New
Obvious and Obscure
MikroTik RouterOS v6 features

New Orleans,
MUM USA 2012

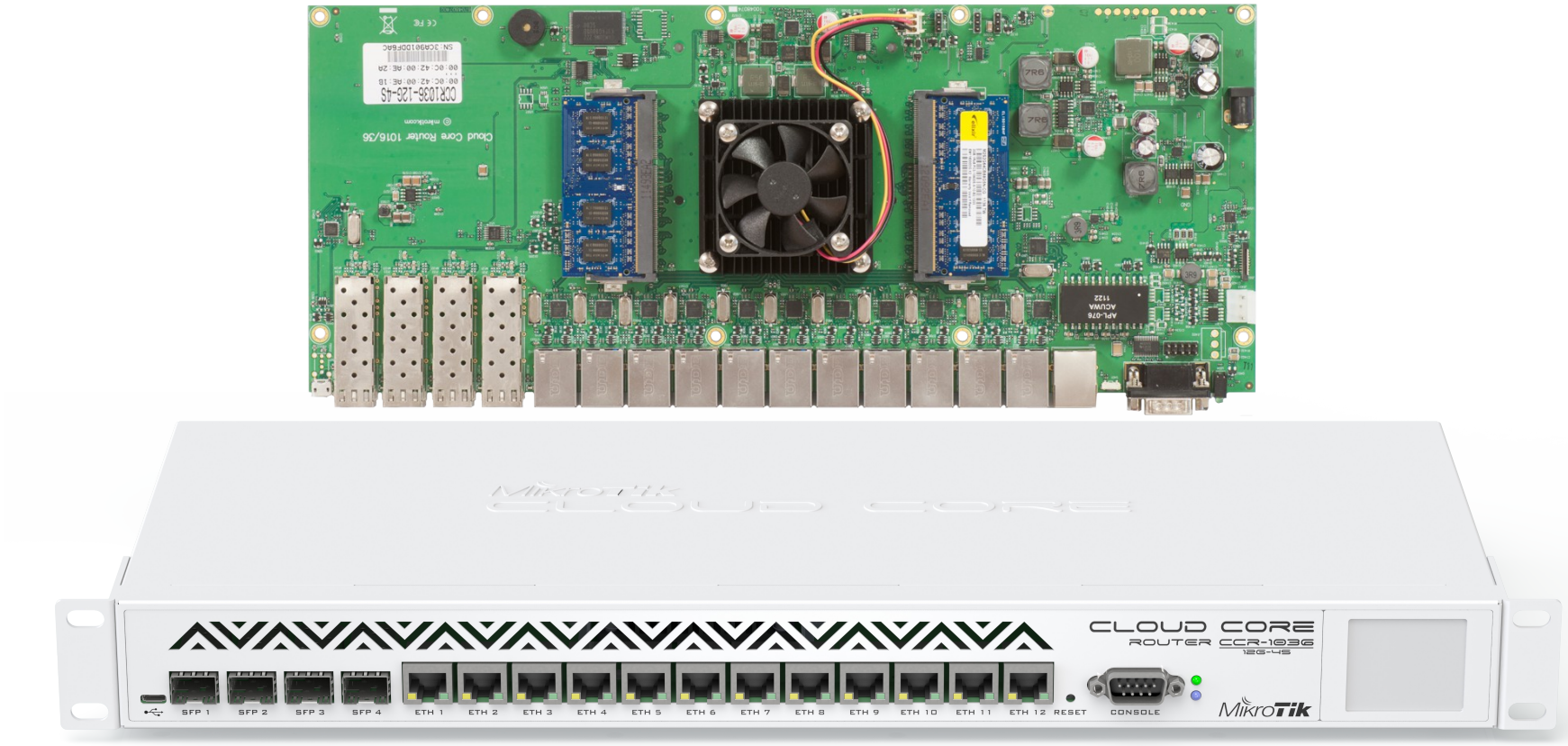
Good News Everyone!!!

RouterOS v6.0 full release is almost here!!!

(there is still chance to delay it by reporting nice errors – it is all in your hands)

Support for New Products

- Full support of announced and unannounced CloudCore devices will be added only for RouterOS v6.x (and above)



