Personal Cybersecurity for Quilters

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Outline

- Introduction

- Password Security

- Internet and Web Access

- Virtual Private Networks (VPNs)

- Public Wi-Fi

- Home Wi-Fi Security

- Home Assistants and IOT Devices

- Software Updates & Antivirus

- Email Security

- Online Privacy in General

- Q & A

Introduction

- Hackers
  - Are everywhere
  - Use automated tools

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  - Use automated tools

- Constant battle: Good vs. Evil

Useful Tactic

- Make things hard enough that attacker will go bother someone else

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- Analogy: Home with locks, security system, cameras

Password Security

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- Password security problems cause numerous cybersecurity issues!

Poor Password Practices

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- Sharing your password with others

- Writing down your password

Good Password Practices

- Using a long, complicated, hard-to-guess password

  ○ `Qltz4evrM0R!!`

Good Password Practices

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    - `Qltz4evrM0R!!`

    - `QuiltsForeverMore!!`

Good Password Practices

- Using a long, complicated, hard-to-guess password

    o `Qltz4evrM0R!!``1776`

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- Using a **different** password for each account

Good Password Practices

- Using password management software

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  o Bitwarden

  o 1Password

  o Dashlane

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  o iOS has built-in password manager

  o Norton 360 has built-in password manager

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- Keeping passwords secret

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- Keeping passwords secret

  o Beware of letting **browser** store passwords on a shared computer

Three can keep a secret, if two of them are dead.

-Benjamin Franklin

Key Point

- Your password is the key to everything in your account!

Password Aging

- Change passwords frequently, especially for high-risk accounts

  o At my school, students are required to change passwords every 4 months, and faculty/staff must change them every 6 months

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- Change passwords frequently, especially for high-risk accounts
  - At my school, students are required to change passwords every 4 months, and faculty/staff must change them every 6 months

- Reason: Hackers often can obtain encrypted username/password combinations, and it can take time to "break" your password
  - If you keep changing your password, they may not have enough time to "break" it before it changes

