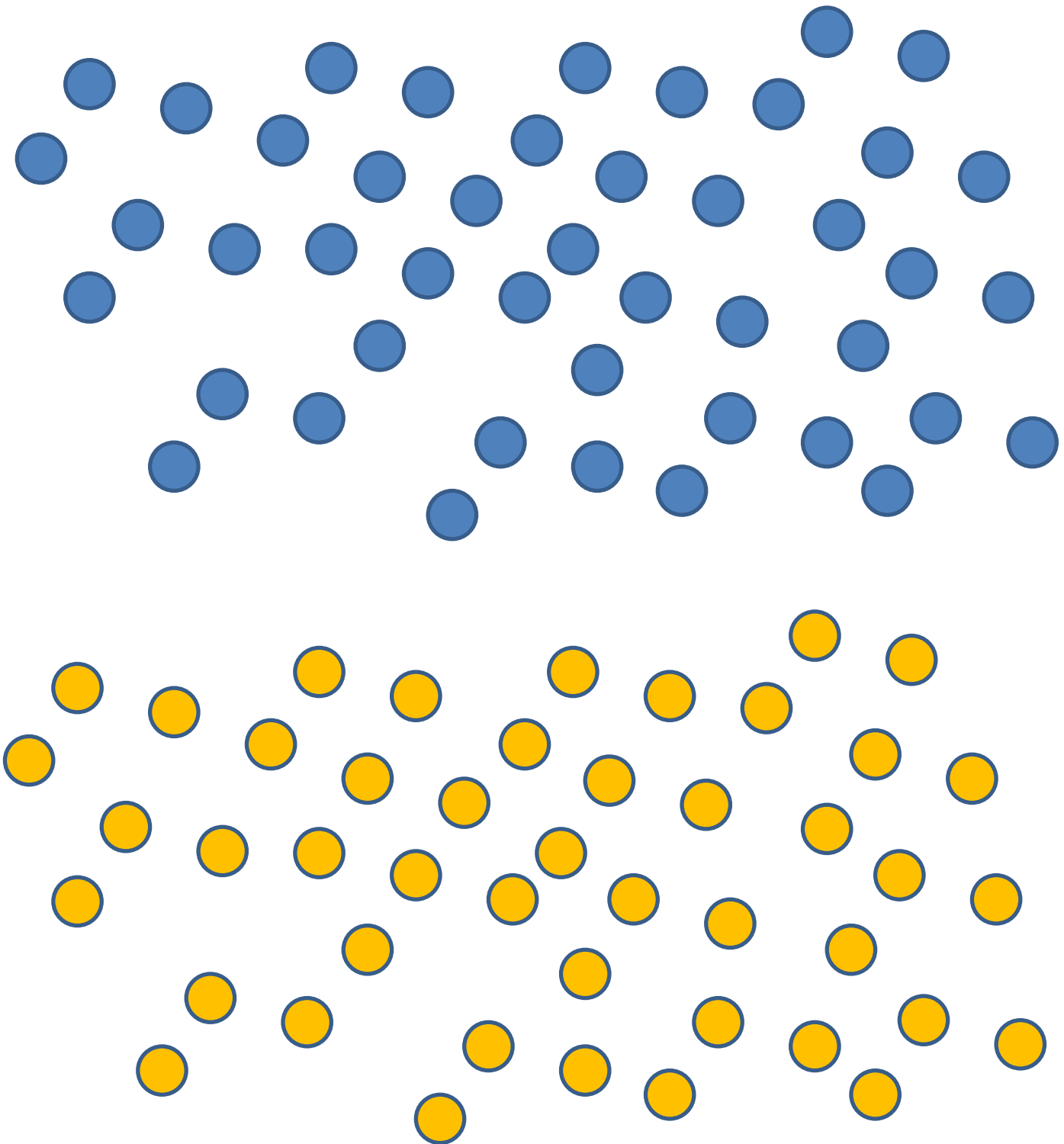
Nv2 AP synchronization

- Introduced with RouterOS 6.40
- This feature will allow multiple MikroTik Nv2 APs at the same location to coexist in a better fashion by reducing the interference between each other.
- One of the most desired wireless implementations in RouterOS
- Different from other vendors (no GPS)

Nv2 AP synchronization

- This feature will synchronize the transmit/receive “time windows” of APs on the same frequency, so that all “synced MikroTik Nv2 Aps” **transmit/receive at the same time.**
- That allows to reuse the same wireless frequency on the location for multiple APs, giving more flexibility in frequency planning.

