

Using External Dynamic List for Live Threat Updates

Zachary Fowler

Bryson Livingston

Advisor: Jorge Crichigno, Ali Alsabeh

Department of Integrated Information Technology
University of South Carolina

April 2021

Agenda

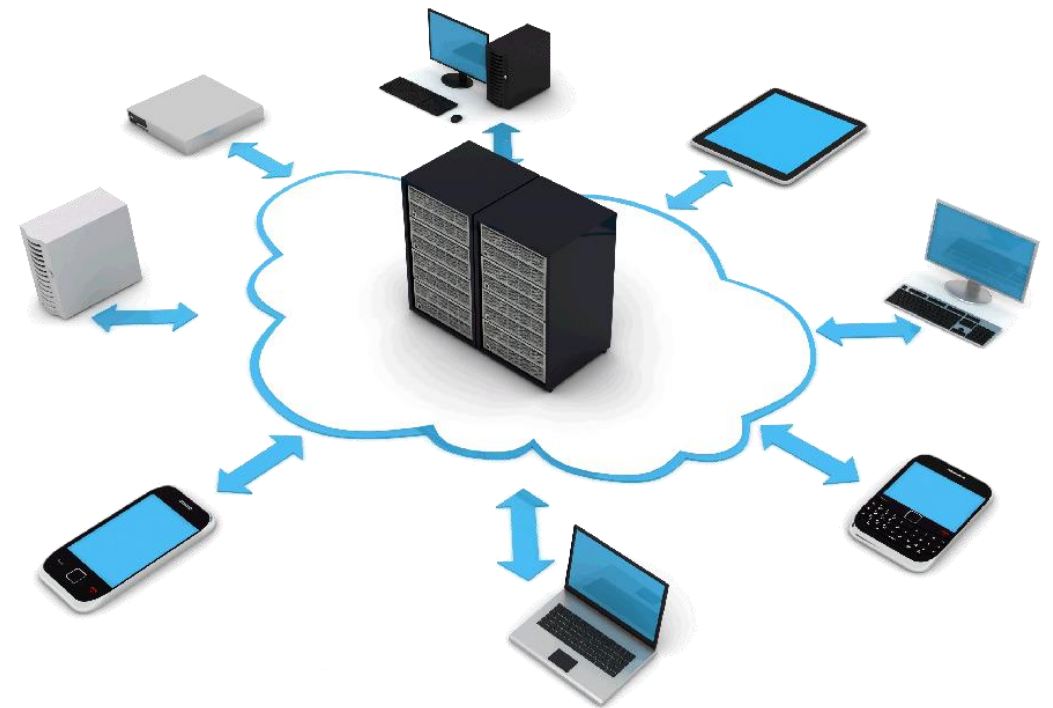
- Introduction
- Problem Description
- Background Information
- Proposed Solution and Implementation
- Conclusion

Introduction

- Next Generation Firewalls (NGFWs) use security policies to block/allow traffic from specified sources and destinations
- Security policies on NGFWs need to frequently updated to protect against new threats
- External Dynamic Lists (EDL) are used to keep security policies up to date

