

Lunch at Viceroy ballroom

We will be back at 14:30

MUM India

September 2016

MikroTik

MUM India

September, 2016

More than 130 MUMs all Around the World



MUM INDIA #5

- 82 - Mumbai 2008
- 162 - New Delhi 2012
- 220 - New Delhi 2014
- 411 - New Delhi 2015

MikroTik

- Established 1996
- RouterOS created in 1997
- RouterBOARD created in 2002
- First MUM event in Prague 2006
- Biggest MUM in 2015, Indonesia - 2500+ people
- More than 180 employees

MikroTik

Latvia



Iceland
Finland
Sweden
Russia
Estonia
Lithuania
Ireland
Den-
mark
United
Kingdom
Belarus
Nether-
lands
Poland
Belgium
Germany
Ukraine
Luxembourg
Czech Republic
Slovakia
Mol-
dova
France
Switzer-
land
Liecht.
Austria
Hungary
Slove-
nia
Romania
Georgia
Croatia
Monaco
San
Marino
Bosnia and
Herzego-
vina
Serbia
Bulgaria
Andorra
Monte-
negro
Portugal
Italy
Spain
Vatican City
Mace-
donia
Al-
ba-
nia
Turkey
Greece
Syria

MikroTik at the MUM

- Janis Jankovskis (sales)
- Uldis Cernevskis (support)
- Sergejs Boginskis (support, training)



Schedule

mt.lv/agenda

13:00	Lunch
17:45	Lottery
18:00	Free drinks and socializing
	Exhibitors and coffee in the hall

MUM Live

www.youtube.com/mikrotik

After the MUM

Presentation slides - mum.mikrotik.com

Previous MUM India slides
http://mum.mikrotik.com/2015/IN/agenda

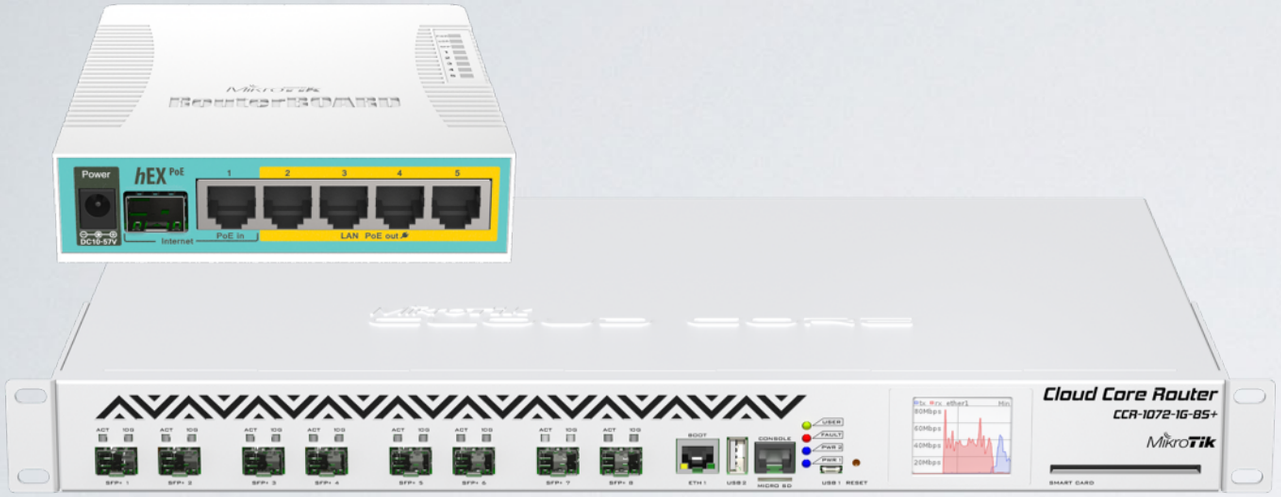
Videos - youtube.com/mikrotik

Licenses will be emailed.

Special Thanks

JRS Communication Pvt. Ltd.

Krauss Communication



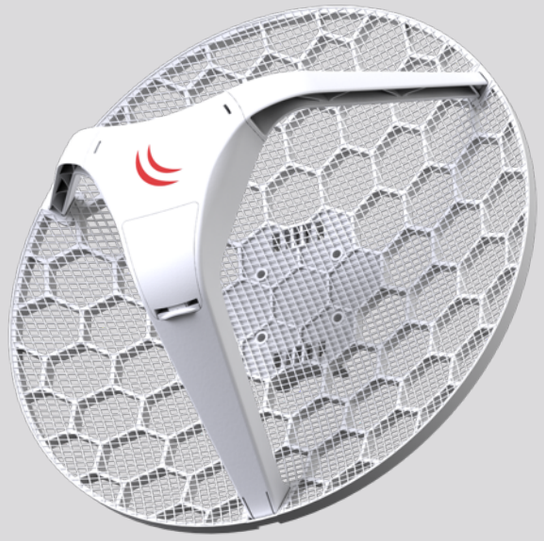
Ethernet Routers



Wireless for Home & Office



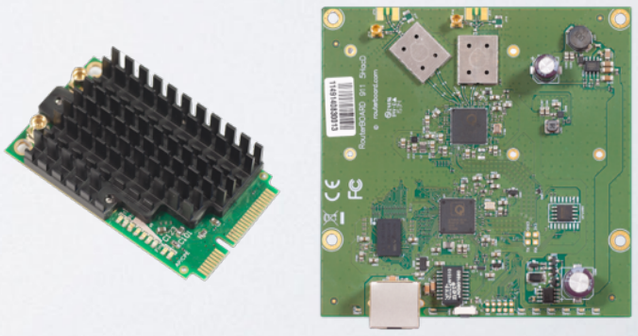




Wireless Systems



Switches



RouterBOARDs

What we do

- MikroTik provides routing and wireless equipment for all possible uses: wireless, ethernet routing, switches
- Our RouterOS software supports most common and also many custom made features

RouterOS

- MikroTik RouterOS is the operating system of RouterBOARD hardware
- Stand-alone operating system based on the Linux kernel
- Routing, firewall, bandwidth management, wireless access point, wireless link, hotspot gateway, VPN server and more

Why us

- Millions of RouterOS powered devices currently routing the world
- 20 years of experience developing networking software and hardware
- Over 40’000 RouterOS trained and certified network engineers

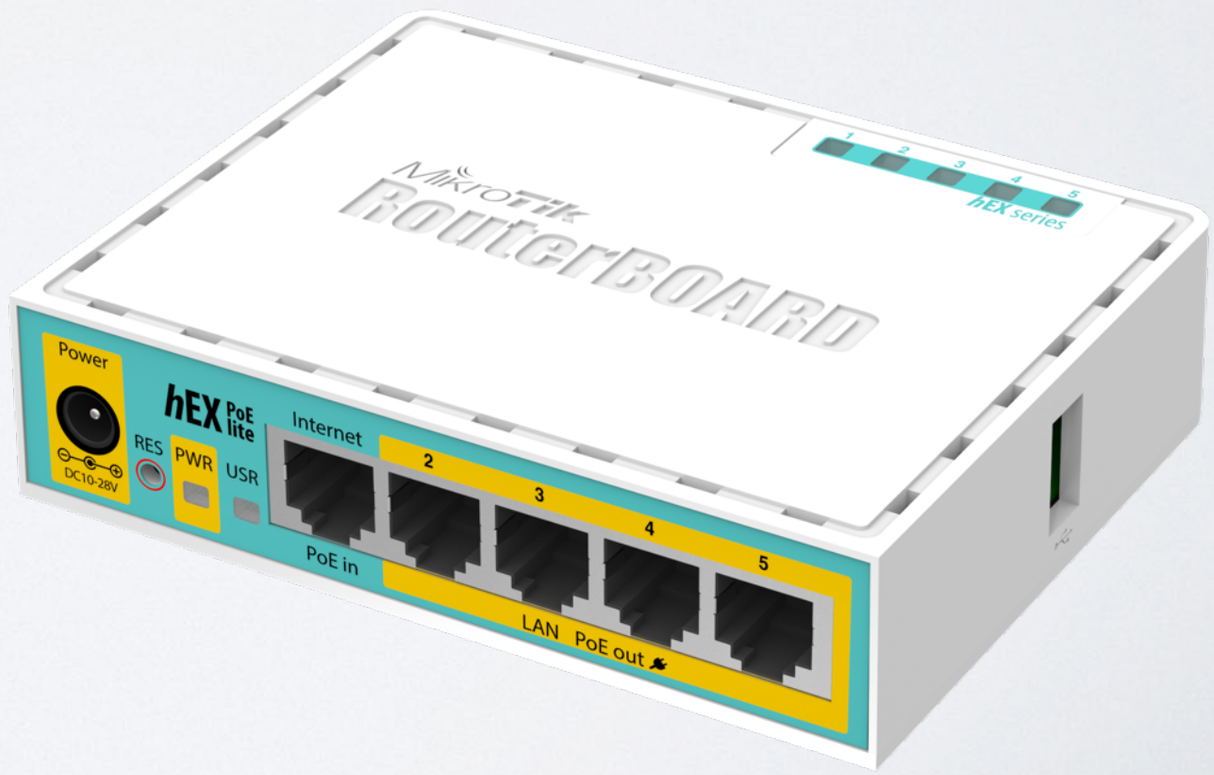
PRODUCT SERIES

ETHERNET ROUTERS

From small to big, for every need.
RouterBOARD and CCR series.
Desktop and rack mount.

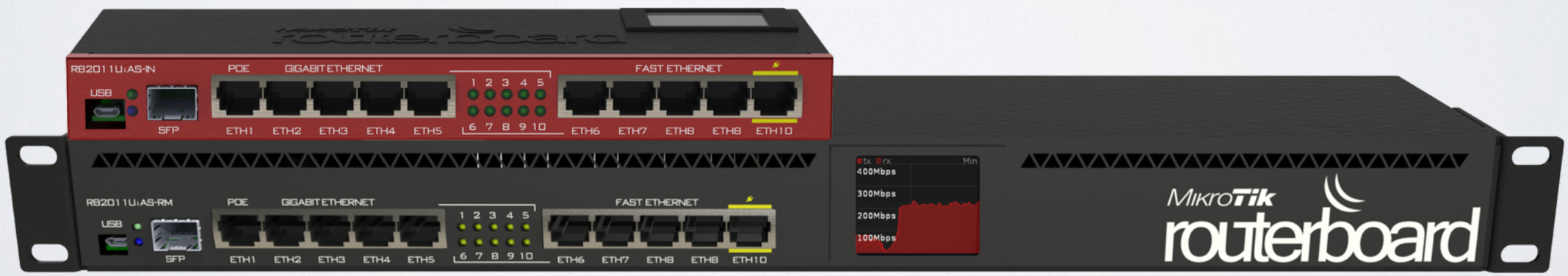
hEX lite

- Small Ethernet device
- Five ports
- Power output version (hEX PoE lite)



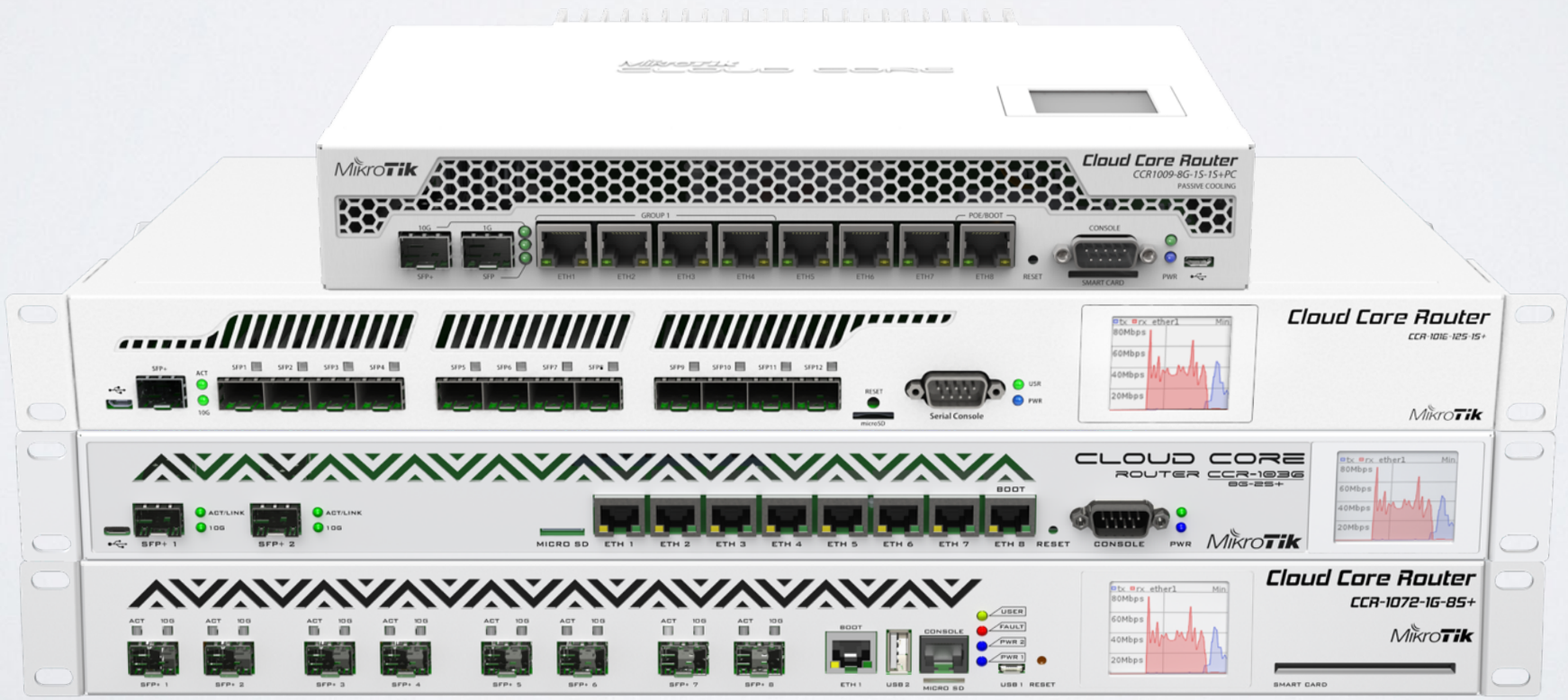
RB2011 and RB3011

- Rack mount and desktop case
- 10 Ethernet ports
- 1 SFP (fiber optic)
- RB3011 - dual core ARM CPU



