

# RAD TERMINAL

4/23/2022, 11 AM, Classroom B

Justin Land and Dan Sullivan Presenting

Slides at: [PlanetaryStatusReport.com/RADSLIDES](https://PlanetaryStatusReport.com/RADSLIDES)

# Tornadoes ...



# Floods ...



# Ice storms ...



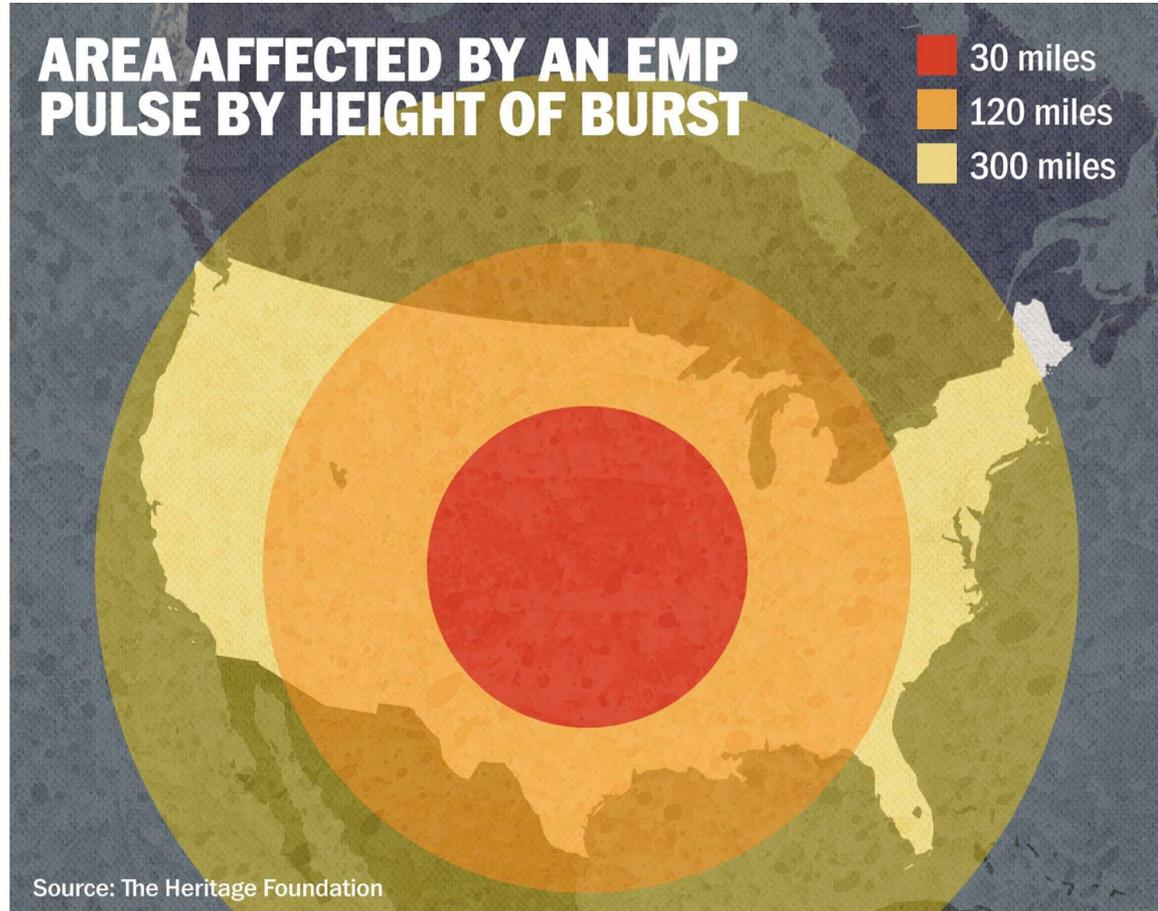
# Wildfires ...