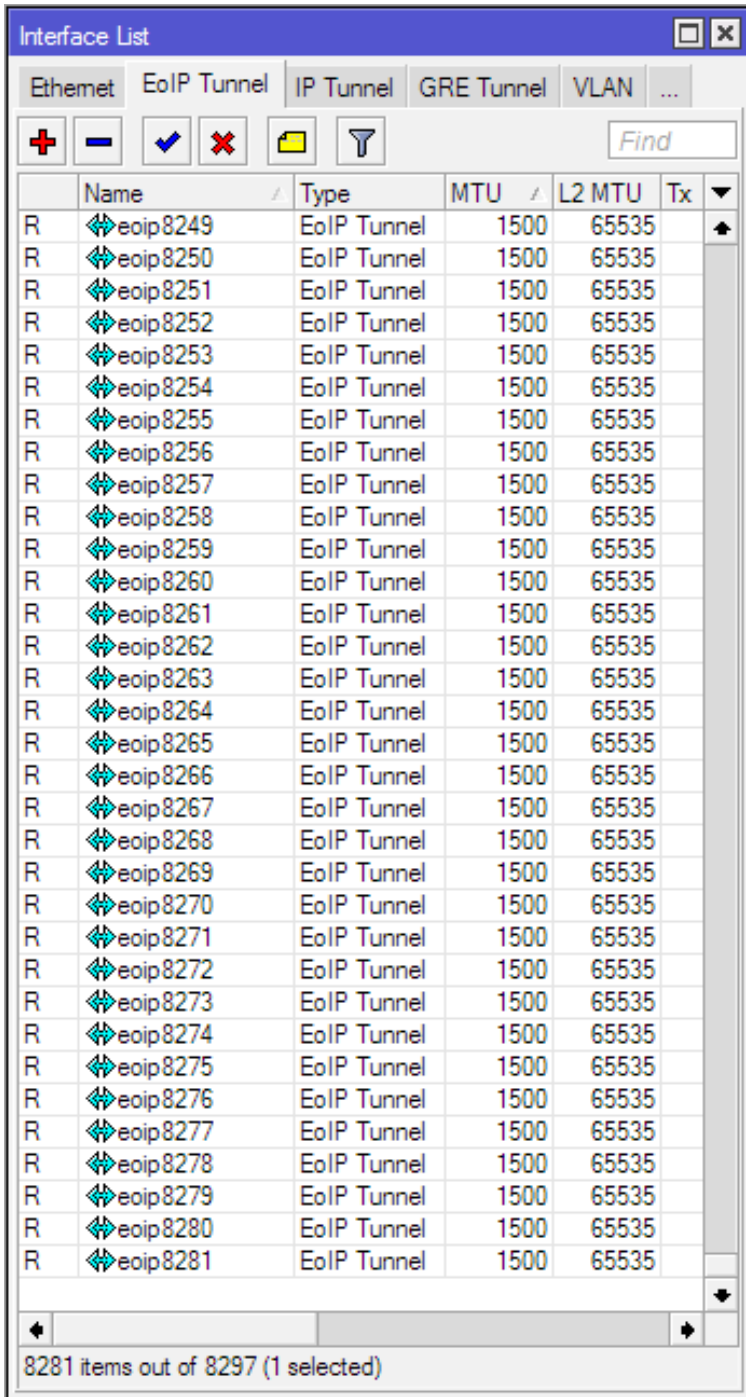
New Linux Kernel

- RouterOS 5.21
  - Linux Kernel version 2.6.35
- RouterOS 6.x
  - Linux Kernel version 3.3.5+

- For more detailed information see:
  http://www.kernel.org/

New Kernel Features

- Newest interface driver support for x86 systems
- Improved interface management - scales well for up to thousands of interfaces and more
- Uses less space on storage - works well with 32MiB flash