Nv2 AP synchronization



Nv2 AP synchronization

In the scenario there is:

- ONE “master” APs
- MULTIPLE “slaves” APs
- All of them **must** use the **SAME frequency**
- They can have **different SSIDs**
- They can use **different Nv2 encryption password**

Nv2 AP synchronization

But all of them must use the SAME nv2-sync-secret.

They will synchronize using **this** “password”, regardless of the SSID and the Nv2 encryption password.

Nv2 AP synchronization

Interface <wlan2>

Nstreme NV2 Tx Power Current Tx Power Status Traffic ...

TDMA Period Size: auto

Cell Radius: 30 km

☒ Security

Preshared Key: Nv2-usuario

Mode: sync master

Downlink Ratio: 70 %

Sync Secret: Nv2-sync-usuario

Queue Count: 2

QoS: default

Nv2 AP synchronization

Interface <wlan2>

Nstreme NV2 Tx Power Current Tx Power Status Traffic ...

TDMA Period Size: auto

Cell Radius: 30 km

☒ Security

Preshared Key: Nv2-usuario

Mode: sync slave

Downlink Ratio: 50 %

Sync Secret: Nv2-sync-usuario

Queue Count: 2

QoS: default

Nv2 AP synchronization

Slave APs will first start to search for a Master AP by matching it against specified "nv2-sync-secret".

After a Master AP is found the Slave AP will calculate the **distance** to the Master AP because it is possible that the Master AP is not located in the same location.

