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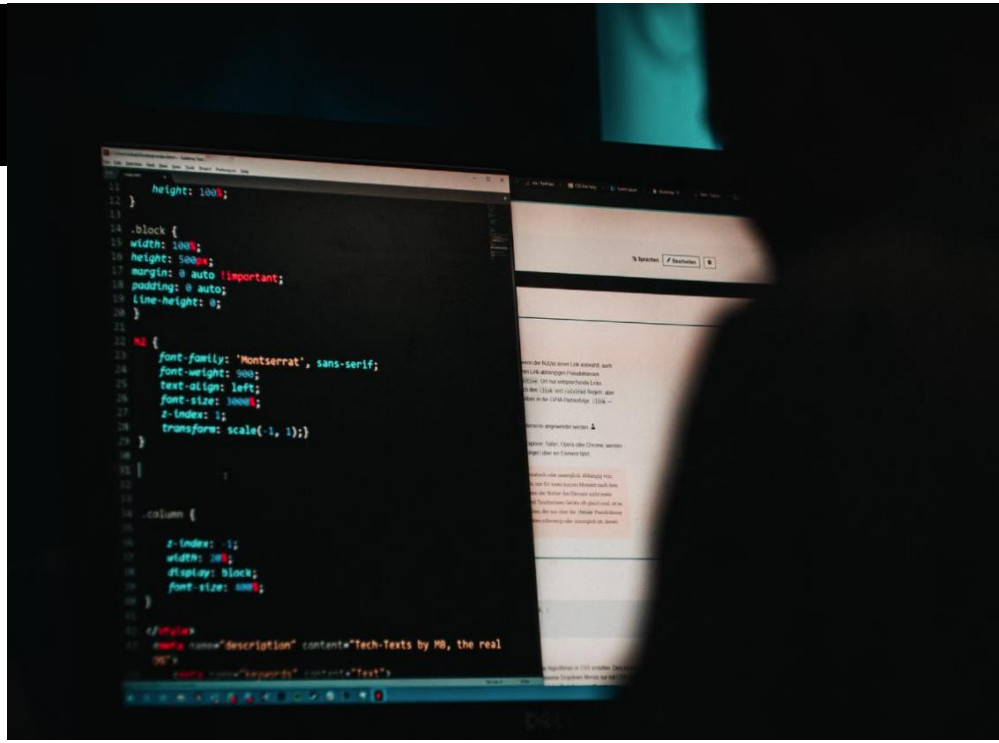
INFO-6065

Ethical Hacking & Exploits

Special Topics



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Agenda

- Housekeeping notes
- Crypto Currencies
- Evolving attacks
- Overview of Lab 11

Housekeeping Notes

Housekeeping

Final Exam details:

- **Thursday April 20th @ 10am**
- **Requires Respondus lockdown browser**
- **Requires Respondus monitor**

- Similar format to test 01 and test 02
- You will have 90 minutes to complete the exam once you have logged in
- Password will be sent by email closer to the date

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Crypto Currencies

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Crypto Currencies

- There are numerous crypto currencies currently available on the market
- These are digital currencies that are managed without the use of a centralized body
- Transaction records are kept by numerous machines using cryptography

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Crypto Currencies

Online Exchanges offer the ability for users to buy/sell crypto currencies

- Every user will have a “digital wallet” where their balance is kept
- If a user loses their *wallet* then the funds will not be available to that user
- Wallets use public/private keys
- Not all exchanges are regulated the same way

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Crypto Currencies

A blockchain is used to validate crypto coins using a ledger

- This ledger is maintained by “miners”
- Miners are nodes in a cryptocurrency network that work together to validate, relay, or maintain a copy of the blockchain
- Miners are typically rewarded by getting a piece of the crypto currency they are supporting

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Crypto Currencies

Since cryptocurrencies such as BitCoin are digital, it is difficult to track

- This makes it challenging for law enforcement
- These currencies are preferred by criminals when receiving ransom payments because they offer a level of anonymity
- There are a few countries (El Salvador, Cuba) who have adopted BitCoin as legal tender

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Evolving Attacks

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Evolving Attacks

- Attackers took notice that more users are working remotely and the increase in potential victims grew
- As the pandemic hit, companies were forced to adjust the way that employees work, mainly having them change to a work-from-home situation

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Evolving Attacks

- Many businesses were not prepared as they did not have the infrastructure in place to allow remote users access to company network resources
- Implementation was not bullet proof as a lot of setup was done in a hurry