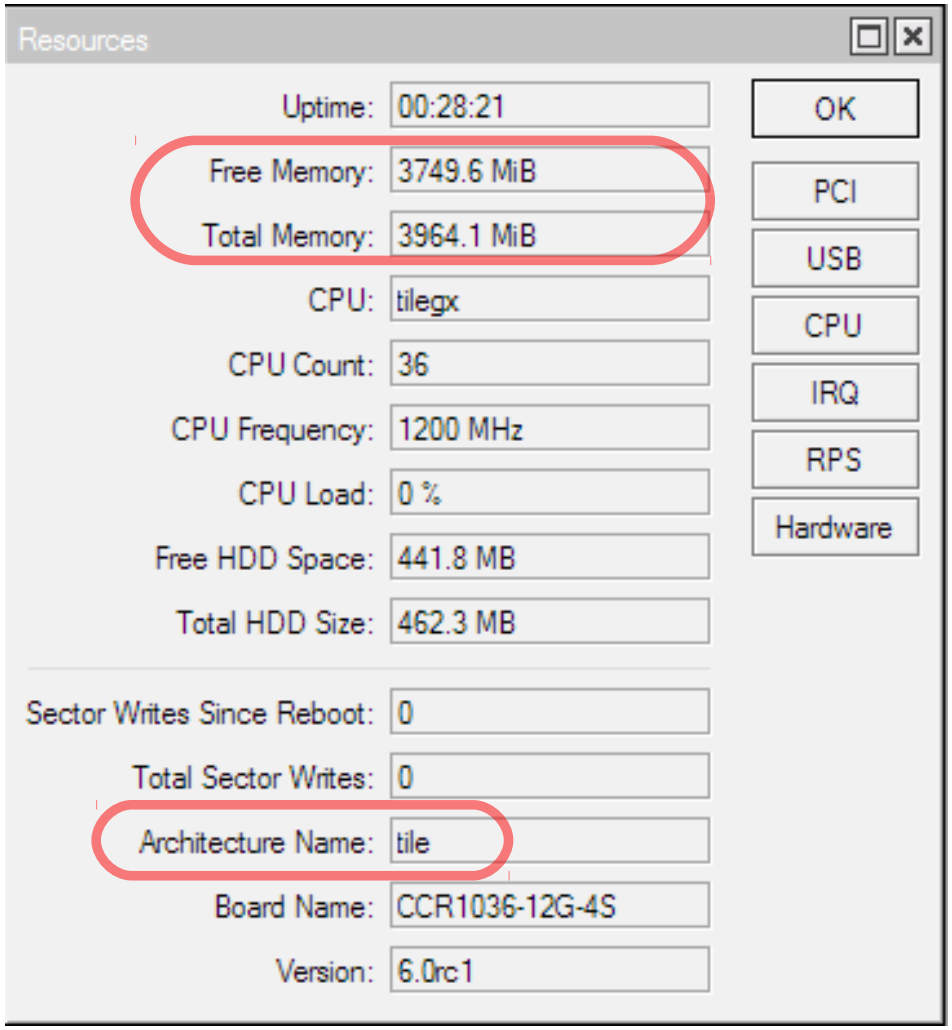


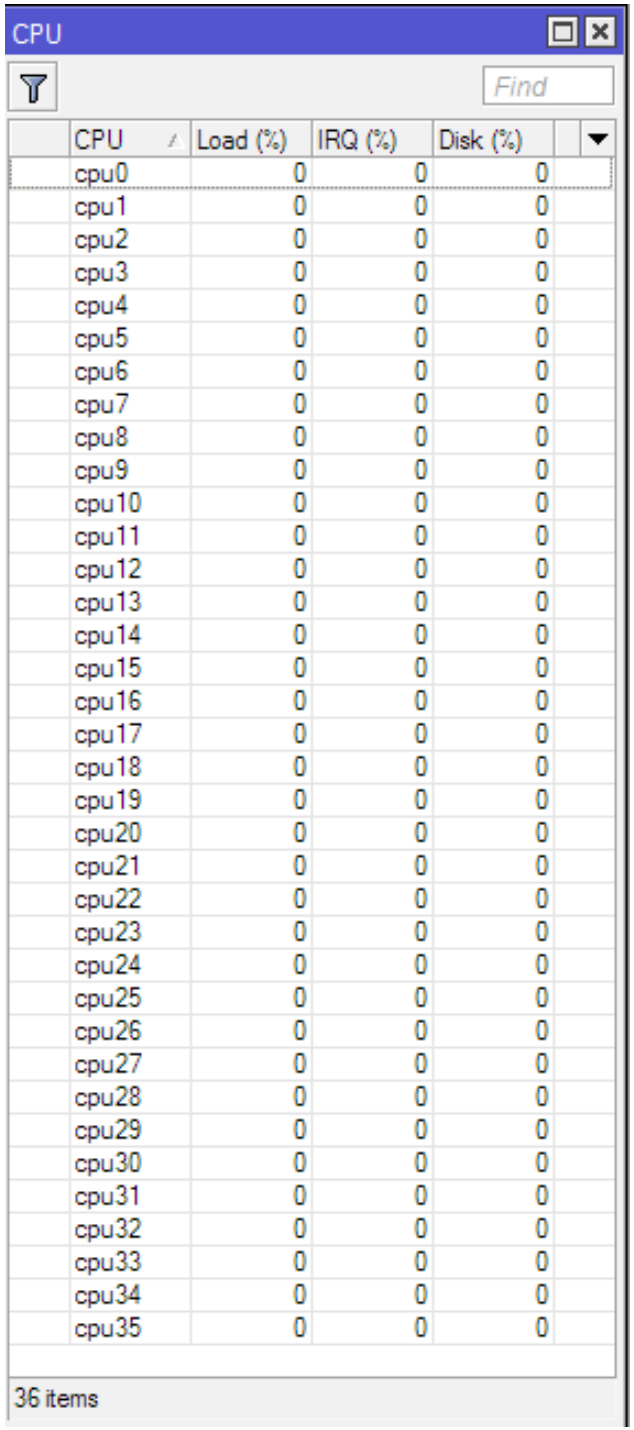
New CPU architecture support

- In v5.x there were 4 different architectures
  - Mipsle (RB1xx, RB5xx)
  - Mipsbe (RB4xx, RB7xx, RB9xx, RB2011)
  - ppc (RB1xxx, RB6xx, RB8xx)
  - X86
- In v6.x there will be one more
  - Tile (CCR1xxx)

RouterOS Tile architecture

- Only for CCR devices
- 64-bit operating system (more RAM)
- Dual memory channel support (faster RAM)
- Hardware Accelerated Multi-threading (no need for RPS and IRQ managment)