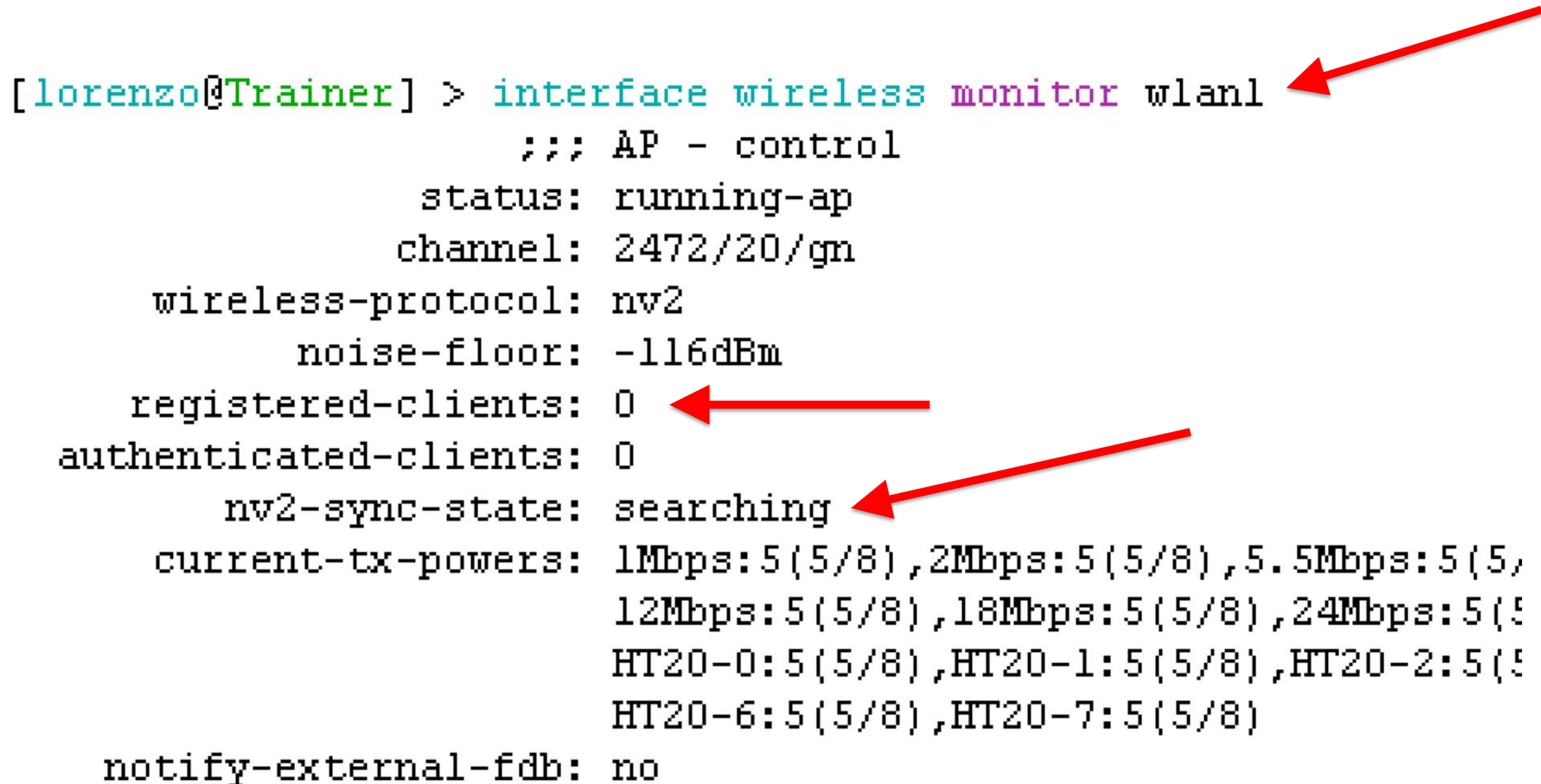
Nv2 AP synchronization

Then the Slave AP starts to operate as AP, adapting the period size and the downlink ratio from the synced Master AP.

In addition after the Slave AP is operational other Slave APs can use this Slave AP to sync with.

Nv2 AP synchronization

```
[lorenzo@Trainer] > interface wireless monitor wlan1  
      ;;; AP - control  
      status: running-ap  
      channel: 2472/20/gn  
      wireless-protocol: nv2  
      noise-floor: -116dBm  
      registered-clients: 0  
      authenticated-clients: 0  
      nv2-sync-state: searching  
      current-tx-powers: 1Mbps: 5(5/8) , 2Mbps: 5(5/8) , 5.5Mbps: 5(5/8) ,  
                        12Mbps: 5(5/8) , 18Mbps: 5(5/8) , 24Mbps: 5(5/8) ,  
                        HT20-0: 5(5/8) , HT20-1: 5(5/8) , HT20-2: 5(5/8) ,  
                        HT20-6: 5(5/8) , HT20-7: 5(5/8)  
      notify-external-fdb: no
```



Nv2 AP synchronization

```
[lorenzo@Trainer] > interface wireless monitor wlan2
                        ::: AP -Testset
                        status: running-ap
                        channel: 5600/20/ac
                        wireless-protocol: nv2
                        noise-floor: -107dBm
                        registered-clients: 4 ←
                        authenticated-clients: 4 ←
                        nv2-sync-state: synced ←
                        nv2-sync-master: E4:8D:8C:6B:78:BF ←
                        nv2-sync-distance: 1 ←
                        nv2-sync-period-size: 2 ←
                        nv2-sync-downlink-ratio: 50 ←
                        notify-external-fdb: no
-- [Q quit|D dump|C-z pause]
```

Nv2 AP synchronization

- Slave AP periodically listens for the Master AP and will check if the "nv2-sync-secret" still matches and adapting the parameters again.
- If the Master AP wireless interface will be disabled/enabled all the Slaves will be also disabled accordingly, then they will start the synchronization process from the beginning.
- If the Master AP will stop to work then the Slave APs will do the same as they do not have sync information.