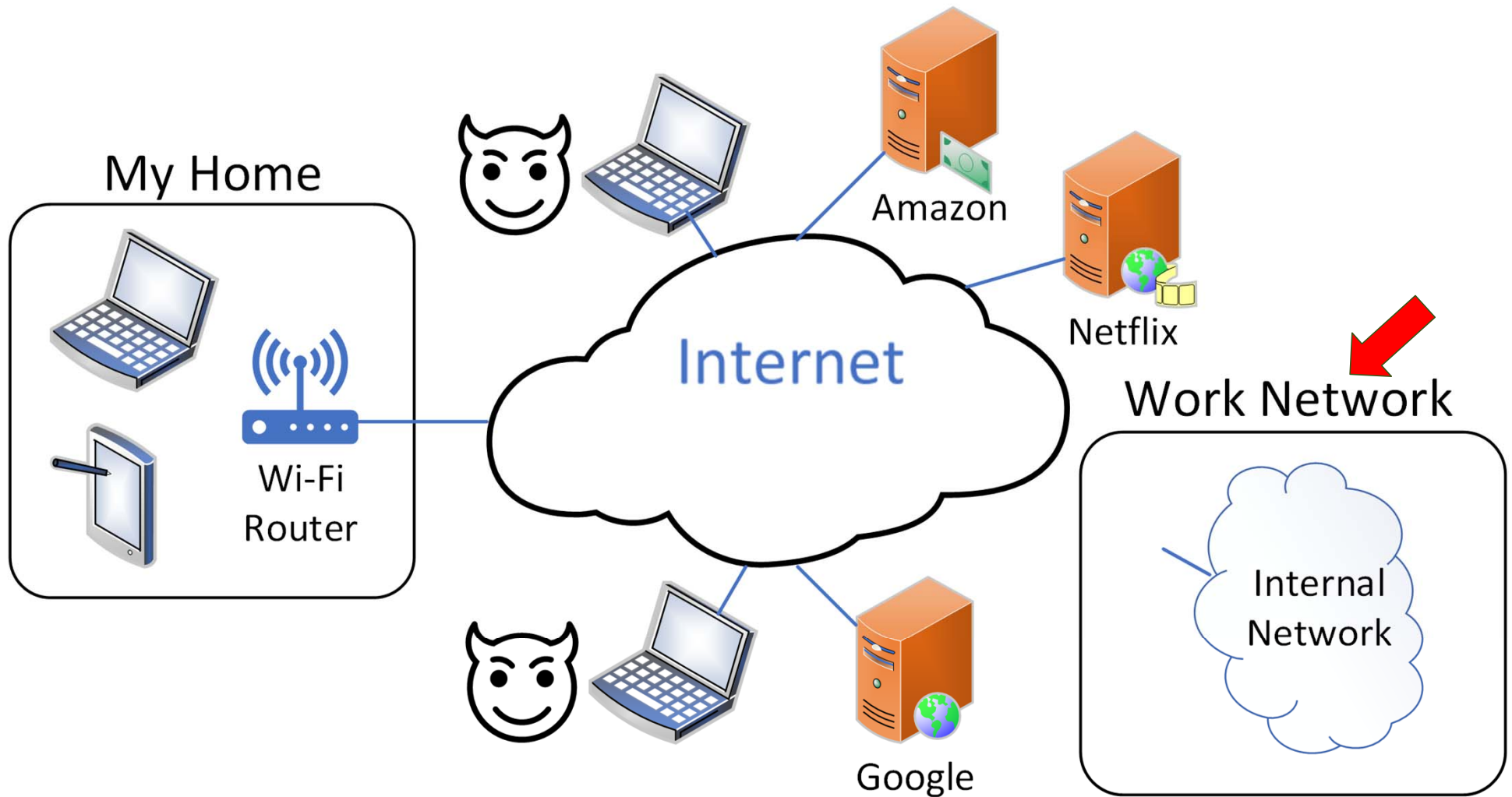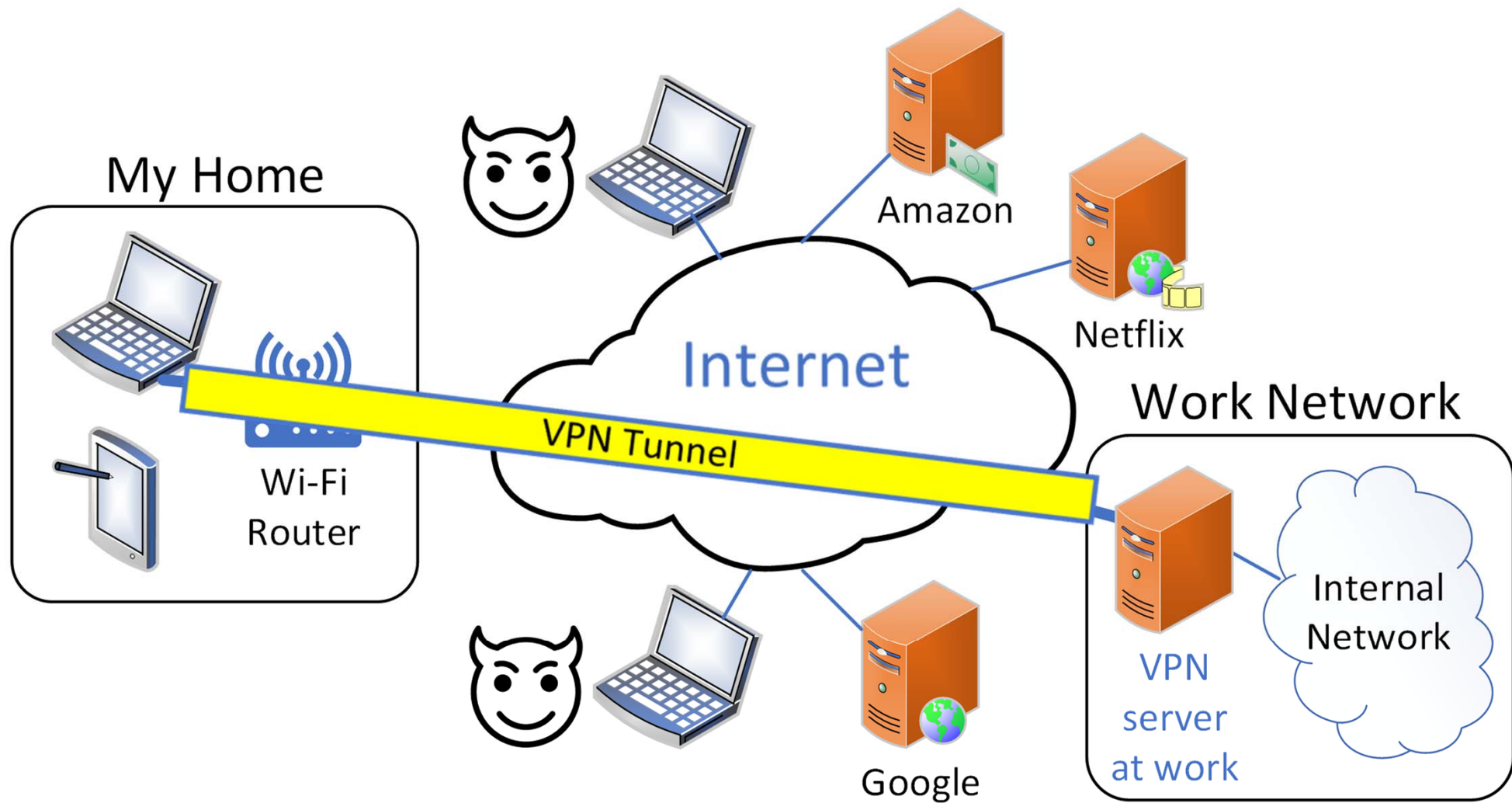# Internet and Web Access
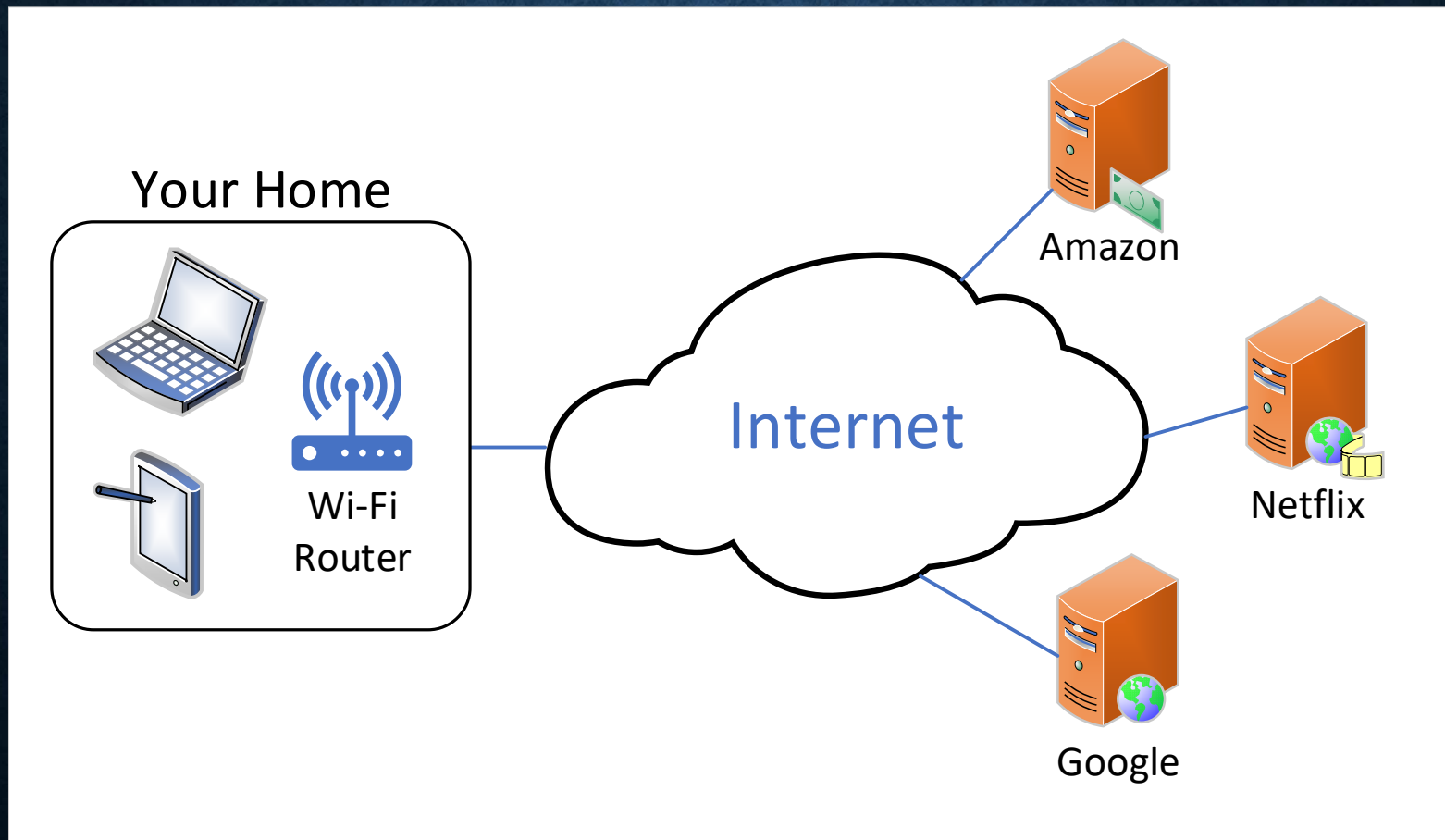
