



MikroTik User Meeting

Tbilisi, Georgia,  
December 2012

# MUM #43 in Georgia!





# MikroTik

- 90 people
- Founded at 1996
- First RouterOS 1997
- RouterBOARD B 2002
- First MUM Prague 2006
- The biggest MUM Indonesia 2012

# Where?





# Staff

- Edmunds Aperans (Sales, Training, Academy)
- Sergejs Boginskis (Support)

# Distributors





# Special Thanks!

Intellcom Group

# After MUM

- Presentations - [wiki.mikrotik.com](http://wiki.mikrotik.com)
- Presentations video - [tiktube.com](http://tiktube.com)
- License - will be sent to your e-mail



ROUTERBOARD

# HARDWARE

RouterBoard.com : Products

routerboard.com

Reader

Product group

Filter the products by group, and then by their specifications

- ☒ All
- ☐ Integrated solutions
- ☐ RouterBOARD
- ☐ Enclosures
- ☐ Interfaces
- ☐ Accessories
- ☐ Product archive

Price: \$0 - \$1000


Useful links

- [All product brochure](#)
- [What is RouterOS?](#)
- [Benchmarks: see product page](#)

Integrated solutions

These products are provided complete with cases, power adapters and packaged inside individual product boxes. Ready to use and preconfigured with the most basic functionality so you can plug-in and use.


CCR1036-12G-4S



- 36 cores
- 1.2GHz per core
- 24 mpps fastpath
- Up to 16Gbit/s throughput

\$995.00


CCR1016-12G



- 16 cores x 1.2GHz
- 1U rackmount case
- 17.8mpps fastpath
- Up to 12Gbit/s

\$645.00


SXT G-2HnD



- 60 degree beamwidth
- 1.6W TX onboard
- AP/CPE license
- 2x2 MIMO 10dbi

\$79.00

Metal2SHPn



- 2.4Ghz
- 1.6 Watt output
- Industrial grade
- Waterproof

\$99.00



# Every RouterBOARD

- Preinstalled RouterOS
- RouterOS license included for free
- Ready to use

# Hardware

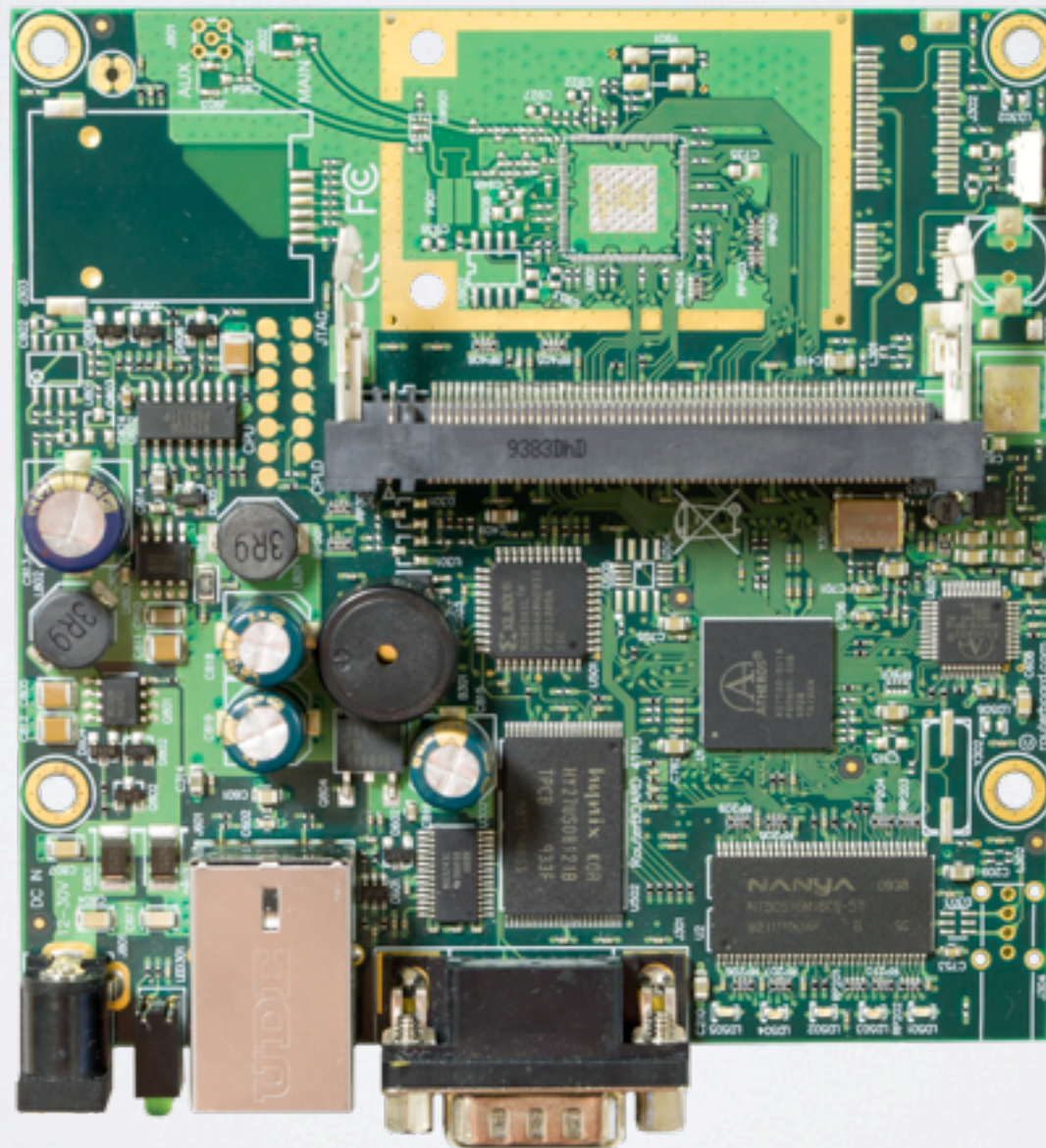
- Wireless (boards, integrated)
- Rackmount solutions
- Interfaces
- Accessories
- More



RB 4XX SERIES

# RB411

- CPE and small AP
- 411, 411L, 411U, 411AR, 411AH, 411UAHL, 411GL, 411UAHR
- 39\$ - 119\$





# Abbreviations

- L - low cost
- U - USB port
- A - more RAM
- R - integrated wireless
- H - more powerful CPU
- G - gigabit

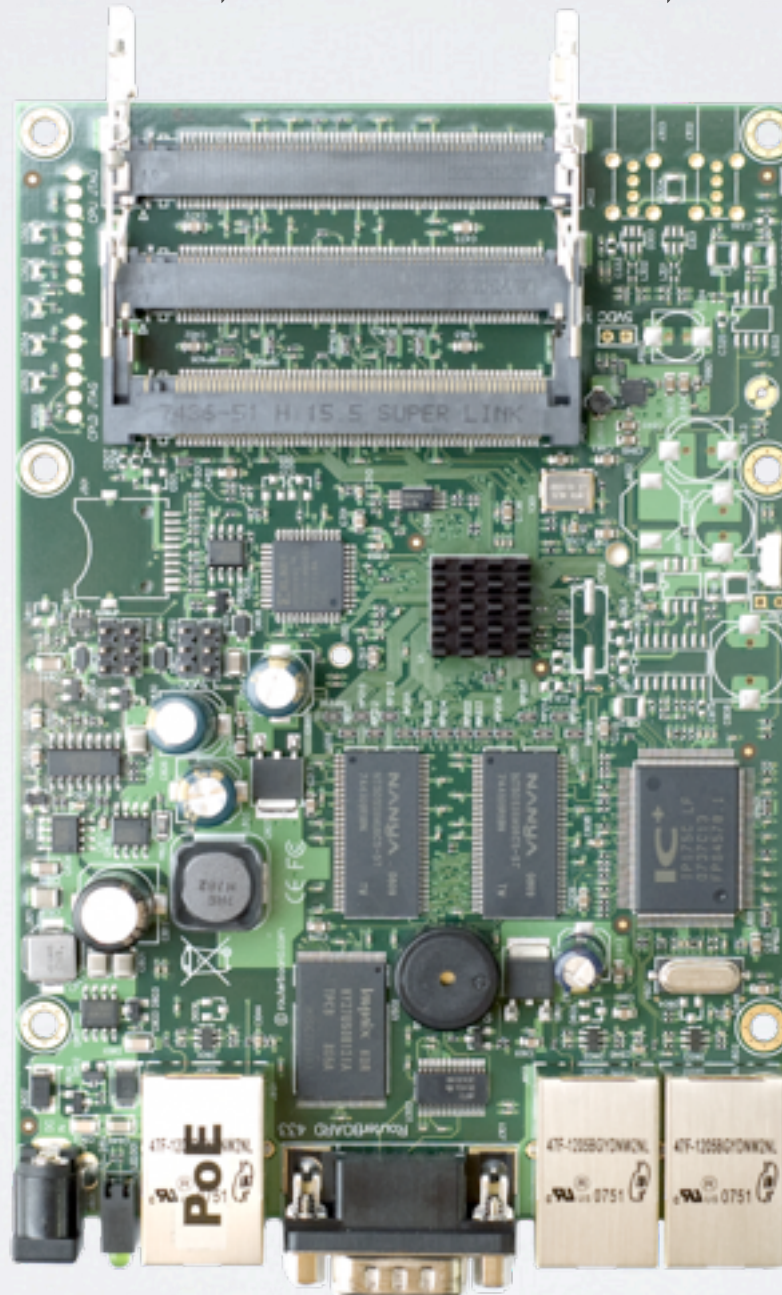
# RouterBOARD Numbers

- For example RB435G:
- 4xx - number of series
- x3x - number of Ethernet ports
- xx5 - number of Wireless interfaces



# RB433

- Multiport custom AP
- 433L, 433, 433AH, 433UAHL, 433UAH, 433GL
- 89\$ - 165\$



# More information


RouterBoard.com : RB433

routerboard.com/RB433

Reader

ProductsHow to buyAbout

## RB433



Three miniPCI slots and three Ethernet ports give you enough connectivity options to use the RB433 as the central part of your network.

A wireless repeater plus a local access point, or an AP with multiple sectors - it's all up to you, all of it is made possible by the RB433.