# Earthquake or other geologic events ...



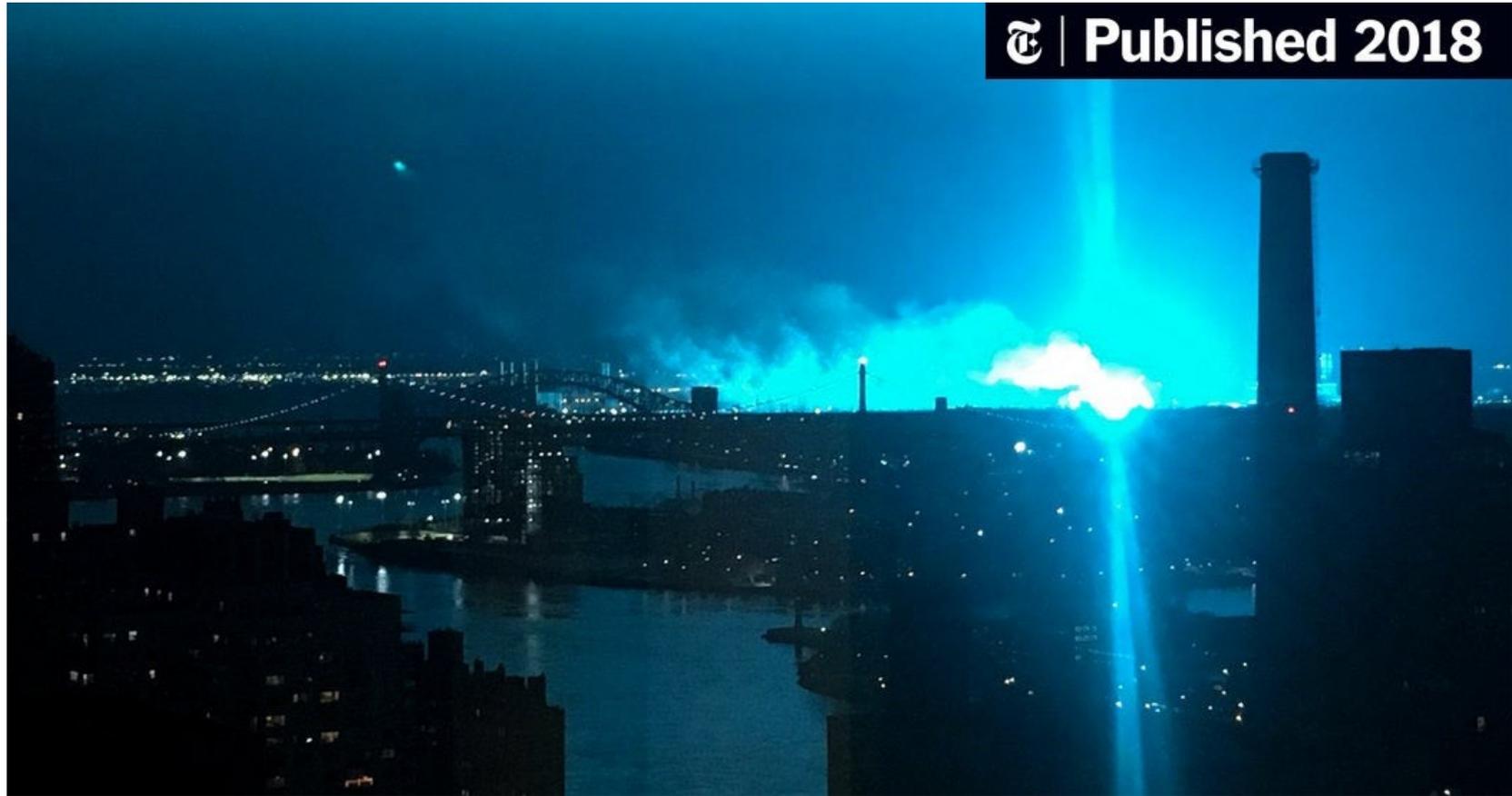
# EMP Attack, or Carrington Event



# Government and Private Sector Censorship



# Transformers



 | Published 2018

# Power Lines



# Telephone and CELL Networks



# Satellites



# ROADS



# WWW Switches and Nodes



# Power Stations



# Shortages of Critical Equipment



# In a **GRID-DOWN** Scenario, can you ...

- Rebuild a power station?
- Repair fiber cable?
- Fix a microwave tower?
- Repair your smart device or mobile phone?
- Manufacture electronic components?
- Launch a replacement satellite?

# Overview of Discussion

- A brief history of computing and the internet
- What is JS8 and the protocol?
- What is the RAD TERMINAL?
- ROAD MAP: where we need to go ...
- Questions / Answers