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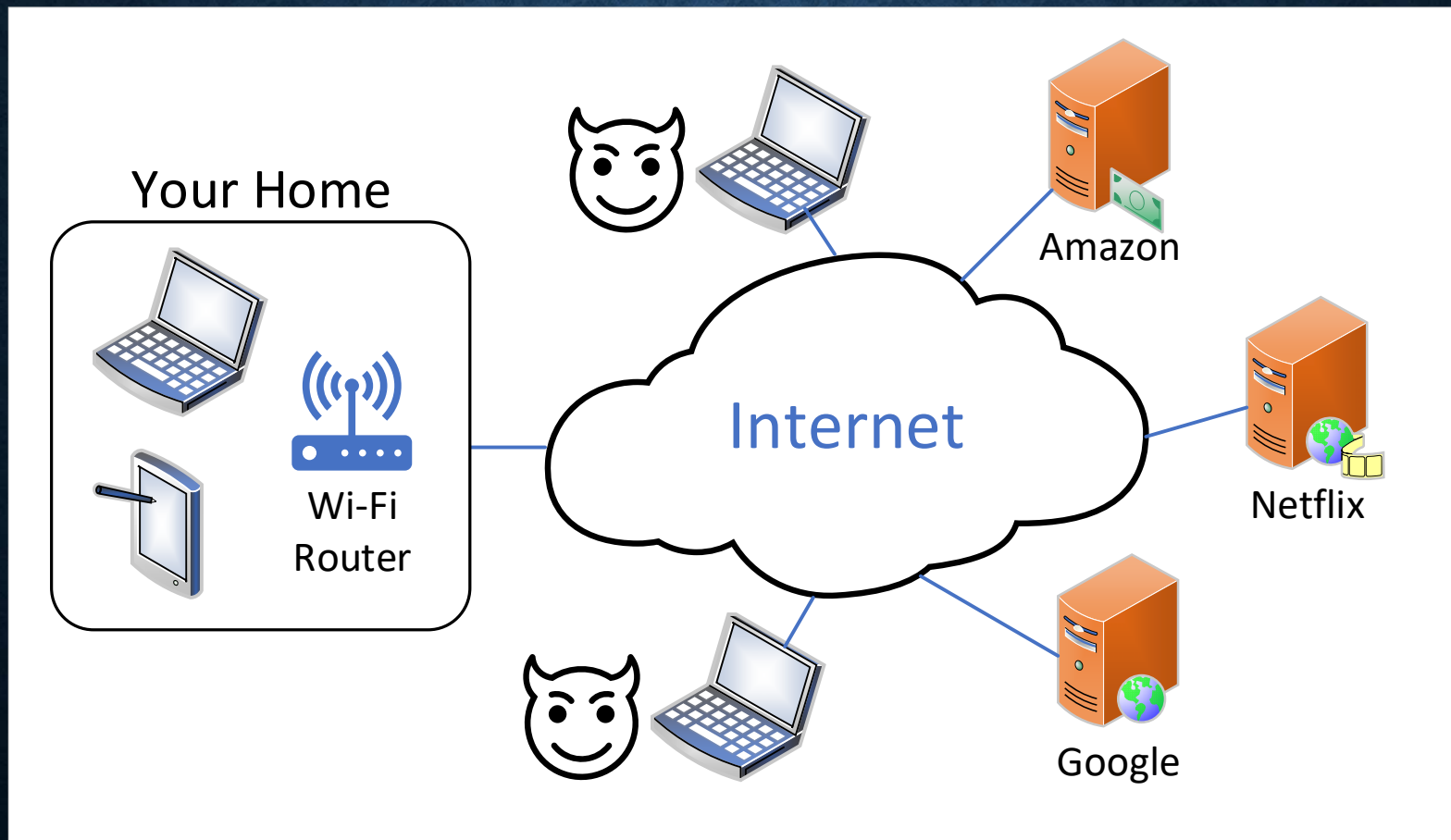
Virtual Private Network (VPN)