More info:

- RouterBoot: [ar7100-3.02.fwf](#)
- Brochure : [rb433.pdf](#)
- Design Files DXF-PDF : [RB433dim.pdf](#)
- Quick Guide : [rb433-qg.pdf](#)
- User Guide : [rb433ugA.pdf](#)
- Purchase questions: [email sales](#)
- [Throughput results](#)
- [RouterOS software manual](#)



# Board Throughput

## Throughput results

RB4xx Series @300Mhz (Ethernet only test)			64 byte frames		512 byte frames		1518 byte frames	
IP Firewall	Conntrack	Mode	Mbps	Fps	Mbps	Fps	Mbps	Fps
off	off	Bridging	43.26	84500	199.48	48700	199.16	16400
on	off	Routing	28.26	55200	199.48	48700	199.16	16400
on	off	Bridging	25.19	49200	188.42	46000	199.16	16400
on	on	Routing	21.81	42600	167.12	40800	199.16	16400
on	on	Bridging	18.48	36100	135.17	33000	199.16	16400

### Notes:

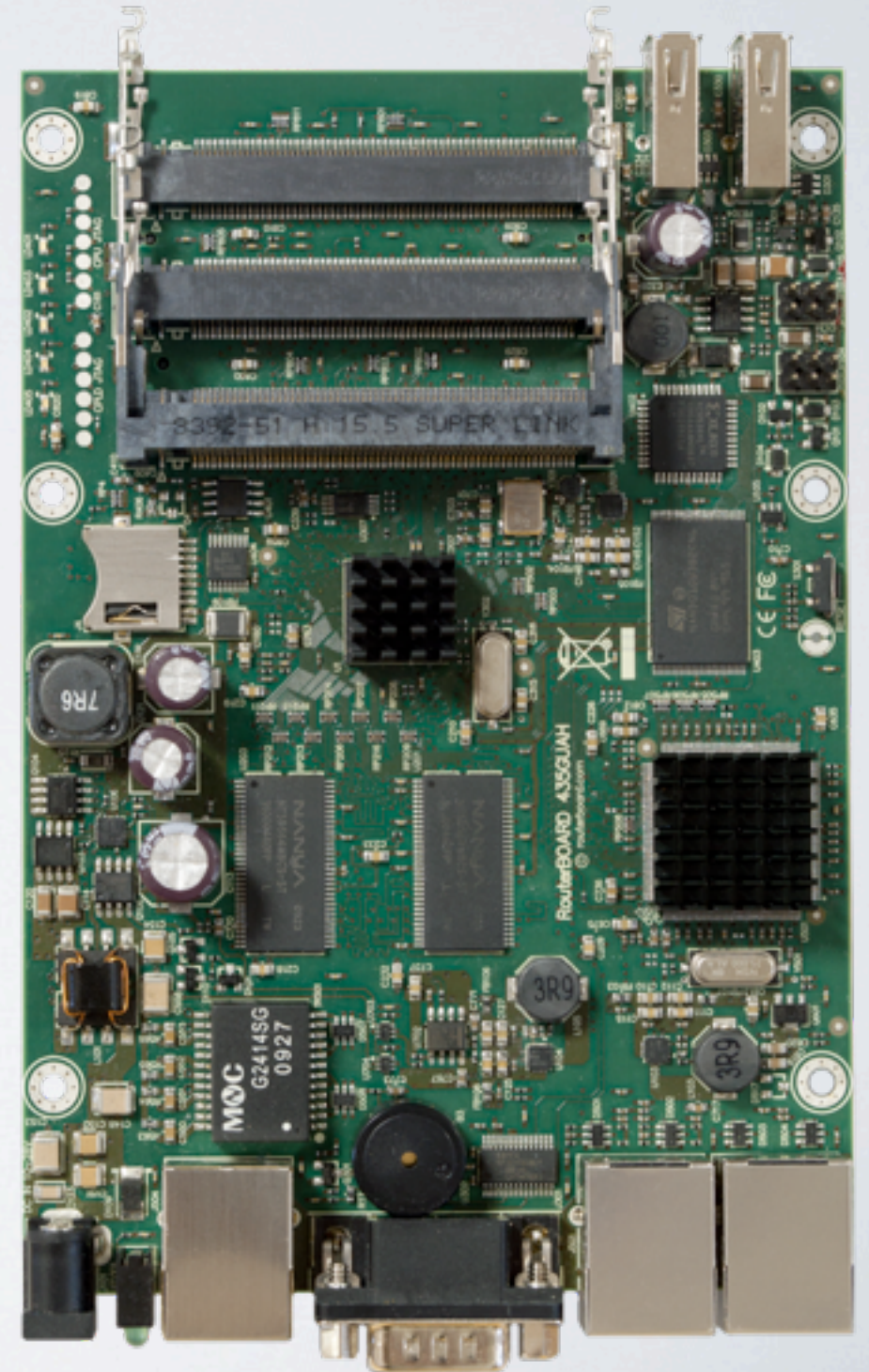
1. All throughput tests done with Xena Networks specialized test system and RouterOS v5, according RFC2544, with Ethernet frame sizes 64, 512, 1518 bytes. Each board is tested with specified number of Ethernet interfaces, to ensure optimal load on hardware.
2. Values in *Italics* indicate that the maximum possible throughput was reached, limited only by ethernet ports themselves.

- Open specific RouterBOARD and scroll down



# RB435G

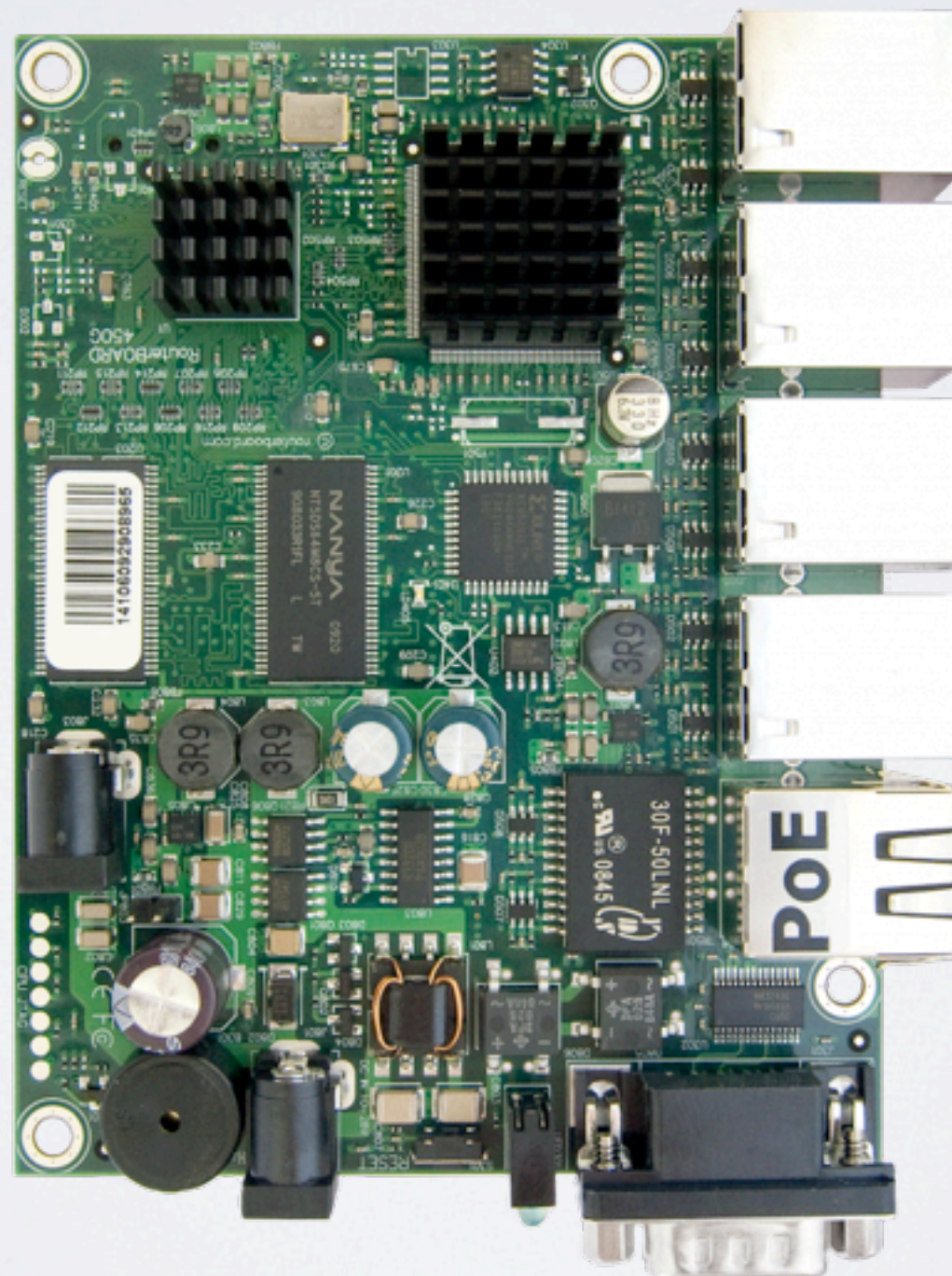
- Multiport gigabit wireless router
- 5 wireless ports
- 3 gigabit ports
- 189\$





# RB450/450G

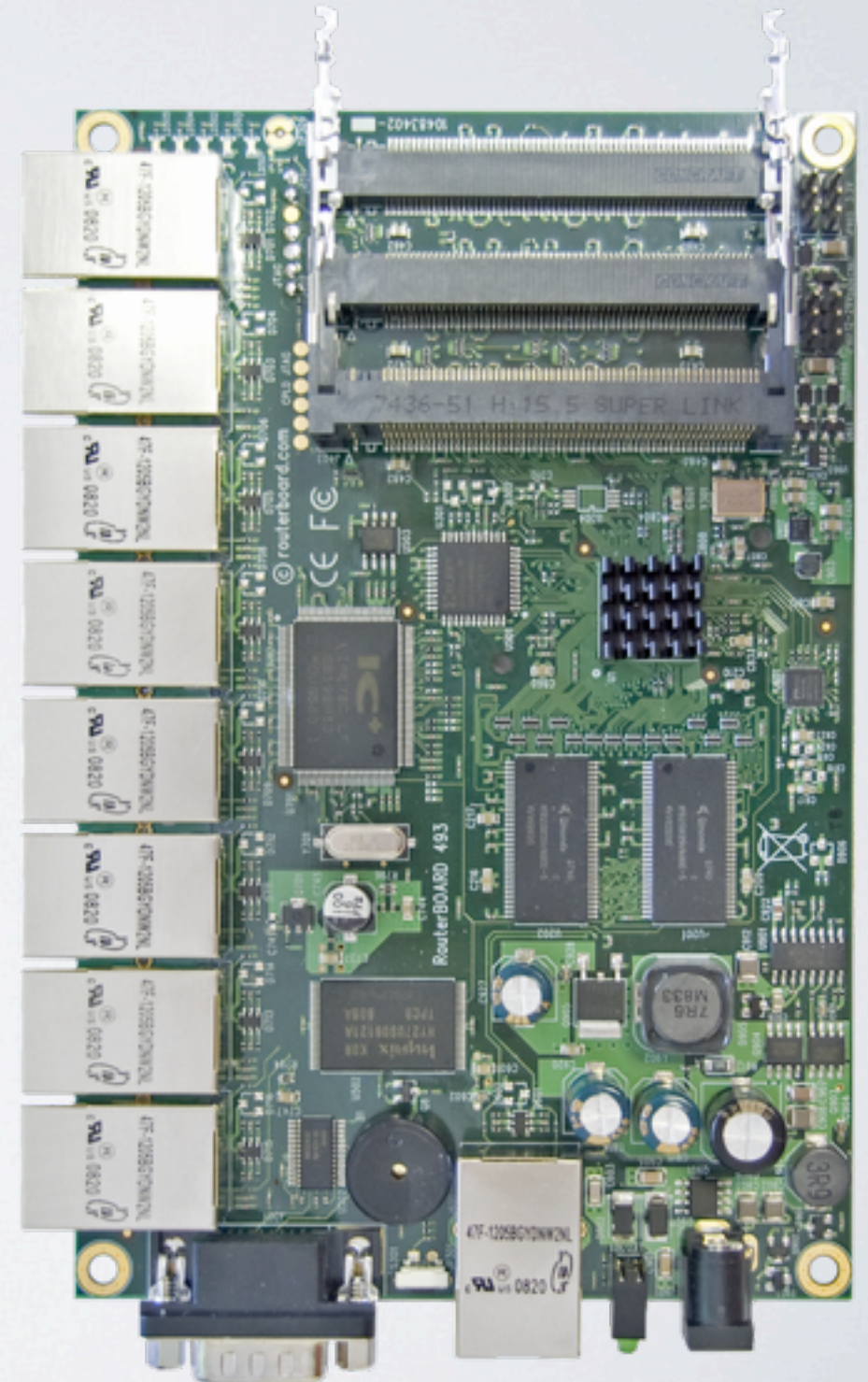
- 5 Ethernet ports (100Mbps or 1000Mbps)
- 99\$, 129\$