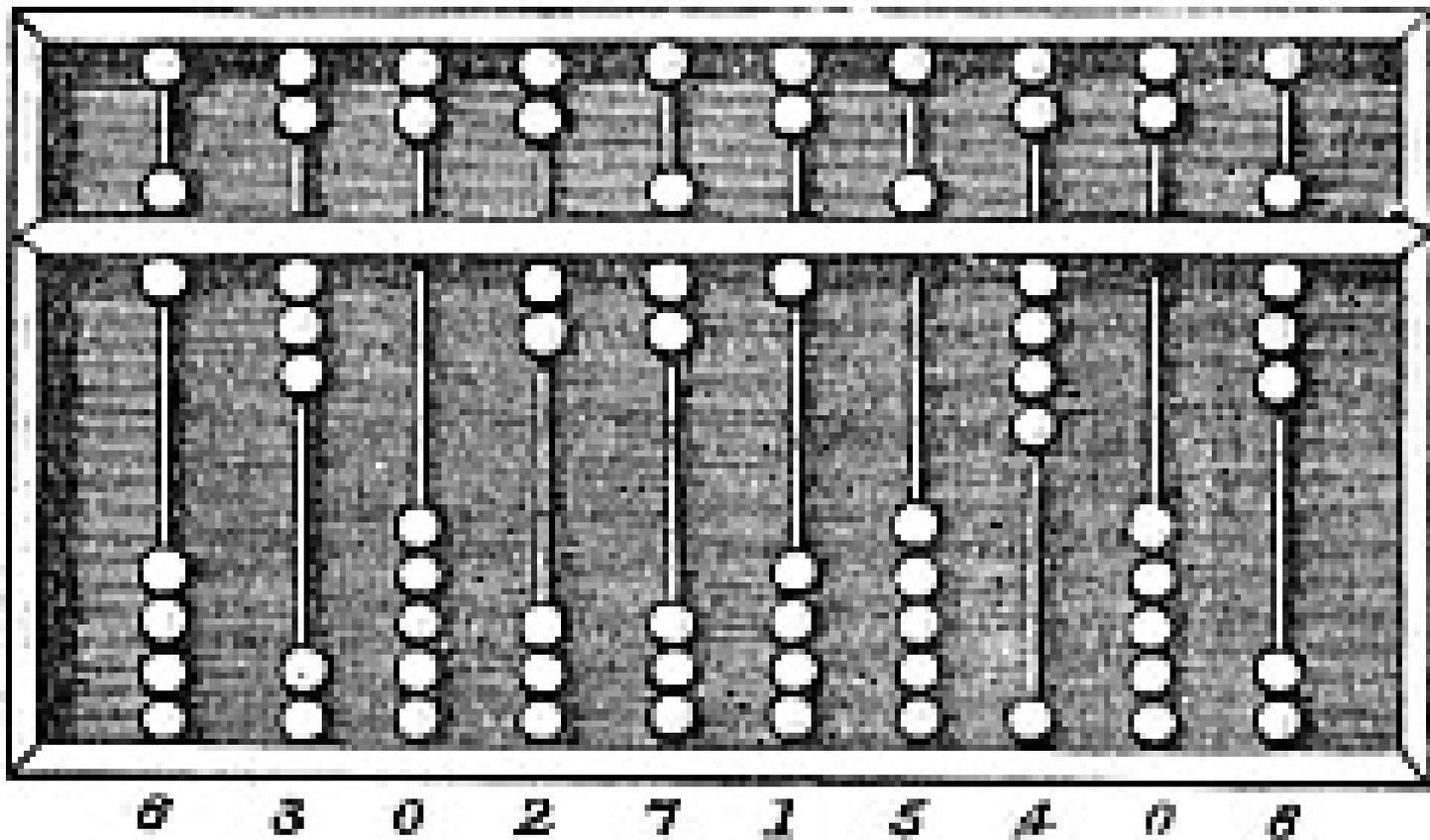
# Ground Rules

- We are not HAM licensed and we are not discussing using HAM frequencies.
- The FCC, as with many federal agencies, is a mix of bureaucracy and murky regulations. We are not lawyers, if you have questions about whether you think it is legal or illegal to use CB for digital communications, please contact an expert in constitutional law.

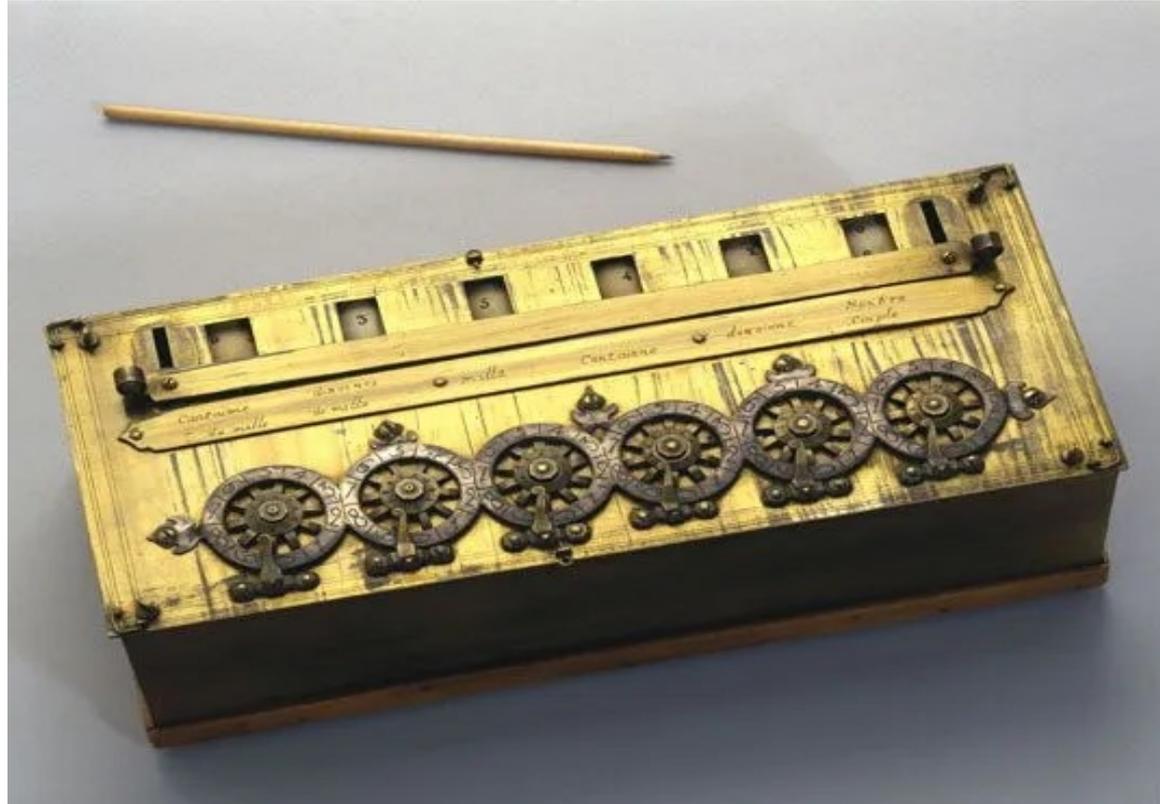
# Archimedes Antikythera - 3<sup>rd</sup> Century BC



