Protection Against Brute-force Attacks

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Agenda

- Description of Brute Force Attacks
- Objectives
- Scenario
- Mitigation
- Advantages of NGFW
- Conclusion

Description of Brute force Attacks

- Attacker sends packets using a variety of protocols to continuously attack a destination IP address with the motivation of discovering credentials.
- The attacker can gain access to classified information and critical systems.

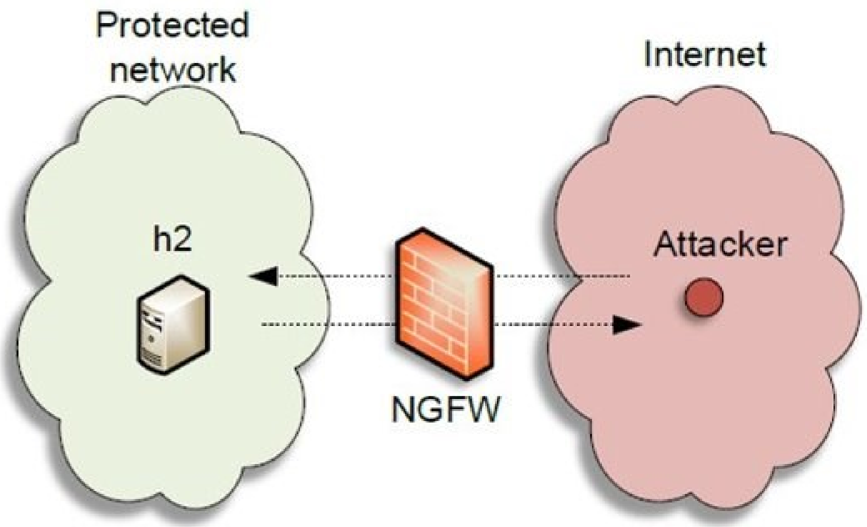


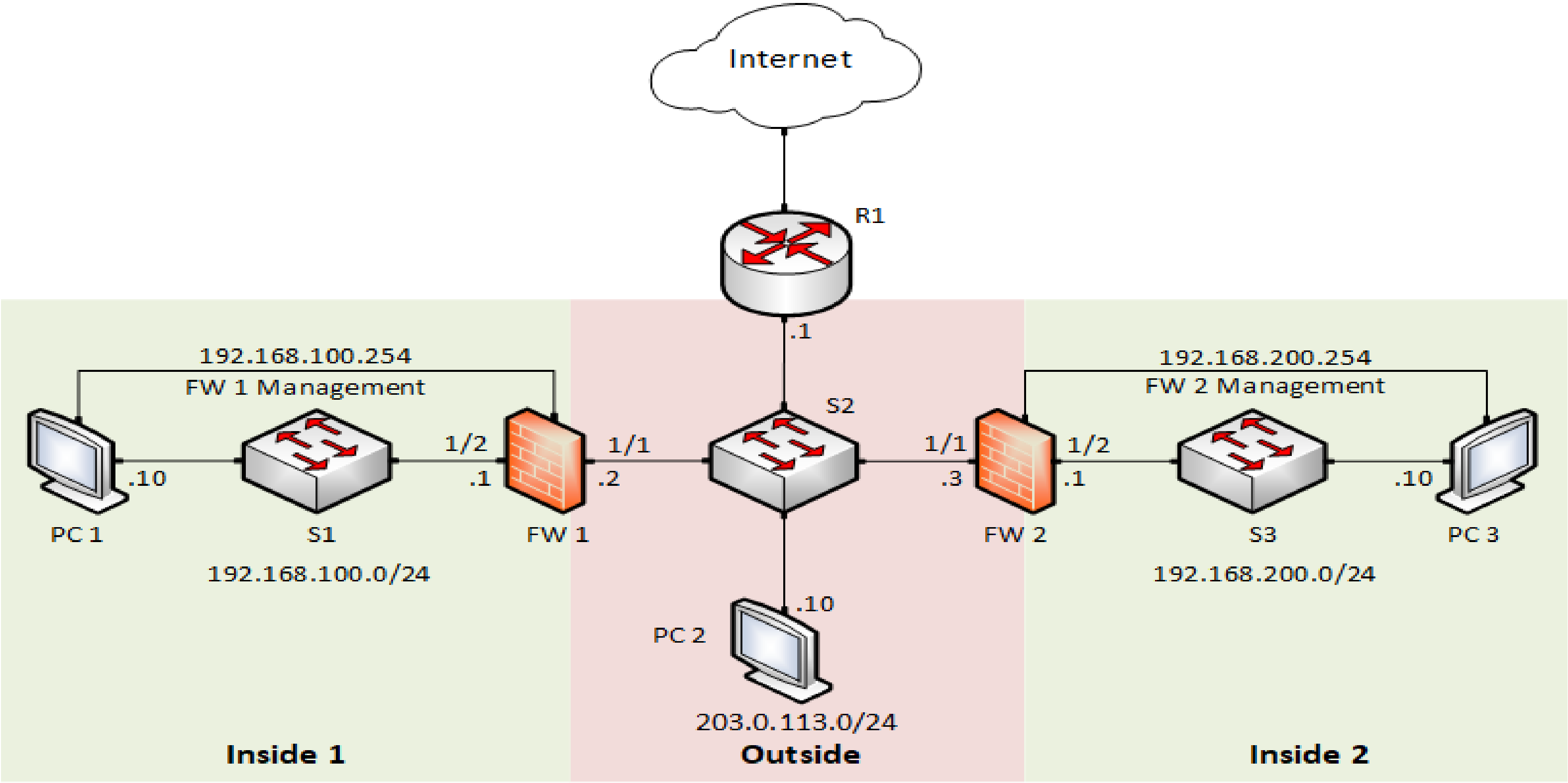
Figure 1. Network topology.