# RB493

- Multiport router
- 3 wireless, 9 Ethernet
- RB493, RB493AH, RB493G
- 129\$ - 199\$

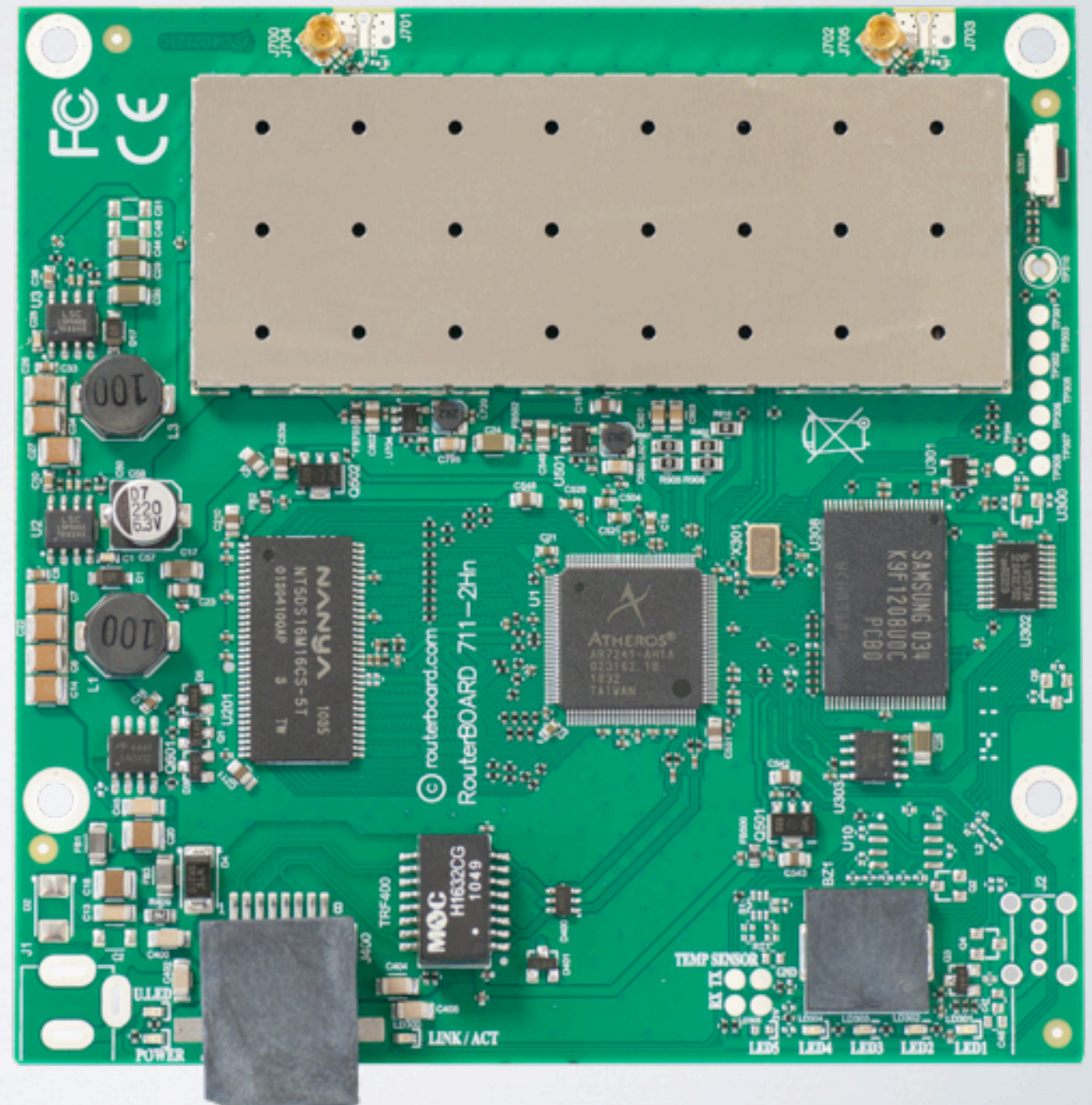




RB7XX SERIES

# RB711

- 2GHz and 5GHz perfect CPE
- Integrated wireless
- More features!
- 45\$ - 89\$





# RB750

- SOHO Ethernet router and low cost gigabit
- 750, 750GL
- 39.95\$, 59.95\$



# RB750UP

- SOHO 5 port Ethernet router
- PoE - out on 4 ports
- 59.95\$





# RB75 I

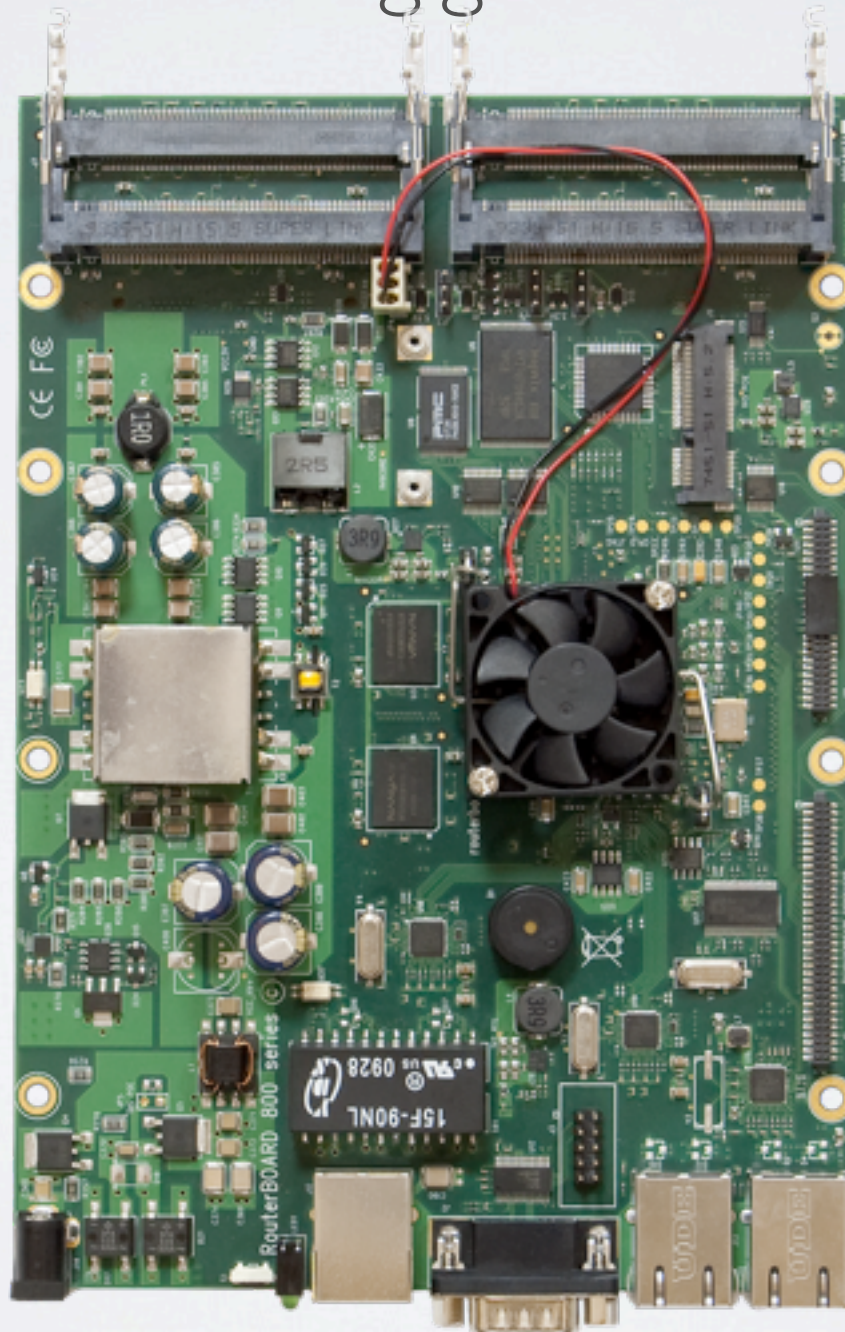
- Ready to use indoor AP
- 75IU, 75IG
- 59.95\$, 79.95\$





# RB800

- The most powerful wireless router
- 4 MiniPCI slots and 3 gigabit Ethernet
- 359\$