# The Abacus



# Pascaline (Blaise Pascal inventor) adding machine ... 1644



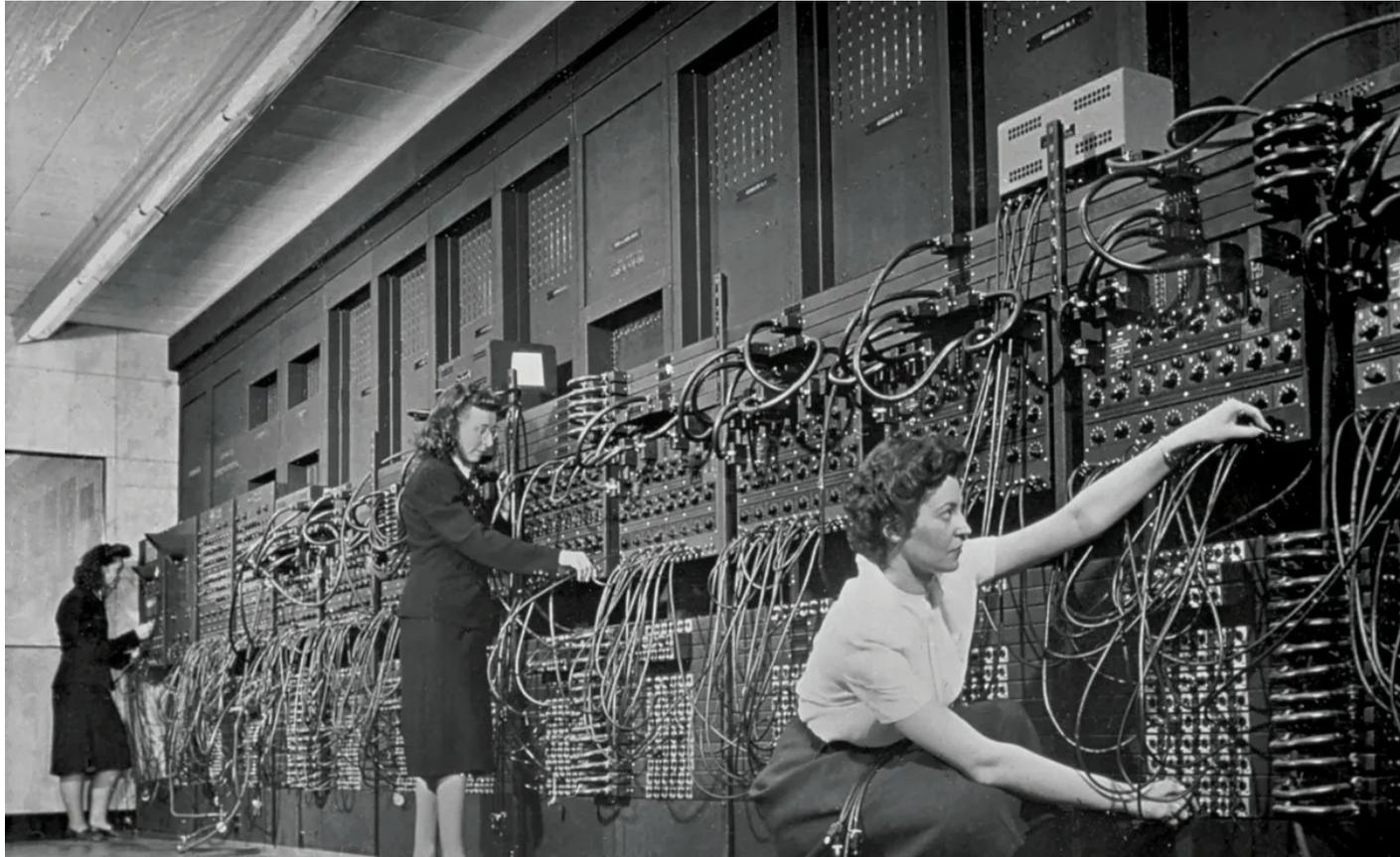
# Charles Babbage and Ada Lovelace, 19<sup>th</sup> Century ...