CCR series

- 9, 16, 36 and 72 cores
- Extreme performance
- Hardware accelerated encryption
- 1Gbps Ethernet, SFP and SFP+ ports



CCR series

CCR1072-1G-8S+		Tile 72 Core (1000Mhz, DDR1600) Max possible throughput					
Mode	Configuration	1518 byte		512 byte		64 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Bridging	none (fast path)	6,502.0	78,960.3	18,790.0	76,963.8	98,873.5	50,623.2
Bridging	25 bridge filter rules	5,764.8	70,007.7	8,240.2	33,751.9	8,866.3	4,539.5
Routing	none (fast path)	6,502.0	78,960.3	18,790.0	76,963.8	76,201.0	39,014.9
Routing	25 simple queues	6,502.0	78,960.3	11,073.5	45,357.1	11,444.4	5,859.5
Routing	25 ip filter rules	4,664.7	56,648.1	5,200.3	21,300.4	5,321.0	2,724.4

CCR1036-8G-2S+EM		Tile 36 core max possible throughput test					
Mode	Configuration	1518 byte		512 byte		64 byte	
		kpps	Mbps	kpps	Mbps	kpps	Mbps
Bridging	none (fast path)	2275.7	27636.1	6578.9	26947.2	41666.7	21333.4
Bridging	25 bridge filter rules	2275.7	27636.1	5179.7	21216.1	5163.5	2643.7
Routing	none (fast path)	2275.7	27636.1	6578.9	26947.2	41666.7	21333.4
Routing	25 simple queues	2275.7	27636.1	6553.3	26842.3	7643.1	3913.3
Routing	25 ip filter rules	1825.7	22171.3	3033.9	12426.9	3049.7	1561.4

WIRELESS FOR HOME & OFFICE

mAP lite



Tiny size 2.4GHz Dual Chain personal access point with a 650MHz CPU, 64MB RAM and one Ethernet

hAP lite

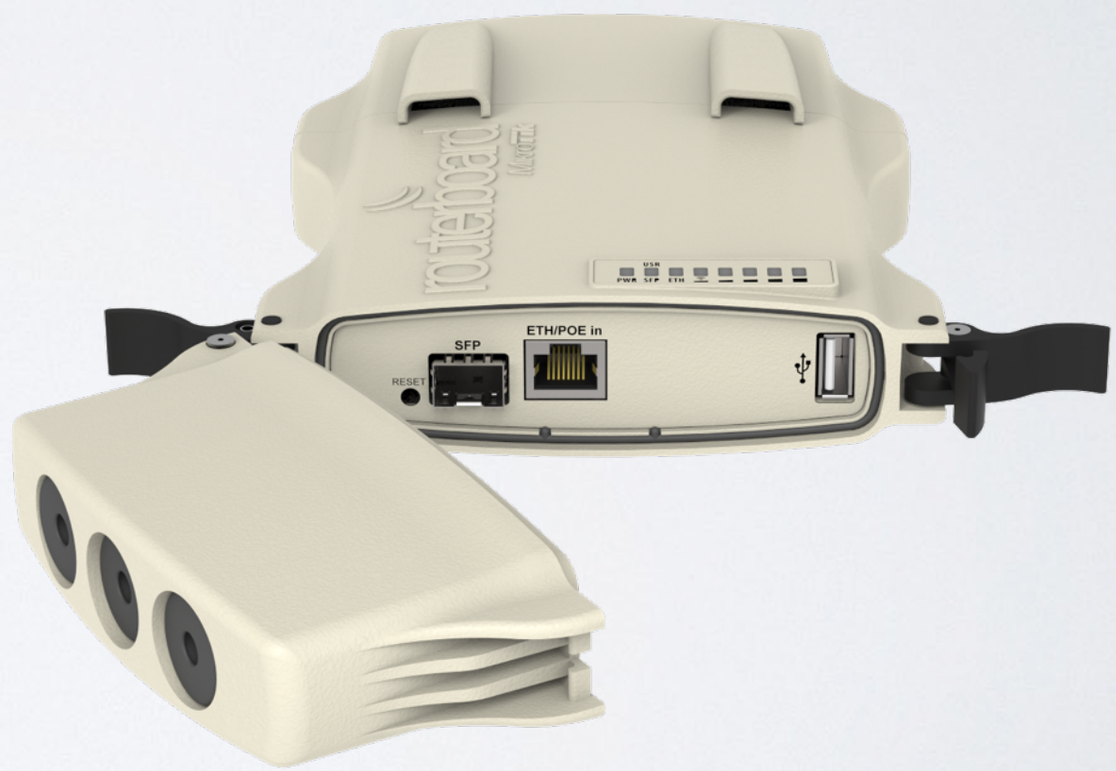


Small and nice design. Low cost, for home or office

WIRELESS SYSTEMS

NetMetal

- Waterproof metal enclosure
- Gigabit Ethernet, SFP
- 3 chains (antennas)
- 802.11ac technology
- 4 different models



SXT

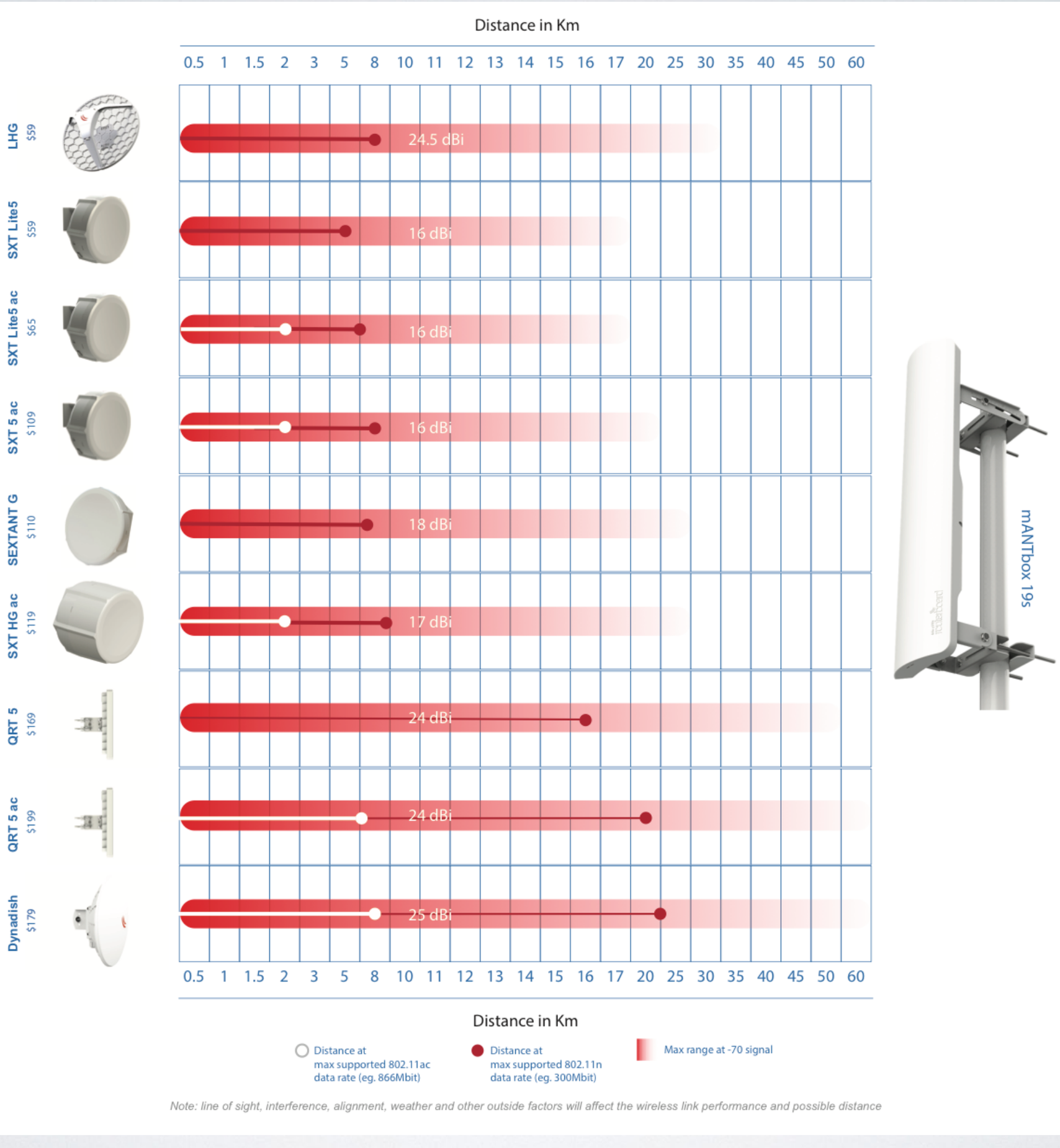
- Compact AP/CPE
- 24-90 degree antenna
- Different models available (2GHz, 5GHz, 802.11ac)
- Low cost
- Mid-range wireless links



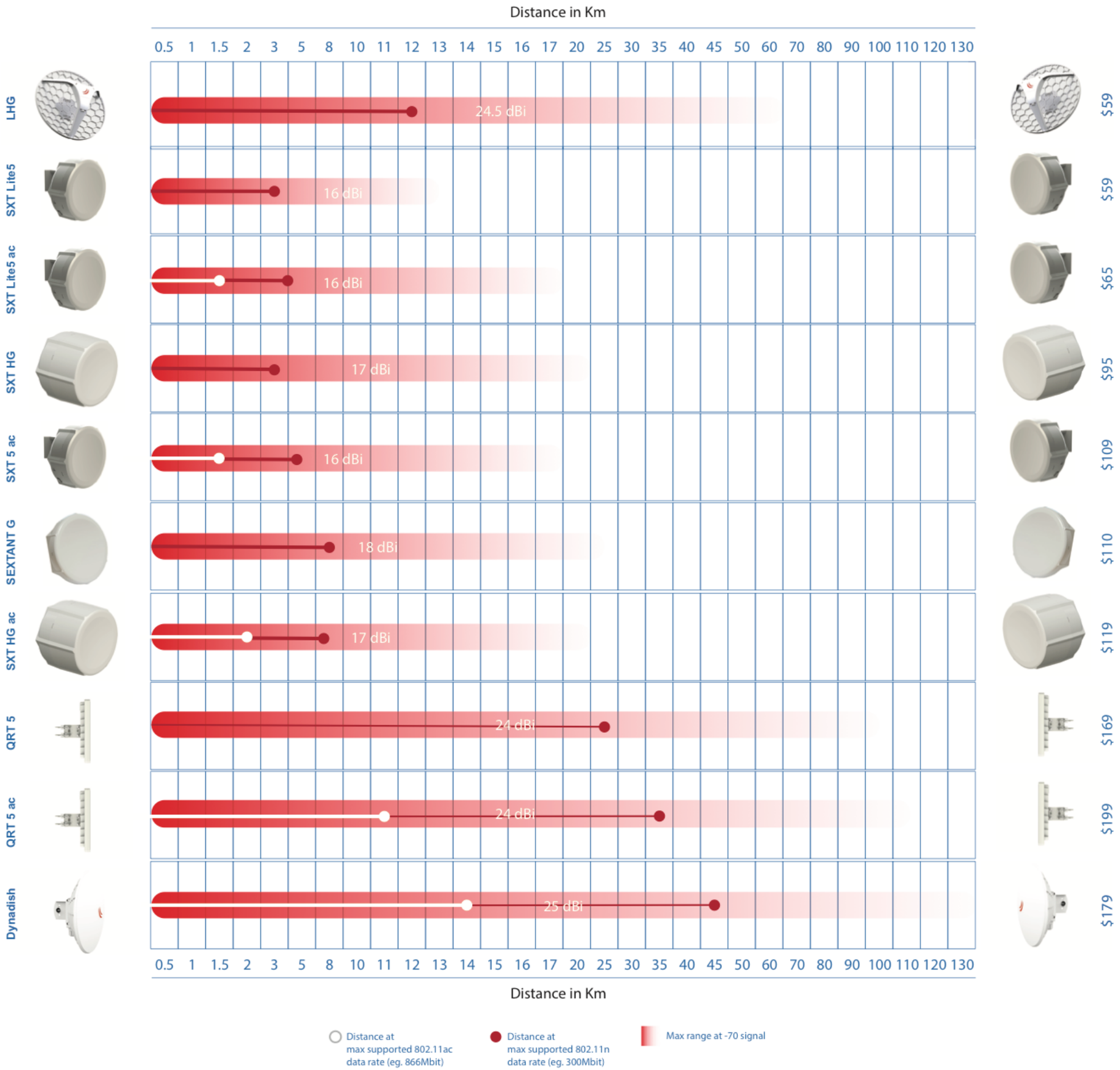
DynaDish

- Dual-chain 802.11ac
- 8 degree, 25dBi antenna
- 1 Gbit Ethernet
- Long range point-to-point links





Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance

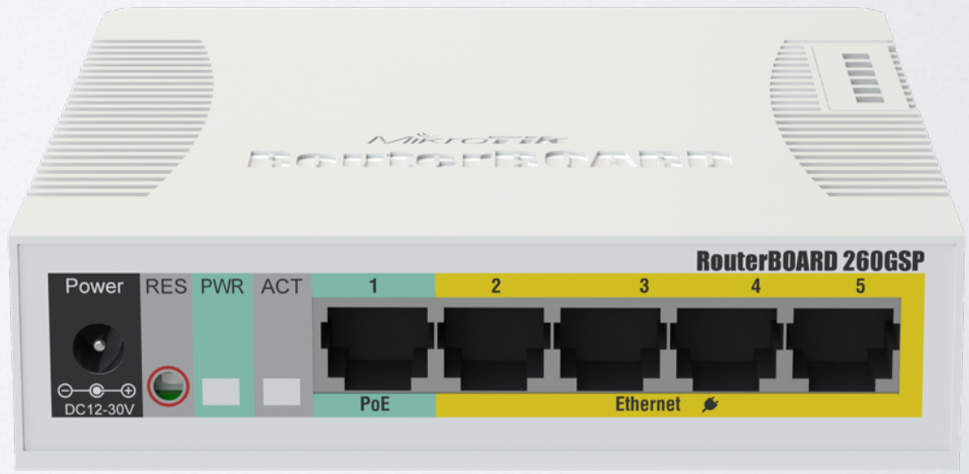


Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance

SWITCHES

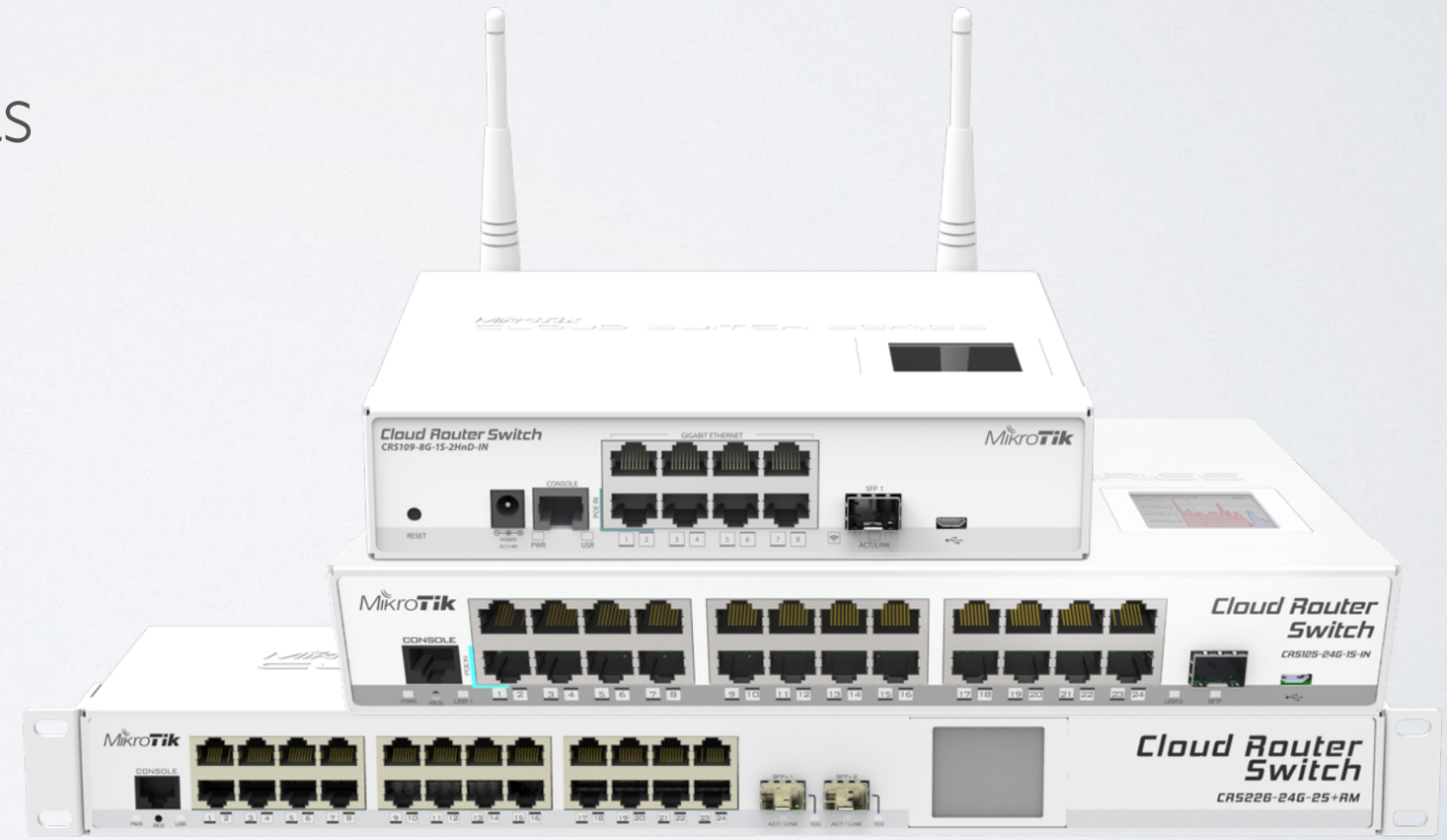
RB260GSP

- Small switch
- Runs SwOS software
- Powers other devices over PoE



CRS Series

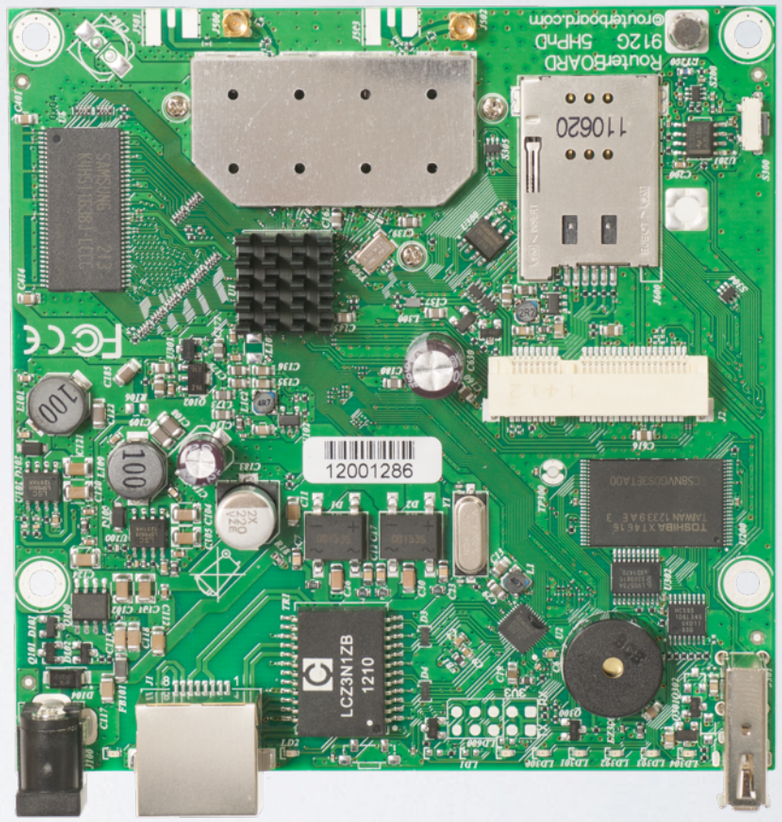
- Layer 3 switches
- Run MikroTik RouterOS
- From 8 to 24 ports
- Gbit Ethernet
- SFP/SFP+
- Wireless



ROUTERBOARD

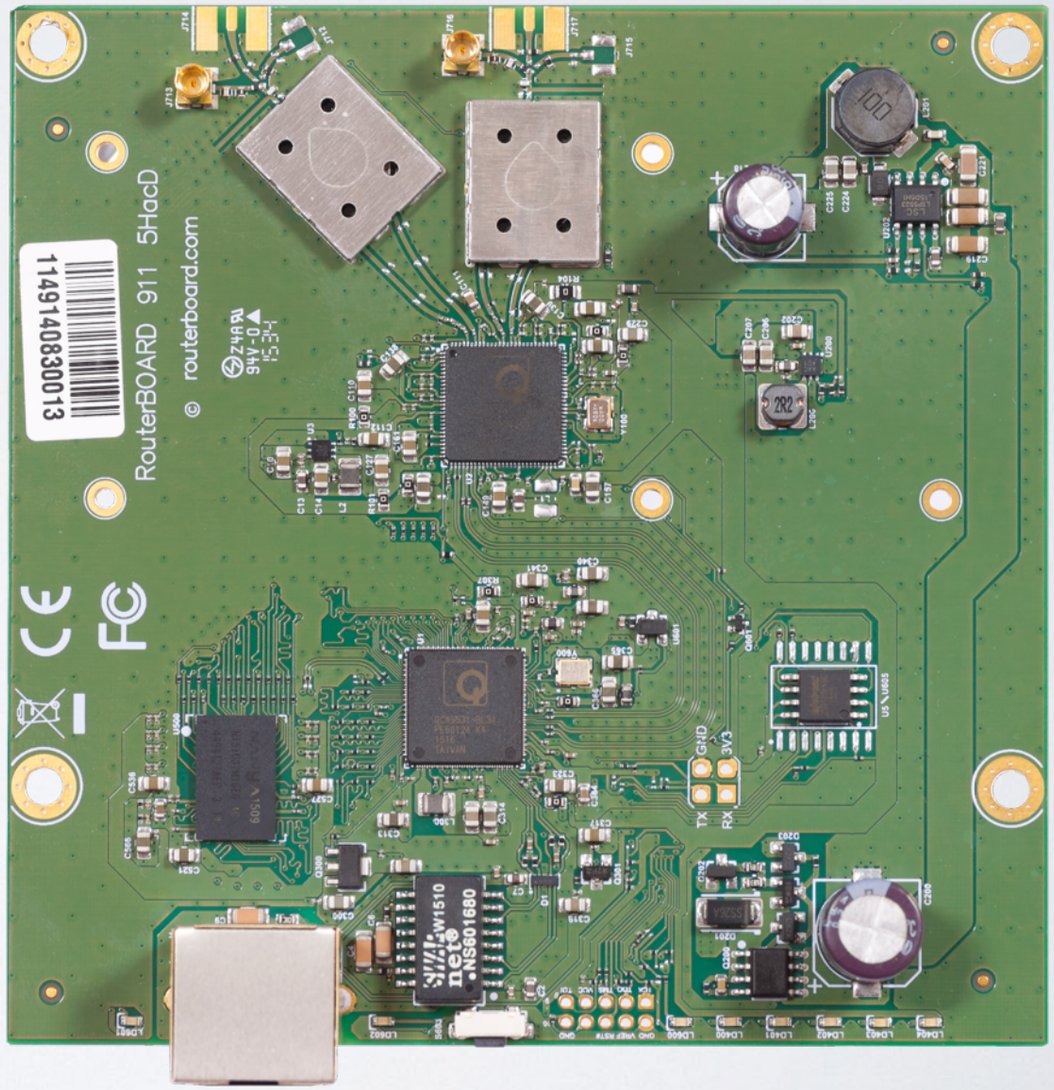
RouterBOARD

- Use custom case
- Upgrade or expand with ease
- Choose model based on ports, features and speed



RB911 ac

- 802.11ac support
- 10/100 Mbit port
- Affordable cost



INTERFACES AND MORE

SFP modules

- 1.25Gbps and 10Gbps
- Single, Multi modes
- Different distances
- GPON



Wireless Cards

- 802.11 a/b/g/n/ac
- 2GHz, 5GHz
- miniPCI-e, miniPCI



Antennas

- mANT30
- Parabolic dish
- Regular or precise alignment
- Radome cover



NEW PRODUCTS

now

LHG 5

Light Head Grid

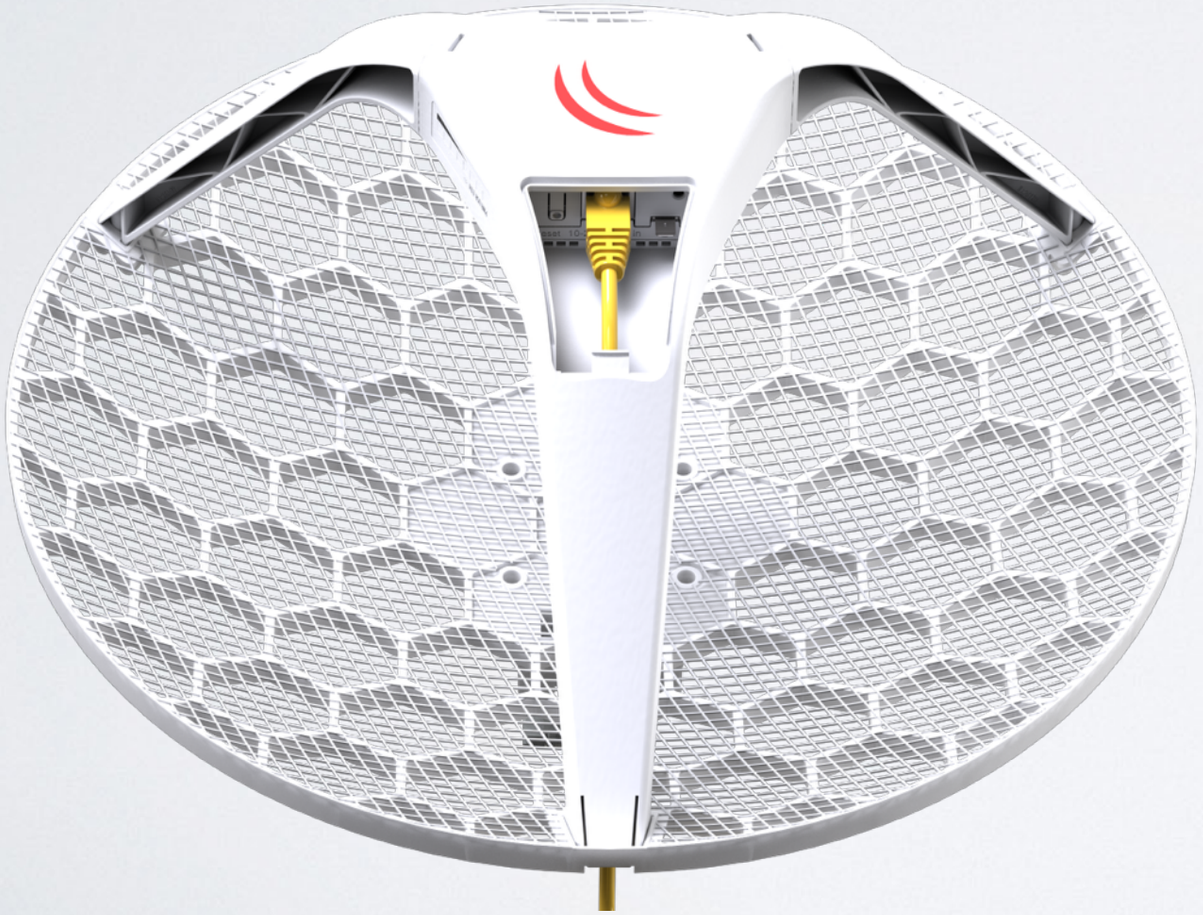
- 24.5 dBi antenna
- Antenna is built into wireless unit
- 802.11a/n dual chain
- Very affordable



