



# The Payphone You Have Dialed Has Been Disconnected

## The State (and Revival) of Payphones in 2023

# Agenda

- Who are we?
- What's a payphone?
- Interest in infrastructure → Mapping and scanning payphones
- The PhilTel project
- What is PhreakNet → How PhilTel ties into it
- Future Plans

# Who are You?

## Mike

- Software engineer
- Philly 2600 (2012-)
- FreePBX/Asterisk user (2012-)
- Networks of Philly (2018-)
- Dialup.world (2021-)

## Naveen

- Computer engineer, IT
- Telephone collector, phone phreak (2016-)
- Asterisk user (2018-)
- Payphone inventory (2019-)
- PhreakNet (2021-)
- Asterisk/DAHDI developer and consultant (2021-)
- BBS software developer (2022-)
- Environmental activist (2016-)

# What is a Payphone?





# What is a Payphone?



# What is a Payphone?



Jawncon 0x0 - 2023-10-20



philtel.org





# Networks of Philly

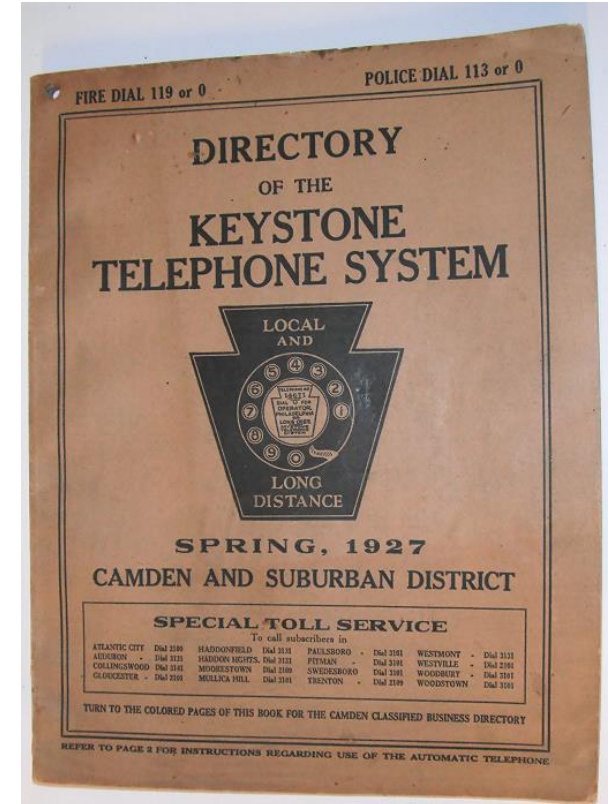
- Networks of Philly is a project attempting to discover and understand network infrastructure all around us.
- <https://networksofphilly.org>