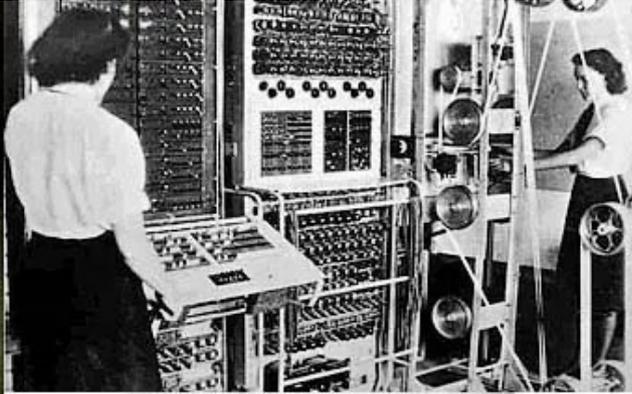
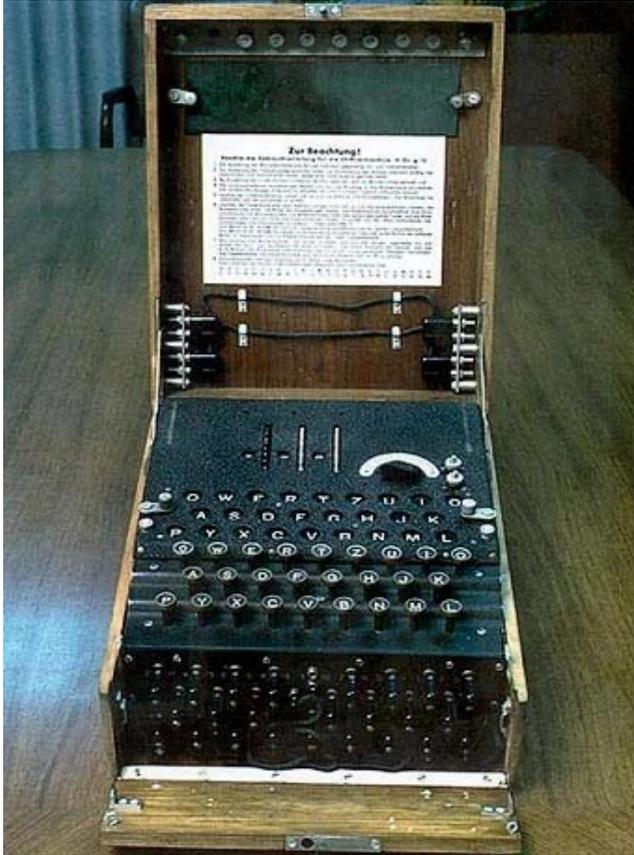
# Hollerith, and the 1880 census data



