

CSC 116 DDoS Attacks

**DDoS (Distributed Denial of
Service)**

Case study

Have you ever tried to visit a website, but it was extremely slow or completely down? It might have been under a DDoS attack.

Definition of DoS

A cyber attack that floods a website or server with fake traffic to make it unavailable.

Difference between **DoS** vs. **DDoS**:

- **DoS (Denial of Service)**: A single attacker floods a target with requests.
- **DDoS (Distributed Denial of Service)**: Multiple devices (botnets) are used to overwhelm the target.

DoS vs DDoS Attacks

INDUSFACE™



Single System

DoS Attack



Victim's Server



Multiple Systems

DDoS Attack



Victim's Server

Why Do Hackers Launch DDoS Attacks?

Solutions

Enable Rate Limiting & CAPTCHAs

- If you run a personal website (e.g., a school project), enable:
 - **Rate limiting** (limits the number of requests per IP).
 - **CAPTCHA verification** to block bots.
 - **Web Application Firewall (WAF)** (Cloudflare, AWS Shield, etc.).

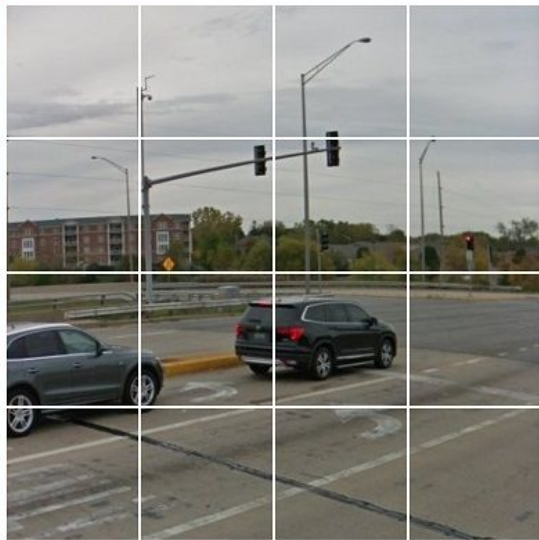
Monitor Traffic for Anomalies

- Use tools like **Google Analytics**, **AWStats**, or **UptimeRobot** to check for **sudden spikes in traffic**.
- If you notice **abnormal behavior**, temporarily **block suspicious IPs**.
-

Use Cloud-Based DDoS Protection

- Services like **Cloudflare Free Plan**, **Google Shield**, or **AWS Free Tier** offer basic **DDoS mitigation**.
- They provide **rate limiting**, **IP filtering**, and **traffic distribution**.

Select all squares with
traffic lights
If there are none, click skip



SKIP

overlooks inquiry

Type the two words:



reCAPTCHA™
stop spam.
read books.

Match the characters in the picture

[Help](#)

To continue, type the characters you see in the picture. [Why?](#)

V6TQ1BCDS

The picture contains 8 characters.

Characters:

Continue



I'm not a robot



reCAPTCHA

Submit

Sample 1



2463435

Type the text:



Sample 2

49649868



Type the text:



Next Important Topic:

**The importance of the Server
Performance to handle requests.**

Good Server



Bad Server

HealthCare.gov [Learn](#) [Get Insurance](#) [Log in](#) [Español](#)

[Individuals & Families](#) [Small Businesses](#) [All Topics](#) [SEARCH](#)

The System is down at the moment.

We're working to resolve the issue as soon as possible. Please try again later.

Please include the reference ID below if you wish to contact us at 1-800-318-2596 for support.

Error from: https%3A//www.healthcare.gov/marketplace/global/en_US/registration%23signUpStepOne
Reference ID: 0.cdd74f17.1380634949.2f9c301c

181 DAYS LEFT TO ENROLL

Month	Day	Event
OCT	1	Open Enrollment Began
JAN	1	Coverage Can Begin
MAR	31	Open Enrollment Closes

[Live Chat](#)

Server Performance

If the webpage is requesting data from a **self-hosted server**, the request rate depends on:

- CPU and RAM capacity of the server.
- Use of optimization tools like **Nginx / Apache / Load Balancer**.
- Concurrency handling capacity:
 - **Nginx** can handle **thousands of QPS (Queries Per Second)**.
 - **Flask/Django (single-threaded)** servers may handle **tens to hundreds of QPS**.

But it is not enough in Black Friday!!



CSC 116 Malicious Mobile Apps

12 malicious malwares

Which type of malware does DDoS belong to within these 12 categories?

Please familiarize the attacks after class.