# Local Telco Infrastructure

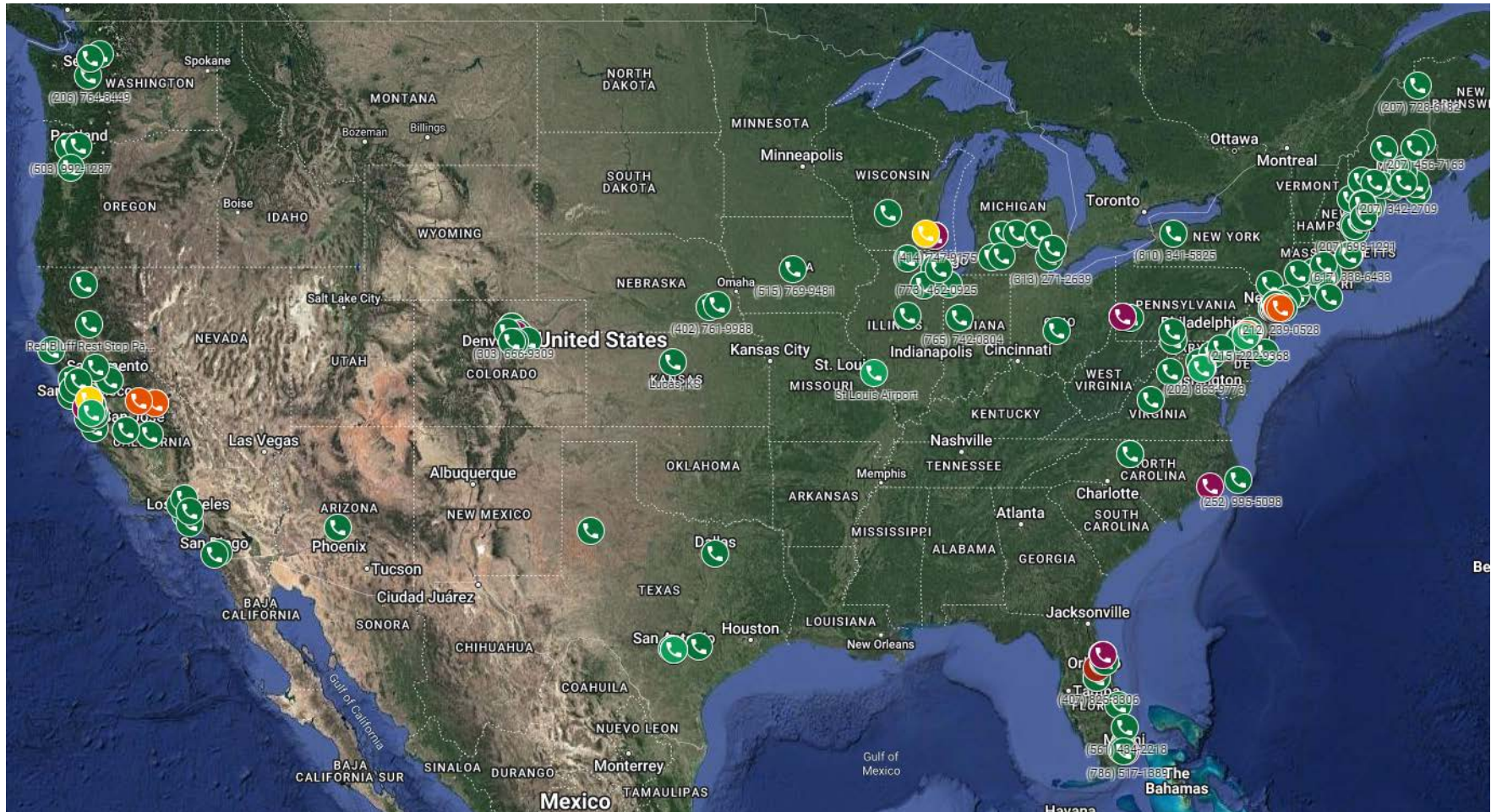


**Bell of Pennsylvania**





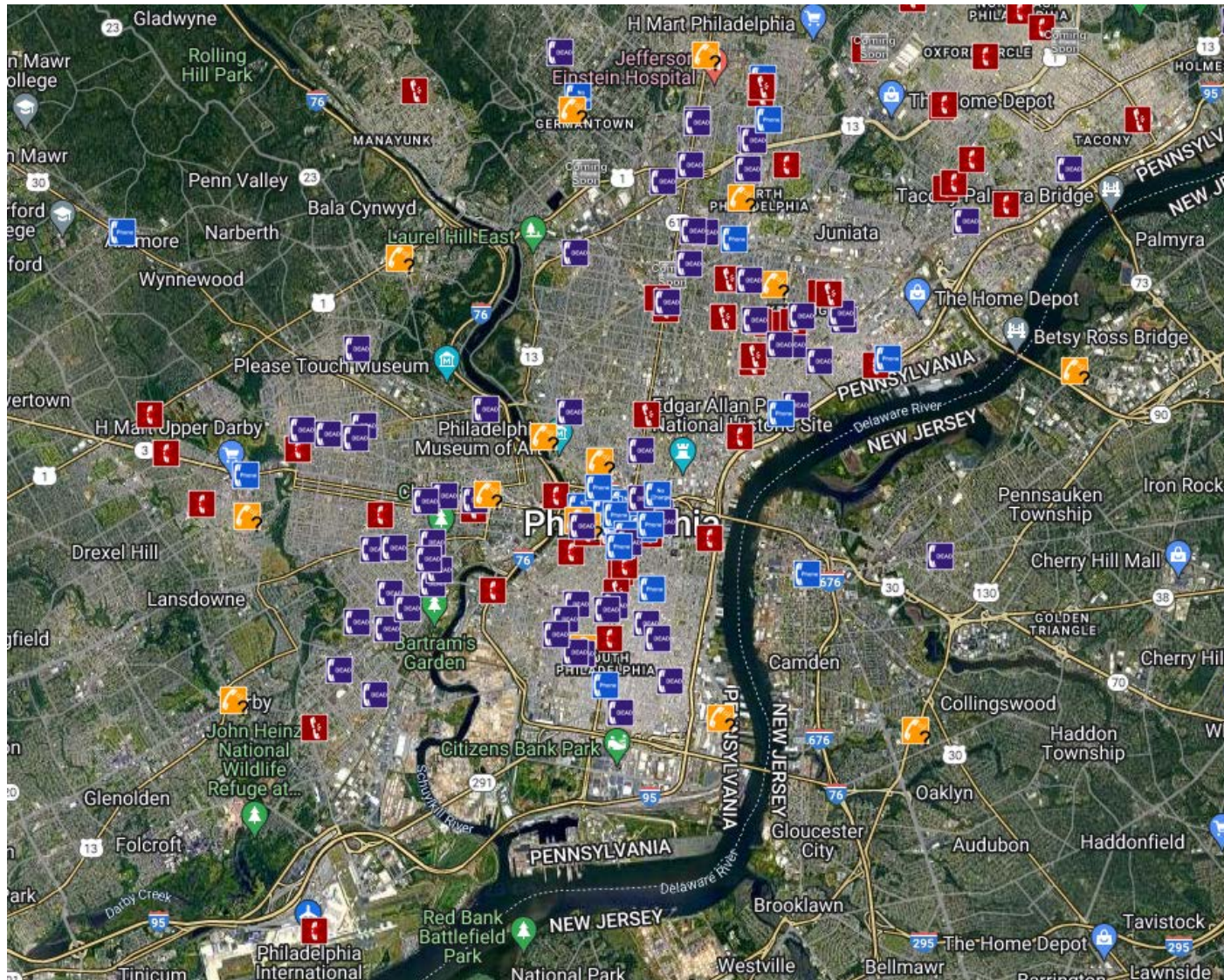
# Where Can You Find A Payphone?