# ENIAC

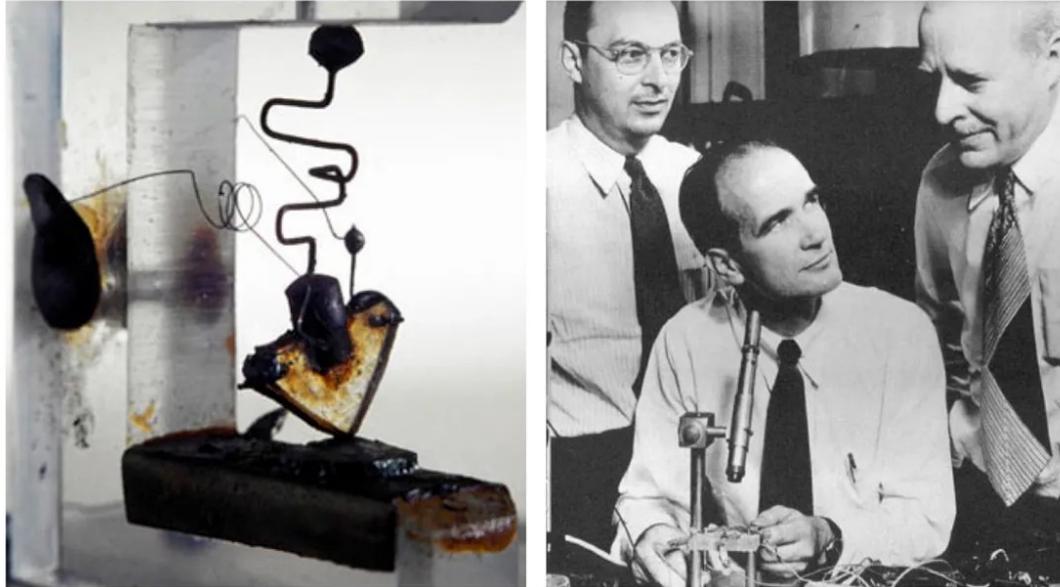


# Alan Turing and Colossus ...



# The transistor ... 1948

Point-contact Transistor –  
Bardeen, Brattain, Shockley – 1948



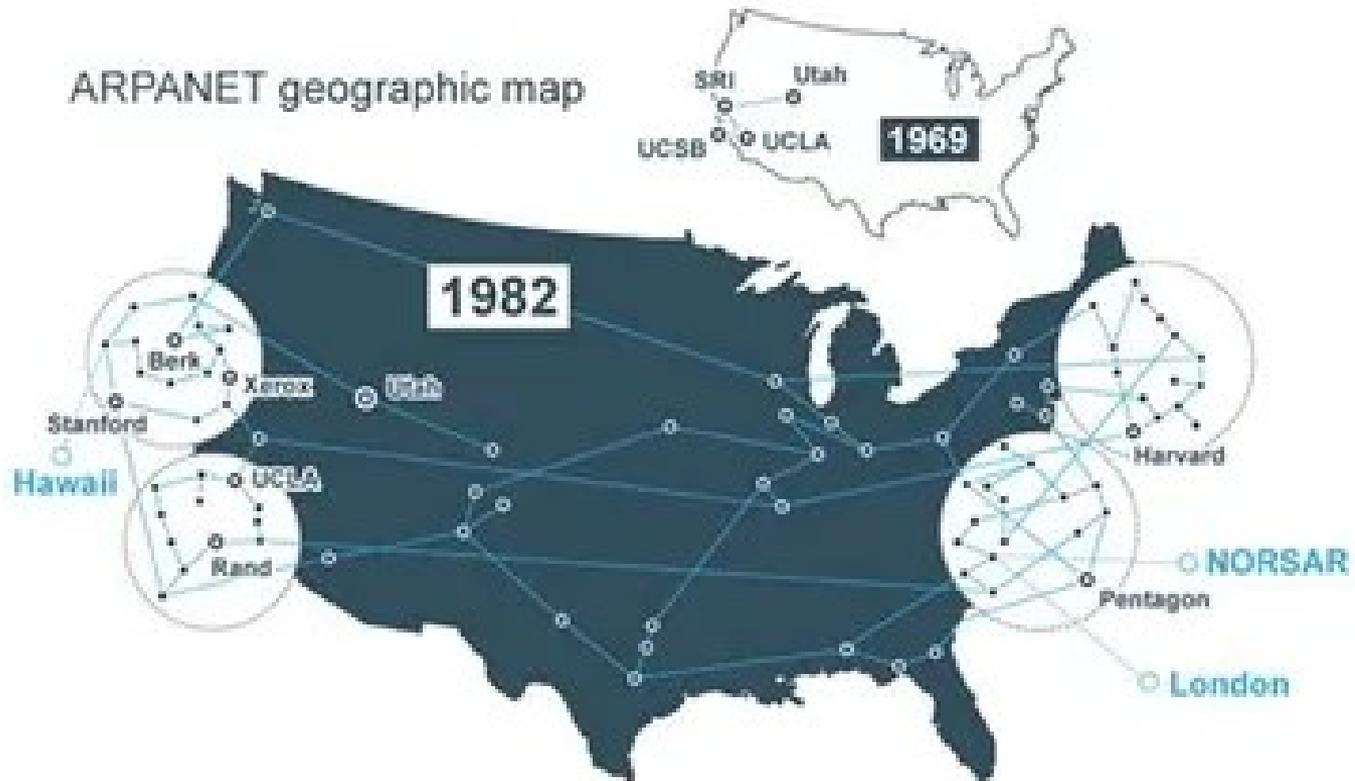
<http://history-computer.com/ModernComputer/Basis/transistor.html>