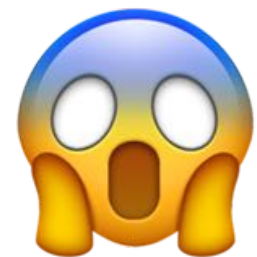
Nv2 AP synchronization

Please remember that this specific resource is still in the process of development.

More features?

On Tue Mar 20, 2018 12:30 pm Uldis created a topic in the MikroTik forum with the title:

Significant improvement for wireless Nv2 PtMP

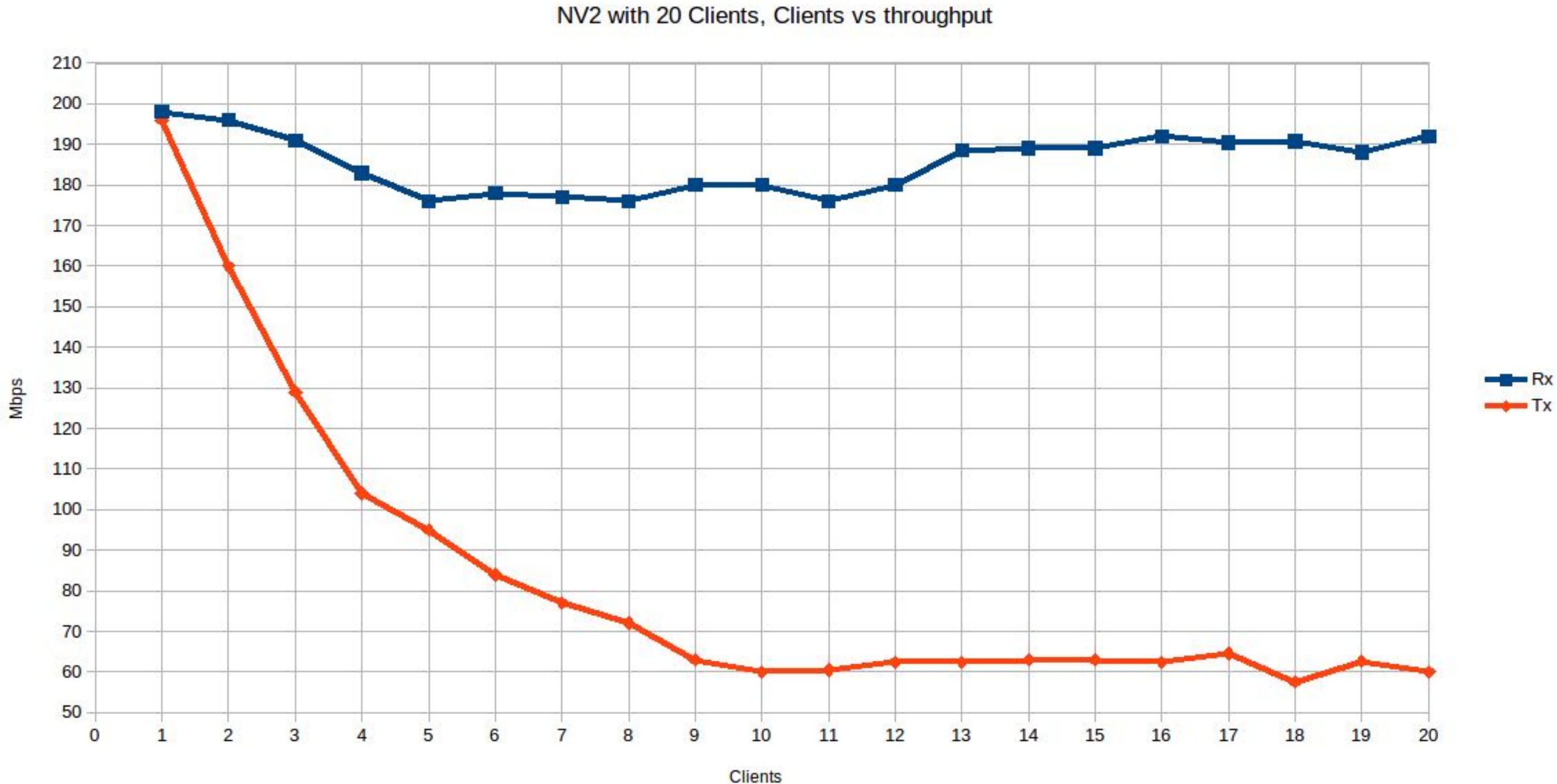


Significant improvement for wireless Nv2 PtMP

MikroTik made significant improvement for wireless **Nv2 PtMP** configurations from the **6.42rc46** version release, where the clients can still use the old version.