now

LHG 5

Light Head Grid





now

quickMOUNT pro LHG

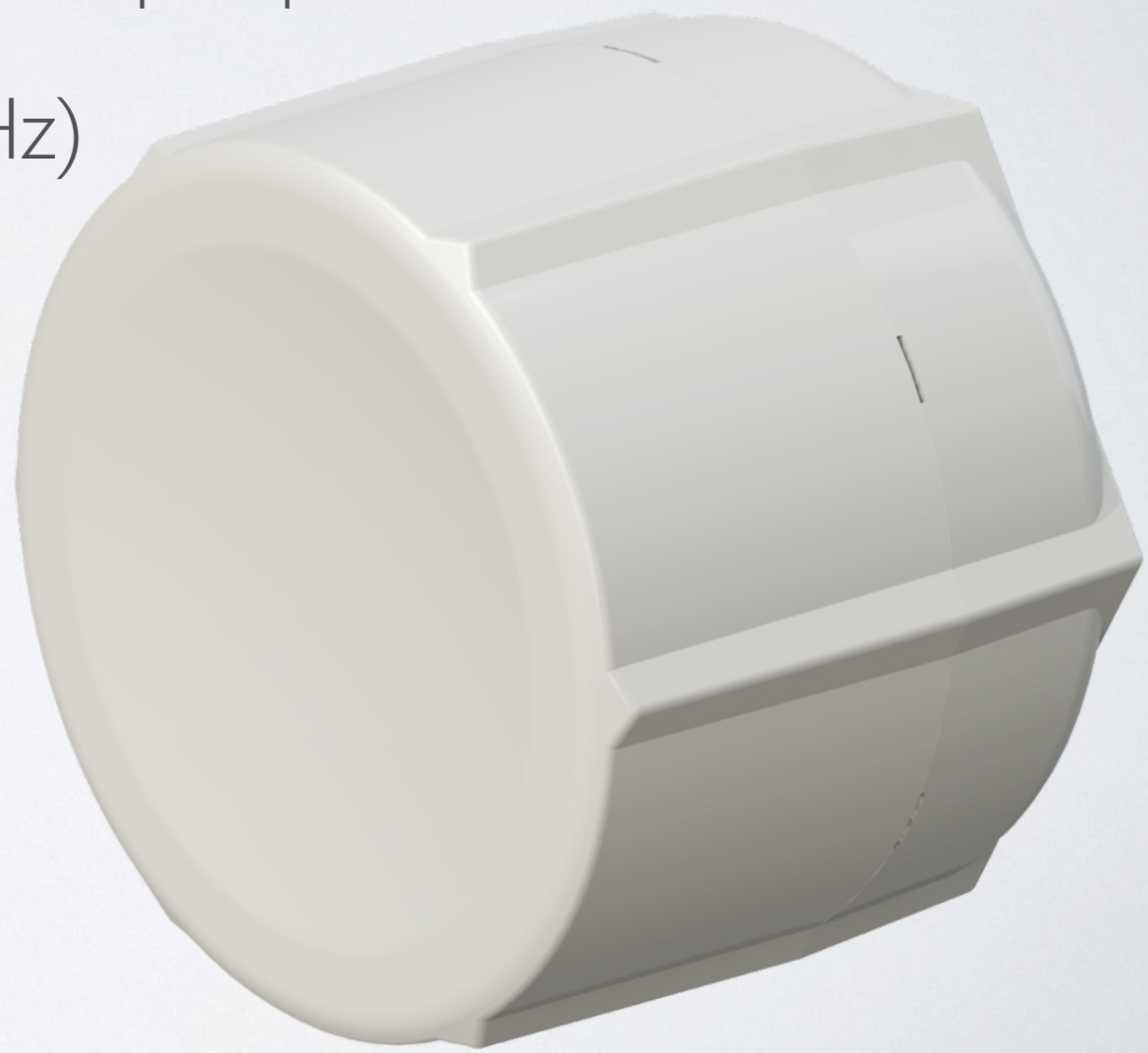
- Wall or pole mount adapter
- ±70° horizontal adjustment
- ±30° vertical adjustment
- Special plastic composite material - anvilNITE (TM)



now

SXT LTE

- LTE 3 category modem
- 100Mbps download and 50 Mbps upload
- LTE FDD bands 3 (1800MHz)
- miniSIM slot



2017

wAP LTE kit

- 2GHz wireless
- LTE antennas
- LTE modem within minipci-e
- weatherproof case
- indoor, outdoor, mobile operation
- more information at Uldis presentation



now

mANTBox 15s

- 15 dBi 120 degree antenna
- RB921 inside
- 720MHz CPU power
- 802.11 ac/a/n wireless with 31dBm output power



mANTBox 19s

now

- 19 dBi 120 degree antenna
- RB921 inside
- 720MHz CPU power
- 802.11 ac/a/n wireless with 31dBm output power



now

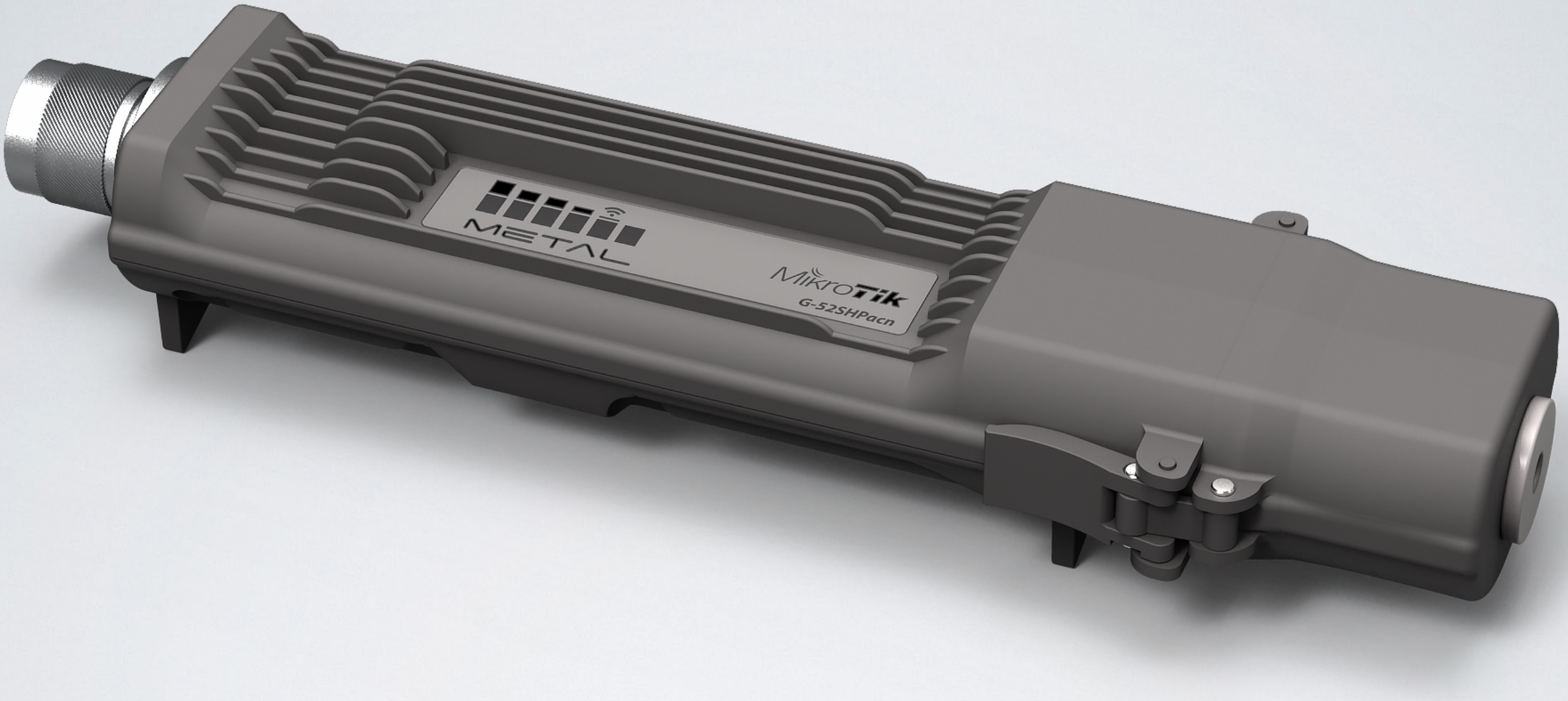
Groove 52 ac



- ac update for the popular Groove model

now

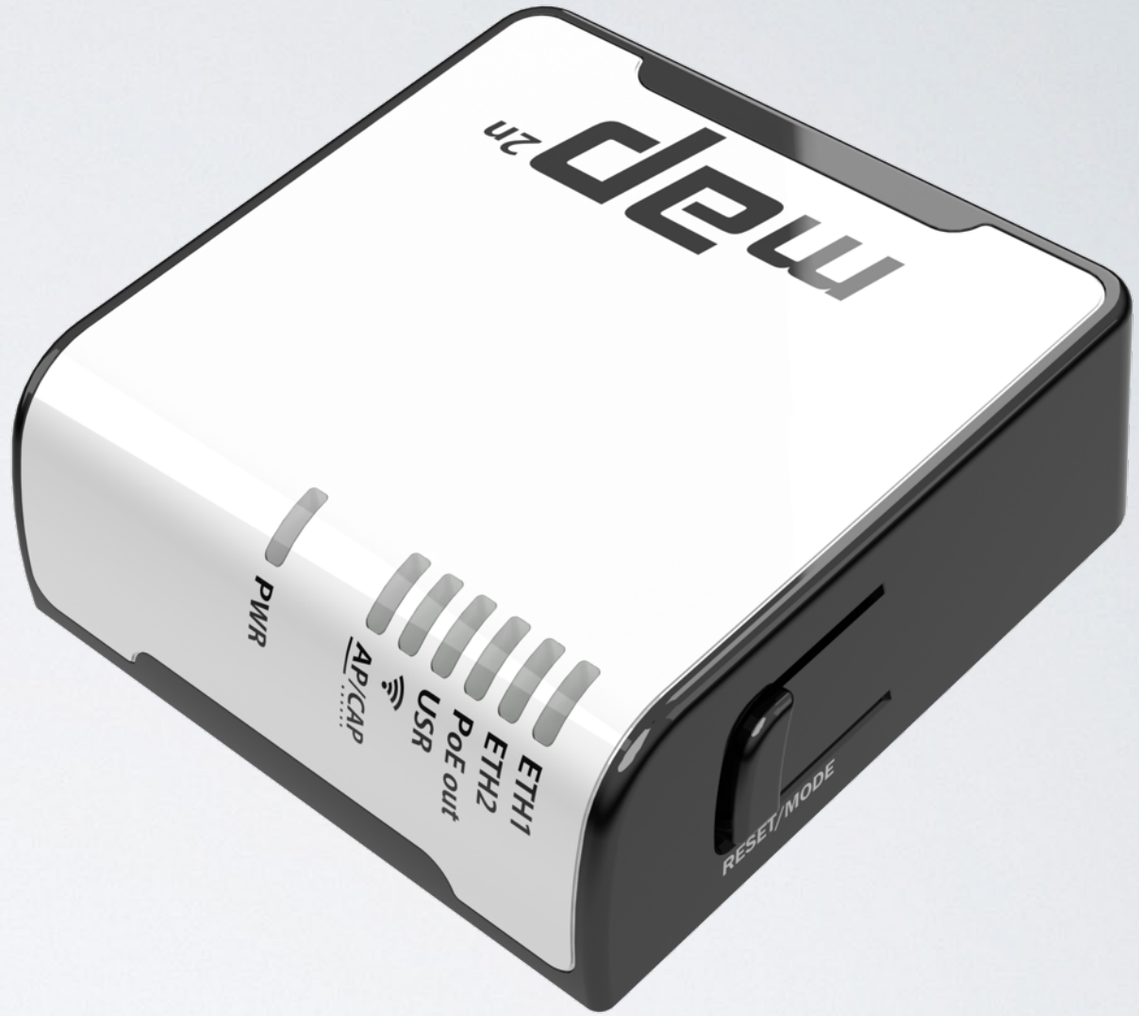
Metal 52 ac



- Waterproof, rugged with a super high output power
- 802.11 b/g/n and 802.11 a/n/ac, 1xGigabit Ethernet

now

mAP

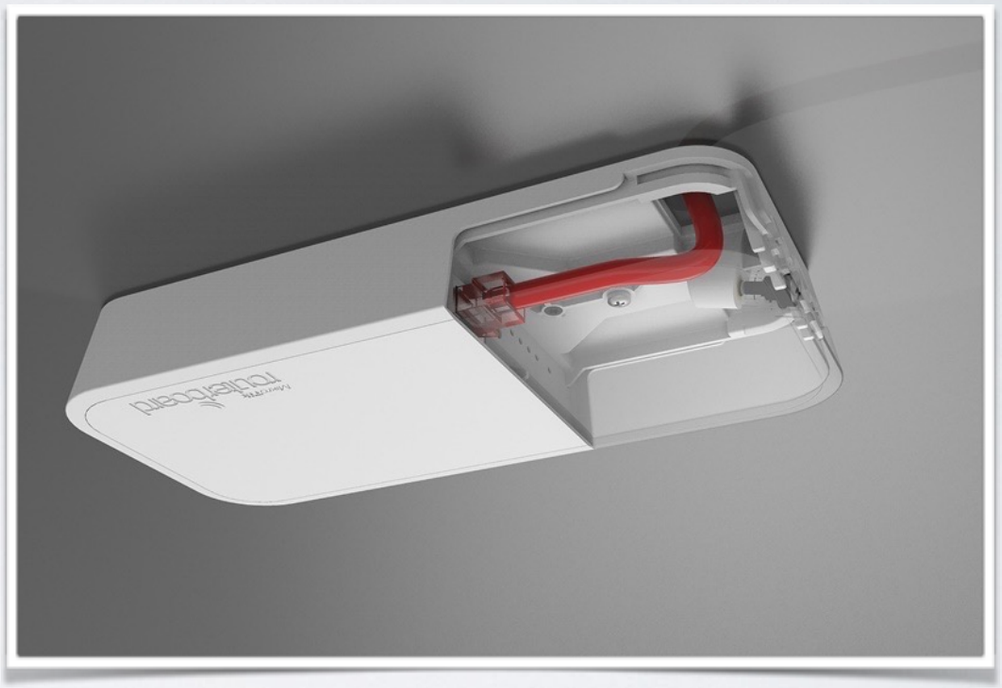


- update for small AP, dual chain 2.4GHz wireless
- 802.3 af/at support, PoE out!

