Firewall RAW table

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Agenda

- Introduction
- Firewall
- Raw table
- Demo
- Q & A
What is GLC?

- Garda Lintas Cakrawala (www.glcnetworks.com)
- Based in Bandung, Indonesia
- Areas: Training, IT Consulting
- Mikrotik Certified Training Partner
- Mikrotik Certified Consultant
- Mikrotik distributor

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Trainer Introduction

- Name: Achmad Mardiansyah
- Base: bandung, Indonesia
- Linux user since ’99
- Certified Trainer (MTCNA/RE/WE/UME/INE/TCE)
- Mikrotik Certified Consultant
- Work: Telco engineer, Sysadmin, PHP programmer, and Lecturer at Telkom University
- Personal website: http://achmad.glcnetworks.com
- More info: http://au.linkedin.com/in/achmadmardiansyah
Where is Indonesia?
About Telkom University

- Located in Bandung, Indonesia
- 7 Faculties, 27 schools
- Areas: Engineering, Communications, Computing, Business and management, Arts
- 650+ Academic staff, 400+ Administration staff, 20000+ students
- An exchange program
- Runs mikrotik academy program

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Mikrotik academy @ TEL-U

- Started in 2013
- Embedded into schools curricula
- 100% hands-on
- Get MTCNA certification
Mikrotik in Indonesia

- Very popular product for networking
- Early adoption (beginning of 2000)
- Many schools already join Mikrotik Academy programs
- Lots of training classes
- Biggest MUM in the world (2500+ participants, 2-day event)
- Very active community (facebook, telegram, forum, etc)
- What..? you dont know Mikrotik? Where have you been?

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Firewall
What is Mikrotik firewall?

- Is a feature to
  - Control network access (filter)
  - Modify network header (NAT)
  - Marking packet for further processing (mangle)
- Developed from Linux
- Consist of 2 parts: matcher & action
- Executed sequentially
- Netadmin must understand the application’s characteristics in order to build a matcher (e.g. browsing -> using TCP port 80)
How firewall works?

- Setup matcher -> then action
- Mikrotik has lots of options for matcher -> very flexible
- Matcher + Action = Firewall rule
- Rule is executed sequentially
Where the packet is processed? A: see packet flow

Note: ipsec is removed in this diagram
What's the difference between forward and input?
On which chain can you apply filter?
On which chain can you apply NAT?
On which chain can you apply mangle?
Which processes could take more CPU power?
Common place to block DDOS attack? We use filter table (still eating CPU power)
Raw table
Raw table

- allows to selectively bypass or drop packets before connection tracking
- does not have matchers that depend on connection tracking (like connection-state, layer7 etc.)
- If packet is marked to bypass connection tracking, packet de-fragmentation will not occur
Packet flow for raw table

PREROUTING = HOTSPOT-IN → RAW PREROUTING → CONNECTION TRACKING → MANGLE PREROUTING → DST-NAT

INPUT = MANGLE INPUT → FILTER INPUT → HTB GLOBAL (QUEUE TREE) → SIMPLE QUEUES

FORWARD = BRIDGE DECISION → TTL=TTL-1 → MANGLE FORWARD → FILTER FORWARD → ACCOUNTING

OUTPUT = BRIDGE DECISION → RAW OUTPUT → CONNECTION TRACKING → MANGLE OUTPUT → FILTER OUTPUT → ROUTING ADJUSTMENT

POSTROUTING = MANGLE POSTROUTING → SRC-NAT → HOTSPOT-OUT → HTB GLOBAL (QUEUE TREE) → SIMPLE QUEUES
Raw table matchers and action

- No parameters related to connection tracking (l7-filter, conn-mark, bytes, etc)
demo
Combined with connection-limit and address list
QA
End of slides

- Thank you for your attention
- Like our facebook page: “GLC networks”
- Stay tune with our schedule