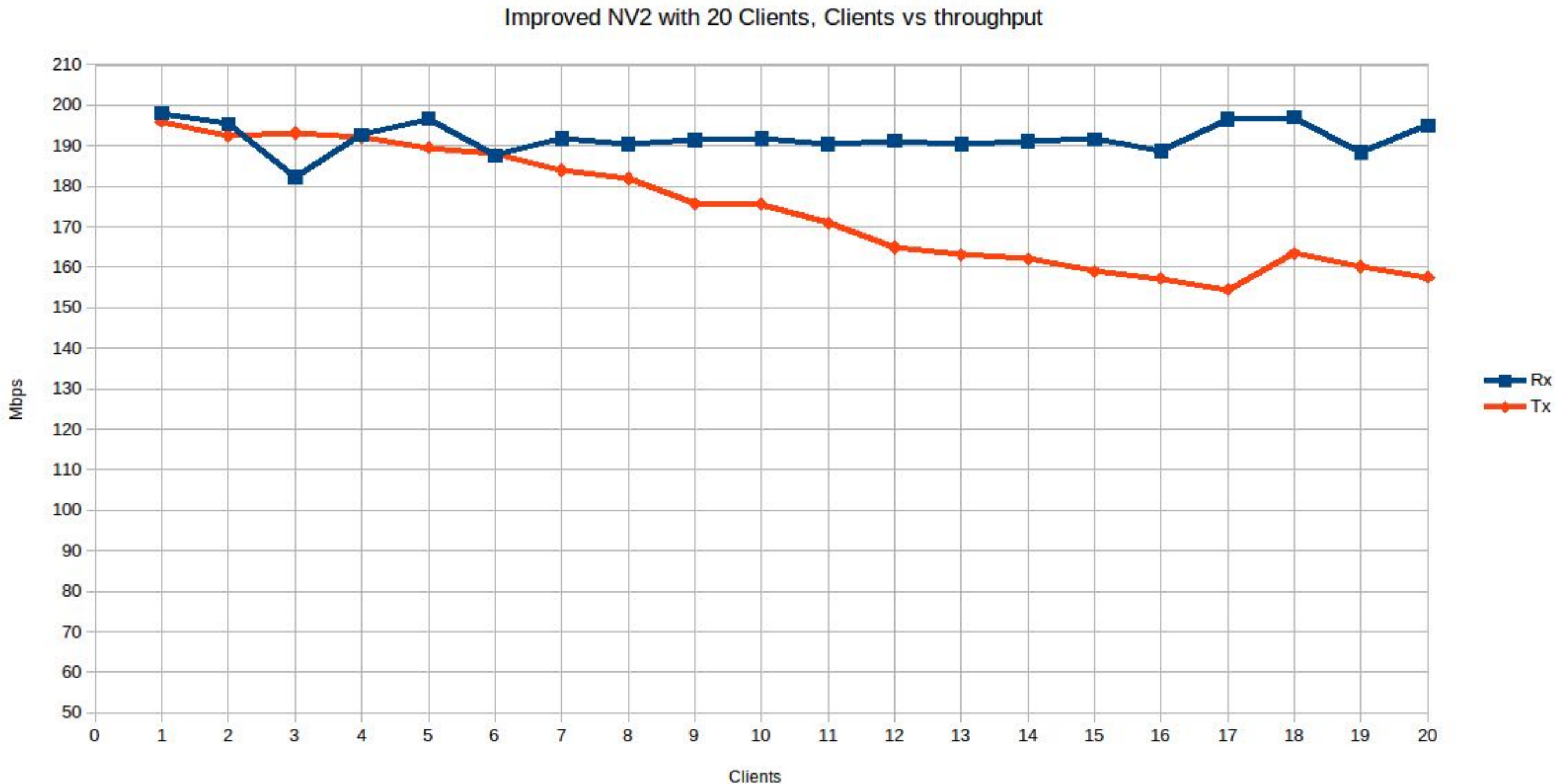
Significant improvement for wireless Nv2 PtMP