- Makes your communication more secure and private
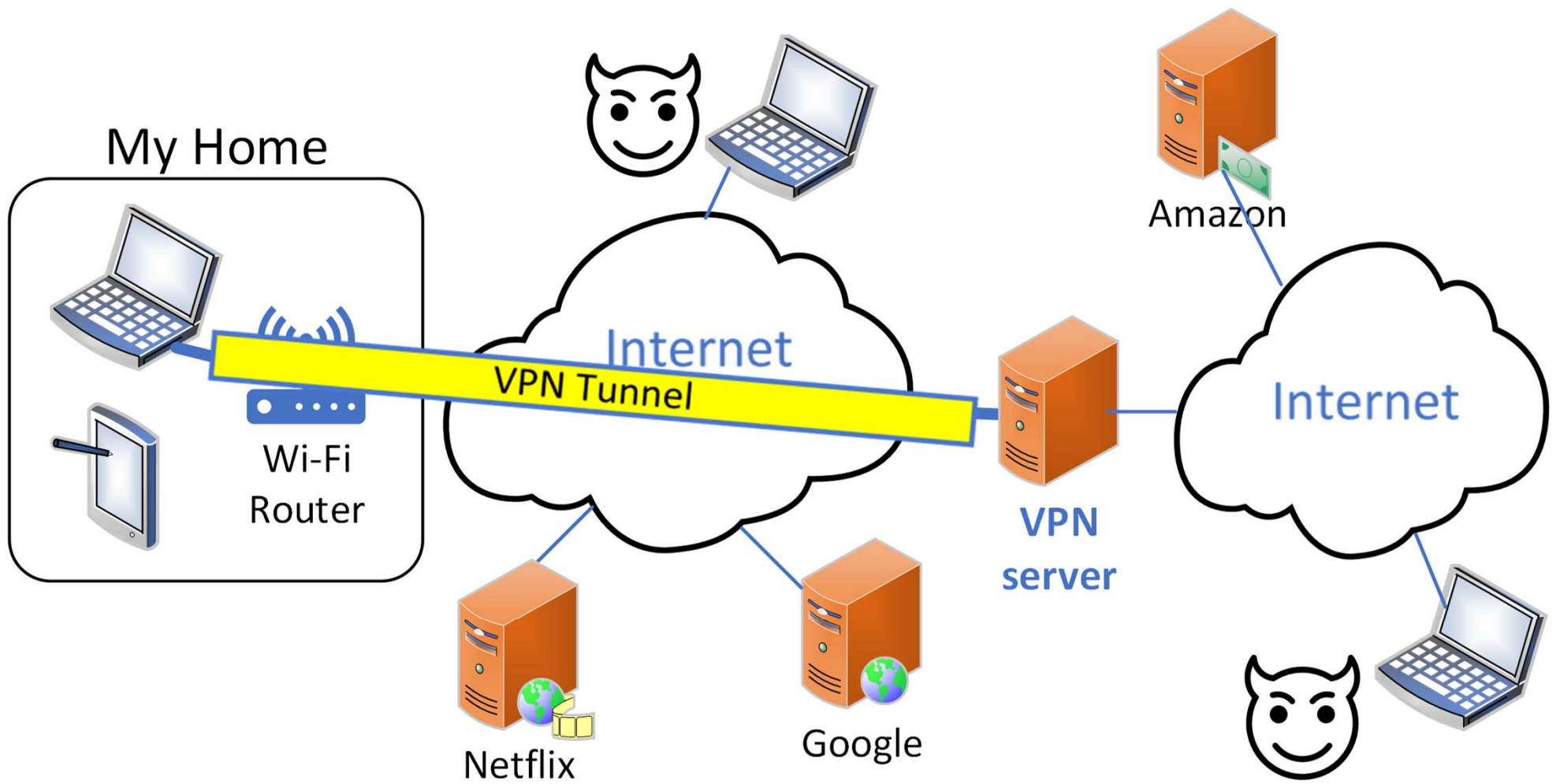
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    - Actually gives your computer an IP address on the remote site
    - Makes it appear as if you are located on VPN server

