

# INASP: Effective Network Management Workshops

## Unit 11: Technical Measures (Exercises)

### About these workshops

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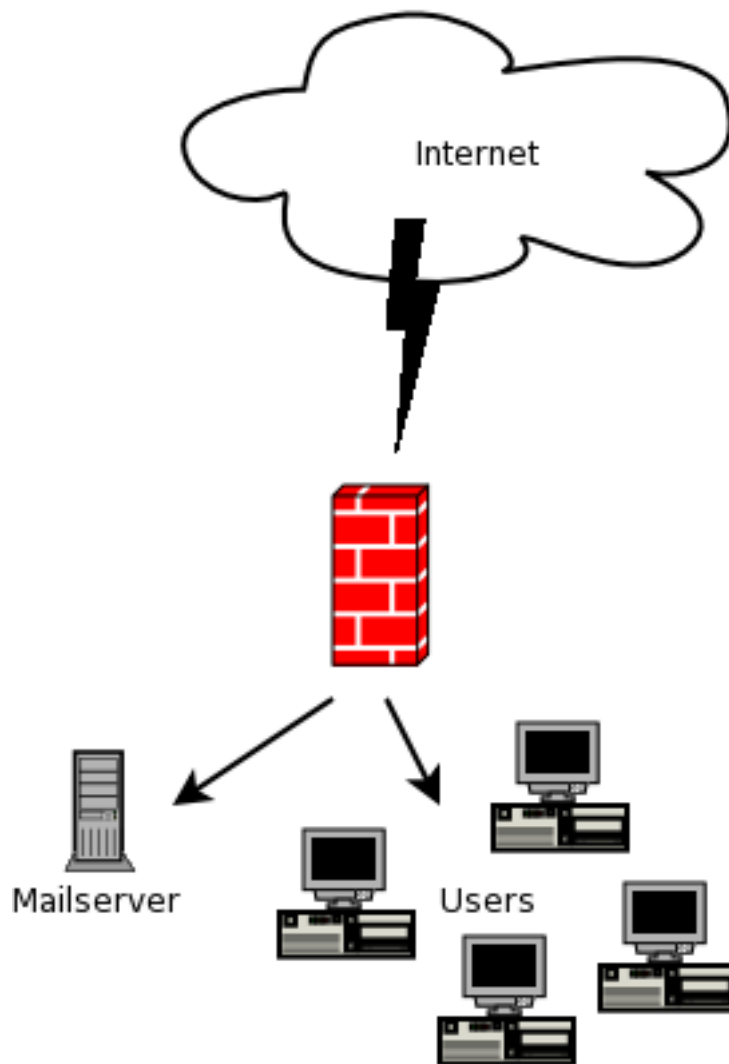
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### Objectives

On completion of this session, we hope you will know about:

- TODO

## Your Setup



## Exercise 1: Installation

Using the notes provided, install BWM Tools

TODO: do we have the notes?

## Exercise 2: Basic Shaping

You have a 128Kbps pipe into the internet, your users browse normal websites extensively to do research. Recently users friends have been distributing large movie clips by email which is pulling your line down. Users are complaining they cannot work.

1. Give web browsing (port 80) priority over email (port 25)
2. Limit email traffic to 32Kbps and allow bursting to 64Kbps if bandwidth is available
3. Use `bwm_monitor` to see if everything is working

## Exercise 3: Reporting & Graphing

The financial director has asked you to provide him with a report of how much bandwidth is being used by email and to compare it to the legitimate browsing traffic.

1. Setup reporting for the flows you created in Exercise 2. (one can use 10s reporting intervals for a duration of 5 minutes)
2. Generate a graph for the two flows, including the total usage for the reporting period

## Exercise 4: Firewalling

You've noticed a user using port 4000 to listen to a local radio station that streams their shows over the internet. This streaming requires 64kbps. You've discussed the situation with your boss and he's told you to block it.

1. Reject all outgoing connections to port 4000
2. Use IPTables to verify everything is working

## Exercise 5: Challenge

Your internet pipe has been upgraded to 512kbps (512k down, 256k up). You've been asked to implement bandwidth control and prioritization and to provide reports to the financial director. Your new internet pipe is a DSL line and only has one static IP.

1. Shape both incoming and outgoing traffic separately
2. Prioritize DNS traffic and browsing traffic
3. Limit the sending of mail by your mailserver to burst to 256Kbps and incoming mail to your mailserver to burst to 128Kbps
4. Add a reporting group for combined mail in and out traffic
5. Implement network address translation
6. Forward all incoming connections on port 25 to your mailserver
7. Implement a simple statefull firewalling
8. Allow your box unrestricted access to the internet
9. Reject all other traffic
10. Generate 3 reports, one showing the total line utilization inbound including browsing and mail traffic, the second the total line utilization outbound including browsing and mail traffic and the third combined mail in and out traffic.