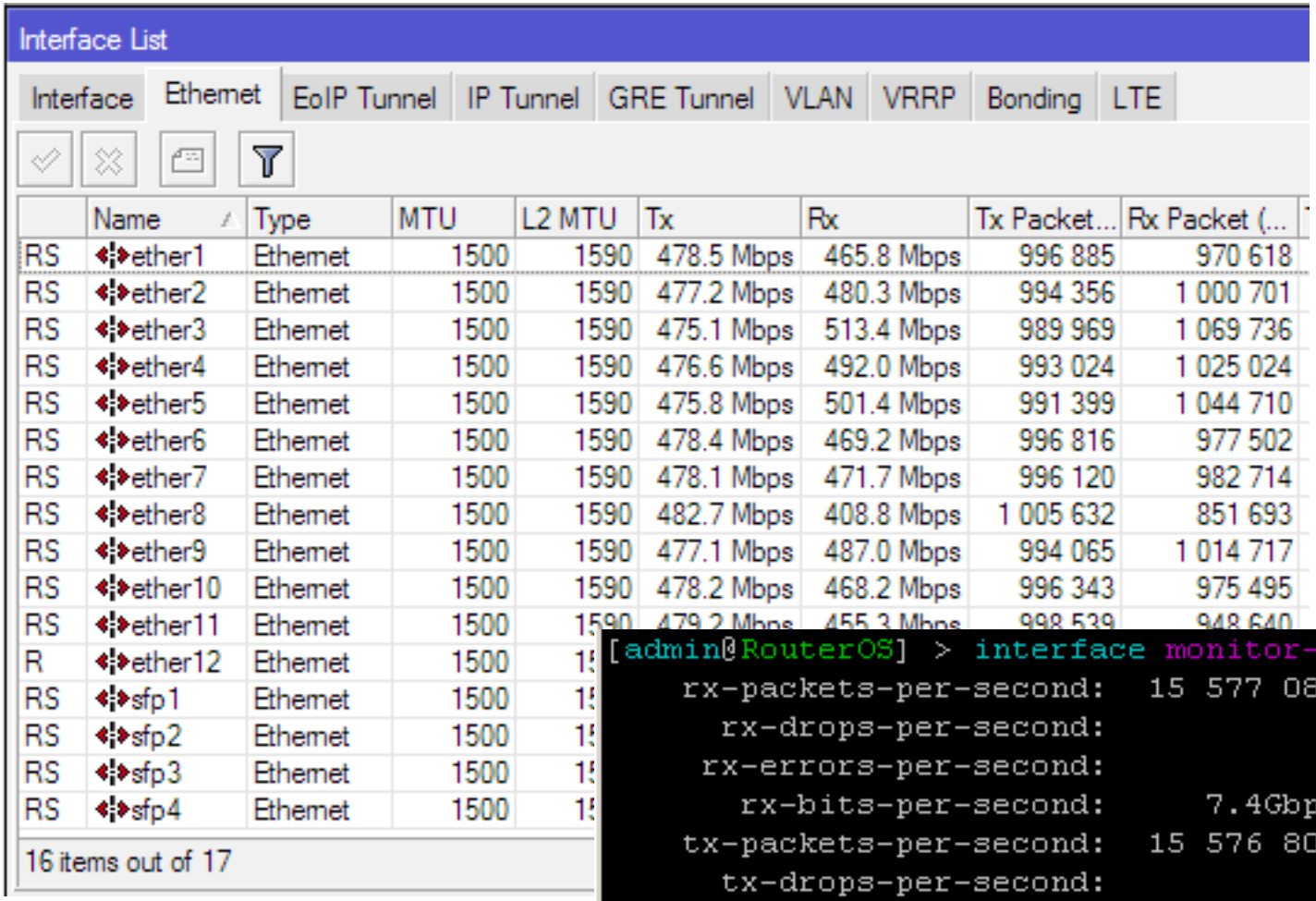




What else is new?

- Lifted 16 CPU core limit
- Improved RouterOS performance on multi-cpu systems (up to 20%)
- Improved RouterBOARD interface driver performance (up to 30%)
- Routerboard package is now merged into system package