now

wAP ac

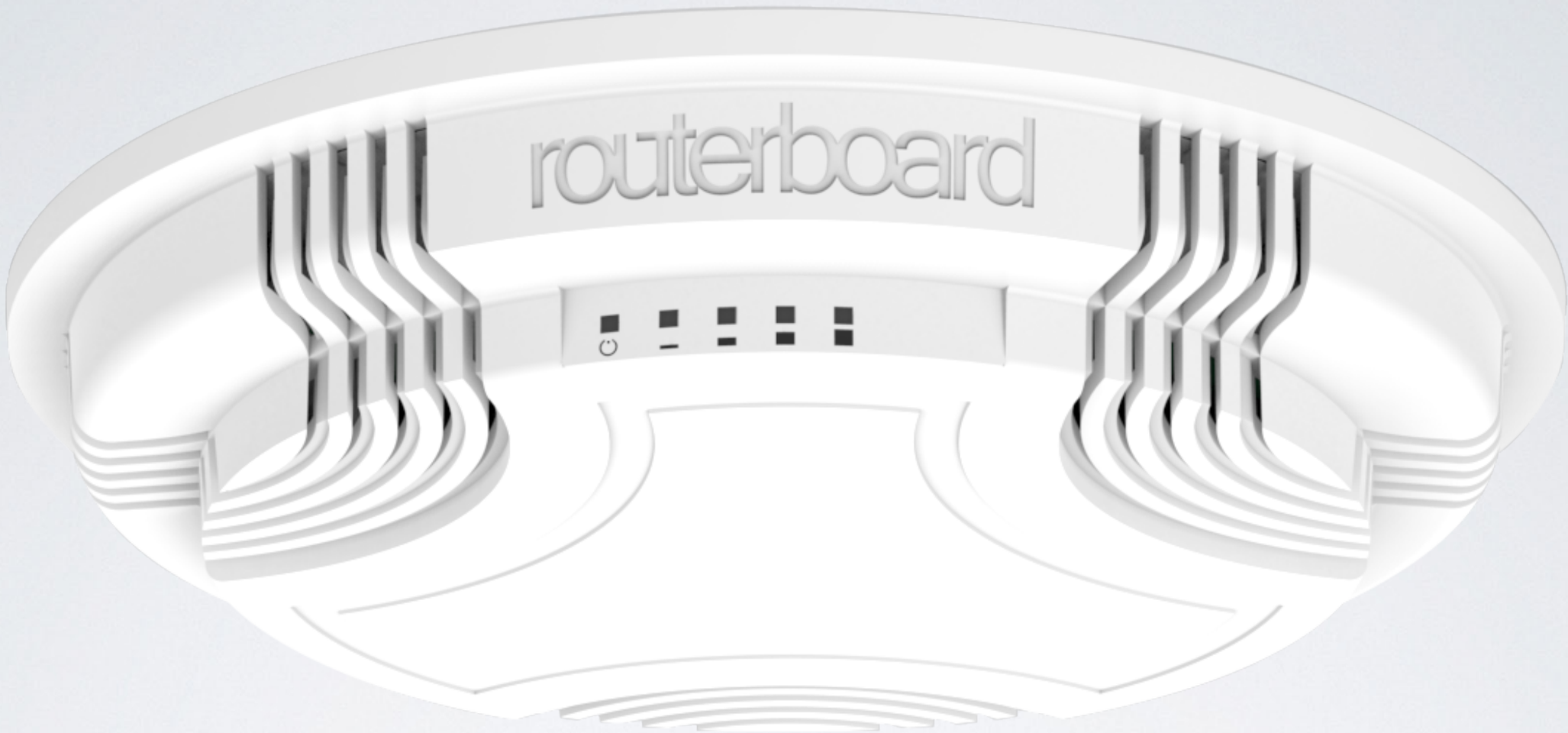




- Wall or ceiling mountable
- Use for hotel, office, etc.
- Gigabit and 802.11ac
- Dual band (simultaneous 2.4GHz and 5GHz)

now

cAP



- ceiling AP, dual chain 2.4GHz wireless
- 802.3 af/at support

now

hAP ac lite

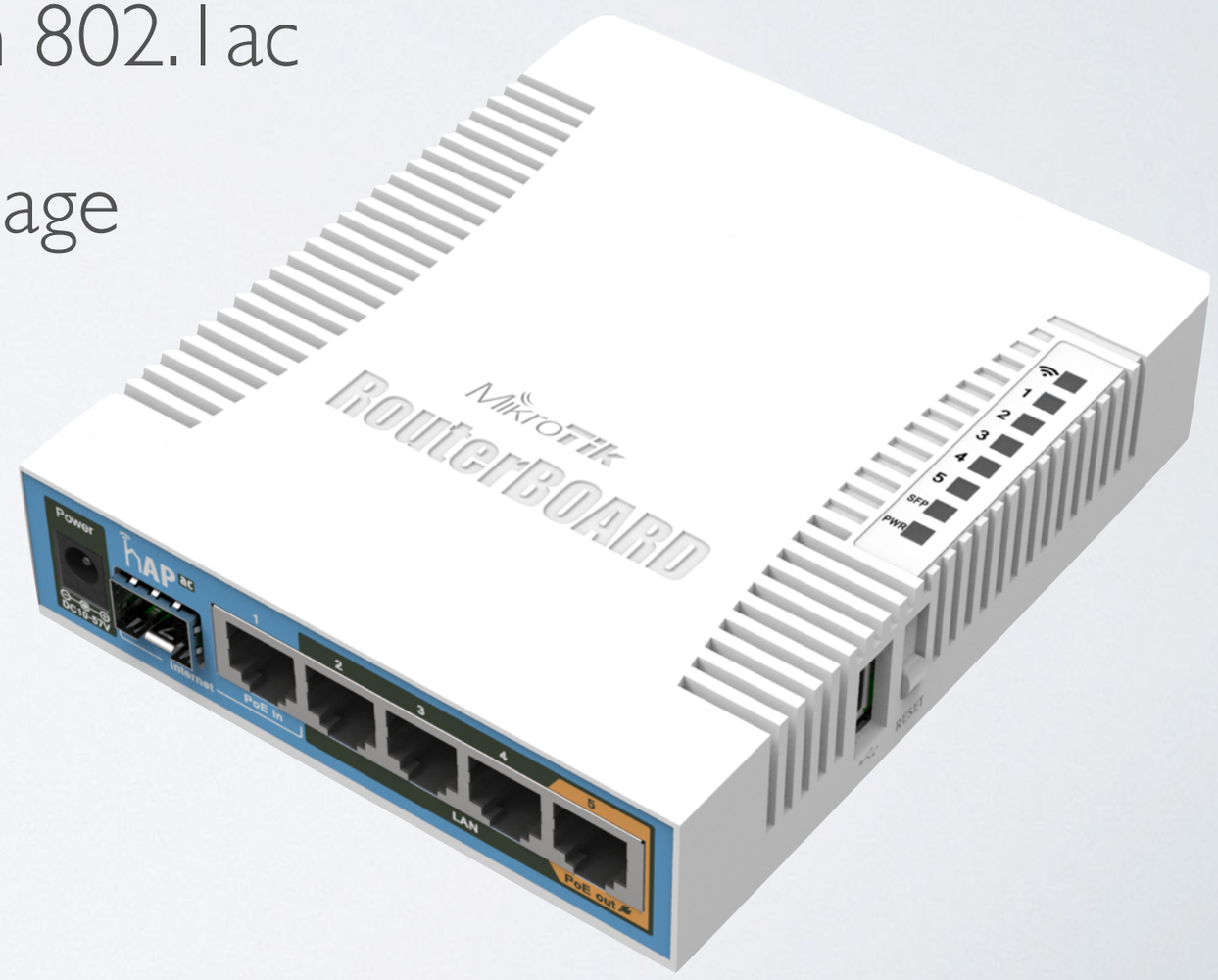
- Dual concurrent home AP
- 2.4GHz high power 2 chain 802.11n
- 5GHz high power 1 chain 802.1ac
- 100Mbps port
- 650MHz CPU
- PoE-out on port 5



now

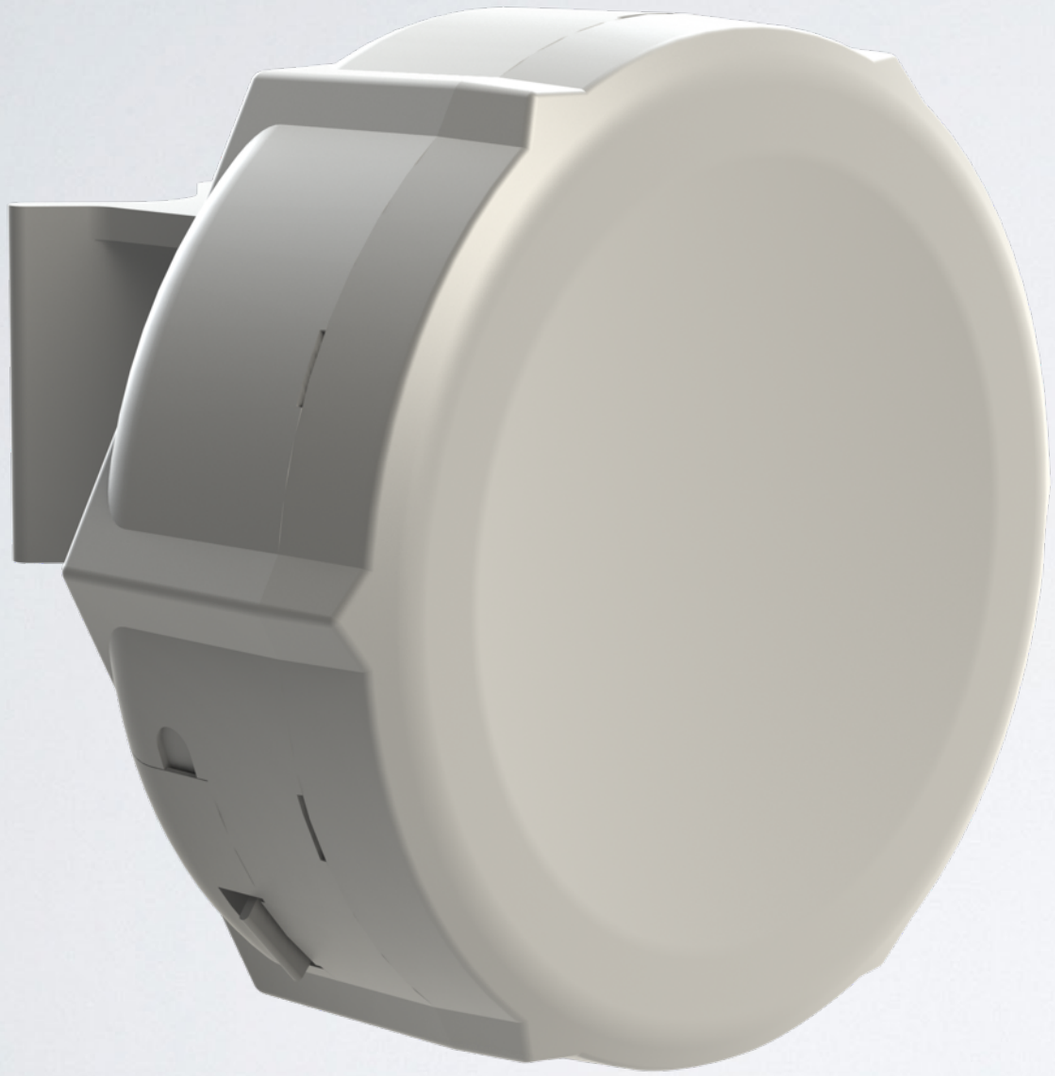
hAP ac

- Gigabit dual concurrent home AP
- 2.4GHz high power 3 chain 802.11n
- 5GHz high power 3 chain 802.1ac
- 5x1Gbps ports & 1 SFP cage
- 720MHz CPU
- PoE-out on port 5