# RB951

- Home wireless AP
- Small and powerful
- 45\$



# RB95 | ad





Integrated solutions

# Groove

- 2GHz or 5GHz outdoor unit
- Only antenna is required
- 69\$ - 89\$





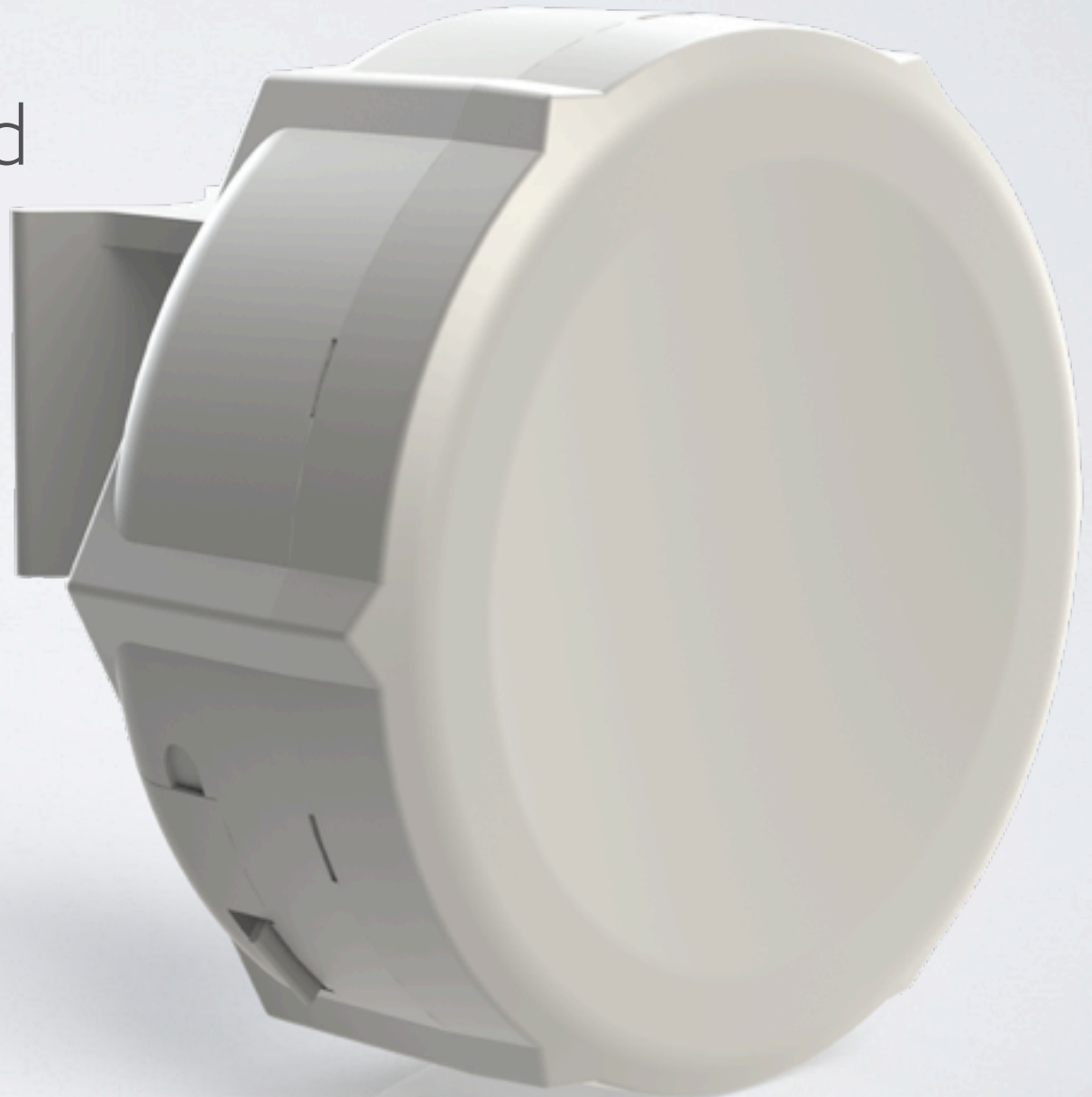
# Metal

- 2GHz or 5GHz outdoor unit
- Completely waterproof and rugged
- Only antenna is required
- 99\$



# SXT

- Low cost high speed outdoor device
- 2GHz and 5GHz
- Everything is included
- 89\$ - 99\$





# SEXTANT

- Outdoor point to point solution
- 5GHz
- 100Mbps and 1000Mbps
- 110\$-119\$



# OmniTIK

- Outdoor AP with dual-polarized omni antennas
- PoE-out on UPA version
- 89\$ - 99\$





# RBMetal-2SHPn

- \$99
- 2.4GHz | 600mW!
- N-Male коннектор
- Прочный и водонепроницаемый
- RouterOS уровень 4





# R2SHPn

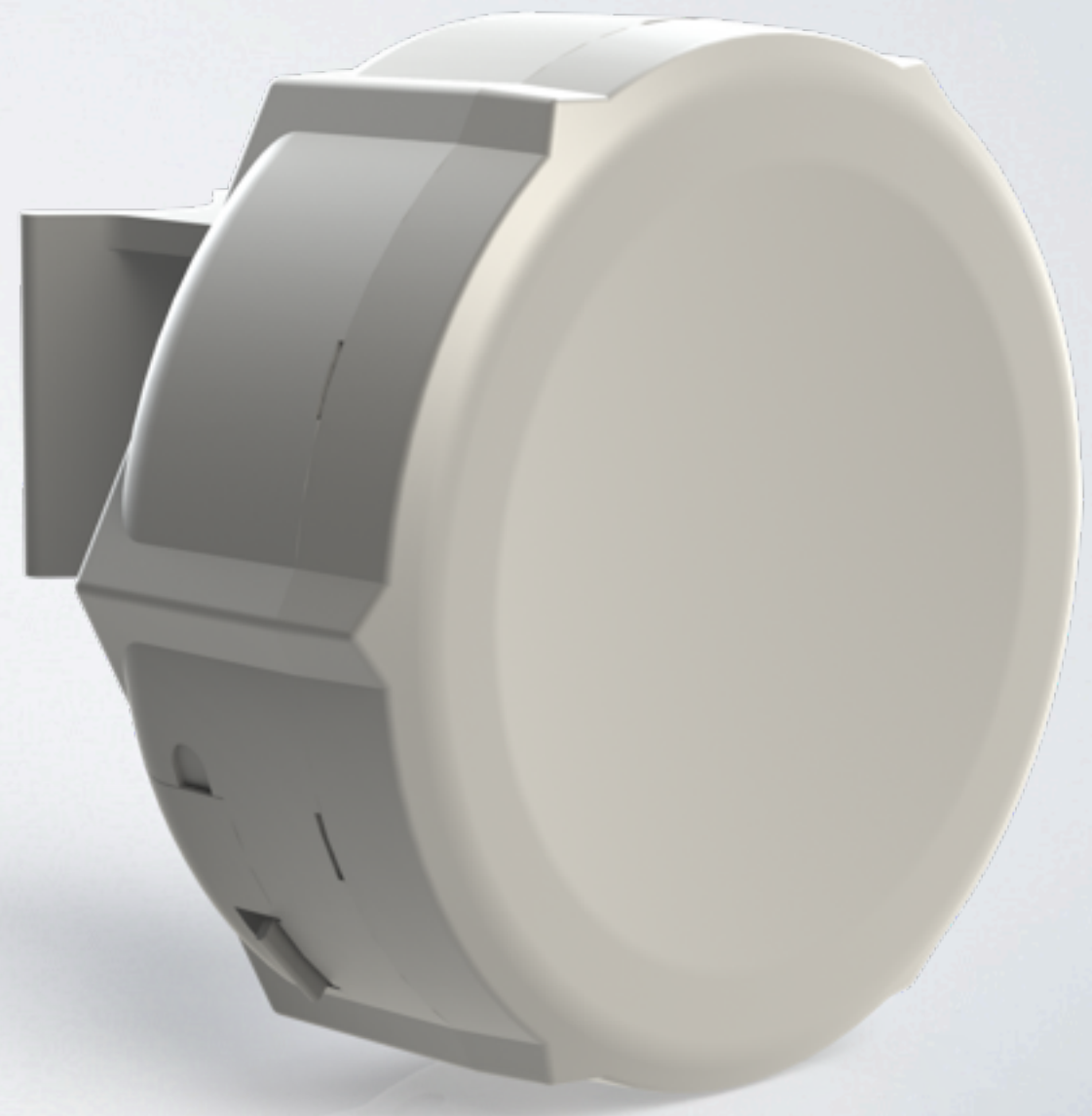
- \$49
- 1600mW
- 125Mbps
- MiniPCI





# SXTG-2HnD AP/CPE

- \$79
- 60° секторная антенна 10dBi
- 1000M порт
- Точка доступа, клиент



# Rackmount solutions



# RB 1200

- Low cost Rackmount
- 10 Gigabit ports
- 349\$



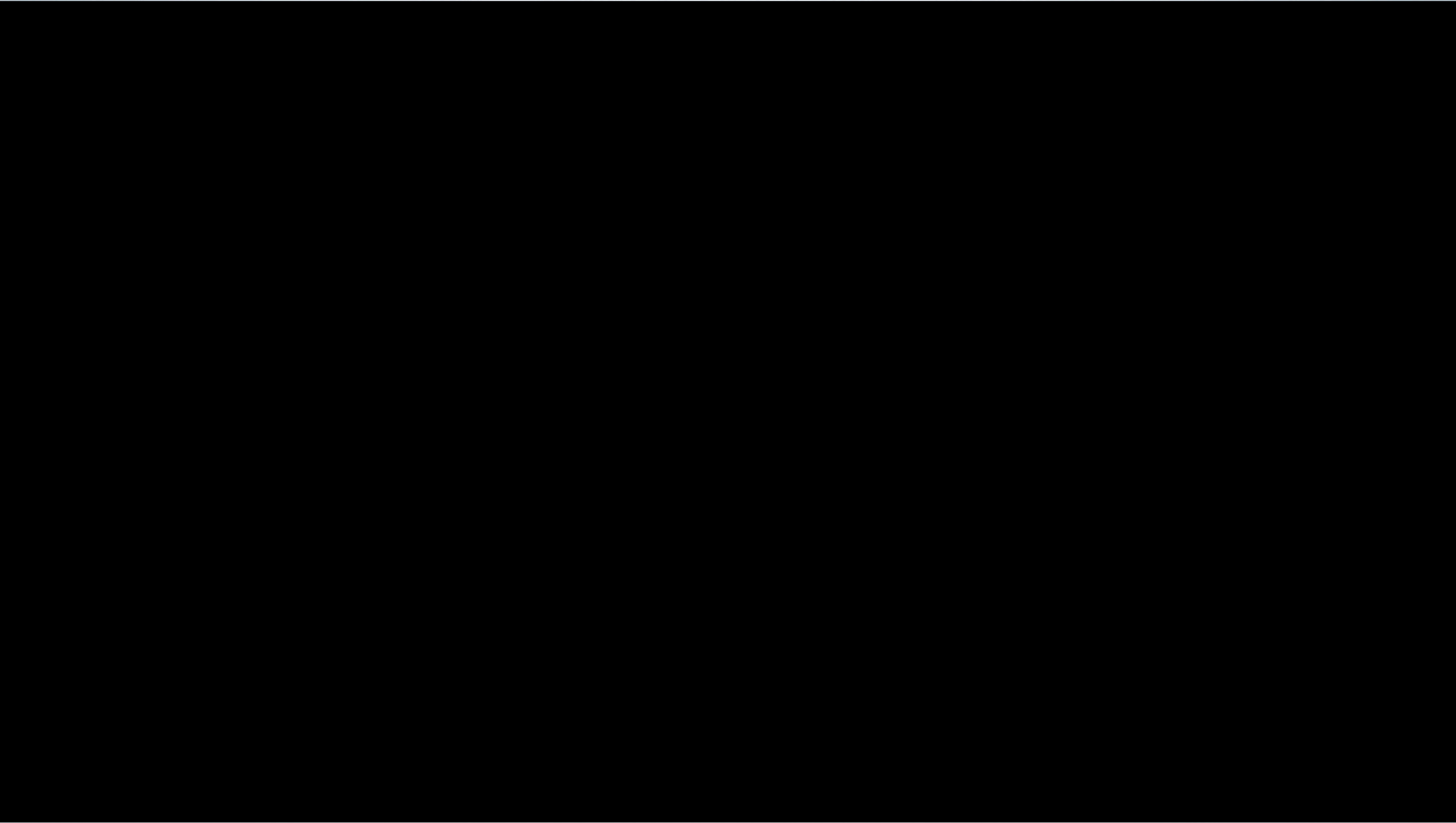
# RB 1100

- High-performance 1U
- 1100AH, 1100X2, 1100AHx2
- 395\$ - 495\$





CCR







# CCR1036-12G-4S

- 36 ядер, 1.2GHz ядро
- 1U
- 12x 1000M, 4x SFP
- LCD
- 2GB RAM
- 24 миллионов PPS, 16Gbit
- \$995