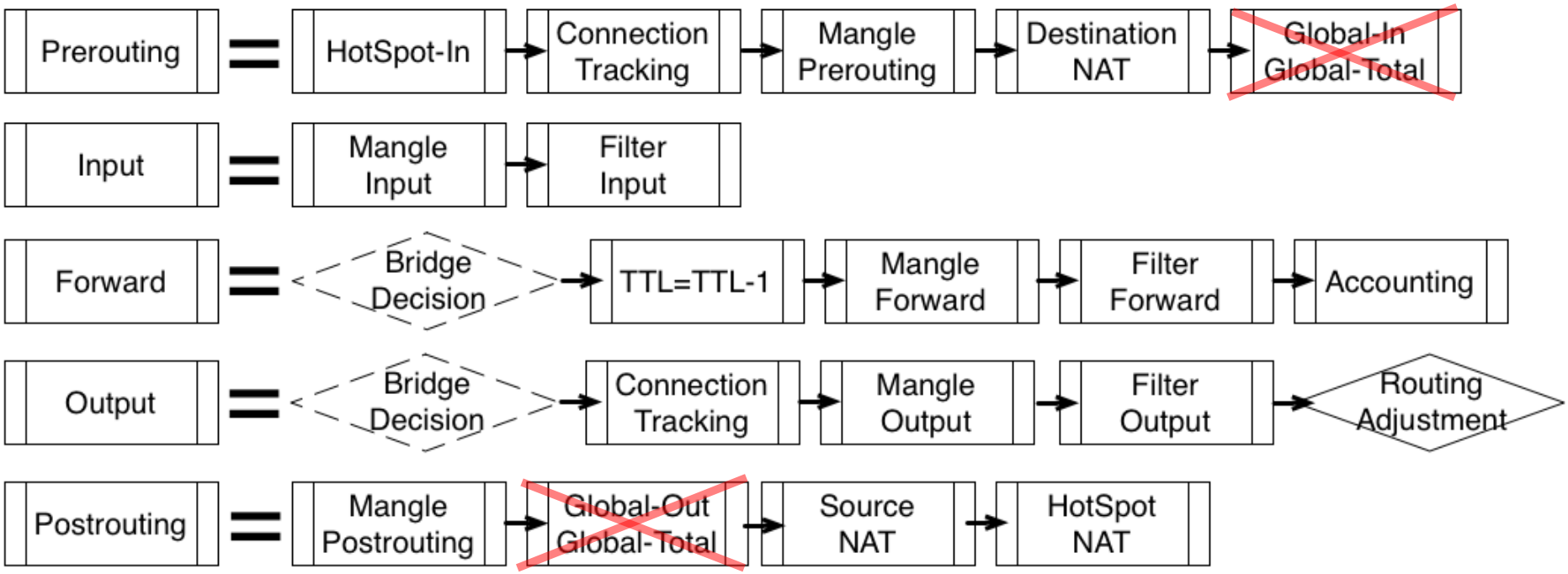
Throughput in millions pps



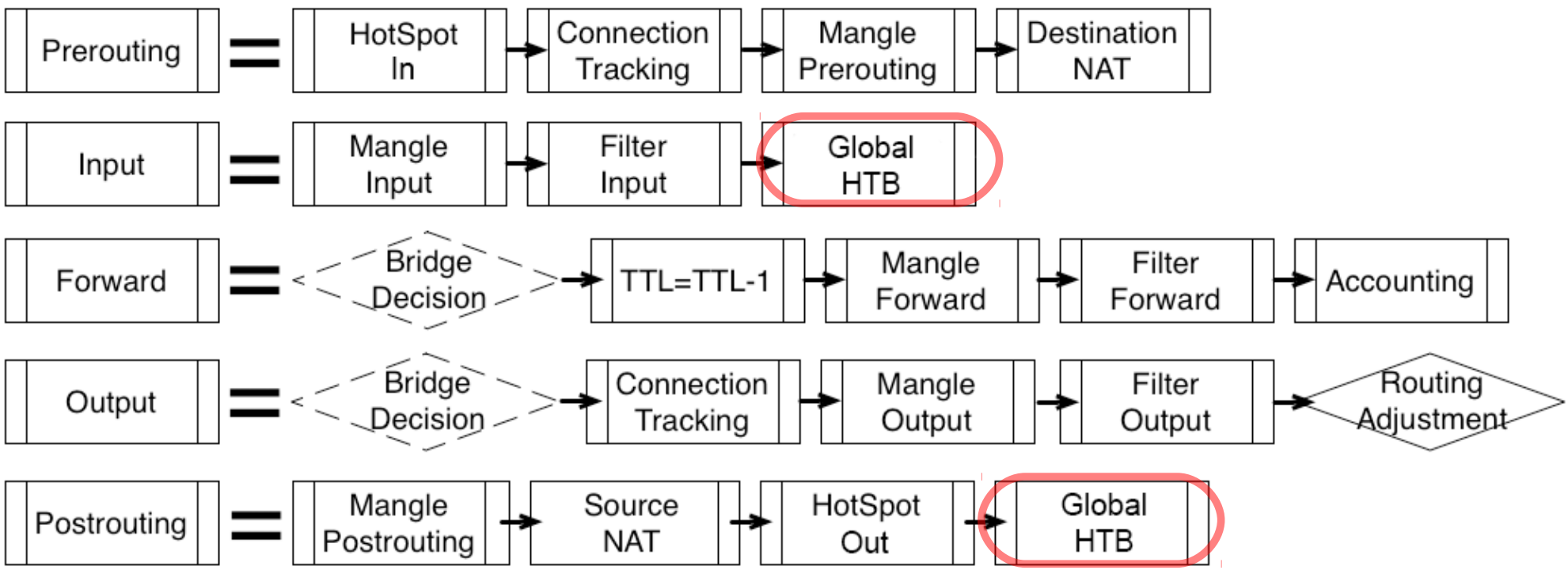
QoS System Reworked

- “Global-in”, “Global-out”, “Global-total” parent in /queue tree are replaced with “Global” that is similar to “Global-total” in v5;
- PCQ queue type is tied to connection tracking and now is NAT aware (just like "/queue simple" and "/ip traffic-flow");
- Simple queues now happen in a different place - at the very end of “Postrouting” and “Input” sections of RouterOS (Packet Flow Diagram)

