Online Privacy

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http://cbcpl.net/digital-life

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Class Outline

- Metadata
- Encryption
- Private browsing & searching
- Privacy on social networks
- Privacy on mobile phones
- Secure your accounts

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Metadata

- In the context of digital communications, metadata is the digital equivalent of an envelope—it's information about the communications you send and receive.
  - The subject line of your emails, the length of your conversations, and your location when communicating (as well as with whom) are all types of metadata.
- Metadata is often described as everything except the content of your communications.

https://ssd.eff.org/en/module/why-metadata-matters

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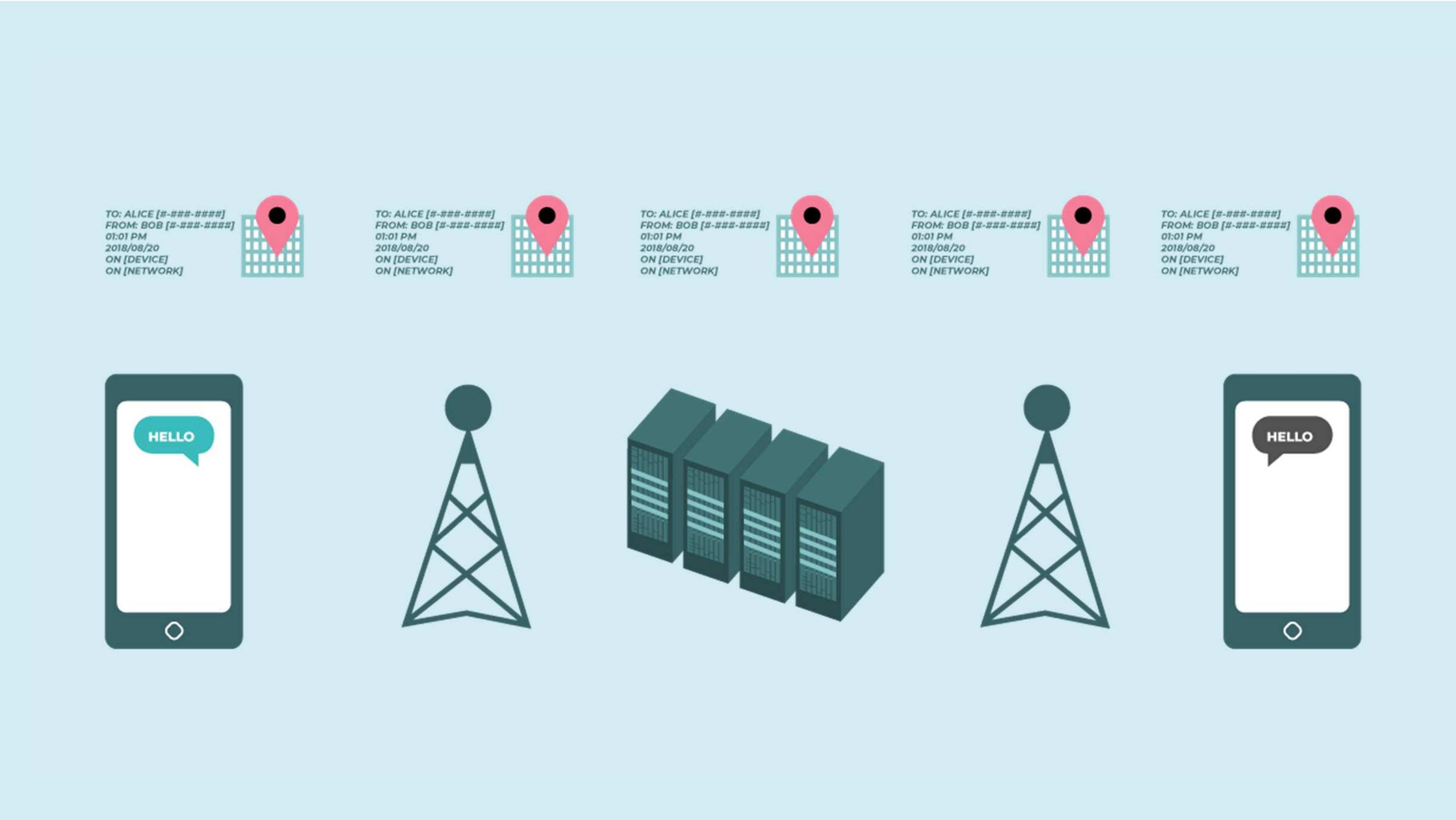
TO: ALICE [#-###-####]
FROM: BOB [#-###-####]
01:01 PM
2018/08/20
ON [DEVICE]
ON [NETWORK]
TO: ALICE [#-###-####]
FROM: BOB [#-###-####]
01:01 PM
2018/08/20
ON [DEVICE]
ON [NETWORK]
TO: ALICE [#-###-####]
FROM: BOB [#-###-####]
01:01 PM
2018/08/20
ON [DEVICE]
ON [NETWORK]
TO: ALICE [#-###-####]
FROM: BOB [#-###-####]
01:01 PM
2018/08/20
ON [DEVICE]
ON [NETWORK]
TO: ALICE [#-###-####]
FROM: BOB [#-###-####]
01:01 PM
2018/08/20
ON [DEVICE]
ON [NETWORK]
HELLO
HELLO

What can metadata reveal?