MikroTik  
CLOUD CORE



CLOUD CORE  
ROUTER CCR-1012  
10G



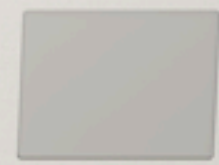
ETH 1 ETH 2 ETH 3 ETH 4 ETH 5 ETH 6 ETH 7 ETH 8 ETH 9 ETH 10 ETH 11 ETH 12



RESET

CONSOLE

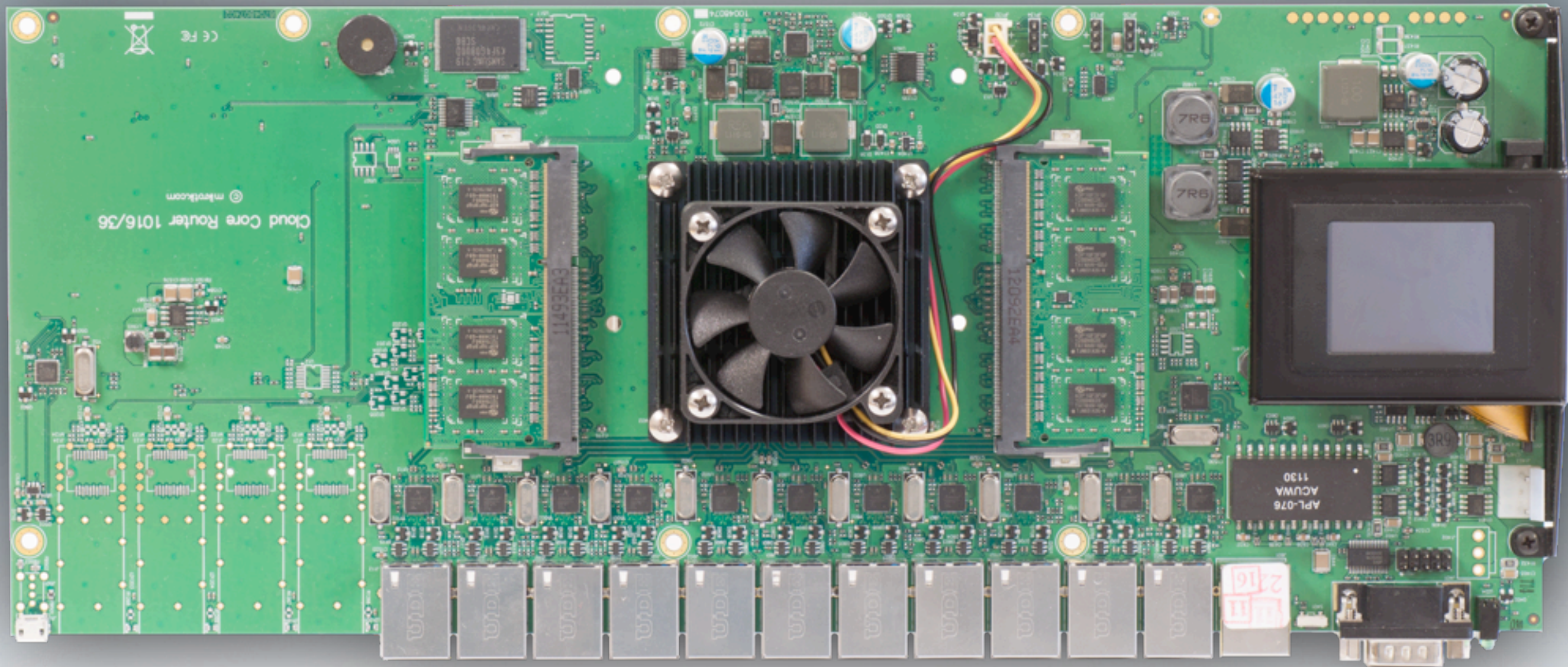
MikroTik



# CCR1016-12G

- 16 ядер, 1.2GHz на ядро
- 1U
- 12x1000M
- LCD
- 2GB RAM
- 18 million PPS, 12Gbit
- \$645







# CCR1016-12G-BU

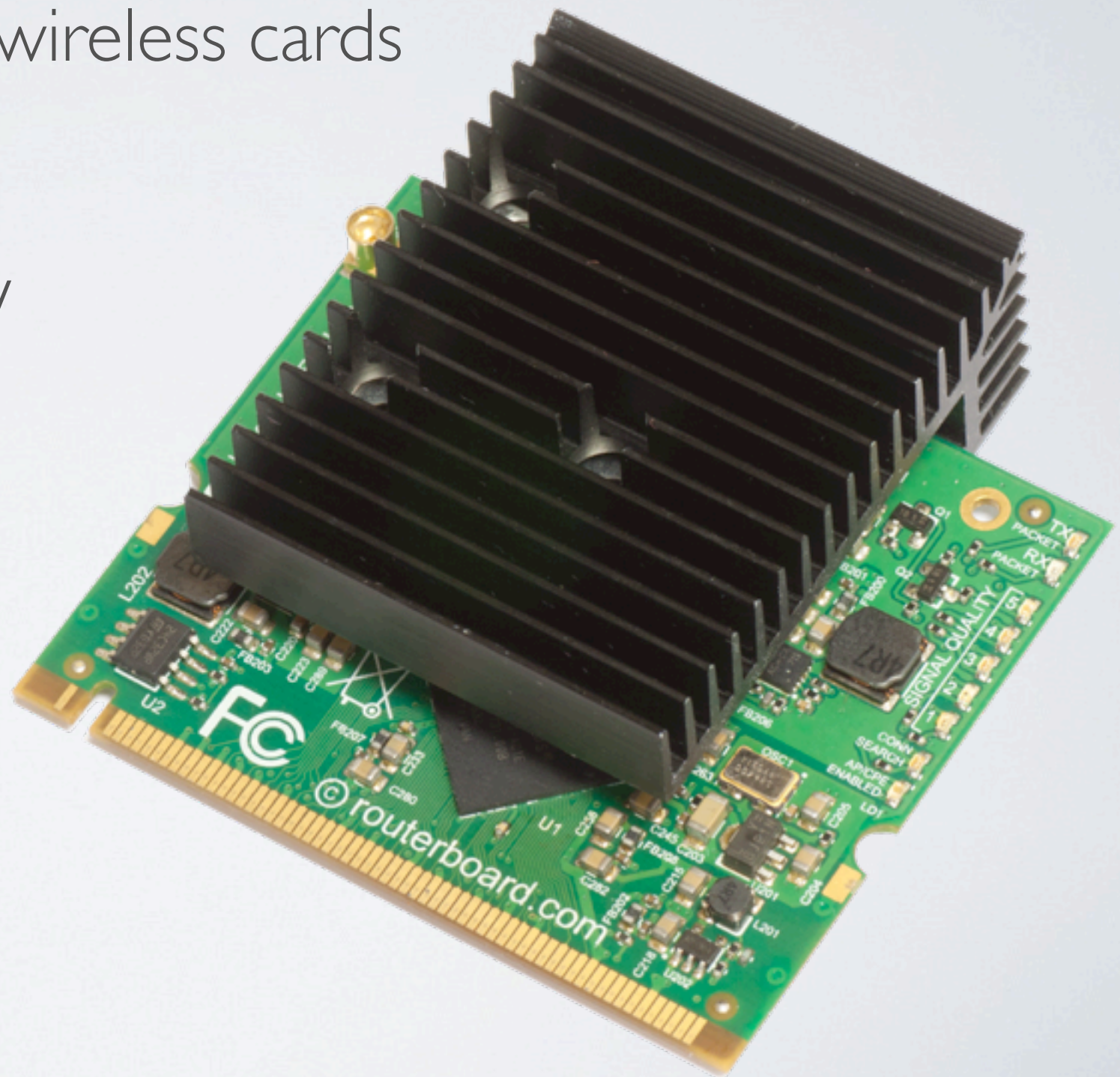
- 16 ядер, 1.2GHz ядро
- Только плата (Board, LCD, PSU)
- 12x 1000M
- 2GB RAM
- RouterOS уровень 6
- \$625