HTB in RouterOS v5

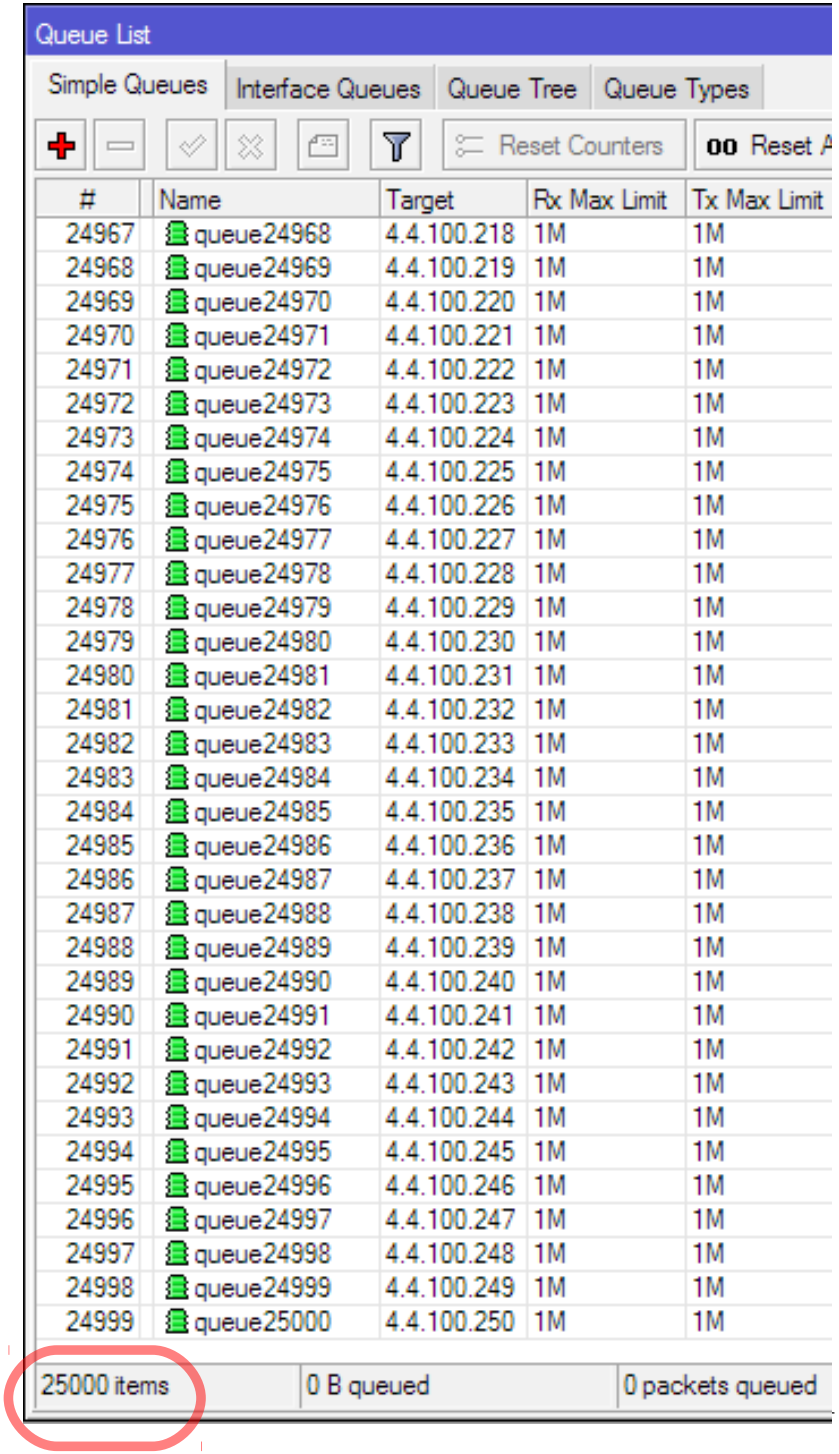


HTB in RouterOS v6



Queues

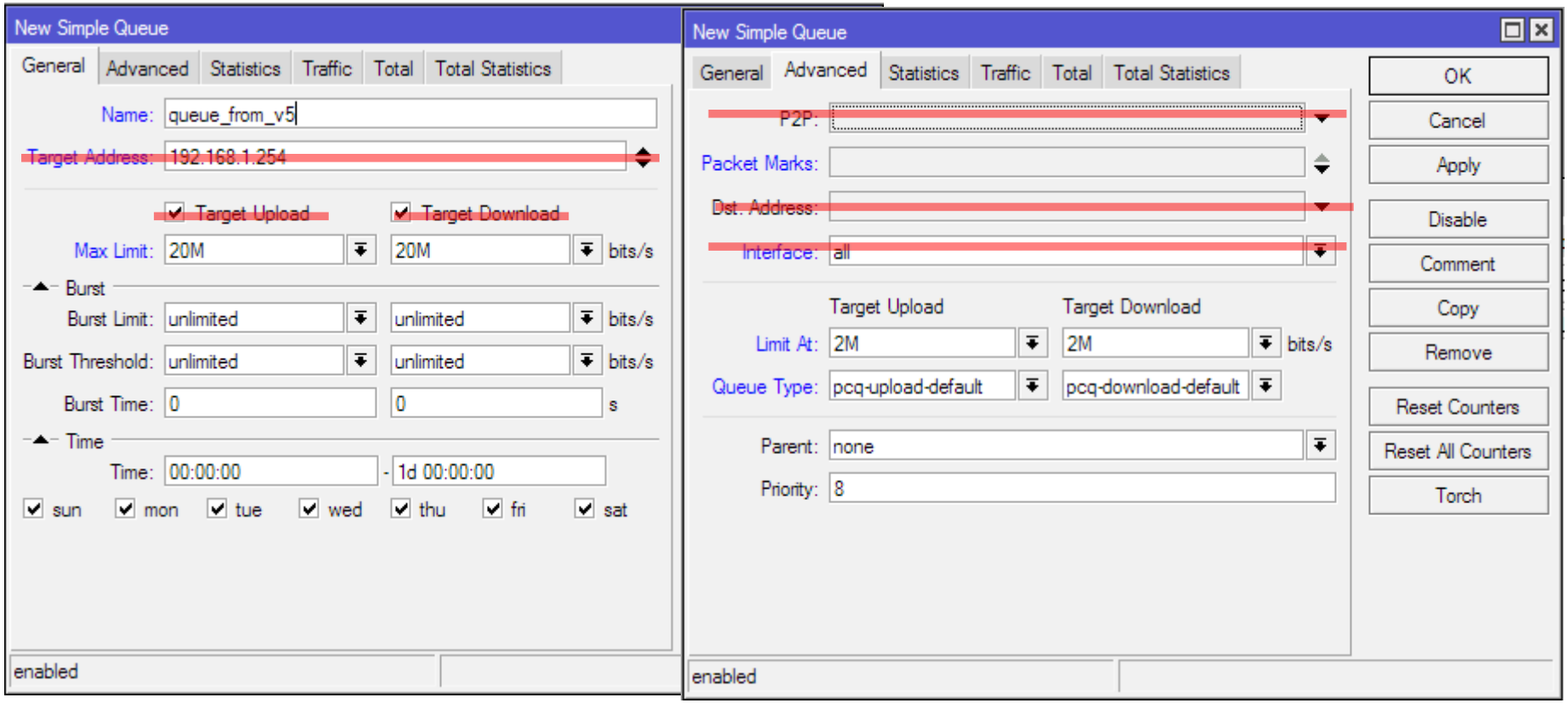
- Very small overhead for packets that miss existing simple queues
- Queues now easily handles tens of thousands queue rules
- Improved overall router performance when simple queues are used (up to 600%, yes, 600% improvement)



