Network Infrastructure

• Wired
• Wireless
• Both
Internet Access

- Cable Modem
- DSL
- FiOS
- Satellite
Firewall/Router

• Edge Device
• ISP Provided?
Router

• Hub for all devices
• Vision to all traffic
• Can be a threat to the smart home
Cyber Attacks

• Denial of Service (DoS)
• Man-in-the-middle (MitM)
• Phishing & spear phishing
• Drive-by
• SQL injection
IoT Security
Consumer Devices

- Doorbell
- Voice Assistants
- Appliances
- Lights
- Smart Locks
- Sprinkler Systems
- Video Surveillance
Amazon Ring doorbells exposed home Wi-Fi passwords to hackers

Zack Whittaker / @zackwhittaker / 9:43 am EST • November 7, 2019

Ring Doorbell
Smart Refrigerator
Wireless

- **Wi-Fi Encryption**
  - **WEP**
  - **WPA**
  - **WPA2** – Fall 2017, vulnerability discovered. PATCH!!!
  - **WPA3** – coming soon
Home Wireless Networks

- Default values – change the defaults!
- Drive-by
- Used by spammers
- Used by neighbors to ride your access, download porn, etc.
Unsecured Wireless

- Download of child porn
- IP address of home
- Warrant
- Seized electronics
Configuration

- Admin ID
- Password
- SSID
- IP Addresses
- Remote Administration
- WPS
- MAC Filtration
- Guest Access
More Configuration

- Hide the network
- Disable UPnP
- Firmware update
- Minimize port forwarding
- Signal footprint
- VLAN
ISP Settings

- Network Sharing
- App Access
Two WiFi networks. One for you. One for your guests.

Have an Xfinity Wireless Gateway? Then you're likely to have the home hotspot feature. Give guests WiFi access in your home without sharing your password or slowing down your network.

Here's how it works:

In addition to your secure in-home WiFi, many Wireless Gateways broadcast a second signal called "xfinitywifi." This is an extension of the Xfinity WiFi network that any Xfinity Internet subscriber can use.
Network Extenders

- Ethernet over power
- Wi-Fi extenders
Other Networks

- Paralegal
- Clients
- Experts
- Anyone accessing client data
• Anti-Malware
• Anti-Spyware
• Internet Suites
  • Trend Micro
  • Webroot
  • Kaspersky removed from GSA list July 2017
• Don’t use free software for personal use
• No silver bullet
• Malware will get in
• 2019 – the rising tide of botnet malware
Backups are key!

- Encrypted
- Multiples
- Test restores
- Synchronized
- Outsourced
  - Backblaze
  - Carbonite
  - CrashPlan
  - SOS Online