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Waterhole Attacks

- Attackers avoid having the end user initiate the attack by being tricked into clicking on links or running infected files
- A popular website used by a certain group of individuals is infected with malware
- Targets certain types of individuals who often visit a site that is deemed safe/legitimate by its user group

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Waterhole Attacks

- In the end, these attacks target the users through a website they visit
- The malicious code the user downloads from the website is just the beginning of the attack
- Further instructions (malware) can be downloaded once the victim is infected
- Initial malware can do a vulnerability scan of the user's machine and report back to the attacker

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Waterhole Attacks

There have been various popular websites and major organizations that were successfully attacked

Fake Flash updates? Sound familiar? (BeEF)

https://securelist.com/holy-water-ongoing-targeted-water-holing-attack-in-asia/96311/

Waterhole Attacks

These can target specific organizations…

Important Message on New Circulating Spam\Phishing E-mail

ITSD Communication
To

Reply | Reply All | Forward

Tue 2023-03-28 1:47 PM

This message was sent with High importance.

This is a reminder that the **negative impacts to College services when receiving malicious e-mails are caused by Fanshawe Employees clicking on unsolicited e-mail links** claiming to be from any "Fanshawe Service" and filling out their login information. This does include hurting the College's worldwide e-mail reputation status and creating e-mail delays\blockages when Fanshawe accounts attempt to e-mail outside providers.

Please **DO NOT CLICK** on any unsolicited e-mail links that ask you to update your login information or **from sources or people you do not recognize**.

If you do click on a suspicious link requesting your account information, **please let the IT Service Desk know immediately**. It will be much easier to reset your password now, rather than waiting until your account has been used in malicious activity.

In addition, some phishing e-mails will not offer malicious links, **but will masquerade as a Fanshawe Employee asking for help**. Generally, that help will be a **request to purchase gift cards** and to send the card information back via e-mail but can be in the form of **joining other dubious money schemes**.

Here is an example of a malicious spam message that has been circulating and originated from a compromised Fanshawe employee account and providing a job offer:

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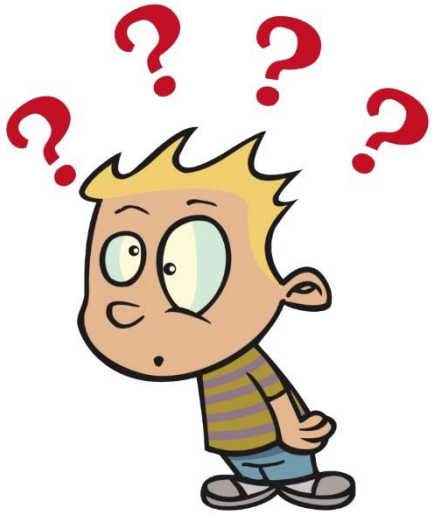
Gift Cards

- Involves an attacker phoning someone and pretending to be a person of authority
- Most of the time, the attacker claims to be with the government or a police officer
- Victims are told to purchase gift cards (Google play, etc.) and provide the caller with the PIN of the card
- Victims think they are doing this for legitimate reasons

Gift Cards

- The attacker will use the gift cards to make purchases or sell them online for a portion of the gift card's value
- These gift cards cannot be traced to the attacker as they had someone else do the purchase
- You can avoid this by not buying gift cards for the Police…



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Gift Cards

- More sophisticated versions of this attack include an attacker discovering the PIN on a gift card but not using it until it is purchased legitimately
- Once the victim activates the card, the balance is updated, and the attacker can now use the funds available on the card before the user has a chance

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Gift Cards

- This requires the attacker to monitor the card's balance
- The victim will activate the card and the full balance will show up, so it doesn't spook the victim

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SIM Swapping

- Two-factor authentication is being used more widely
- One-time passwords or PINs are sent through SMS to a person's phone
- These are used in combination with a username and password for various applications
  - Gmail
  - Banking
  - Etc.

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SIM Swapping

- The problem occurs when an attacker has the ability to retrieve or intercept these SMS messages
- SIM Swapping happens when an attacker is able to convince a mobile provider to port over the victim's phone number to a phone that the attacker controls

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SIM Swapping

- The attacker is able to reset the victim's accounts
- If access to the victim's primary email account is obtained, that in combination with a compromised phone number may allow the attacker to gain access to most of the victim's accounts
- Social media accounts could be defaced, etc.