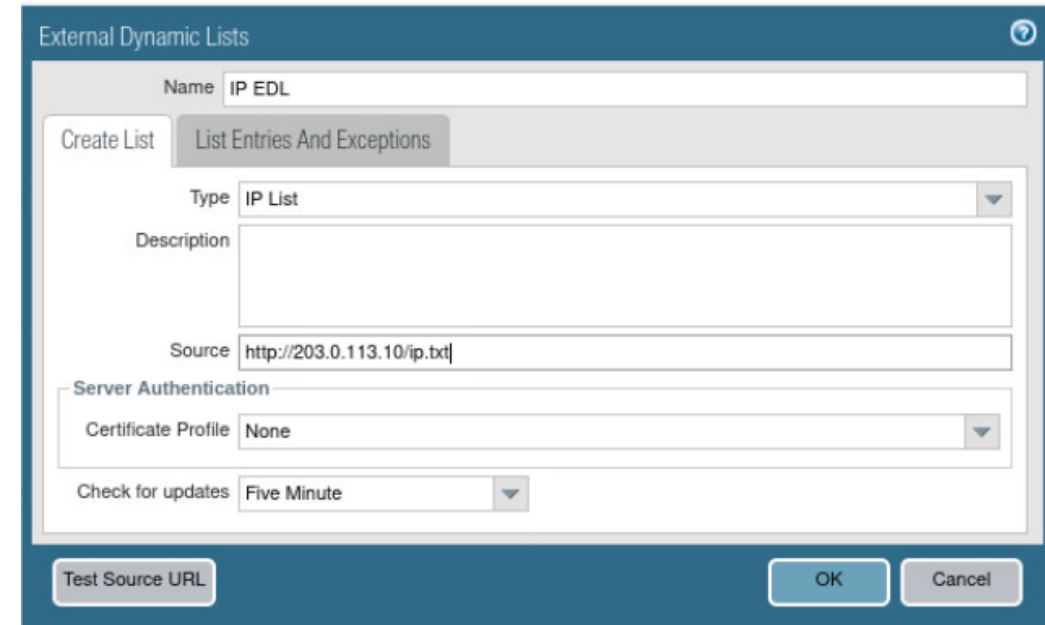
Problem Description

- Using a non-dynamic list of objects in a security policy has multiple issues
 - Does not automatically update to include new threats
 - Policy creator will constantly have to manually update the list to include new threats
- Ultimately leads to a less secure network
- External Dynamic Lists solve both issues



Background Information

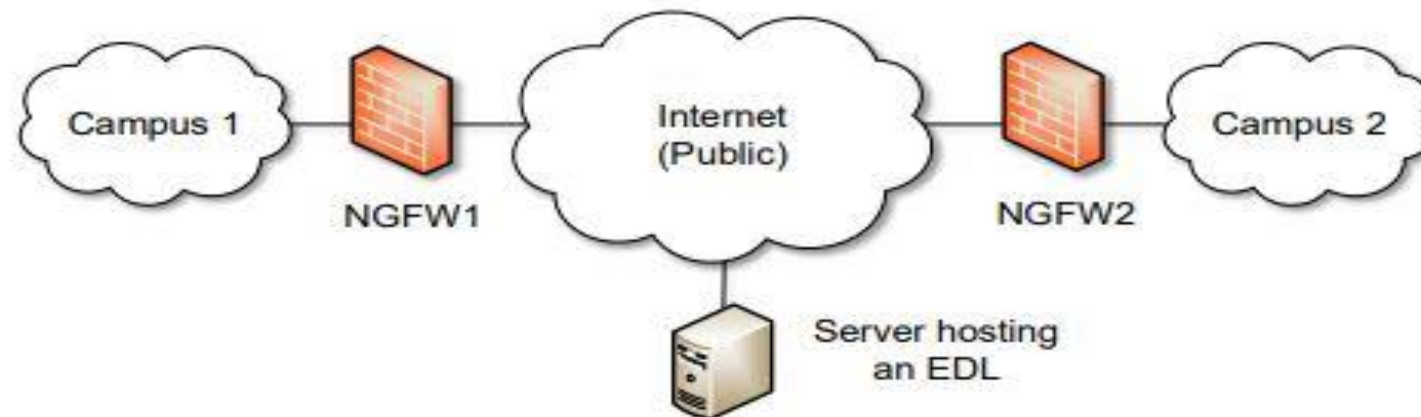
- External Dynamic Lists (EDL) are text files stored on an external server
 - The text files are updated frequently to protect from new threats
- Text files contain lists of one of 4 types of EDL
 - IP Address
 - URL
 - Domain
 - Predefined IP Address
- These lists consist of dangerous source and destination objects
 - Used in security policies on NGFW










The screenshot shows a configuration window titled "External Dynamic Lists". The "Name" field is set to "IP EDL". There are two tabs: "Create List" and "List Entries And Exceptions", with the latter being active. The "Type" is set to "IP List". The "Description" field is empty. The "Source" field contains the URL "http://203.0.113.10/ip.txt". Under the "Server Authentication" section, the "Certificate Profile" is set to "None". The "Check for updates" dropdown is set to "Five Minute". At the bottom, there are three buttons: "Test Source URL", "OK", and "Cancel".

Proposed Solution and Implementation

- A text file (i.e. list of malicious IP addresses) is hosted on the external server
- NGFW1 uses the text file in a new security policy to block traffic to and from any IP address on the file
- NGFW1 dynamically imports the list at the configured interval and enforces policy without the need to make a configuration change or a commit on the firewall



Proposed Solution and Implementation

	Name	Tags	Type	Zone	Address	User	HIP Profile	Zone	Address	Application	Service	Action
1	IP Block	none	universal	any	any	any	any	any	 IP EDL	any	application-d...	 Deny
2	any-zone-to-any-zone	none	universal	any	any	any	any	any	any	any	application-d...	 Allow
3	intrazone-default 	none	intrazone	any	any	any	any	(intrazone)	any	any	any	 Allow
4	interzone-default 	none	interzone	any	any	any	any	any	any	any	any	 Deny

- Security Policy #1 uses the IP EDL in the address column to deny traffic to any IP address on the EDL

Conclusion

- With the use of External Dynamic Lists in security policies, users can more easily protect their networks from dangerous sources by using frequently updated object lists
- The possibility of an attack from a dangerous source significantly decreases with the use of EDLs