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- Topic Name: Mobile Platform, IoT, and OT Hacking - IoT and OT Hacking
- Episode Name: IoT Basics

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IoT Basics

Objectives:

- Define IoT
 - "The process of connecting everyday objects and systems to networks in order to make them globally available and interactive." - Daniel Miessler
 - Consumer IoT
 - Industrial IoT (IIoT)
 - <https://danielmiessler.com/blog/the-differences-and-similarities-between-iot-and-ics-security/>
- IoT Components
 - The IoT "THING"
 - Sensor
 - Camera
 - IoT Gateway
 - Connects IoT Devices to...
 - each other
 - end-user
 - cloud/internet
 - <https://www.dell.com/en-us/work/shop/gateways-embedded-computing/sf/edge-gateway>
 - Cloud Server
 - Stores and/or Processes IoT Data
 - Remote Apps
 - End-user control panel/dashboard
- IoT Architecture
 - Edge Technology
 - IoT Hardware Components
 - Access Gateway
 - Inter-technology communication devices
 - Internet Layer
 - IP-based communication
 - Middleware
 - Services that run in the background of application layer software
 - Application Layer
 - Provides end-user operation and interaction

- IoT Deployment Areas
 - Commercial/Industrial
 - Consumer
 - Healthcare
 - Transportation
 - Energy
 - Military/Law Enforcement
 - IT

- Common IoT Technologies and Protocols
 - Communication
 - Wi-Fi
 - RFID
 - LTE-Advanced (medium-range)
 - Low-Power Wide Area Networking (LPWAN) (Long-Range)
 - Sigfox (long range)
 - Ethernet (wired)
 - Operating Systems for IoT
 - ARM mbed OS
 - Win10 IoT
 - Contiki
 - Ubuntu Core

- Communication Models
 - Device-to-Device
 - Device-to-Cloud
 - Devices --> App Service Provider
 - Device-to-Gateway
 - Devices --> IoT Gateway --> App Service Provider
 - Back-End Data-Sharing
 - Device --> App Service Provider1 --> App Service Provider2/3/4/etc

- IoT Security Challenges
 - Weak or no intrinsic security
 - Weak authentication
 - Poor access control implementation
 - Vulnerable web apps
 - Clear-text communications
 - Buffer Overflows (RCE)
 - Support could be lacking or non-existent
 - Device theft