# Interfaces

# SHPN

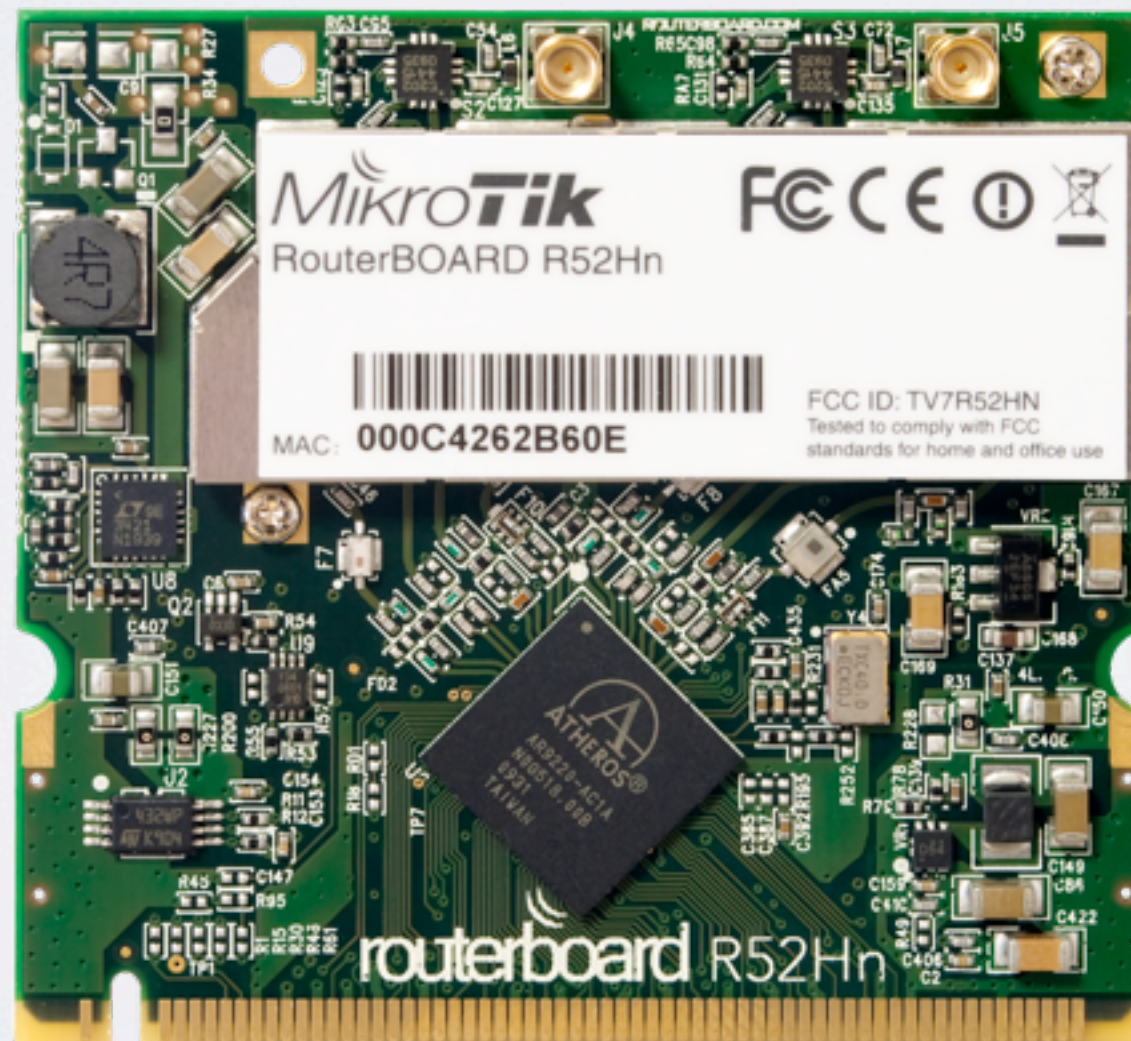
- Super high power wireless cards
- 2GHz and 5GHz
- 1.6W and 800mW
- 49\$, 59\$





# R52

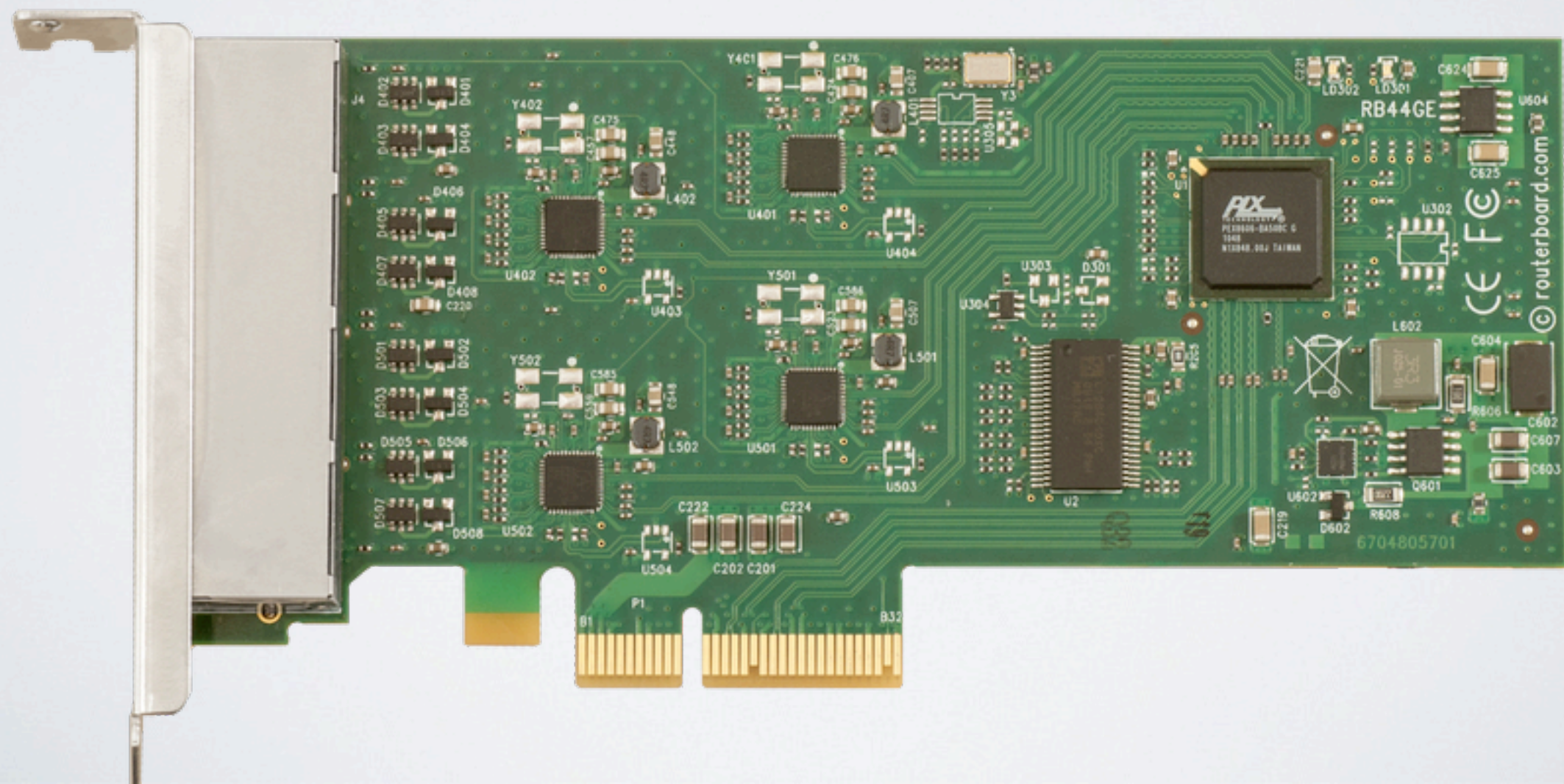
- R52, R52H, R52Hn, R52N-m
- 65mW, 350mW, 350mW, 200mW
- 39\$, 59\$, 59\$, 49\$





# RB44Ge

- Four port Gigabit server adapter
- PCIe 4X
- 99\$





# WHERE TO BUY?

RouterBoard.com : Distributors

routerboard.com/distributors

Reader

## MikroTik Distributors around the world:

**North America**  
Bahamas  
Canada  
USA

**Latin America**  
Argentina  
Bolivia  
Brazil  
Chile  
Colombia  
Costa Rica  
Dominican Republic  
Ecuador  
Guatemala  
Honduras  
Mexico  
Paraguay  
Peru  
Uruguay  
Venezuela

**Africa**  
Cameroon  
Congo The Democratic  
Republic of The  
Egypt  
Kenya  
Liberia

A world map showing the locations of MikroTik distributors. The map is color-coded by continent: North America (light blue), Latin America (light green), Africa (light yellow), Europe (light blue), Asia (light green), and Australia (light yellow). Distributors are marked with numbered circles: blue circles with numbers 3, 6, 7, 8, 9, 10, 14, 21, 28, 32, 45, 67, and yellow circles with numbers 17, 22, 28. The map includes labels for major countries and oceans. A Google logo is visible in the bottom left corner of the map area.

**North America**

Cosmic PC  
Nassau, Bahamas

XAGYL Communications  
Ottawa, ON, Canada

Lama INC  
Quebec, Canada

ROUTEROS



# RouterOS

- Operating system of RouterBOARD and x86
- All possible features for ISP
- Quick and easy to use interface
- Powerful and affordable

# Supported Hardware

- RouterBOARDs
- x86 (every standard CPU, IDE/SATA/SAS/USB/CF, 2GB RAM)



# RouterOS configuration

- Winbox (MAC-Winbox too)
- SSH/Telnet/Console
- Webfig (web-interface)

# Features

- Powerfull QoS control
- RIP, OSPF, BGP, MPLS routing
- P2P traffic filtering
- Statefull firewall
- PPTP/L2TP/PPPoE/PPP/OpenVPN and IPSec
- Bridging with filtering
- High speed 802.11 a/b/g/n
- Wireless TDMA



# Features #2

- WDS and Virtual AP
- HotSpot plug-and-play access
- web-proxy
- SNMP, Traffic-flow and others
- Switching
- RADIUS client
- and much more!

# Price

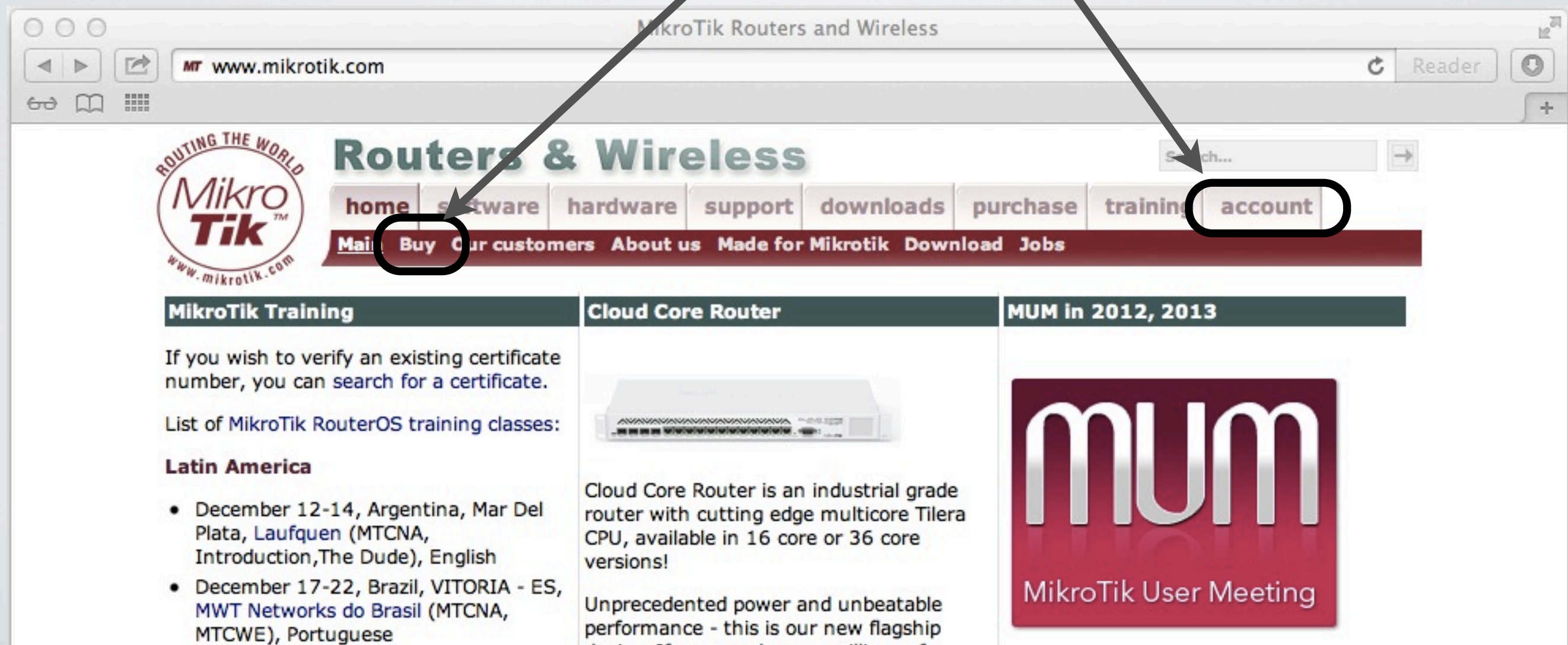
Level number	0 (Demo mode)	1 (Free)	3 (WISP CPE)	4 (WISP)	5 (WISP)	6 (Controller)
Price	no key	registration required	volume only	\$45	\$95	\$250