<https://phreaknet.org/payphones/>  
philtel.org



# Local Payphones





# Local Payphones





# What Happens If You Call A Payphone?

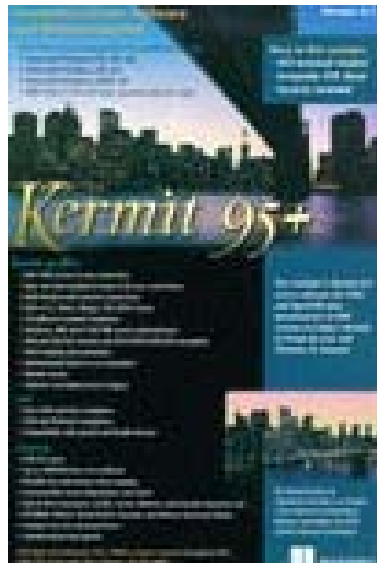
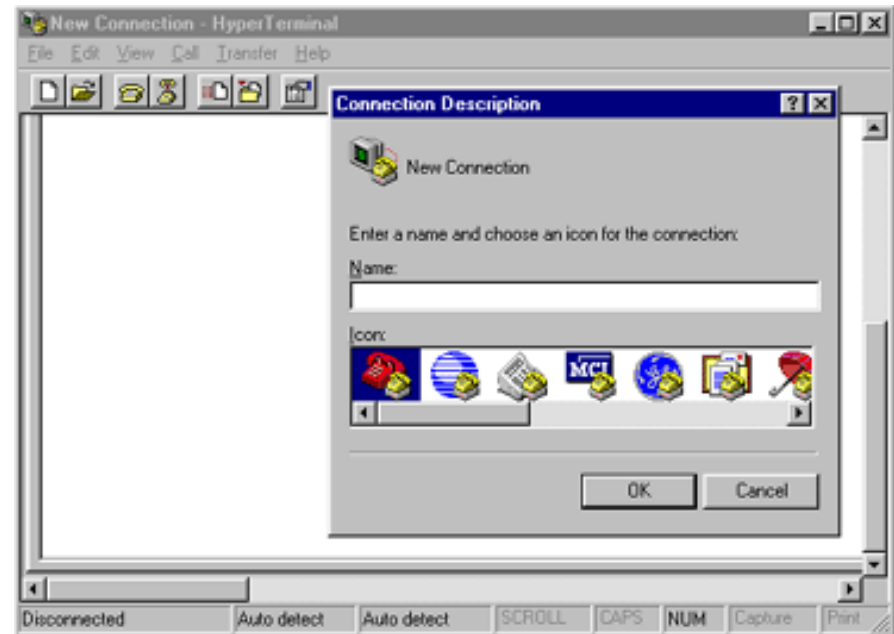
- Historically, they would... ring!
  - No charge for answering incoming calls
  - Bell System had policies to prevent fraud
- COCOTs typically answer with a 300/1200 baud modem
  - Remote management
  - Reporting
  - Security...