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Smart Homes

- More and more devices have the option of connecting to your home network
- A lot of these will also have an internet connection
  - Security cameras
  - Baby monitors
  - Lights
  - Etc.

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Smart Homes

Who produces these devices?

- If these devices are manufactured by companies that do not use best practice when it comes to security, they may be inherently vulnerable

How often are firmware upgrades available?

- If there are no updates available, the device cannot be updated if vulnerabilities are discovered

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Smart Homes

- If an attacker can compromise a smart device through an internet connection, they could potentially move on to other targets on the internal network
- The more connected devices, the more of a chance of exposure and potential vulnerabilities to exploit

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Smart?

- Sometimes technology enables crime
- This usually begins as a convenience or benefit for legitimate users but attackers will exploit these

Stealing new cars may be easier than old ones…

https://www.youtube.com/watch?v=bR8RrmEizVg

TikTok

You will see grumbling in the news about governments moving to ban TikTok from “government issued” devices

- Does this prevent external access?

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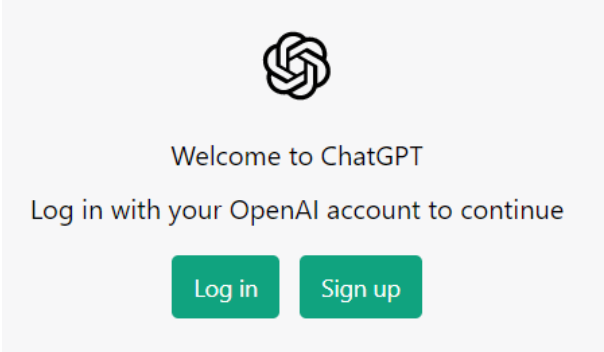
ChatGPT

ChatGPT took the world by storm when it was introduced in late November 2022 by OpenAI

- ChatGPT 4 was released on March 14, 2023
- Based on Large Language Models (LLMs)



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ChatGPT

Institutions are still trying to figure out how to "manage" the use of AI chat bots

- It can be great for certain tasks like updating your Python Code from 2 to 3
- Also has the ability to "hallucinate" and provide answers that are incorrect

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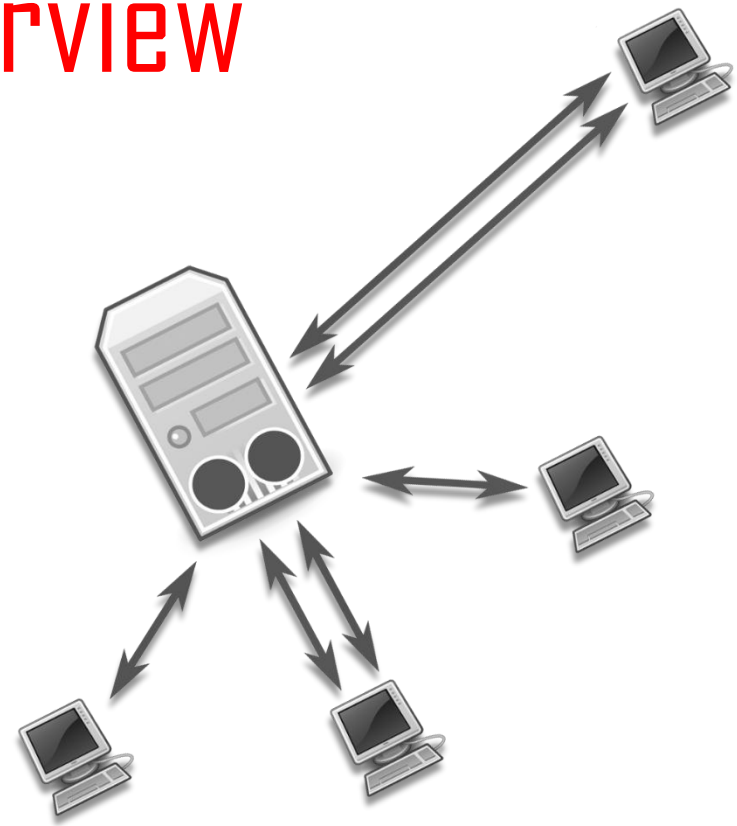
Lab 11 Overview



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Lab 11 Overview

- Part 01: Create shellcode for a ProFTPD Exploit on MS2
- Part 02: Inject an image with Jhead
- Part 03: Using exploit-db.com
- Part 04: Using Proxy Chains