now

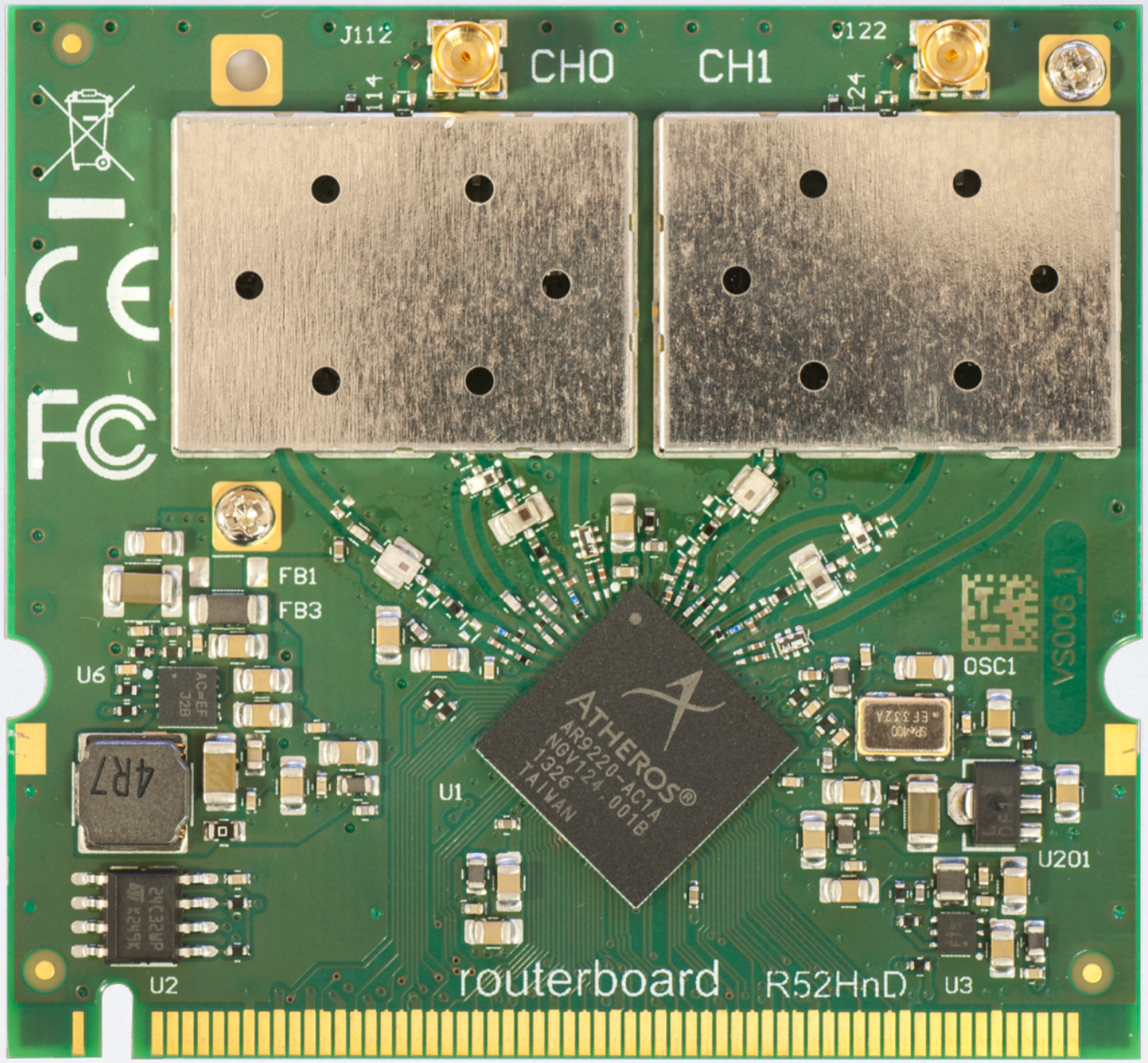
SXT 6GHz



- 5940-6500 MHz range
- 802.11 a/n
- Antenna gain 16dBi
- Antena beam width 28

now

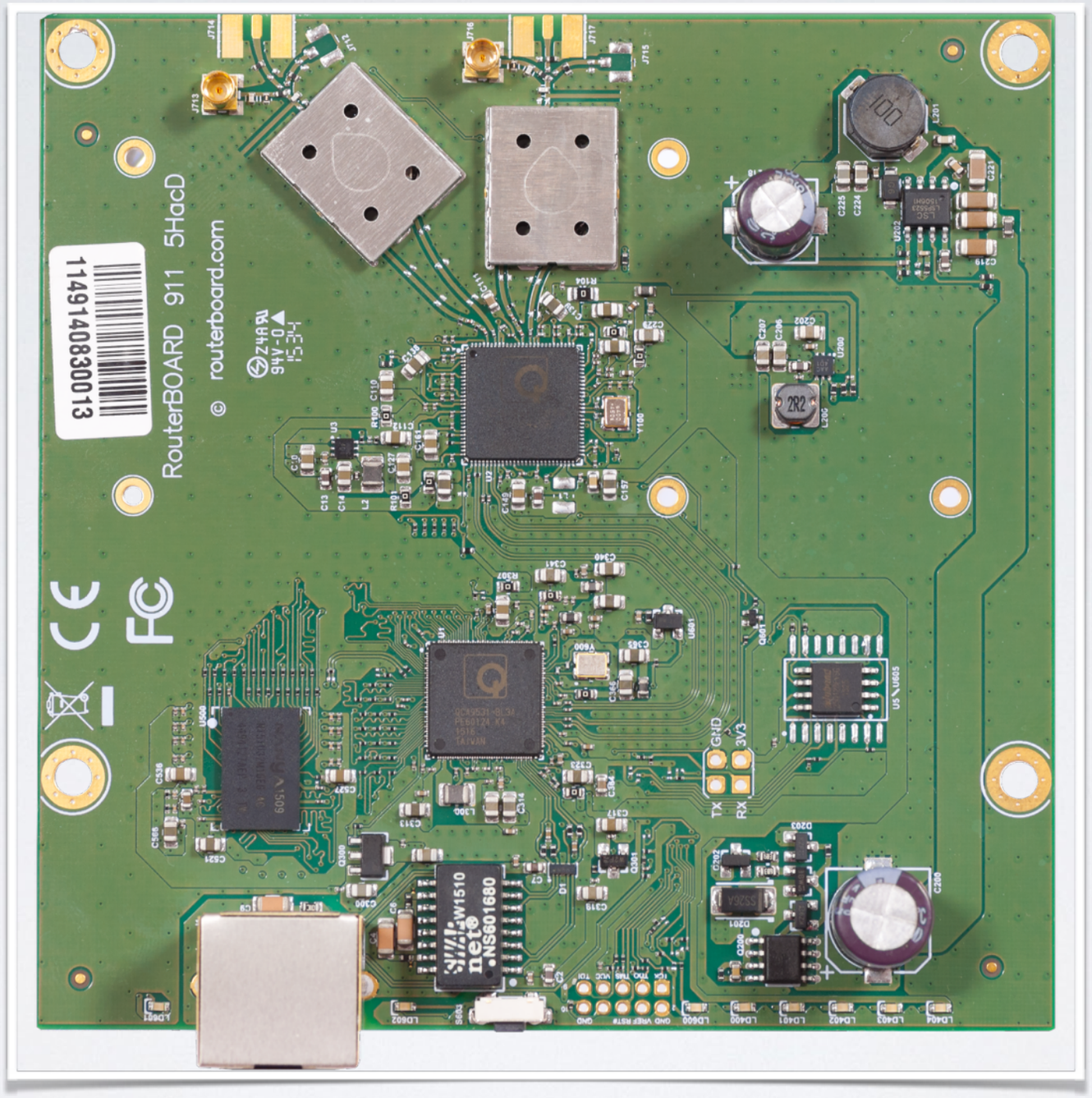
R52HnD



tx-power 26 dbm, R52H replacement

now

911 Lite 5ac

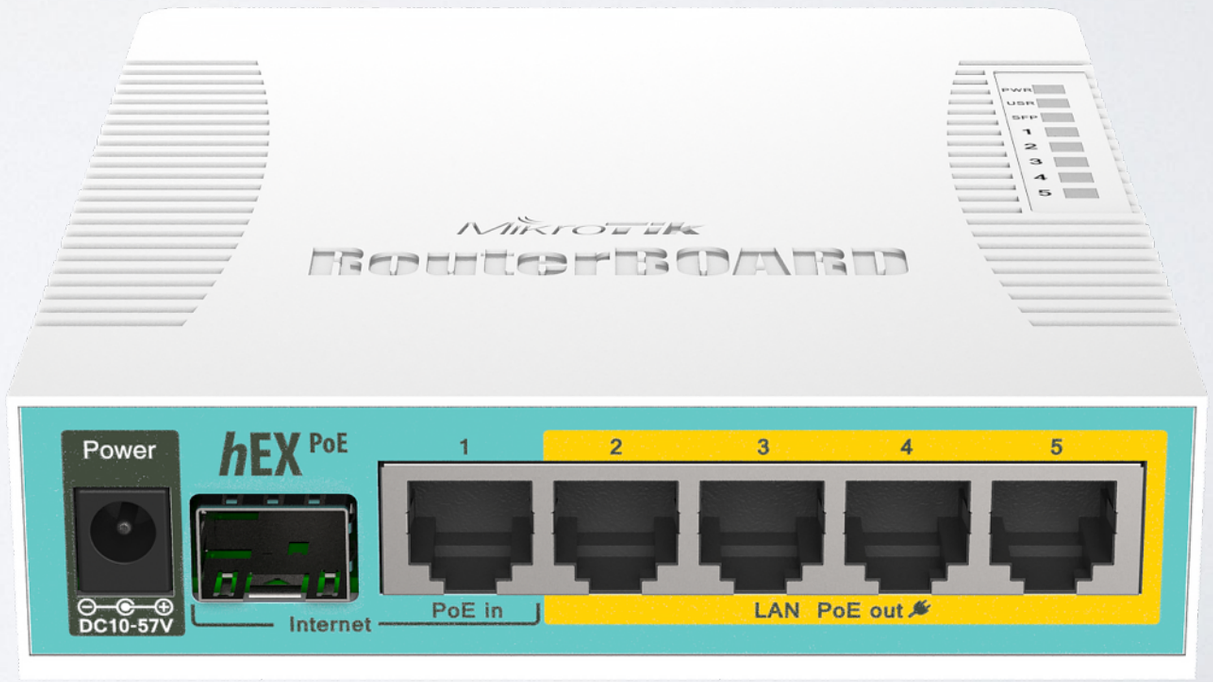


ac update for extremely affordable board

Q3

hEX PoE

- Small Ethernet device
- Five Gbps ports
- Power over Ethernet out on ports 2-5



Q3

OmniTIK 5 ac

- 802.11ac, 2 chains
- 5x1Gbit Ethernet ports
- 7.5 dBi
- PoE in





Q3

OmniTIK 5 PoE ac

- 802.11ac, 2 chains
- 5x1Gbit Ethernet ports
- 7.5 dBi
- PoE in
- PoE out (ports 2-5)



All Products

- Include free software upgrades for life
- Run the same RouterOS software*
- For more info see **routerboard.com**

*Except RB260GS (SwOS)

ROUTEROS FEATURES

CHR

Cloud Hosted Router

- RouterOS version tailored for running in virtual environments
- Runs on VMware Workstation and ESXi, VirtualBox, HyperV, KVM, XenServer, etc.
- Cloud services - Amazon, Azure and others

CHR

AWS Marketplace

1. Choose AMI | 2. Choose Instance Type | 3. Configure Instance | 4. Add Storage | 5. Tag Instance | 6. Configure Security

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) requ
community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

My AMIs

AWS Marketplace

Community AMIs

Categories

All Categories

Software Infrastructure (1)

Mikrotik

MikroTik

Free tier eligible

Cloud Hosted Router

★★★★★ (0) | 6.34.1 | Sold by MikroTik

Bring Your Own License + AWS usage fees

Linux/Unix, Other 6.34.1 | 64-bit Amazon Machine Image (AMI) | Updated: 4/7/16

Use the CHR for protecting your cloud servers using RouterOS firewall
for running your own VPN service or ...

More info

CHR

Use cases

- Firewall for your cloud services
- VPN server in the cloud
- The Dude monitoring server
- Simulate networks for learning or training
- And much more

CHR

Licensing

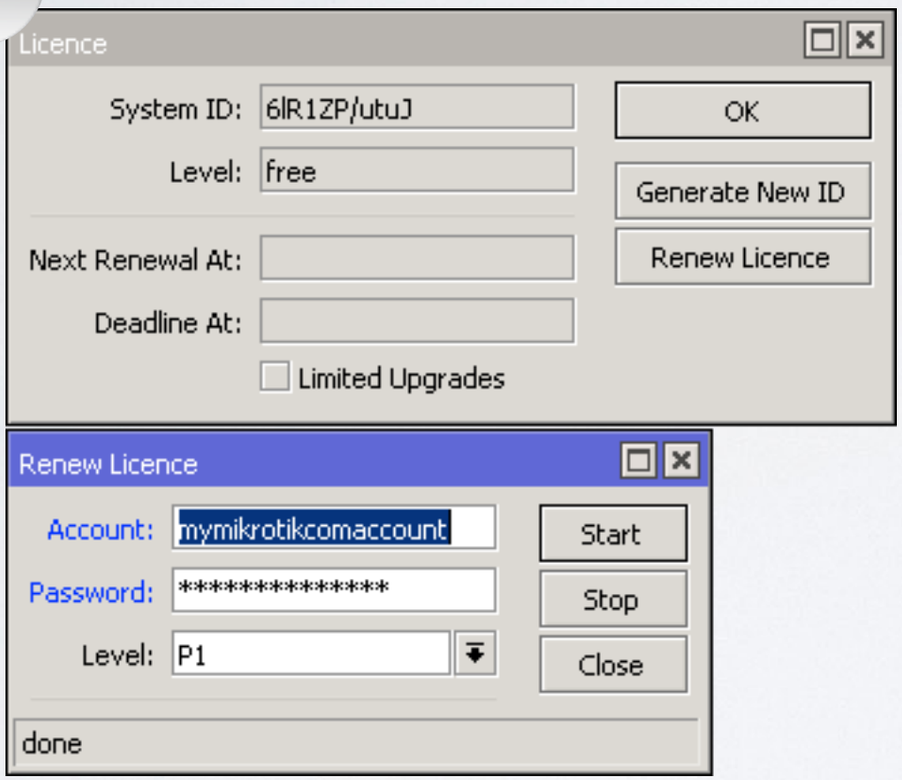
License	Speed limit	Price
Free	1Mbit	FREE
P1	1Gbit	$45
P10	10Gbit	$95
P-Unlimited	Unlimited	$250

