Protection Against Brute-Force Attacks

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Overview

A brute force attack uses a large volume of requests/responses from the same source or destination IP address to break into a system.

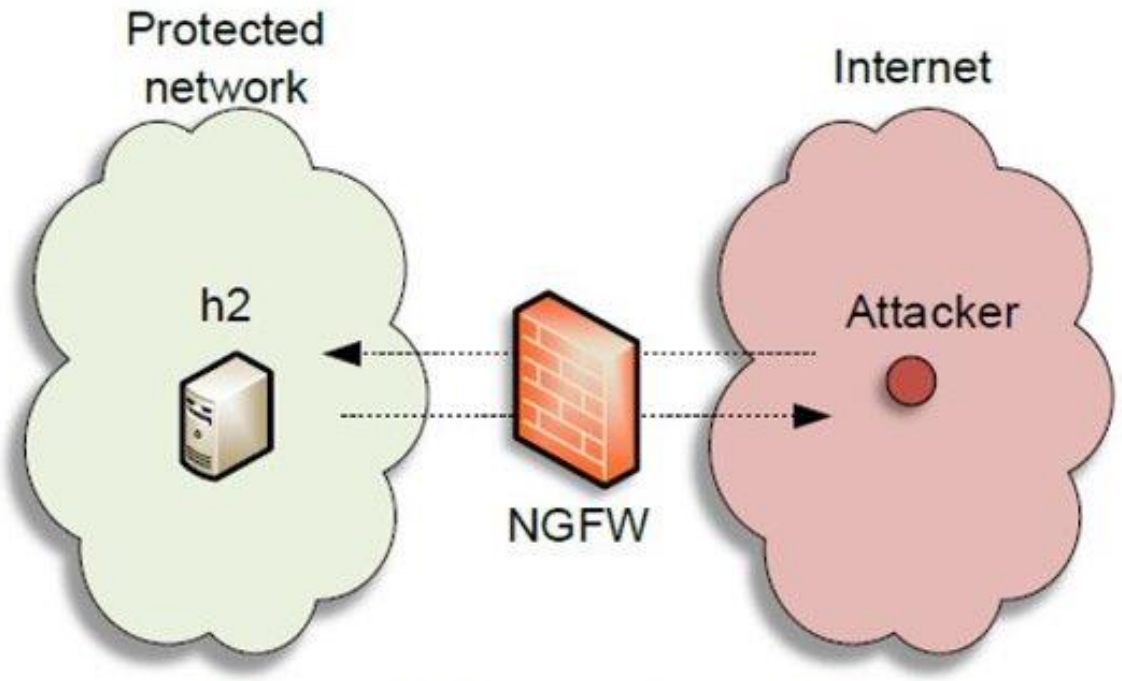
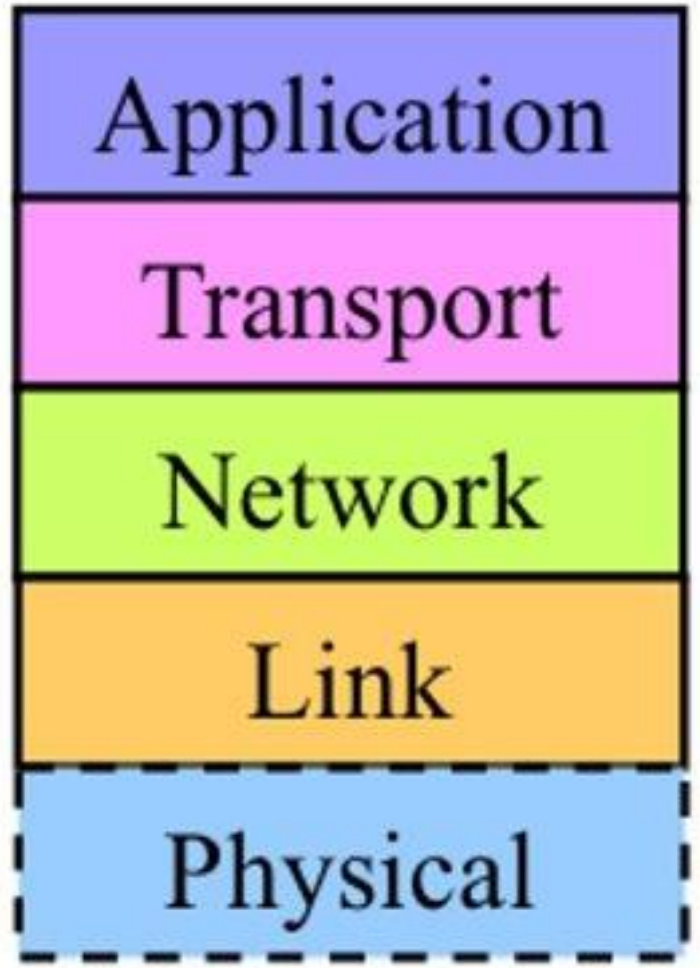


Figure 1. Network topology.