Objectives

- Determine the effectiveness of a Next Generation Firewall (NGFW) in detecting brute-force attacks, while providing best practices when deploying a NGFW
- Implement a brute-force detection policy to detect and block malicious attacks using the SSH, FTP, Telnet, and HTTP protocols
- Use an open-source tool to such as Ncrack and Hydra to perform Brute force
- Prevent tools such as Ncrack and Hydra from discovering credentials on the network

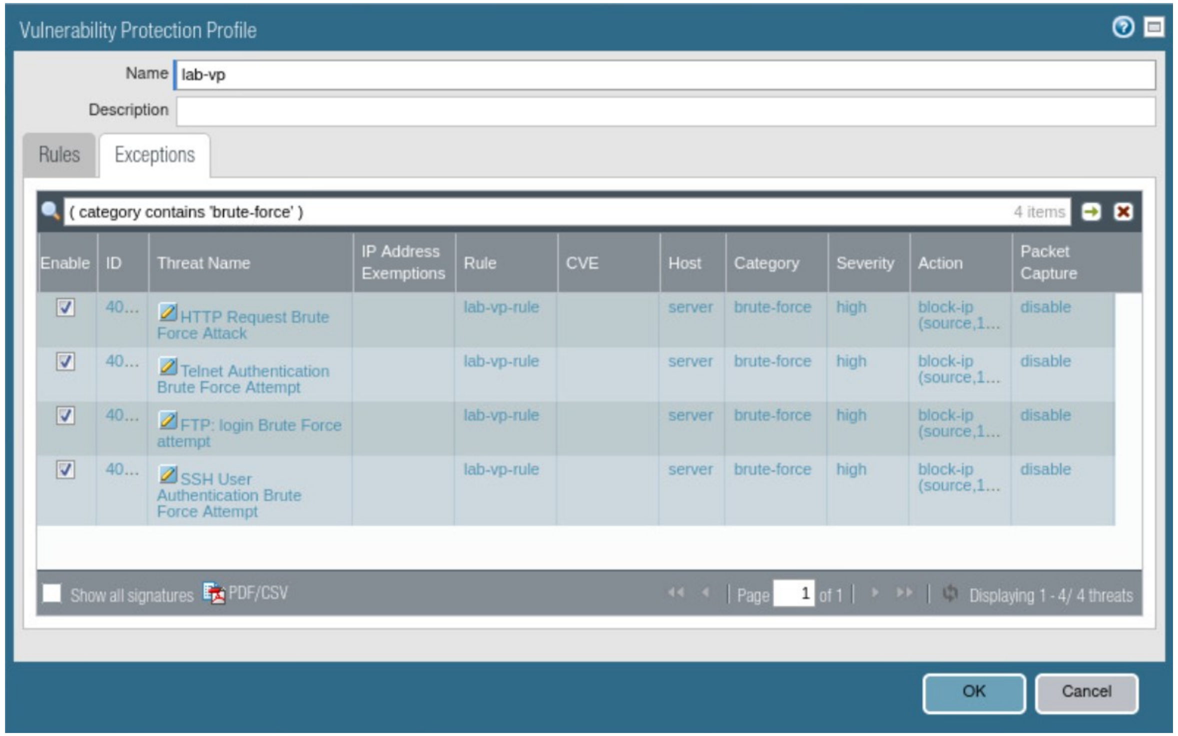
Scenario

- Attack will use PC2 to attack PC1 using SSH, Telnet, FTP, and HTTP
- NGFWs uses signatures to protect PC1 from a brute force attack



Mitigation

- Vulnerability protection policy is enacted when traffic that matches the selected signatures is detected
- Policy is triggered once there is over a certain criteria of detected SSH, Telnet, FTP, and HTTP packets sent.



Vulnerability Protection Profile

Name: lab-vp

Description:

(category contains 'brute-force') 4 items

Enable	ID	Threat Name	IP Address Exemptions	Rule	CVE	Host	Category	Severity	Action	Packet Capture
☑	40...	HTTP Request Brute Force Attack		lab-vp-rule		server	brute-force	high	block-ip (source,1...	disable
☑	40...	Telnet Authentication Brute Force Attempt		lab-vp-rule		server	brute-force	high	block-ip (source,1...	disable
☑	40...	FTP: login Brute Force attempt		lab-vp-rule		server	brute-force	high	block-ip (source,1...	disable
☑	40...	SSH User Authentication Brute Force Attempt		lab-vp-rule		server	brute-force	high	block-ip (source,1...	disable

□ Show all signatures PDF/CSV Page 1 of 1 Displaying 1 - 4/ 4 threats

Advantages of NGFW

- Inspects incoming packets in depth to look for attack signatures and detect threats
- Features malware and Denial of Service (DoS) protection that detects an blocks malicious traffic from entering and affecting users on the network
- NGFWs can monitor traffic from layer 2 through 7, this allows for application and user-based policies

Conclusion

- NGFWs are effective in detecting and blocking Brute-force attacks
- Open-source tools that are available to the public can be utilized to perform a multitude of attacks on different protocols
- Keeping a record of logs and utilizing attack signatures are an effective way to detect and block attacks