# 2.6

Wednesday, September 20, 2023 4:19 PM

embedded systems and IoT constraints

- implied trust - every device added to network is trusted and assumed to be from legit admin
- no authentication
- crypto functions limited

desktop inferior to embedded system

- cost
- power
- compute - embed only needs certain resources to function

LTE machine type communication LTE-M

baseband radio that supports ... limit bandwidth of

baseband

cellular net bandwidth of up to 1 mb per second

Narrowband-IoT NB-IoT - baseband radio that has limit data rates between 20-100 kb per sec

more suitable for inaccessible locs that require signal penetrating power

SIM - id of subscriber using LTE cellular radio device

Zigbee - wireless comms protocol used primarily for home automation

open source

2.4 ghz

comm hop limit

no comm hop limit

System on a chip SoC - microchip that contains all necessary parts a pc needs to operate by itself

smartphone, tablet, watch

primary concern = data loss

Infrastructure as code IaC - manage data centers through auto means

field programmable gate array

FPGA - embedded controller that user can program to run

app

industrial purposes

RTOS - embedded system that of devices w/ time-sensitive tasks

Arduino and raspberry pi are SoC devices

sensors - IoT devices that measure readings like temp, light, humid, pressure

producing false readings will cause emergency

Video entry phone - IoT smart device endpoint that can be of remote

endpoint that can [illegible]

has no effect on other devices

Physical access control system PACS

net of locks, alarms, and surveill

for automation

might not generate emergency

SCADA

- manufacturing

  auto production systems

  forges, mills, assembly

- Energy

  power generation/distro

  water/sewage

transportation

- Logistics

  auto transport and lift

  sensors for component tracking

  factory or distro warehouse

- Facilities

  site and building

  heating, vent, and air HVAC,

  lighting, sec