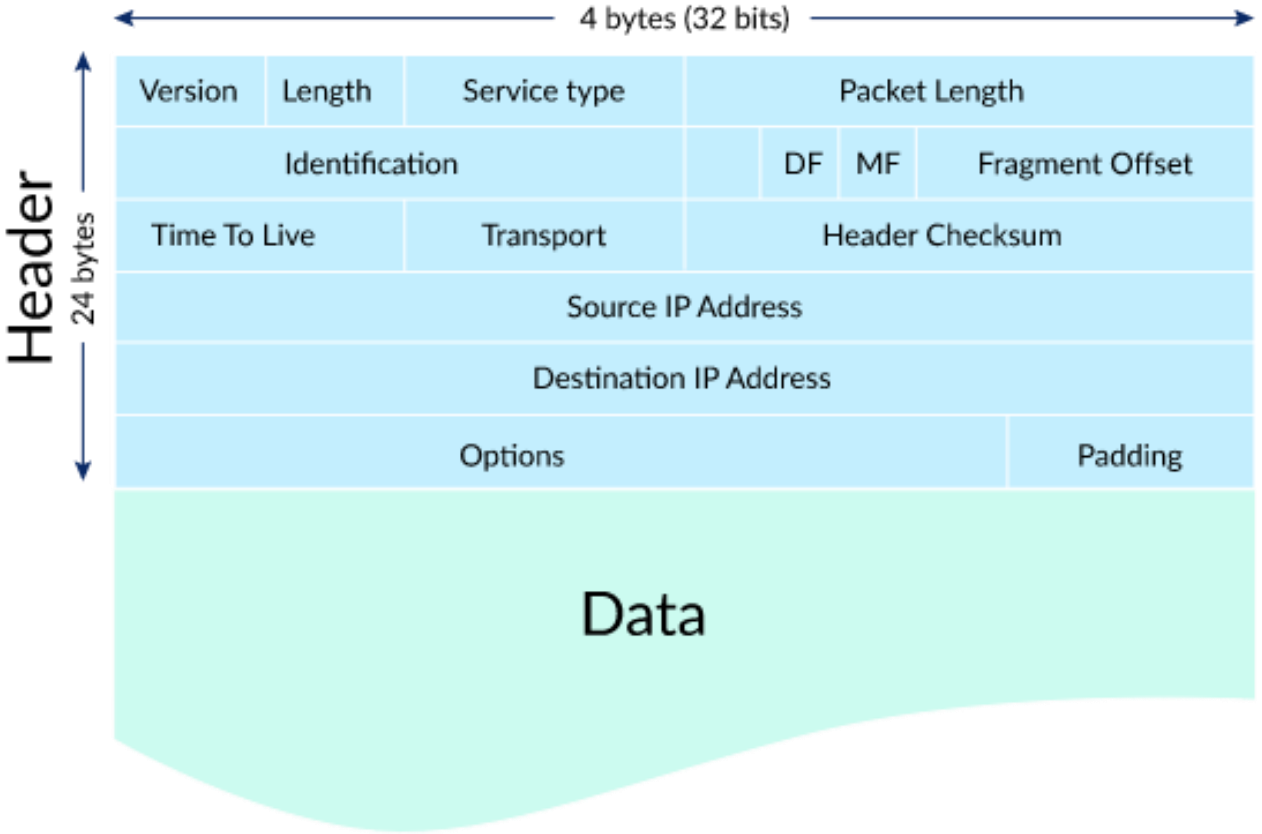
Motivation

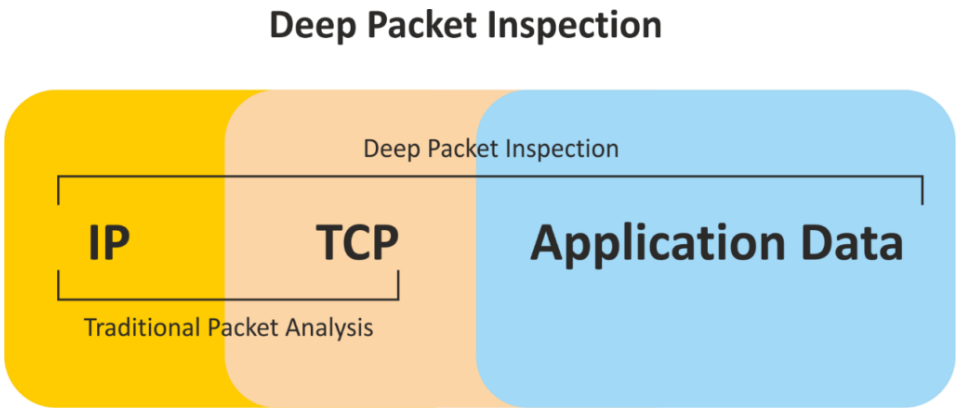
- Test the ability of Next Generation Firewalls (NGFWs) to mitigate the effectiveness of a brute force attack on a network.
- Firewall- network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules.
  - Two types:
    - Traditional Stateful
    - NGFW