Virtual Private Network (VPN)

- Makes your communication more secure and private

- Creates a "tunnel" between your device and the VPN server
  - Actually gives your computer an IP address on the remote site
  - Makes it appear as if you are located on VPN server

- What if the VPN server is not the destination?

Virtual Private Network (VPN)

- Makes your communication more secure and private

- Creates a "tunnel" between your device and the VPN server

- Hides your IP address and your data from those around you, including your ISP and your neighbors

- Protects you from most hackers who are eavesdropping

VPN Providers

- NordVPN

- Surfshark

- ExpressVPN

- Private Internet Access

- Keep in mind your employer might offer a VPN
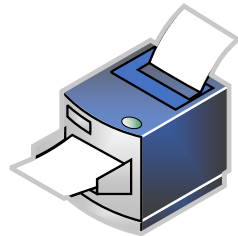
Public Wi-Fi
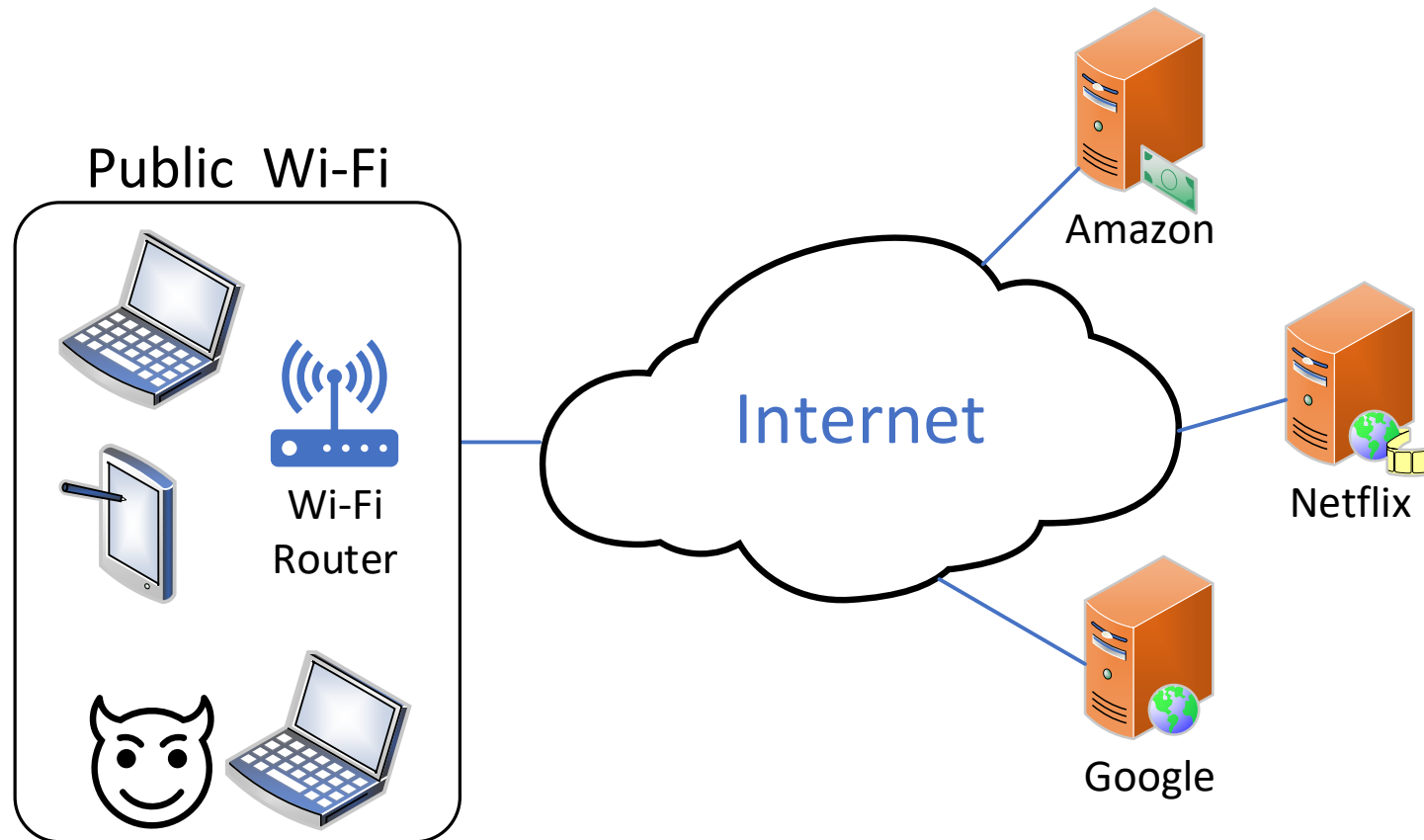
Beware of "Free Wi-Fi"