# Protel Printouts

***TC!\*2152229996\*72765\*DD8822\*4868\*025\*2210301004552\*67805\****

Number	Amount in Coin Box	Model No.	% Full = 25%	Local Timestamp	Balance When Last Emptied
(215) 222-9996	\$727.65 -\$678.05 = \$49.60		Checksum? PIN? Only changes when emptied... but not every time	2022 October 30 00:45 local time (12:45 am EDT)	\$678.05

# Automating It...

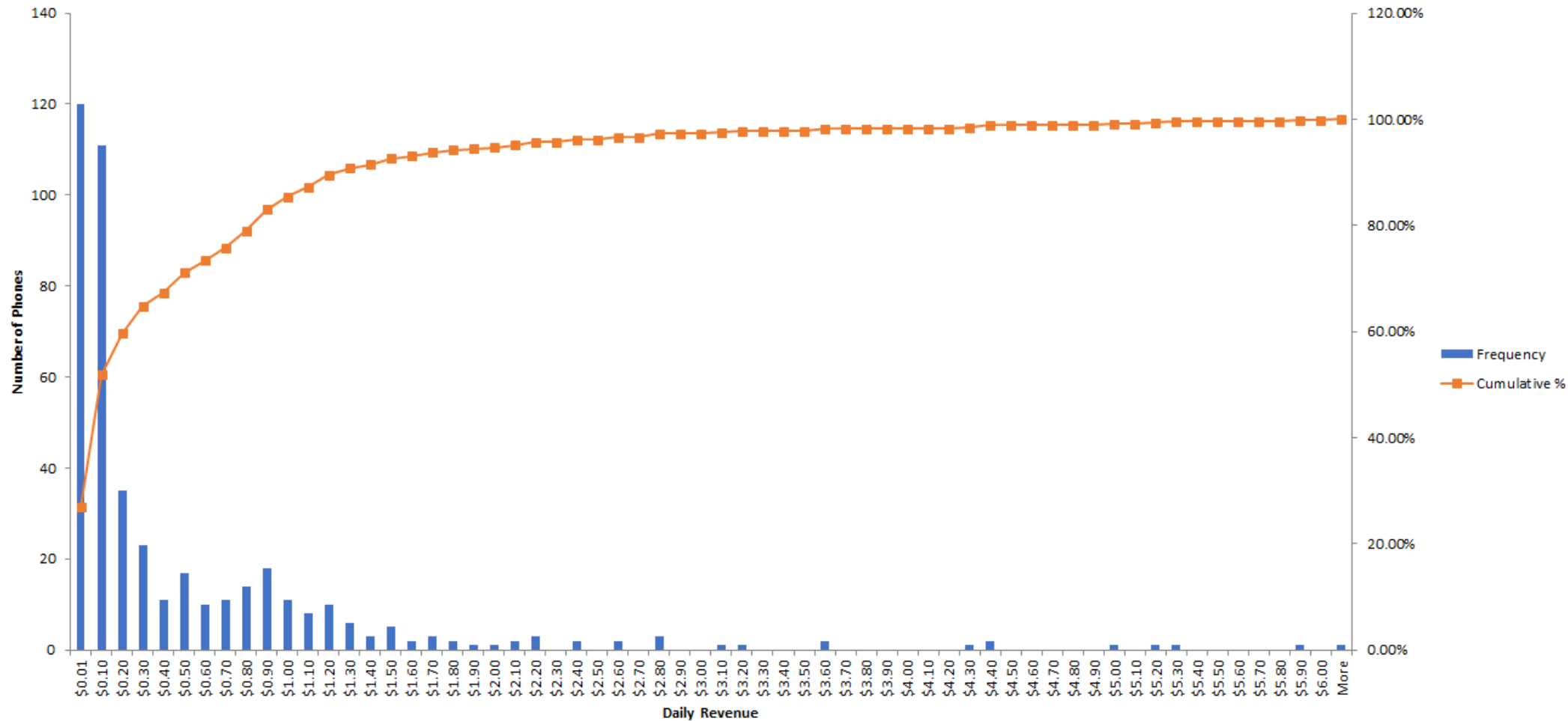


Usage summaries posted monthly in the NIPCAQ  
<https://phreakscan.com>



# Payphone Revenue

Daily Revenue of Payphones (n=447)



# ANACs

- Identify the calling line
- (800) 444-4444 – MCI
- (800) 437-7950 – MCI
- (800) 700-0431 – Payphone Reporting Line
- Email [payphones@phreaknet.org](mailto:payphones@phreaknet.org) with the number and location