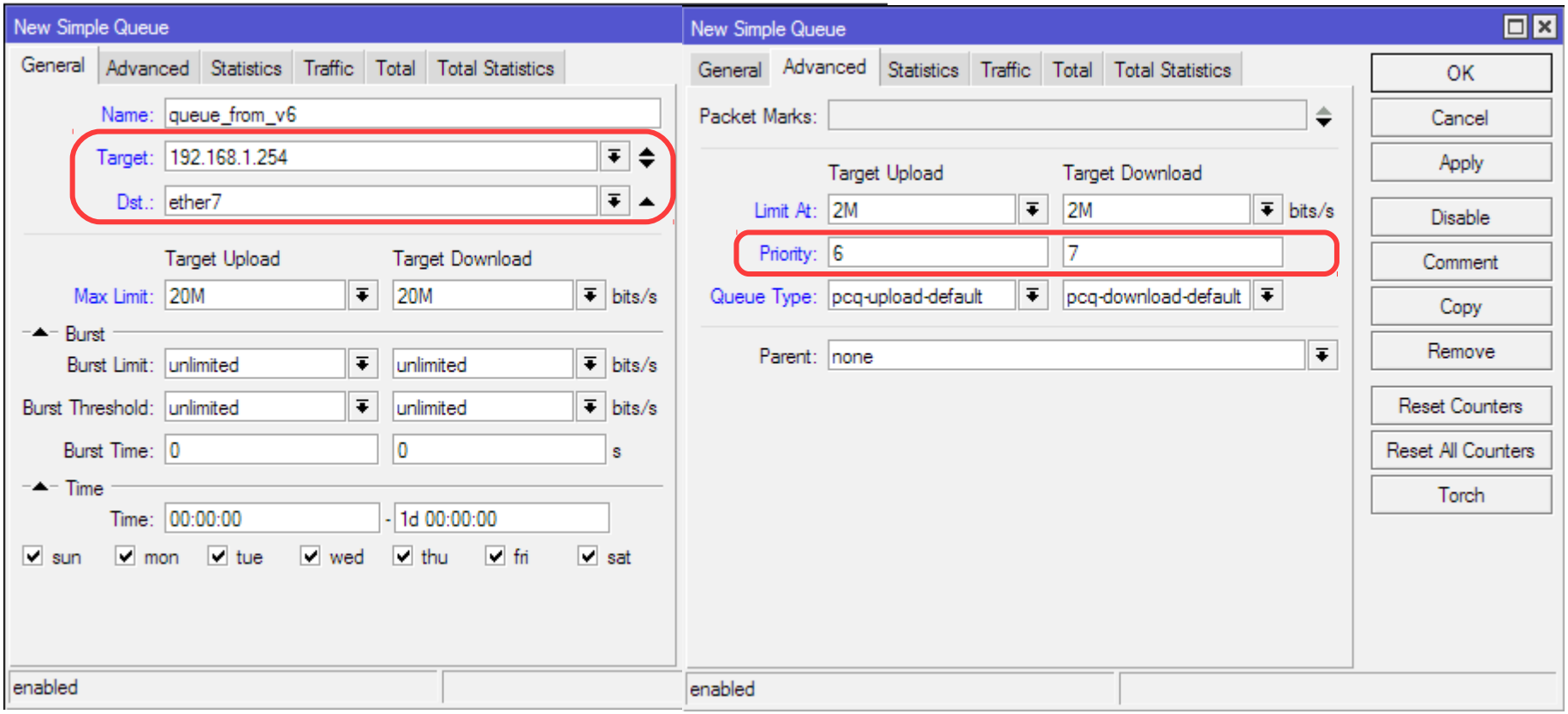
Simpler Simple Queues

- “target-addresses” and “interface” parameters are joined into one “target” parameter, and supports multiple interfaces match for one queue
- “dst-address” parameter is changed to “dst” parameter and now supports destination interface matching
- Separate “priority” parameter for download, upload and total

Simple Queue Interface v5



Simple Queue Interface v6



SCEP Protocol Support

- Simple Certificate Enrollment protocol (SCEP)
- This protocol allows to:
  - get CA certificate from CA server or RA (if used)
  - create self-signed certificate with temporary key
  - send certificate request to the server

as simple as possible.

- More info at:
  http://wiki.mikrotik.com/wiki/Manual:System/Certificates#SCEP

Other Changes

- Slave flag now will show up for interfaces that are in bridge, bonding or switch group
- “/export compact" now is as default for “/export”, use "/export verbose" to get previous behavior
- dhcp-options now can be specified by mixing different data types
- dhcp-client have custom dhcp-option feature (examples at: /ip dhcp-client option print)