- Level limitation apply
- More information at, <http://wiki.mikrotik.com/wiki/Manual:License>



# Where to get?

- MikroTik.com
- Our distributors



# How to get support?

- Contact your distributor
- MikroTik wiki official documentation, <http://wiki.mikrotik.com/wiki/Manual:TOC>
- Ask other users in the forum, [forum.mikrotik.com](http://forum.mikrotik.com)
- Hire MikroTik certified consultant for full configuration support, <http://www.mikrotik.com/consultants>
- Contact [support@mikrotik.com](mailto:support@mikrotik.com), if you find software issue or to get advice for your setup



# PARTNERSHIP POSSIBILITIES

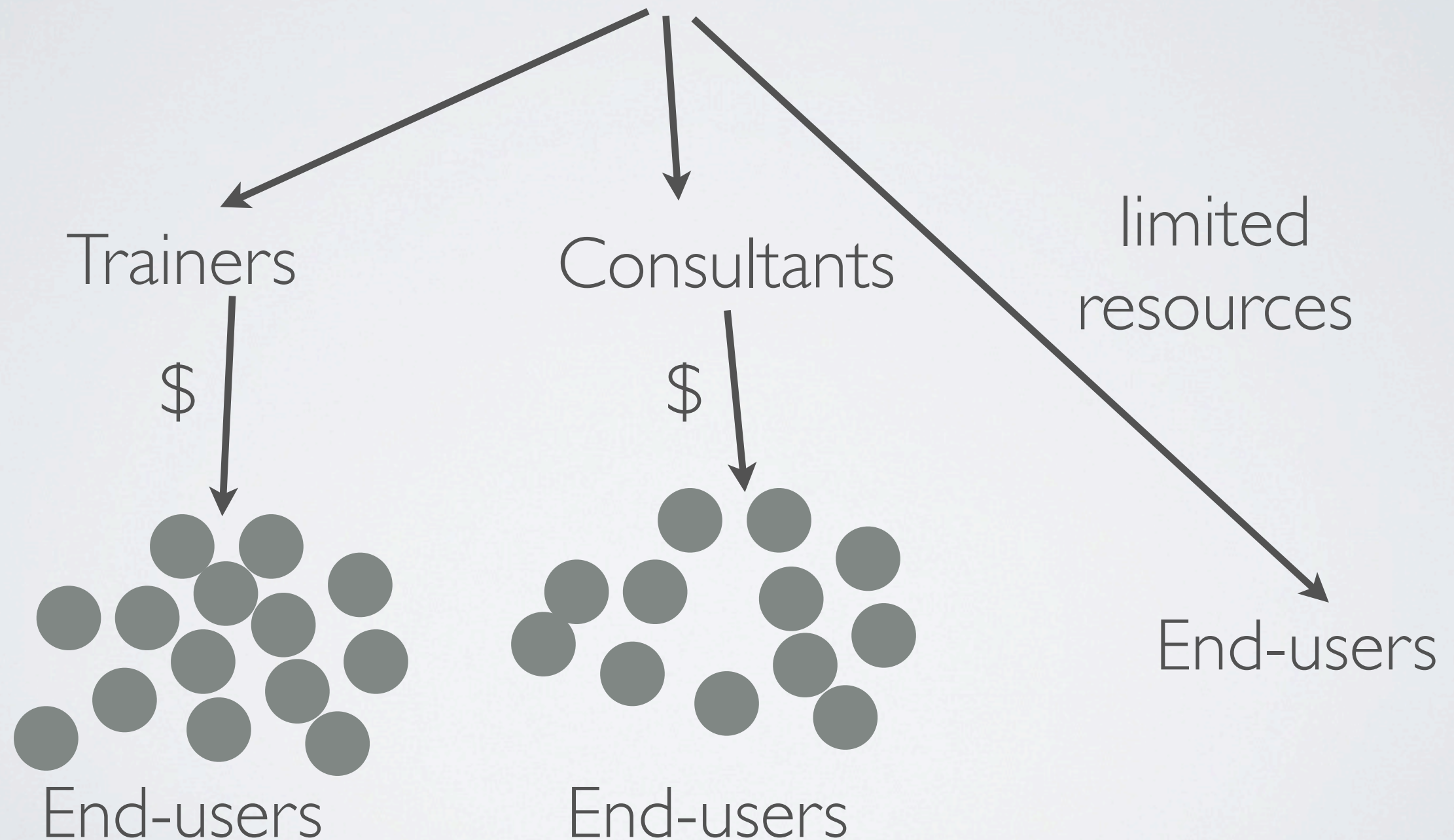
- Consultants (support)
- Training (training)
- Academy (training)
- Distributors (sales)
- Made for MikroTik program (manufacturing)



# CONSULTANTS

# Support and Training

*MikroTik*





# Consultants

- RouterOS and/or RouterBOARD experts
- Are or have been working on their own networks
- Attended MikroTik Training and have passed certification

# Consultants

- Hire MikroTik certified consultant to get full configuration support and other services



## Routers & Wireless

[home](#)[software](#)[hardware](#)[support](#)[downloads](#)[purchase](#)[training](#)[account](#)[Main](#)[Buy](#)[Our customers](#)[About us](#)[Made for Mikrotik](#)[Download](#)[Jobs](#)

### List of MikroTik Certified Consultants





# Become Consultant

- MTCNA and advanced MikroTik certificate
- Knowledge and experience in MikroTik configuration
- Provide us with your contact details
- Participate in the MikroTik forum and MUM

TRAINING



# Training

- Developed and provided by MikroTik Certified Trainers
- Organized around the World

## MikroTik Training events and institutions around the world:



# Certification types

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



# Certification

- Official MikroTik outline
- Certification tests provided by MikroTik
- Onsite attendance is required

## North America

- January 15-17, USA, Houston, Steve Discher - LearnMikroTik.com (**MTCNA**), English
- January 21-23, USA, Pittsburgh, MPL Corporation (**MTCNA**), English
- February 04-08, USA, Salt Lake City, UTAH, Link Technologies, Inc (**MTCNA, MTCWE, MTCRE, MTCTCE**), English
- February 05-08, USA, Dallas, LearnMikrotik, Wireless Connect Ltd (**MTCINE**), English
- March 04-08, USA, St. Louis, MO, Link Technologies, Inc (**MTCNA, MTCWE, MTCRE, MTCTCE**), English
- May 06-10, USA, St. Louis, MO, Link Technologies, Inc (**MTCNA, MTCWE, MTCRE, MTCTCE**), English

## Latin America

- December 12-14, Argentina, Mar Del Plata, Laufquen (**MTCNA, Introduction, The Dude**), English
- December 17-22, Brazil, VITORIA - ES, MWT Networks do Brasil (**MTCNA, MTCWE**), Portuguese
- December 18-19, Argentina, BUENOS AIRES, SOLUTION BOX - CIBERNEK (**MTCNA, Introduction**), Spanish
- December 20-22, Argentina, Buenos Aires., Laufquen (**MTCTCE, MTCRE**), Spanish
- January 07-10, Argentina, Buenos Aires., Laufquen (**MTCNA, Introduction**), Spanish
- January 16-19, Brazil, RECIFE - PERNAMBUCO, Gera Tecnologia (**MTCWE, MTCNA, Introduction**), Portuguese
- January 25-26, Brazil, RECIFE - PERNAMBUCO, Gera Tecnologia (**MTCRE**), Portuguese
- February 18-20, Brazil, São Paulo, WDC Networks (**MTCNA**), Portuguese
- February 18-20, Honduras, Tegucigalpa, MikroTik Xperts (**MTCNA, The Dude**), Spanish
- February 20-21, Argentina, BUENOS AIRES, SOLUTION BOX - CIBERNEK (**MTCNA, Introduction**), Spanish
- February 21-22, Honduras, Tegucigalpa, MikroTik Xperts (**MTCTCE**), Spanish
- March 07-09, Bolivia, La Paz - TecTel, Ing. Jorge Filippo - Optimix.com.ar (**MTCTCE, MTCWE, MTCNA, The Dude**), Spanish
- March 09-11, Bolivia, Sta Cruz - Tectel, Ing. Jorge Filippo - Optimix.com.ar (**MTCTCE, MTCWE, MTCNA, The Dude**), Spanish
- March 28-April 01, Peru, Lima - Infocom+SGDS, Ing. Jorge Filippo - Optimix.com.ar (**MTCWE, MTCNA, The Dude**), Spanish

## Africa

- December 11-14, Nigeria, Ibadan, NISTech Ltd (**MTCNA, MTCWE**), English
- January 29-February 01, Nigeria, Ibadan, NISTech Ltd (**MTCNA, Introduction**), English



# How to become a Trainer?

- Motivation and resources to provide
- MTCNA and one advanced certificate (>75%)
- Pass Training for Trainers course organized by MikroTik





# MikroTik Training

- 185 Training partners
- Europe - 79
- Asia - 54
- North America 12
- Africa - 12
- South America - 26

# Certificates by region

- Europe - 4065
- Asia - 5128
- North America - 1132
- South America - 2304
- Africa - 1137



# Certificates by type

- MTCNA - 8341
- MTCRE - 1568
- MTCWE - 1504
- MTCTCE - 1141
- MTCUME - 204
- MTCINE - 238



*Mikro* **Tik**  
ACADEMY

The logo for Mikrotik Academy features the word "Mikro" in a black, italicized serif font. Above the letter "i" in "Mikro" are two curved lines. The word "Tik" is in a bold, black, sans-serif font. Above "Tik" is a stylized black icon of a building with a triangular roof and horizontal lines representing windows. Below "Tik" is the word "ACADEMY" in a black, italicized, all-caps sans-serif font, which is underlined.