Before the improvement (MT Labs)



Significant improvement for wireless Nv2 PtMP

After the improvement (MT Labs)



Significant improvement for wireless Nv2 PtMP

It is still in development, but almost everyone that tried obtained a better aggregated bandwidth from an AP to the clients:

- “only” 20 % more
- 40-50 % more
- 60-65% more

“Live” testing the 6.42rc NV2 PtMP

Tested in a real life outdoor environment, using a Netmetal with:

- 2 chain
- 20 Mhz channel
- 802.11n protocol and Nv2

“Live” testing the 6.42rc NV2 PtMP

The customers distances and devices:

Wireless Tables											
WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels											
Reset											
Radio Name	MAC Address	Interface	Uptime	Distance (km)	AP	W...	Last Activit...	Tx/Rx Signal ...	Tx Rate	Rx Rate	
	64:D1:54:4E:C1:45	wlan1	03:00:31		14 no	no	0.000	-63/-58	52Mbps-2...	6Mbps	
	6C:3B:6B:74:23:DC	wlan1	03:00:30		4 no	no	0.000	-53/-57	130Mbps-...	39Mbps-2...	
	E4:8D:8C:FB:CE:F5	wlan1	03:00:30		4 no	no	0.000	-54/-53	65Mbps-2...	65Mbps-2...	
	00:0C:42:B2:53:7A	wlan1	03:00:29		4 no	no	0.010	-57/-57	65Mbps-2...	36Mbps	
	D4:CA:6D:A1:AB:25	wlan1	03:00:28		4 no	no	0.010	-78/-76	48Mbps	36Mbps	
	4C:5E:0C:84:69:ED	wlan1	03:00:27		4 no	no	0.010	-74/-76	36Mbps	36Mbps	
	64:D1:54:07:9D:D1	wlan1	03:00:23		14 no	no	0.010	-63/-66	130Mbps-...	78Mbps-2...	
	4C:5E:0C:83:F1:BB	wlan1	03:00:16		3 no	no	0.010	-55/-48	65Mbps-2...	65Mbps-2...	
	4C:5E:0C:8D:C4:89	wlan1	03:00:09		4 no	no	0.010	-65/-58	19.5Mbps-...	58.5Mbps-...	
	64:D1:54:90:CF:F5	wlan1	03:00:09		3 no	no	0.010	-63/-59	117Mbps-...	104Mbps-...	
	E4:8D:8C:F8:B1:67	wlan1	03:00:06		4 no	no	0.010	-61/-60	54Mbps	18Mbps	
	64:D1:54:04:4D:10	wlan1	03:00:03		10 no	no	0.010	-58/-53	117Mbps-...	117Mbps-...	
12 items											

“Live” testing the 6.40.4 NV2 PtMP

WinBox v6.40.4 on NetMetal 5 (mipsbe)

Session Settings Dashboard

Safe Mode Session:

Quick Set CAPsMAN Interfaces Wireless Bridge Switch Mesh IP System Queues Files Log Radius Tools New Terminal MetaROUTER Partition Make Supout.rif Manual New WinBox Exit

Wireless Tables

Interfaces Nstreme Dual Access List Registration Connect List Security Profiles Channels