# Microchip and Minute Man 1

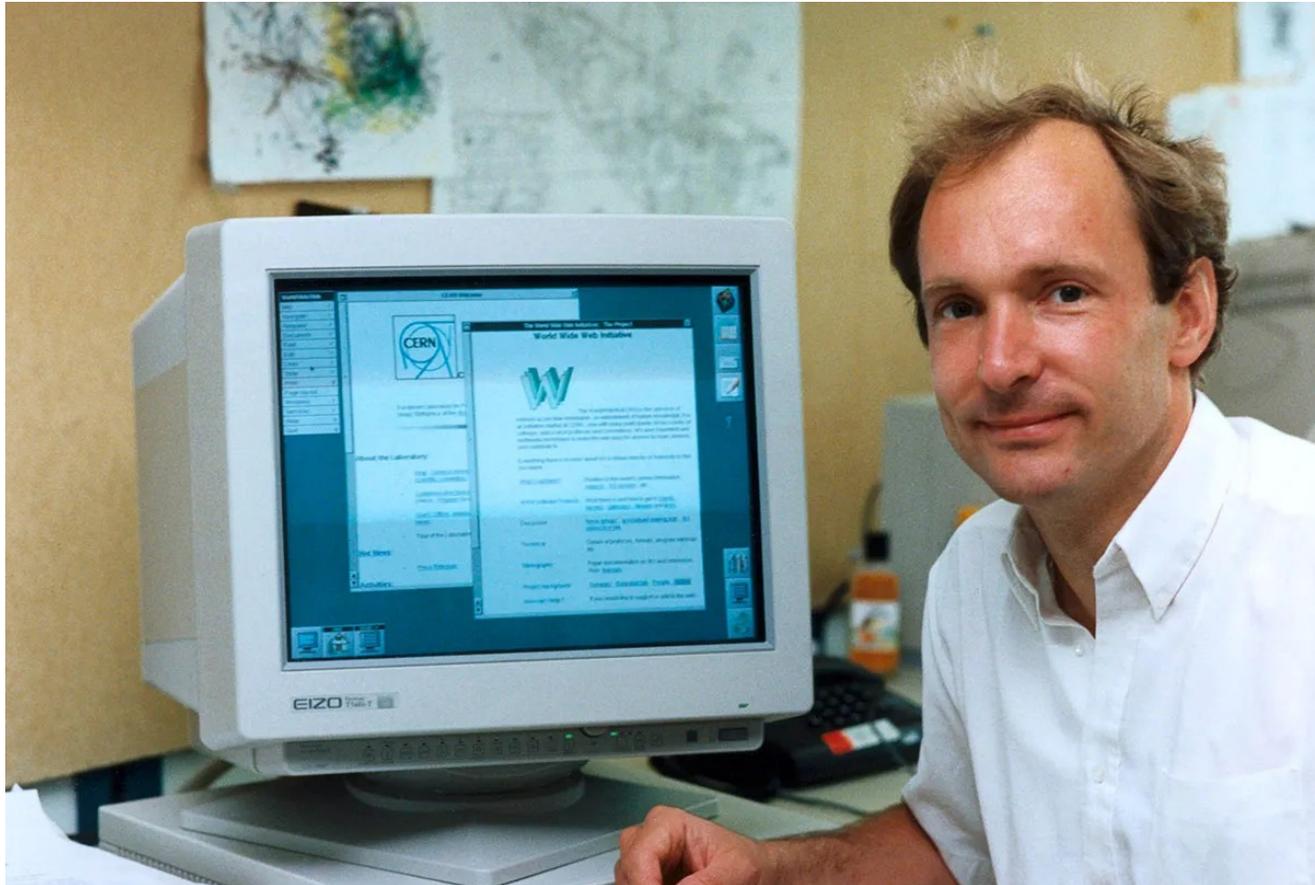


# ARPANET

ARPANET geographic map



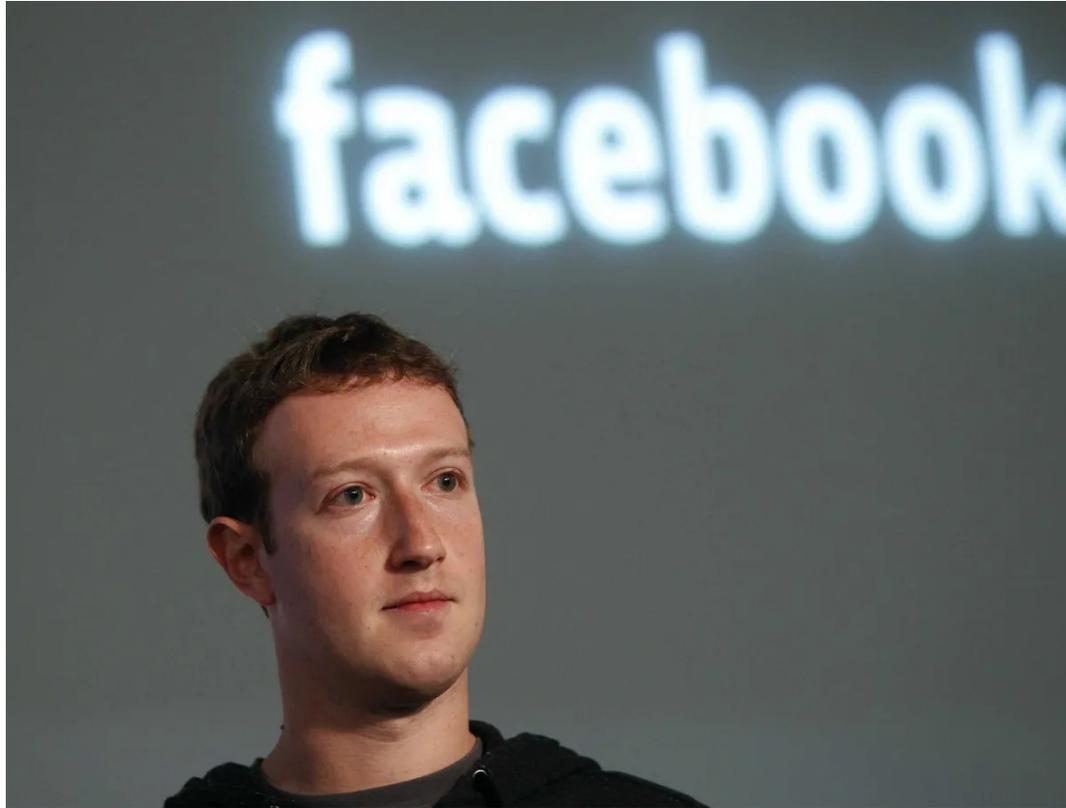
# Tim Berners Lee and the WWW



# SMART DEVICE – 2000s



# Digital Ghetto



**WHAT is the  
THEME?**

# JS8 Call and JS8 Protocol

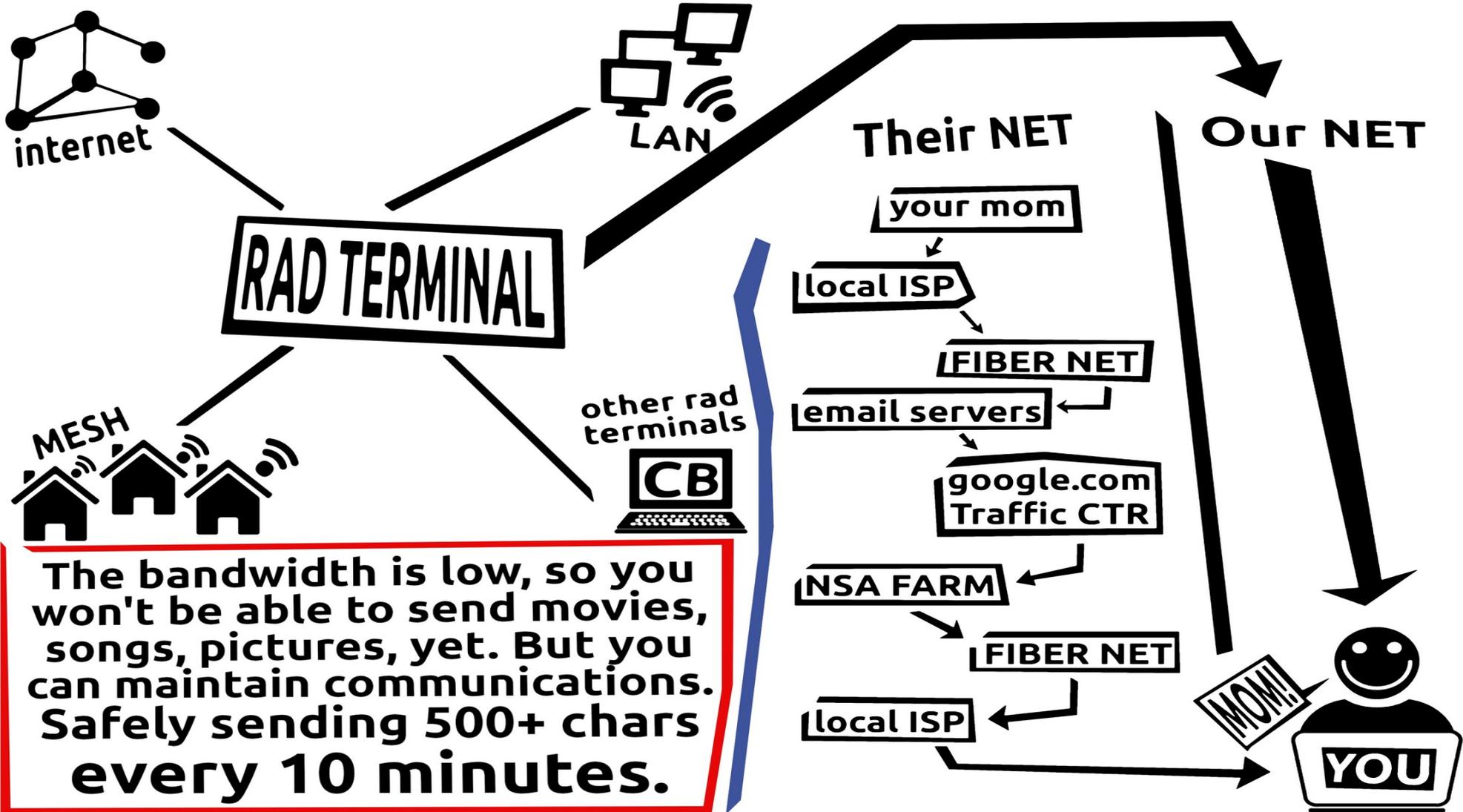
- designed for message passing using a custom FT8 modulation called JS8
- An **Open Source** application developed by Jordan Scherer, based on WSJT-X – from Princeton, written in C++
- 8 tone modulation to transmit textual information over various low-power frequencies
- App, and links to download: <http://js8call.com/>

# What is the RAD TERMINAL?

- A **compact** home brew kit that anyone can build out – or you can pay [RADENGINEERING.TECH](http://RADENGINEERING.TECH) to do for you.
- A software ecosystem involving JS8CALL, python3, LAMP and the PSR NOTES bulletin board system
- A **simple** point to point network that can grow organically, without the WWW **complexity** and the many points of failure.
- Major components: a CB radio with SSB, a computer capable of running JS8 call and LAMP

# What is the RAD TERMINAL? (cont)

- An **expandable** ecosystem that anyone can modify – including source code.
- A **flexible** tool for organizing teams.
- Designed with **RIGHT-TO-REPAIR** baked in!
- A **cooperative** AND **voluntary** network, with your OWN off switch!
- A way to take back your digital **independence!**



The bandwidth is low, so you won't be able to send movies, songs, pictures, yet. But you can maintain communications. Safely sending 500+ chars every 10 minutes.

# What can you do with a RAD TERMINAL?

- A completely independent and free social media