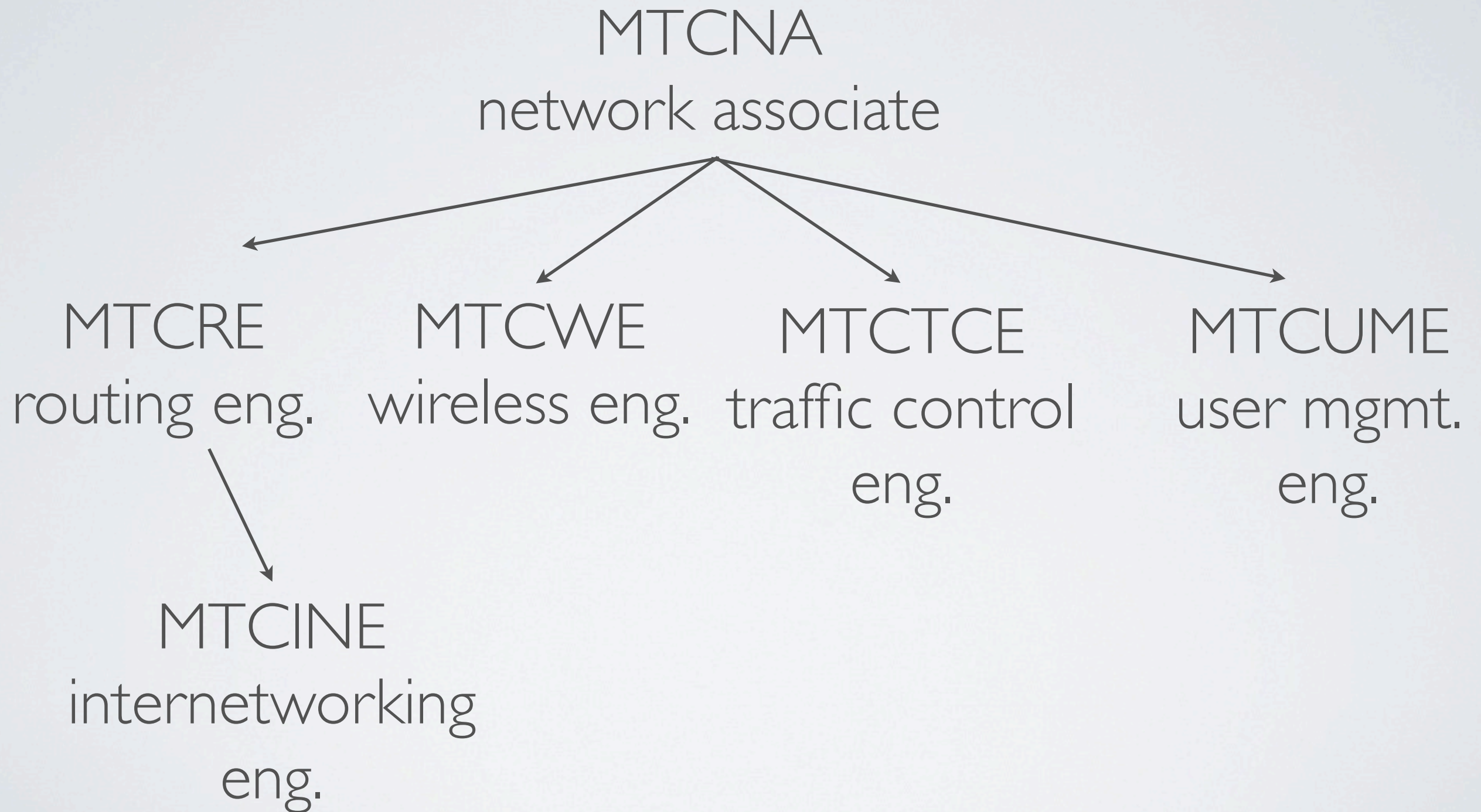
# Purpose

- Expand RouterOS learning
  - universities
  - technical schools
  - colleges
  - institutions with semester based course





# MikroTik Certification



# MikroTik Academy

MTCNA  
network associate





# Academy Training

- Basic Networking course
- RouterOS as learning tool
- MTCNA certification
- MTCNA outline

# Academy Coordinators

- Regional MikroTik Training Centers
- supervises implementation of MikroTik Academy program
- not exclusive
- well informed about the education system in their country



# Benefits

for Students:

cost effective way to acquire knowledge in networking

no charges by MikroTik

opportunity to acquire MTCNA certificate during academic studies

# Benefits

for Educational Institutions:

upgrade current program with networking course covering the latest technology features

no additional financial investment

opportunity to attract more students by handing out MikroTik certificates



# Benefits

for Training Centers - Coordinators:

prepare Academy Trainers (sponsored by MikroTik)

presence in MikroTik webpage and newsletters

new students for MikroTik engineer courses

# Benefits

for Distributors:

advertising by providing equipment for a class

knowledgeable engineers (new employees?)

more educated users = more requirement for equipment



# MikroTik offers

to Educational institutions:

Training outline and materials

Promotional merchandise

RouterBOARD 951-2n for the labs

online MTCNA certification test

RouterOS licenses to students

# Requirements

for Educational Institutions:

motivation

space and equipment for the labs

Internet access

MikroTik Academy Trainer

approved training materials



# Requirements

for Academy Trainers:

lecturer at the educational institution

MTCNA certificate (>75%)

any MikroTik engineer level certificate (>75%)

appropriate teaching skills

# How to apply?

- Fill out the form online
- [mikrotikacademy.com](https://mikrotikacademy.com) - form and more information



# Evaluation Procedure

performed by coordinators or MikroTik:

educational institution validation

verification of the Academy Trainer

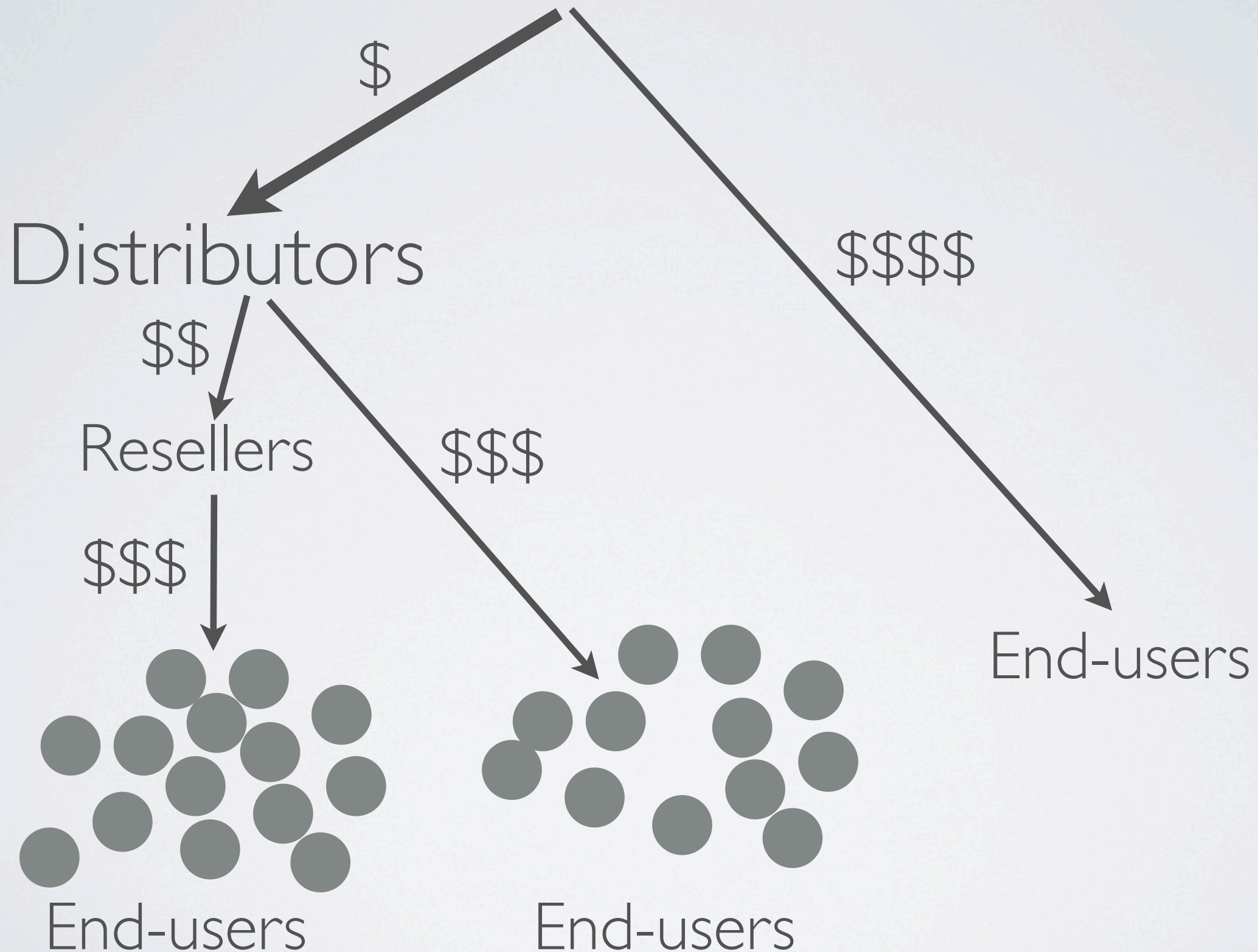
verification of training materials

verification of students

SALES



# MikroTik



# Why Distributors?

- better prices
- shorter lead times
- local support in native language
- flexible sales policy



# Distributors

- Place orders directly with MikroTik
- Sell MikroTik products to resellers and end users

# Requirements

- MikroTik products related webpage
- At least one MikroTik Certified Engineer in the company
- purchase volumes
- <http://www.mikrotik.com/buy>



# Resellers

- Purchase products from MikroTik Distributors (no direct purchases from MikroTik)
- sell MikroTik products to end users
- Requirements:
  - MikroTik products related webpage
  - At least one MikroTik Certified Engineer in the company

# Integrators

- Made for MikroTik
- companies make turnkey solutions based on RouterBOARD and RouterOS
- assembled CPE/AP devices
- preinstalled Integrated antennas
- rackmount solutions





# Accessory Makers

- Made for MikroTik approved companies
- RouterBOARD compatible cases
- outdoor antennas



# Software Developers

- Companies make software applications to be used with RouterPS
- MikroManage
- TikBox
- etc.





# Distributors + Trainers

- Trained customers lead to:
- increase in sales
- less support request
- more feedback

# Thank you!