Reset

Radio Name	MAC Address	Interface	Uptime	AP	W...	Last Activit...	Tx/Rx Signal ...	Tx Rate	Rx Rate
↕	64:D1:54:04:4D:10	wlan1	00:34:10	no	no	0.000	-55/-54	130Mbps...	130Mbps...
↕	64:D1:54:90:CF:F5	wlan1	00:34:10	no	no	0.010	-62/-59	117Mbps...	117Mbps...
↕	4C:5E:0C:84:69:ED	wlan1	00:34:10	no	no	0.000	-71/-76	36Mbps	36Mbps
↕	4C:5E:0C:8D:C4:89	wlan1	00:34:10	no	no	0.040	-66/-57	52Mbps-2...	65Mbps-2...
↕	E4:8D:8C:FB:CE:F5	wlan1	00:34:09	no	no	0.000	-54/-56	65Mbps-2...	65Mbps-2...
↕	D4:CA:6D:A1:AB:25	wlan1	00:34:07	no	no	0.010	-77/-78	39Mbps-2...	36Mbps
↕	E4:8D:8C:F8:B1:67	wlan1	00:34:10	no	no	0.000	-62/-60	65Mbps-2...	19.5Mbps...
↕	00:0C:42:B2:53:7A	wlan1	00:34:09	no	no	0.000	-58/-58	65Mbps-2...	48Mbps
↕	4C:5E:0C:83:F1:BB	wlan1	00:31:03	no	no	0.010	-55/-47	65Mbps-2...	65Mbps-2...
↕	64:D1:54:07:9D:D1	wlan1	00:34:04	no	no	0.000	-63/-66	117Mbps...	117Mbps...
↕	64:D1:54:4E:C1:45	wlan1	00:34:08	no	no	0.040	-63/-59	26Mbps-2...	6Mbps
↕	6C:3B:6B:74:23:DC	wlan1	00:34:10	no	no	0.000	-53/-57	54Mbps	39Mbps-2...

12 items

Interface List

Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

+ - ✓ ✗ [icon] [icon]

Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)
RS ↕ wlan1	Wireless (Atheros AR9...	1500	1600	22.5 Mbps	27.7 kbps	1 898	35

“Live” testing the 6.41.3 NV2 PtMP

WinBox v6.41.3 on NetMetal 5 (mipsbe)

Session Settings Dashboard

Safe Mode Session:

Quick Set CAPsMAN Interfaces Wireless Bridge Switch Mesh IP System Queues Files Log Radius Tools New Terminal MetaROUTER Partition Make Supout.rif Manual New WinBox Exit

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels

Reset

Radio Name	MAC Address	Interface	Uptime	AP	W...	Last Activit...	Tx/Rx Signal ...	Tx Rate	Rx Rate
↕	64:D1:54:4E:C1:45	wlan1	00:17:54	no	no	0.070	-63/-59	6Mbps	6Mbps
↕	6C:3B:6B:74:23:DC	wlan1	00:17:53	no	no	0.000	-53/-57	130Mbps-...	6Mbps
↕	E4:8D:8C:FB:CE:F5	wlan1	00:17:52	no	no	0.000	-54/-55	65Mbps-2...	65Mbps-2...
↕	00:0C:42:B2:53:7A	wlan1	00:17:52	no	no	0.010	-58/-57	65Mbps-2...	9Mbps
↕	D4:CA:6D:A1:AB:25	wlan1	00:17:50	no	no	0.000	-78/-77	39Mbps-2...	36Mbps
↕	4C:5E:0C:84:69:ED	wlan1	00:17:50	no	no	0.010	-73/-78	36Mbps	36Mbps
↕	64:D1:54:07:9D:D1	wlan1	00:17:46	no	no	0.000	-65/-67	130Mbps-...	104Mbps-...
↕	4C:5E:0C:83:F1:BB	wlan1	00:17:39	no	no	0.000	-55/-48	65Mbps-2...	19.5Mbps-...
↕	4C:5E:0C:8D:C4:89	wlan1	00:17:32	no	no	0.030	-67/-58	26Mbps-2...	52Mbps-2...
↕	64:D1:54:90:CF:F5	wlan1	00:17:31	no	no	0.010	-61/-59	104Mbps-...	117Mbps-...
↕	E4:8D:8C:F8:B1:67	wlan1	00:17:29	no	no	0.000	-61/-61	65Mbps-2...	13Mbps-2...
↕	64:D1:54:04:4D:10	wlan1	00:17:25	no	no	0.000	-56/-54	130Mbps-...	130Mbps-...