- Use like email
- Send a message to SMS or EMAIL from the woods
- Set up an on demand NEWS service: NEWS.py
- Personal Chats – **P2P** ... no intermediaries
- **Educate** others on various topics
- GAMES: trivia, chess, checkers, adventure games
- Buy/Sell/Trade Classifieds
- Post to our notes bulletin board from a CB radio
- Avoid **INFORMATION OVERLOAD!**

# RAD TERMINAL ROAD MAP

- Convert JS8 Call source code into an API in the form of one or more python modules – this is part of the open source process
- Work developing an optimal low-loss encoding method for use with JS8 mode
- Develop other tonal strategies, because JS8 is also a call to action
- Build an all in one rad terminal that our company sells – radio computer, all in one, in an easy to deploy kit (2023)
- As evangelists for JS8 and digital CB: **EDUCATE** and **EMPOWER** others in the radio **community**

TO RECAP ...

# You can!

- Use a **soldering iron**
- Test a circuit for continuity
- **Protect** sensitive equipment from EMP
- Provide alternative power when the **grid is down**
- Scavenge electronic components for replacements
- BE BRAVE and HAVE FAITH IN YOURSELF and be there for your family and **community** when the time comes
- Get over the cult of **LEARNED HELPLESSNESS**
- Pick up new skills and **EDUCATE** others

# Conclusion

- *Justin: how he got into radio, and why he believes in this project*
- *Dan: the parable of Home Depot and Fry's, **Right-to-Repair***

# Key Concepts

- Education
- Empowerment
- Learned Helplessness
- Grid Down
- Simple vs Complex
- Flexible
- Independence
- Right-to-Repair
- Open Source
- Community
- Voluntary
- Cooperation
- Information Overload
- Compact

Questions?