- Very easy for hackers to spy on users of free Wi-Fi

- Hackers often set up FAKE Wi-Fi sites with names that sound like legitimate sites

  - e.g., `Free-LAX-Wi-Fi`

- If you really need to use free Wi-Fi, always use a VPN!

Home Wi-Fi

Your Home

Basic Info about Wi-Fi Networks

- Network name is the SSID

  o Service set identifier

- Router is also known as the wireless access point

  o Your devices connect to it, and it is wired to your ISP

Basic Info about Wi-Fi Networks

- Want your network to be password-protected
  - This network password is **not** the same as the router password
  - The network password is needed the first time a device connects to the network
  - Occasionally will need network password when connection must be reestablished

Desired Wi-Fi Settings

- Choose SSID that YOU can remember

  o Best if it is **not** easily connected to you, your ISP, or router manufacturer

- Use WPA2 (or WPA3) for network security
  o This is why your network will require a password

- Choose strong network password AND strong router password

SSID Broadcast

Desired Wi-Fi Settings

- Turn off SSID broadcast

- Turn off WPS

  o Or, turn off in general and enable briefly ONLY when adding a new printer

Wi-Fi Protected Setup (WPS)

WPS automates this setup

But even manufacturers agree that WPS is NOT secure!!

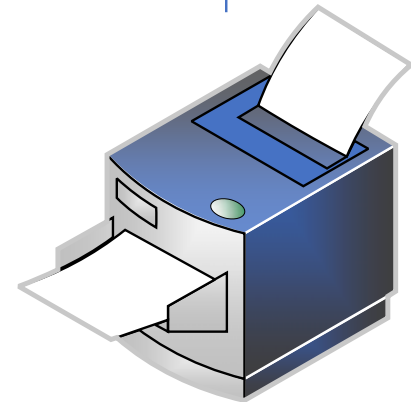# Desired Wi-Fi Settings

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- Turn off Guest access

Desired Wi-Fi Settings

- Choose SSID that YOU can remember
  - Best if it is **not** easily connected to you, your ISP, or router manufacturer
- Choose strong network AND router passwords
- Use WPA2 (or WPA3) for router security
- Turn off SSID broadcast
- Turn off WPS
- Turn off Guest access

Changing Router Settings

- Need to login to router to change its settings

- Look on the router itself or read the router's instructions

- Usually this means opening your web browser to talk to the router

0417700

22:02:19:BD:BC

Wi-Fi Password: 5cf9f4d7h?ej
For Advanced Device Configuration
go to: http://192.168.1.254
Device Access Code: ▓▓▓▓▓

FCC ID: PGR5200AC
US: 6KRDL06B5200AC
ICES/NMB-003 B
IC: 3439B-5200AC

Electrical rating:
12V === 3A
Made in China

c UL LISTED
I.T.E.
E205389

Wi-Fi Network Name: ▓▓▓▓▓
Wi-Fi Password: 5cf9f4d7h?ej
For help, ▓▓▓▓▓

Wi-Fi Network Name: ▓▓▓▓▓▓ MODEL: 5268AC
FXN

Wi-Fi Password: 5cf9f4d7h?ej
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t 15 of the FCC Rules.
lowing two conditions:
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I.T.E.
E205389

LAN status

⚠ Not secure | 192.168.1.254/xslt?PAGE=C_2_0

| Home | Services | Settings | Site Map |

System Info   **Broadband**   **LAN**   **Firewall**   **Logs**   **Diagnostics**

Status   Wi-Fi   Wired Interfaces   DHCP   LAN IP Address Allocation   Statistics   IPv6