- 60 day trial available
- Purchased license can be transferred

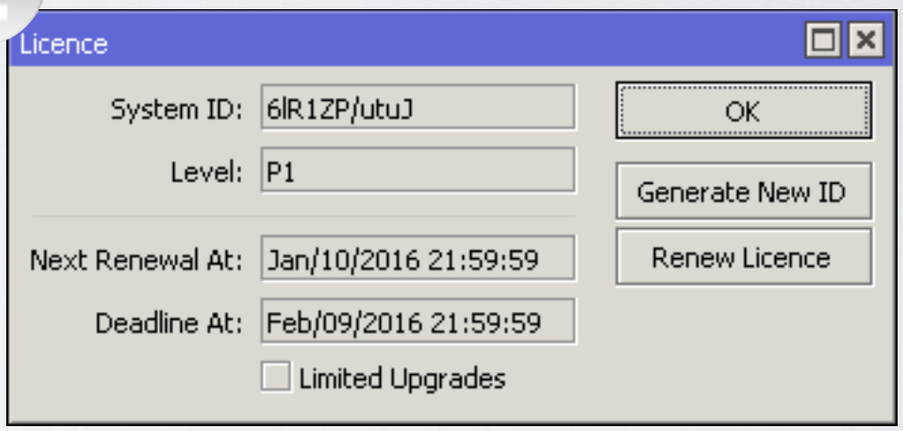
CHR

Licensing

1



2

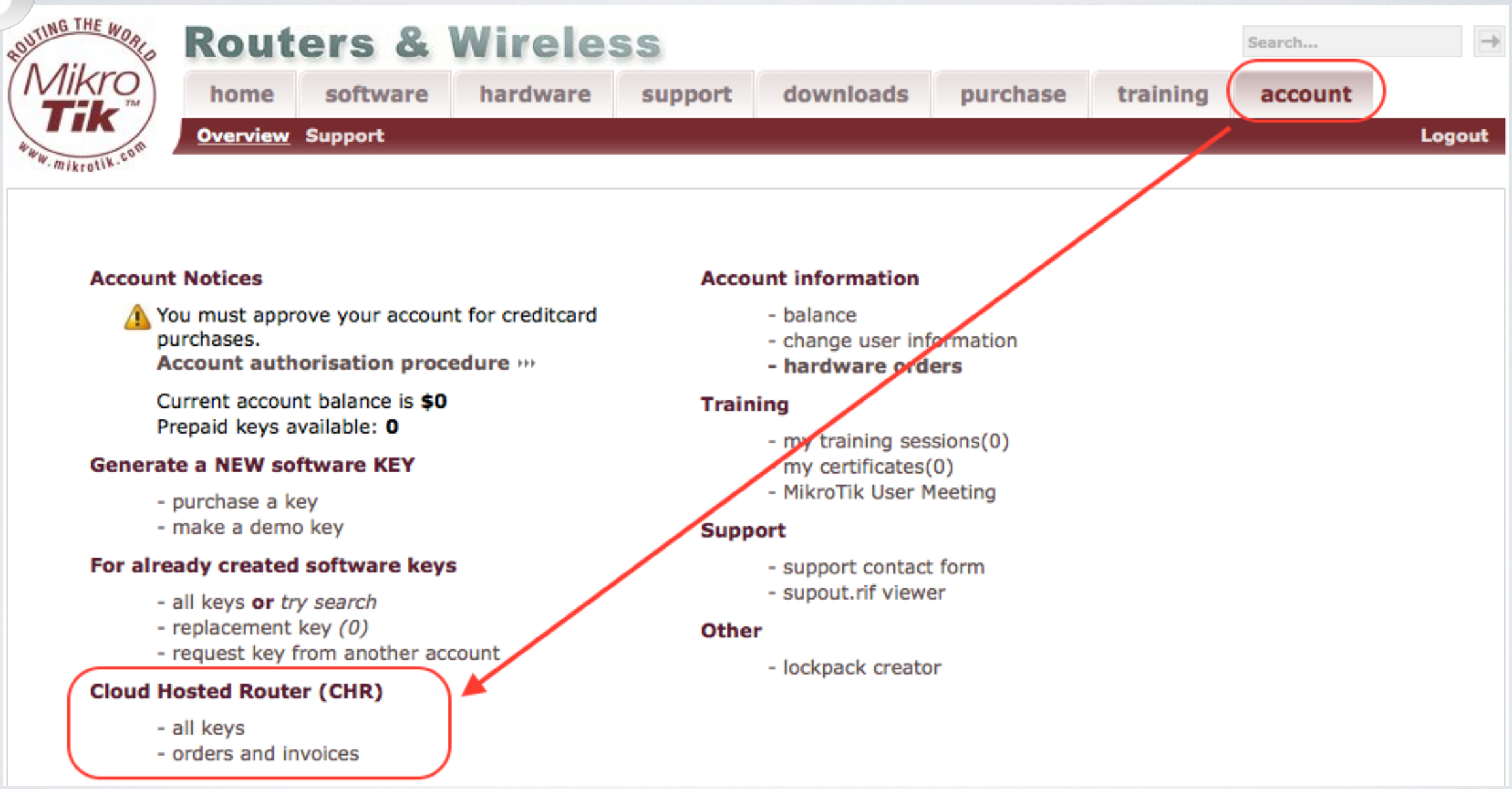


WinBox → System → License

CHR

Licensing

3



www.mikrotik.com

CHR

Licensing

4

[Back To Main Menu]

User Keys

Show 10 entries Search:

System ID	Key	Issued	Expires	Level	Transfer	Action	Note
6lR1ZP/utuJ	-----BEGIN MIKROTIK SOFTWARE KEY---------- ainRyNu6h1VkqfcR4afrXcyP3i8B4EByaEIq6dBikaNodTDUhTuKBgqpNxddDGCebjU6n1WwL7YsDd/eZcMfA==------ END MIKROTIK SOFTWARE KEY----------	2015-12-09	2016-02-09	P1-Perpetual (Trial version)		Upgrade	

Previous 1 Next

www.mikrotik.com

CHR

Licensing

5

Upgrade system license

System ID **Level**

6lR1ZP/utuJ

- ✓ **Select level**
- **P1-Perpetual ($ 45.00)**
- **P10-Perpetual ($ 95.00)**
- **P-Unlimited ($ 250.00)**

System 6lR1ZP/ut
Perpetual Trial version

You have following prepaid balance keys available to purchase a CHR license:

P1-Perpetual - 4 keys

Back

6

Payment

You have selected: **P1-Perpetual**
System ID **6lR1ZP/utuJ**
Total price: **$ 54.45**

Pay using deposit (left: $ 73.51)

Pay using CC

Pay using PayPal

Pay using Balance key (4)

Note: *Price includes VAT 21% because you have specified EU country as your residence.To avoid this you have to enter your VAT registration number in your account settings.*

Back

www.mikrotik.com

CHR

Cloud Hosted Router

- For more info, see the CHR page on our wiki: http://wiki.mikrotik.com/wiki/Manual:CHR
- Available on the download page: http://mikrotik.com/download#chr

RouterOS v6.36 changelog

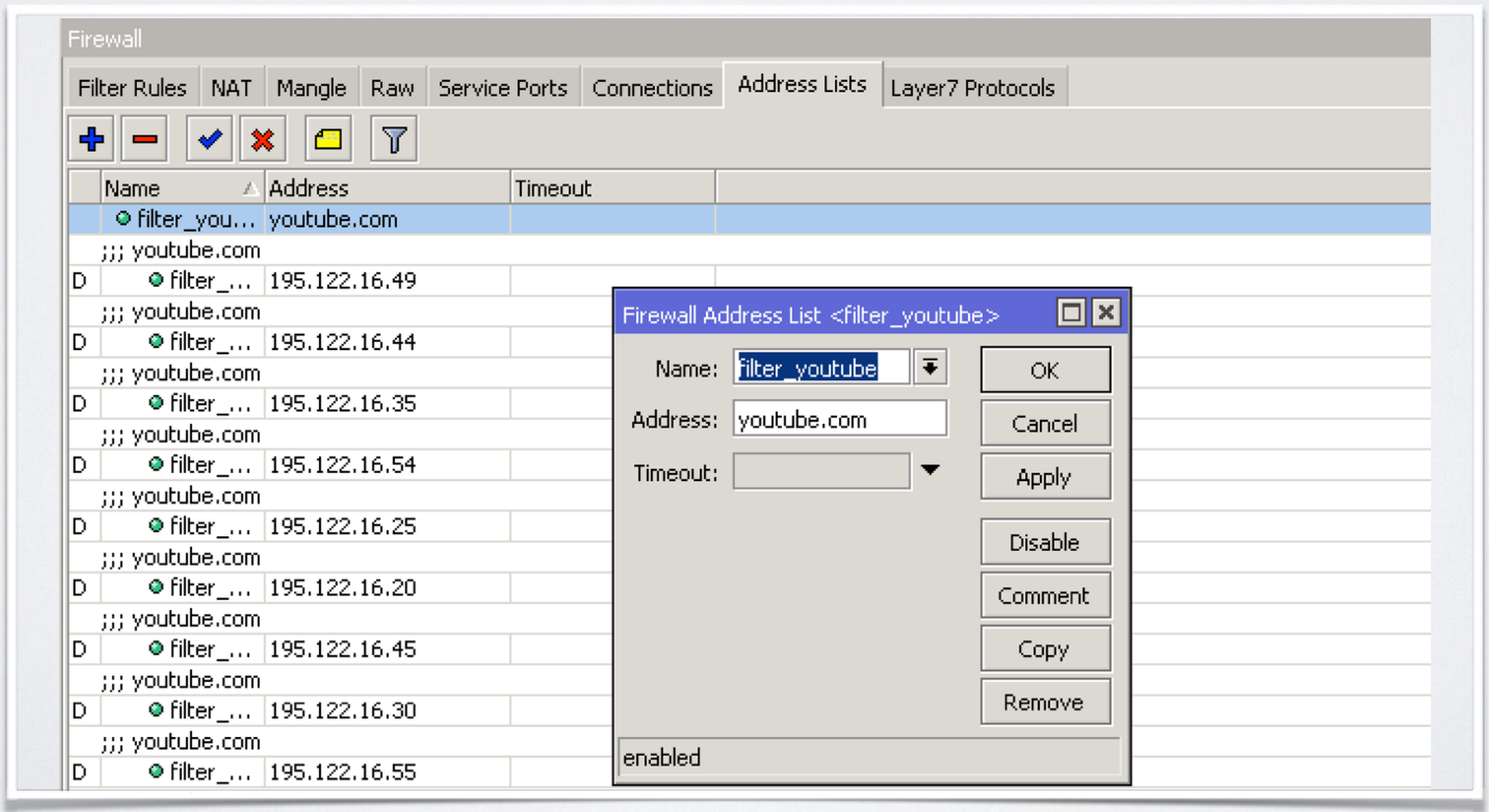
146 line

Wireless in v6.37

- New wireless package ‘wireless’
- Read changelog before upgrade!
- DFS mode changed, all devices will be with dfs=radar-detect
- Improved driver and more come to Uldis presentation

DNS at address-list

- add DNS name to address-list, router will find addresses automatically
- set appropriate rules at firewall



The Dude v6.x

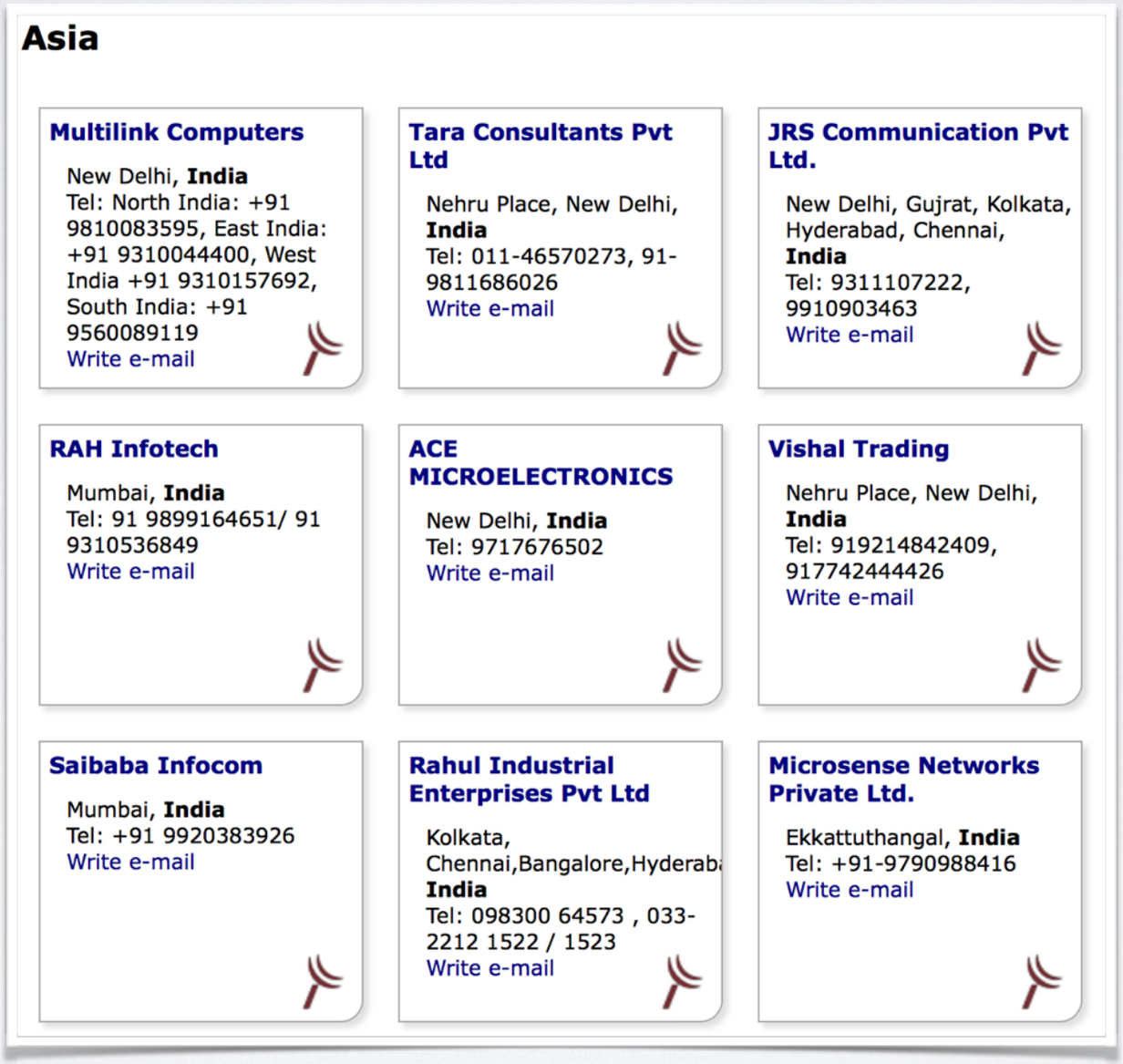
- Dude is back
- v6. server support at CCR/x86 and RB3011
- fixes and new features development
- more information at 13:45 workshop

Need Help?