Advantages of NGFW

- Set Application layer specific rules
- Deep Packet Inspection
  - See full content of packet header
- NGFW powerful scanner

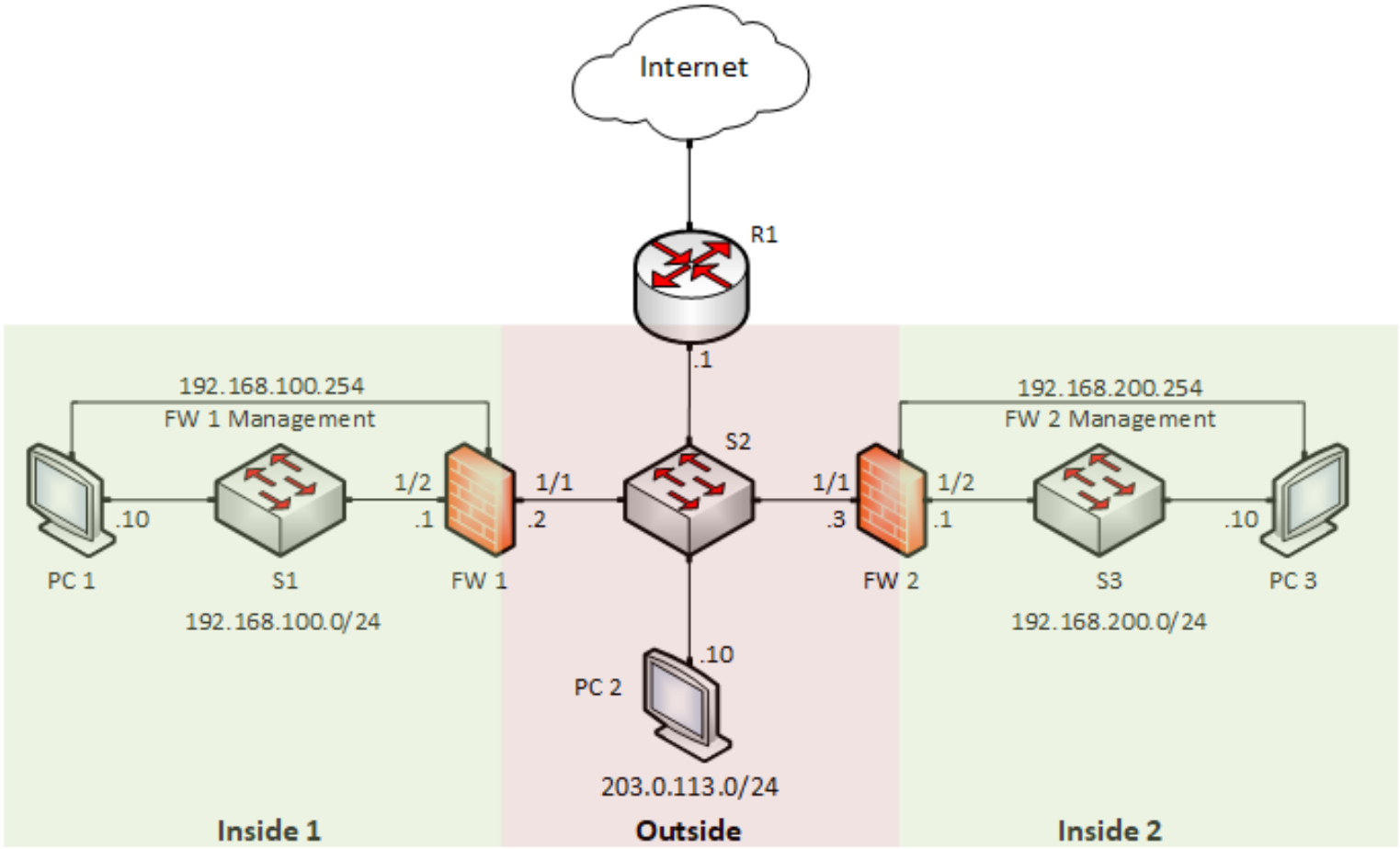




Objectives

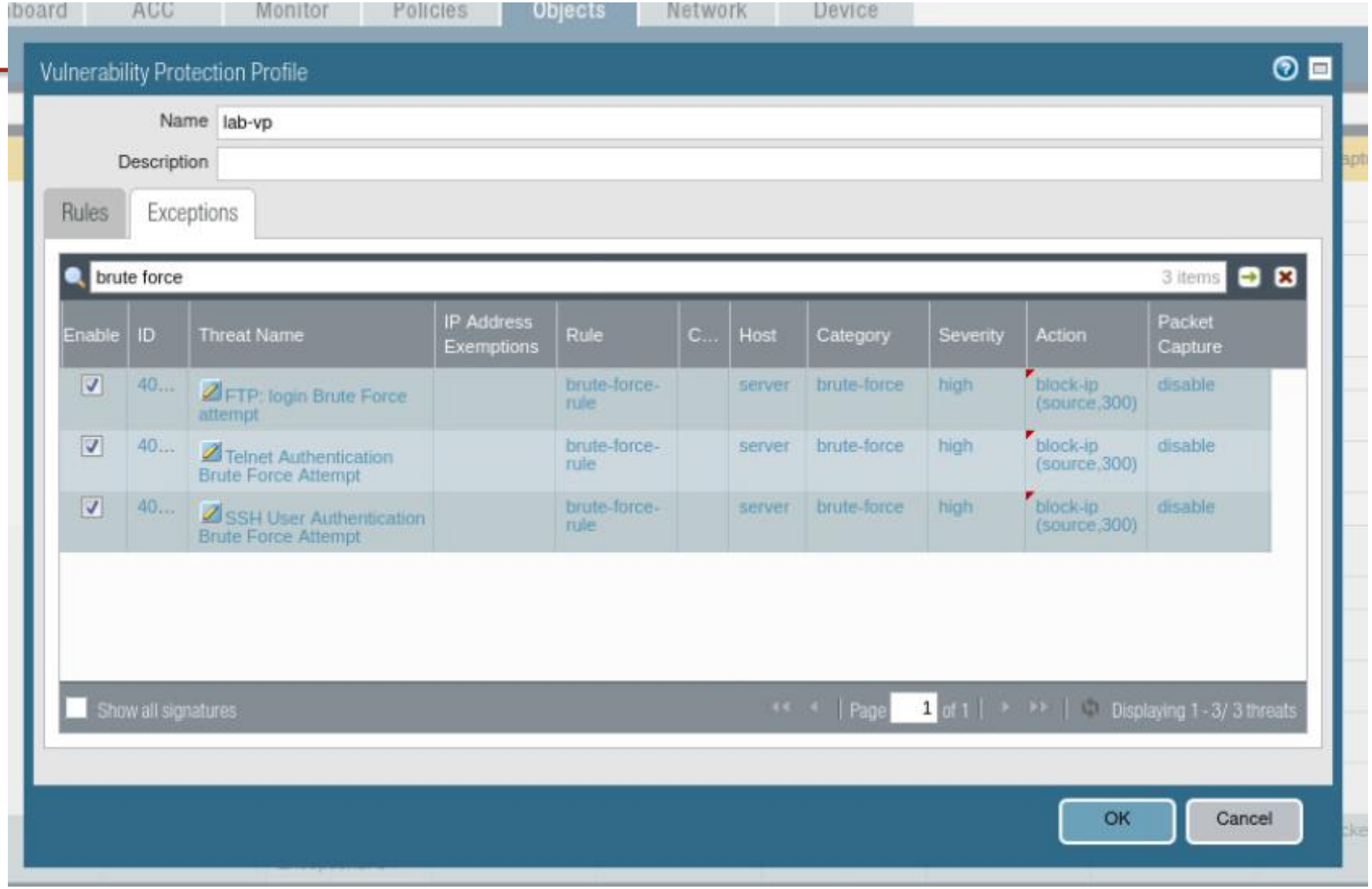
- The goal of this project is:
  - To determine the effectiveness of a modern Next-generation Firewall (NGFW) to detect brute-force attacks
  - To provide best practices when deploying a NGFW to prevent such attacks.
- Use Ncrack(an open-source tool) to understand the anatomy of brute-force attacks
- Implement a brute-force protection policy
  - Protect the network against attacks to well-known services such as SSH and FTP.

NetLab Custom Scenario



Mitigation

- Security Policy to allow Traffic to flow between zones
- Vulnerability Profile (VP)
  - Brute Force Signatures Detected
- Attach VP to security rule



Results

Monitor Threat Log

Conclusion

- Security engineers must develop skills to analyze network traffic.
- Threat logs are essential tools for traffic analysis, for identifying cyber attacks, and for mitigating them.
- NGFWs are effective to mitigate brute force attacks on a network.