Private Network

Router/Gateway Address	192.168.1.254
Subnet Mask	255.255.255.0
Private Network DHCP Info	
Range	192.168.1.64 – 192.168.1.253
Allocated	17
Remaining	173
Timeout	1440 minutes

Wi-Fi

2.4 GHz Radio

Wi-Fi Channel   (Auto)

Wi-Fi Power Level

Primary SSID Name

    Status   Active

    SSID Broadcast   Disabled

    Security   WPA2-PSK (AES)

Guest SSID Name

    Status   Inactive

    SSID Broadcast   Disabled

    Security   WPA2-PSK (AES)

5 GHz Radio

Wi-Fi Channel   (Auto)

Wi-Fi Power Level

Primary SSID Name

    Status   Active

    SSID Broadcast   Disabled

    Security   WPA2-PSK (AES)

Actual SSID names have been removed

Home | Services | Settings | Site Map

Login

Device access code required. Please enter the device access code, then click Submit.

Access code [   ]

Submit

I forgot the access code

Router password (access code) is needed to change settings

Router Password

- Be aware that you should choose a strong password for the router that is NOT the same as the network password

- Not showing the details of changing the **router** password (called access code for this particular router)

Home   Services   **Settings**   Site Map

System Info   **Broadband**   **LAN**   **Firewall**   **Logs**   **Diagnostics**

Status   Wi-Fi   Wired Interfaces   DHCP   LAN IP Address Allocation   Statistics   IPv6

⚠ **Warning:** Modifying the settings on this page can impact the ability of devices to access your wireless network.

Wi-Fi Radio Configuration

To configure options not displayed on this page, click on the "Advanced Options" link below.

Advanced Options

User Network

Enable	Enabled ⌄	Default: Enabled
Network Name (SSID)		Default:

Wi-Fi Password   ○ Use default Wi-Fi Network Password: 5cf9f4d7h?ej
(as printed on the System Label, see figure at page bottom)

◉ Use custom Wi-Fi Network Password

Enter password

Home   Services   **Settings**   Site Map

System Info   Broadband   LAN   Firewall   Logs   Diagnostics

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User Network

Enable	Enabled ⌄	Default: Enabled
Network Name (SSID)	RandomWiFiName	Default:
SSID Broadcast	Disabled ⌄ ←	Default: Enabled
Wi-Fi Security	Enabled ⌄	Default: Enabled
Authentication Type	WPA2-PSK (AES) ⌄	
	Default: WPA2-PSK (AES)	

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○ Use default Wi-Fi Network Password: 5cf9f4d7h?ej

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Enter password [_____._____]

Note: Selecting TKIP (WPA-PSK) & AES-CCMP (WPA2-PSK) require either 64 hexadecimal characters or an ASCII "pass phrase" between 8 and 63 alphanumeric characters.

Wi-Fi Protected Setup	**Status: Disabled**
	Disabled ⌄ Default: Enabled
	Enter WPS PIN [_____] Use PIN
	Push WPS Button Remotely Push button ↻

User Network

Enable	Enabled ⌄	Default: Enabled
Network Name (SSID)	RandomWiFiName	Default: ▓▓▓▓
SSID Broadcast	Disabled ⌄	Default: Enabled
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Wi-Fi Security	Enabled ▾	Default: Enabled
Authentication Type	WPA2-PSK (AES) ▾	
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Enter password [   ]

Note: Selecting TKIP (WPA-PSK) & AES-CCMP (WPA2-PSK) require either 64 hexadecimal characters or an ASCII "pass phrase" between 8 and 63 alphanumeric characters.

Wi-Fi Protected Setup **Status: Disabled**

Disabled ▾   ⬅

Default: Enabled

Enter WPS PIN [   ]   Use PIN

Push WPS Button Remotely   Push button

Guest Network

Enable	Disabled ▾ ←	Default: Disabled
Network Name (SSID)	RandomWiFiGuest	Default:
SSID Broadcast	Disabled ▾ ←	Default: Enabled
Private LAN	Enabled ▾	Default: Enabled
Wi-Fi Security	Enabled ▾	Default: Enabled
Authentication Type	WPA2-PSK (AES) ▾	
	Default: WPA2-PSK (AES)	
Wi-Fi Password	Enter a password for the guest network, or disable security for this network.	
	2hv=6#jjf7qj	

Repeat steps as needed for 5 GHz network as well!

Impact of These Settings

- With SSID broadcast disabled, your network will NOT appear automatically on your devices

  o Will need to enter the SSID and network password manually, but then your device should remember it and its password

  o Once in a while you may need to reenter the information

Example on Windows

Impact of These Settings

- With WPS turned off, adding a new printer will be more complicated than pressing the WPS button on your router

  - Will need to enter the SSID and network password manually, but then your device should remember it and its password

Impact of These Settings

- If you really want a Guest network, you can always re-enable it when you need it

  o Better to keep it disabled when it is not needed!

Home Assistants and IOT Devices

- Amazon Alexa and Google Assistant are examples

  o Also smart TVs, remote controls

- Such devices are **insecure** in general!