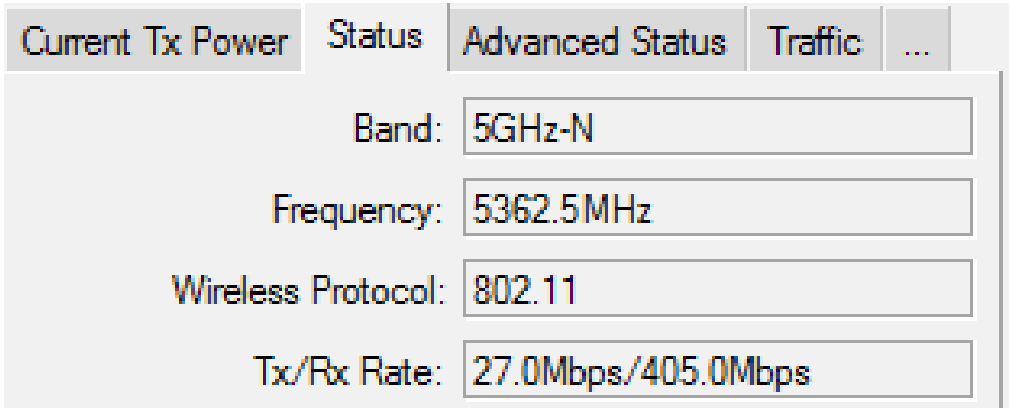
Wireless Advanced Channels

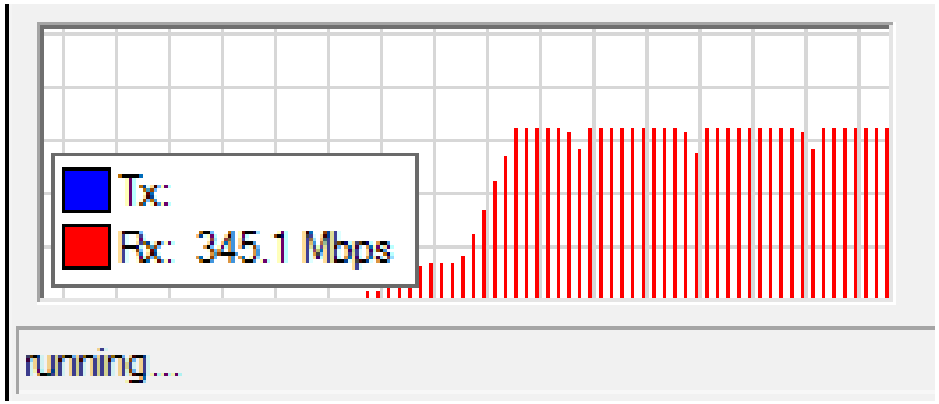
- Works only between Atheros AR92xx chips and only between MikroTik devices
  - center frequency range:
    - 2192-2734mhz
    - 4800-6100mhz
- Choose precise center frequency (0.5MHz step)
- Choose channel width (2.5-30MHz, 0.5MHz step)
- Super-channel license is required to use advanced channels – it is free of charge (only signed document required about proper usage)

Wireless Advanced Channels

- Located in /interface wireless channels
- Allows to name each advanced channel and group them into custom lists
- These names and list names later should be use in wireless clients scan-list, to enable them to see advanced channel APs (old style scan-list entries will not work)
- Custom scan-list options:
  - default, frequency, frequency range
  - advanced channel name or list name

Advanced Channel Test





- Center frequency - 5362.5MHz
- Channel width - 30MHz
- Extension channel – Above
- Maximal data rate – MCS-15, 405Mbps
- Wireless protocol – 802.11n

Questions!!!