- They know you rang a phone sex line at 2:24 am and spoke for 18 minutes. But they don't know what you talked about.
- They know you called the suicide prevention hotline from the Golden Gate Bridge. But the topic of the call remains a secret.
- They know you got an email from an HIV testing service, then called your doctor, then visited an HIV support group website in the same hour. But they don't know what was in the email or what you talked about on the phone.
- They know you called a gynecologist, spoke for a half hour, and then searched online for the local abortion clinic's number later that day. But nobody knows what you spoke about.

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Encryption

- Generally, encryption refers to the mathematical process of making a message unreadable except to a person who has the key to "decrypt" it into readable form

Encryption

https://www.youtube.com/watch?v=I6UuWrVzys4

Encryption

- End-to-end encryption: info is encrypted from one end to another
- Transport-layer encryption: info is encrypted as it travels, but the app or website you are using can see it unencrypted

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Tools for Encryption

- End-to-end encryption:
  - Signal
  - Whatsapp
- Transport-layer encryption:
  - VPN: virtual private network
  - HTTPS Everywhere
- Encrypting data at rest
  - Full disk encryption

Cookies

- Info saved by your web browser. When you visit a website, the site may store a cookie so it can recognize your device in the future.
- First-party and third-party cookies
  - First-party: placed by the site you visit
  - Third-party: placed by someone other than the site you are on
- Cookies allow companies to develop detailed histories of the types of sites you frequent in order to customize ads and website

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Cookies

- Defending against cookies:
  - Use a browser that allows you to turn off trackers/block cookies, or use a privacy-oriented browser
  - Use a private search engine
  - Browse in private or incognito mode
  - Don't browse the internet while logged into other accounts such as Google accounts

Browser or device finger-printing

- A method of tracking browsers and devices by the configuration and settings info they make visible to websites
- Deleting your cookies won't help
- Is it possible to defend against it?
  - Use a popular browser
  - Use a privacy tool or browser
  - Keep system and browser updated
  - Disable JavaScript and Flash (optional)
  - Browse in private mode
  - Use a VPN

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Privacy on Social Networks

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- Read the privacy policies
  - Just understand the portions that discuss how data is used and when shared w/ 3rd parties
- Remember that social networking sites are corporations and you are the product. Blocking 3rd party cookies is a good idea when using these services
- Look for privacy and security/safety settings
- Remember privacy settings are subject to change
- Privacy is a team sport

Protect Yourself on Public Wi-Fi

- Choose your network wisely
- Check for HTTPS or use HTTPS Everywhere
- Use a VPN
- Keep apps and operating systems up-to-date
- Enable 2-factor authentication (2FA)
- Forget the network

Lack of privacy on mobile phones

- Your location is never private when using a mobile phone
- Calls and texts are easy to surveil unless you are taking special measures (e.g., using a service like Signal)
- Does turning phones off keep you safe?
  - Maybe/sometimes/it depends
  - Malware can be installed w/o your knowledge that might make it appear to be off (remove battery to ensure against this)
  - Turning off can sometimes look suspicious

Lock Down Your Phone

- Use a strong passcode alongside your biometric (fingerprint or face) login
  - iPhone: Settings > Face ID & Passcode or Touch ID & Passcode
  - Android phone: Settings > Security and location
- Set up your phone's remote-tracking feature
  - iPhone: Settings, tap your name, and then go to Find My
  - Android: Settings > Security > Find My Device

Secure Your Accounts

- Use secure passwords
- Use a password manager
- Do not reuse passwords
- Use two-factor authentication (2FA)
- Check location tracking/settings on apps and accounts
- Check privacy settings on apps and accounts

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Best advice for most users

- Protect your web browsing
- Use an end-to-end encrypted messenger app like Signal (optional)
- Protect yourself when on public wifi
- Lock down your phone in case lost
- Turn encryption on for your laptop or desktop
- Keep software and apps up-to-date
- Keep your main email address and phone number relatively private
- Do not click on unknown links or open unknown attachments
- Use secure passwords and a password manager

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Questions?

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