- Devices are ALWAYS listening

- Use strong passwords with these devices and associated accounts

- Disable them when not in active use

Software Updates & Antivirus Software

- Keep your operating system and other software updated
    - Most updates are security-related updates
    - Other updates are bug fixes, but many bugs lead to security issues

- Use antivirus software and keep it updated

Email Practices

- Use one email account for your MAIN email

- Use second free email account for everything else

  o I keep account for all of those "required registrations" that need an email address

- Don't click on unexpected attachments

  o Can **hover** carefully over a link to see what its actually URL is

Email Practices

- If email from reputable source, can use "Unsubscribe" option

- If email from unknown source, flag as Junk/Spam instead of using "Unsubscribe"

Spam Email and Phishing

- Hackers use automated tools to collect email addresses

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- Tip for posting email address:

    `nbaqgpresident AT gmail DOT com`
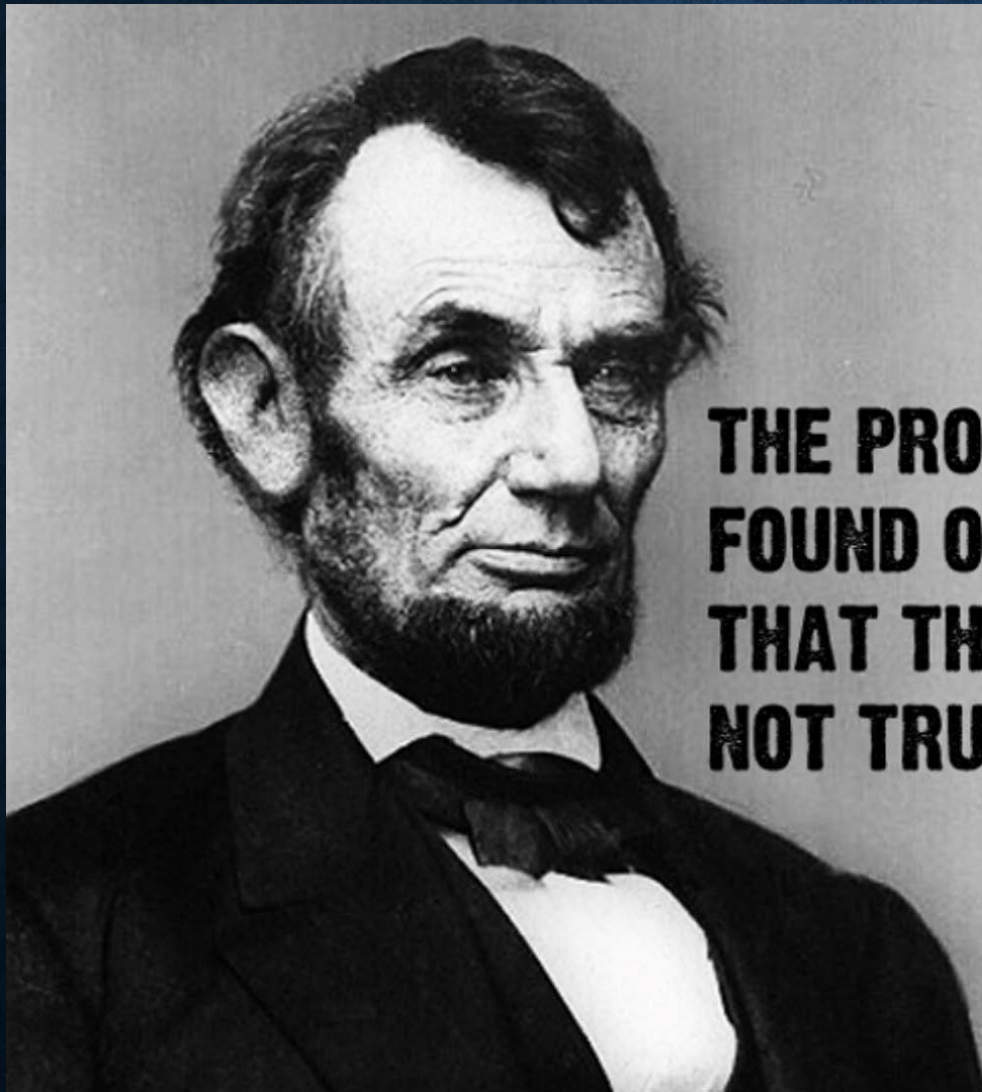
Spam Email and Phishing

- If you get spam/phishing email:

  o Report it to your email provider

  o Report it to the company that was faked / spoofed

Heads Up

- SMS Text Messages are **not** secure

- iOS iMessages are generally secure

- FB Messenger messages generally are **not** secure

  o Can use "Secret Conversation" in Messenger but most people are not aware of it

Online Behavior in General

- Don't assume any privacy for anything you post online

  - Social media accounts frequently are compromised due to weak passwords

    - Maybe your password is secure, but what about your friend who sees your posts?

  - Despite permissions, people can find a way to share posts and pictures

  - Search engines can find all kinds of information

Questions & Answers