12 items

Interface List

Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

+ - ✓ ✗ Detect Internet

Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)
RS ↕ wlan1	Wireless (Atheros AR9...	1500	1600	22.8 Mbps	89.1 kbps	1 945	82

“Live” testing the 6.42rc52 NV2 PtMP

WinBox v6.42rc52 on NetMetal 5 (mipsbe)

Session Settings Dashboard

Safe Mode Session:

Quick Set CAPsMAN Interfaces Wireless Bridge Switch Mesh IP System Queues Files Log Radius Tools New Terminal MetaROUTER Partition Make Supout.rif Manual New WinBox Exit

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels

Reset

Radio Name	MAC Address	Interface	Uptime	AP	W...	Last Activit...	Tx/Rx Signal ...	Tx Rate	Rx Rate
↕	00:0C:42:B2:53:7A	wlan1	00:48:36	no	no	0.010	-59/-58	19.5Mbps-...	19.5Mbps-...
↕	D4:CA:6D:A1:AB:25	wlan1	00:48:36	no	no	0.010	-76/-77	26Mbps-2...	19.5Mbps-...
↕	E4:8D:8C:FB:CE:F5	wlan1	00:48:36	no	no	0.000	-53/-55	65Mbps-2...	65Mbps-2...
↕	4C:5E:0C:83:F1:BB	wlan1	00:48:35	no	no	0.000	-56/-48	65Mbps-2...	65Mbps-2...
↕	4C:5E:0C:84:69:ED	wlan1	00:48:34	no	no	0.000	-74/-75	36Mbps	36Mbps
↕	64:D1:54:4E:C1:45	wlan1	00:48:33	no	no	0.060	-64/-60	26Mbps-2...	6Mbps
↕	64:D1:54:07:9D:D1	wlan1	00:48:30	no	no	0.000	-65/-68	104Mbps-...	104Mbps-...
↕	4C:5E:0C:8D:C4:89	wlan1	00:48:18	no	no	0.040	-65/-59	48Mbps	65Mbps-2...
↕	64:D1:54:04:4D:10	wlan1	00:48:17	no	no	0.010	-56/-53	130Mbps-...	130Mbps-...
↕	E4:8D:8C:F8:B1:67	wlan1	00:48:16	no	no	0.070	-62/-62	6Mbps	6Mbps
↕	6C:3B:6B:74:23:DC	wlan1	00:48:15	no	no	0.030	-53/-57	130Mbps-...	6Mbps
↕	64:D1:54:90:CF:F5	wlan1	00:48:12	no	no	0.010	-62/-59	117Mbps-...	104Mbps-...

12 items

Interface List

Interface Interface List Ethernet EoIP Tunnel IP Tunnel GRE Tunnel VLAN VRRP Bonding LTE

+ - ✓ ✗ Detect Internet

Name	Type	Actual MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)
RS wlan1	Wireless (Atheros AR9...	1500	1600	60.2 Mbps	123.0 kbps	5 037	175

Wrap up

- ✓ I think that MikroTik started to put their hands on the wireless part of RouterOS in a PtMP environment.
- ✓ I hope you enjoyed my presentation and the news in the wireless package since the version 6.40



MikroTik ACADEMY

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CAMP Mikrotik

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10/June SUN	11/June MON	12/June TUE	13/June WED	14/June THU	15/June FRI	16/June SAT
MikroTik MTCNA			Guide Tour City	MikroTik MTCRE		
MikroTik MTCTCE		Refresh MikroTik MTCNA MikroTik MTCRE	Guide Tour City	MikroTik MTCIPV6E		Renewal Day MikroTik MTCNA MikroTik MTCRE MikroTik MTCINE MikroTik MTCWE MikroTik MTCUME MikroTik MTCTCE MikroTik MTCIPV6E
MikroTik MTCRE			Guide Tour City	MikroTik MTCINE		
MikroTik MTCWE			Guide Tour City	MikroTik MTCUME		
	MikroTik MTCIPV6E		Guide Tour City	MikroTik MTCNA		



Thank you!

Q & A

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