- Ask a local **distributor**
- Read the manual **wiki.mikrotik.com**
- Email **support@mikrotik.com**
- Hire a **consultant**
- Attend a training class or join an Academy class in a University

Need Help?

Official MikroTik distributors in India:



Asia

Multilink Computers
New Delhi, **India**
Tel: North India: +91 9810083595, East India: +91 9310044400, West India +91 9310157692, South India: +91 9560089119
Write e-mail

Tara Consultants Pvt Ltd
Nehru Place, New Delhi, **India**
Tel: 011-46570273, 91-9811686026
Write e-mail

JRS Communication Pvt Ltd.
New Delhi, Gujrat, Kolkata, Hyderabad, Chennai, **India**
Tel: 9311107222, 9910903463
Write e-mail

RAH Infotech
Mumbai, **India**
Tel: 91 9899164651/ 91 9310536849
Write e-mail

ACE MICROELECTRONICS
New Delhi, **India**
Tel: 9717676502
Write e-mail

Vishal Trading
Nehru Place, New Delhi, **India**
Tel: 919214842409, 917742444426
Write e-mail

Saibaba Infocom
Mumbai, **India**
Tel: +91 9920383926
Write e-mail

Rahul Industrial Enterprises Pvt Ltd
Kolkata, Chennai,Bangalore,Hyderab
India
Tel: 098300 64573 , 033-2212 1522 / 1523
Write e-mail

Microsense Networks Private Ltd.
Ekkattuthangal, **India**
Tel: +91-9790988416
Write e-mail

http://www.mikrotik.com/buy/asia/india

Need Help?

Official MikroTik consultants in India:

Muralikrishna Kema
MTCINE, MTCNA, MTCRE, MTCTCE, MTCWE
Hyderabad , Bangalore , Tamil Nadu, **India**
ISP / Carrier networks design, Hotspot,QoS,OSPF, BGP,MPLS,Traffic Engineering. Wireless PtP and PtMP,Campus Wifi,Network Security Other advanced configurations Configure & Manage NMS, Gpon /Epon/ Switching L2 & L3 Mikrotik/Huawei Infrastructure ISP-VOIP Implementation, Billing, DID ,Trunking ,LCR, PBX, Load balance, large Scale Deployments. IPTV Implementation, Live Streaming, Video on Demand, Scalability for Any Size Audience
Tel: 09346732544
Write e-mail
Web: www.ctrltik.com

Manoj Kumar MUM
MTCNA, MTCRE, MTCTCE, MTCWE
Faridabad, **India**
Wireless Networks: desing, implementation, analysis & troubleshooting of WLAN, PtP and PtMP. High-Speed Wireless Links. Tunnel and VPN (IPSec, PPtP, L2TP) Bridging & Routing (Dymamic and Static). Firewall (Filtering Policies) . Hotspot, PPPoE, Queueing, Bandwidth Management, Firewall, Security. Hotspot, WISP administration experience, Load balancing, Advanced Wireless Security, > > Bridging, STP RSTP, WDS, Mesh, Network Monitoring, Caching and WebProxy,Remote Assistance and on-site Support.
Tel: +919818763764
Write e-mail

Dawinder Singh
MTCNA, MTCRE, MTCTCE
Amritsar, **India**
Tel: 91-9814138141
Write e-mail
Web: www.webtecz.com

http://www.mikrotik.com/consultants/asia/india

PARTNERSHIP

How to Participate

- Become a distributor
- Take classes and become a certified trainer
- Start offering consulting services
- Coordinate a new MikroTik academy in a local University
- Create accessories and enclosures with the MFM program

PARTNERSHIP PROGRAMS

Knowledge

- **Consultant** → Configures and helps
- **Training center** → Certifies and advances

Products

- **Distributor** → Offers products and services
- **Reseller** → Buys from Distributor and resells

Made for MikroTik → Accessories, integrators, software

Consultant

WHO?

- Experienced network engineers
- Profound RouterOS and RouterBOARD knowledge

Consultant

HOW?

MTCRE + MTCWE + MTCNA + 1x MTCUME + MTCTCE + MTCINE

Result: 75%+

sales@mikrotik.com

Consultant

WHERE?



mikrotik.com/consultants

Consultant

+

MikroTik
Train the Trainer

=

MikroTik
TRAINING CENTER

Training courses developed by MikroTik

Training center

WHO?

- MikroTik certified trainers
- Training according to official outline
- Develop their own training materials

Training center

HOW?

- Motivation to teach!
- At least 2 MikroTik certificates, 75%+
- Pass Train the Trainer course

Training center

MikroTik TRAINING CENTER

- Courses developed by MikroTik
- We offer certification tests
- Publish training schedule on our website

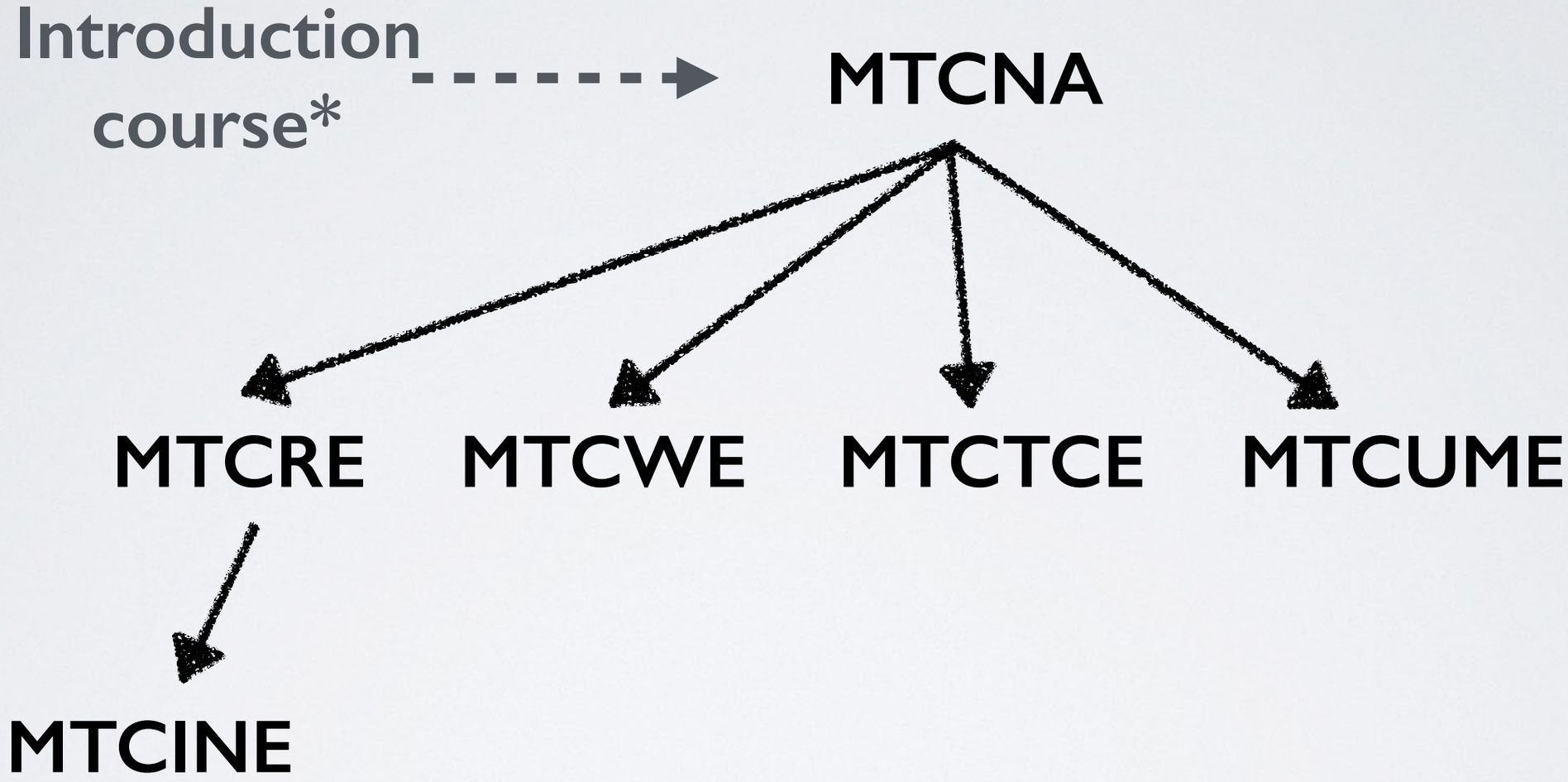
Training center

MIKROTIK COURSES

MTCNA	Network Associate
MTCRE	Routing Engineer
MTCWE	Wireless Engineer
MTCTCE	Traffic Control Engineer
MTCUME	User Management Engineer
MTCINE	Inter-networking Engineer

Training center

MIKROTIK COURSES



* Without certificate

MikroTik ACADEMY

Certified training sessions

Train students

Train academic personnel

Consultant

Training center

End user

MikroTik Train the Trainer

PARTNERSHIP PROGRAMS

Knowledge

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Made for MikroTik → Accessories, integrators, software

Distributor

1

MTCNA

MTCRE

MTCWE

MTCUME

MTCTCE

MTCINE

At least 1 certificate

2

Web page

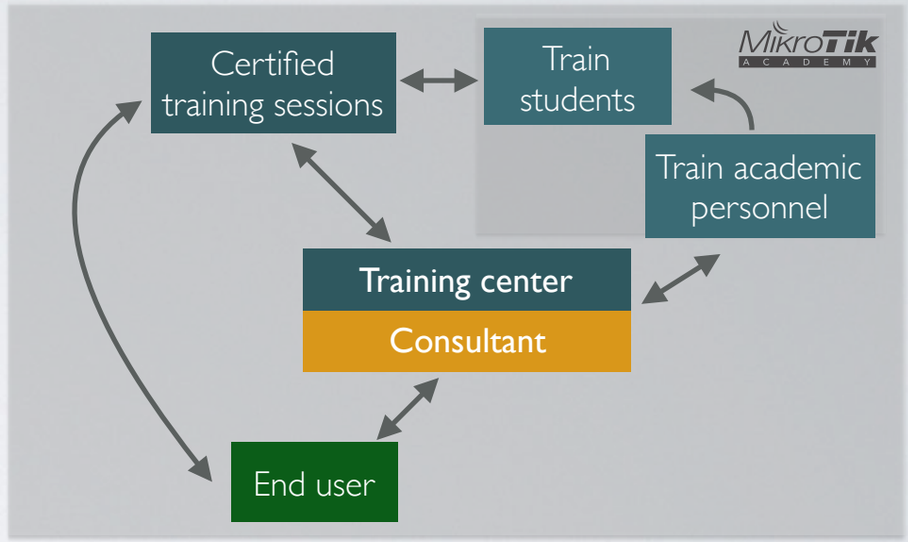
3



Purchase volumes

sales@mikrotik.com

MikroTik



Distributor

Training center

Consultant

MikroTik
Train the Trainer

End user

Reseller

Distributor

BENEFITS

- The more you learn, the better you can help your customers
- Happier customers > better sales

PARTNERSHIP PROGRAMS

Knowledge

- Consultant → Configures and helps
- Training center → Certifies and advances

Products

- Distributor → Offers products and services
- Reseller → Buys from Distributor and resells

Made for MikroTik → Accessories, integrators, software

Made for MikroTik

Accessories	Accessories for MikroTik products
Integrators	Integrated solutions
Software	Software that works with RouterOS
Books	Books about RouterOS

mikrotik.com/mfm

Made for Mikrotik

The Made for Mikrotik program consists of two parts: "Mikrotik certified Integrators" and "Mikrotik certified Accessories".

MikroTik Certified Accessories are made by Mikrotik approved companies, who make accessories specifically for MikroTik products. This includes RouterBOARD compatible cases, outdoor antennas and other products

MikroTik Certified Integrators are companies who make turnkey solutions based on Mikrotik RouterBOARD and RouterOS, their products include assembled CPE/AP devices, preinstalled Integrated antennas and Rackmount solutions assembled for and with RouterOS

Powered by MikroTik

Click here for design files

Click here to apply to the "MFM" program

Below is a list of our 173 Certified Mikrotik Integrators and Accessory makers in Random order:

Accessories | Integrators | Software | CPE | Textbooks

Netkrom solution

http://netkromsolution.com

NetMedic is one product design to the hospital. Powered by MikroTik RouterOS NetMedic bundle with Monitor temperature, date and uptime of MikroTik. New Design Casing spesific for Hospital.

Choice NetMedic for improving performance Your Network Hospital



Pro-Cell Co., Ltd.

http://www.antenna.com.tw/

PRO-CELL is a professional antenna manufacturer in Taiwan. PRO-CELL product range includes an outdoor APA enclosure which can be combined with RouterBoards inside and antennas both inside or outside.



mikrotik.com/mfm

HOW TO APPLY?

Description

sales@mikrotik.com

MikroTik

ACADEMY

MikroTik ACADEMY

WE OFFER

- Certification program for educational institutions
- Course is based on MTCNA
- Taught by Academy trainers
- Includes free MTCNA exam

MIKROTIK OFFERS

- 75% compensation to Training Centers for training Academy staff

MIKROTIK OFFERS

- Training outline
- MTCNA course materials
- 20x RouterBOARDs

FREE

MIKROTIK OFFERS

- MTCNA certificates & RouterOS licenses to students
- Academy trainer shirts

FREE

HOWTO BECOME ACADEMY

1. Fill out application - mikrotikacademy.com
2. Sign MikroTik Academy agreement

HOWTO BECOME ACADEMY

3. Attend preparatory training (conducted by partners)
4. Pass MTCNA + 1x engineer level certificate test (result 75%+)

HOWTO BECOME ACADEMY

5. Receive MikroTik Academy trainer certificate
6. Receive Academy package
7. Start giving MikroTik Academy classes

MikroTik ACADEMY

ACADEMY NUMBERS

- 200+ MikroTik Academies around the world
- 350+ Academy trainers

mikrotikacademy.com
training@mikrotik.com

MikroTik

ACADEMY

mikrotikacademy.com

Enjoy the MUM!

MikroTik