# “Let’s start our own telco”

- **PhilTel** is inspired by Futel, based out of Portland, Oregon
- Bring payphones back but make them free-to-use this time (yes, we know it is a misnomer) because payphones are cool
- Use as much discarded and second-hand stuff as we can, build with COTS hardware and open-source software
- Benefit people without cell phones





# Payphone Hardware (COCOT)





# Payphone Hardware (Coin Line)



# Okay, now what?



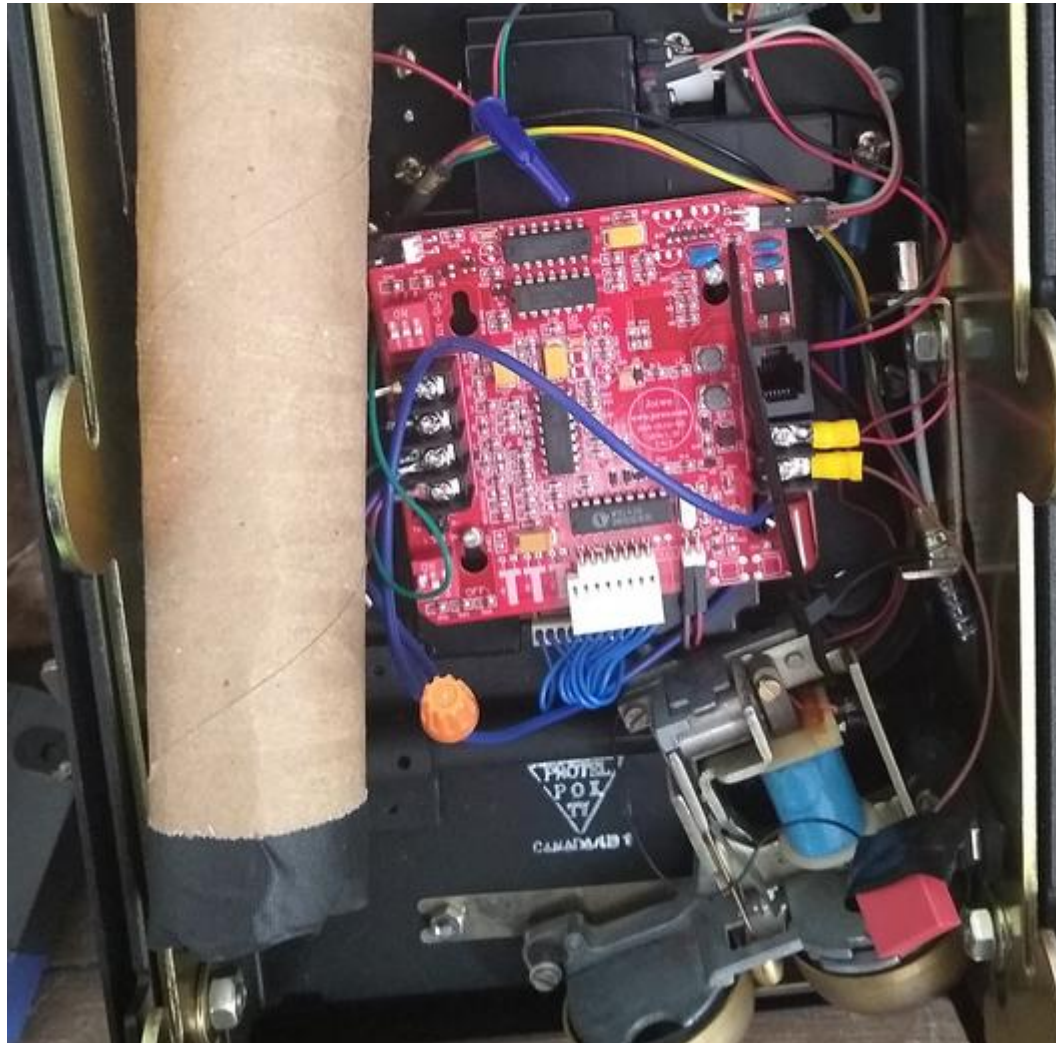


# 2110V Coinless Board

- “Dumb” phone board made for armored phones
- Acts as an (almost) drop-in replacement board for most payphones
- No longer made



# 2110V Coinless Board (Continued)





# Our Portable Proof of Concept





# Grandstream HT801 ATA

- Analog Telephone Adapter
- Allows analog telephones to speak SIP (Session Initiation Protocol)
- Registers as a client to our telephone exchange so we can make/take calls



# GL.iNet AR300M Router

- Low-cost travel router
- Runs OpenWRT natively
- Used as an OpenVPN client and/or WiFi bridge



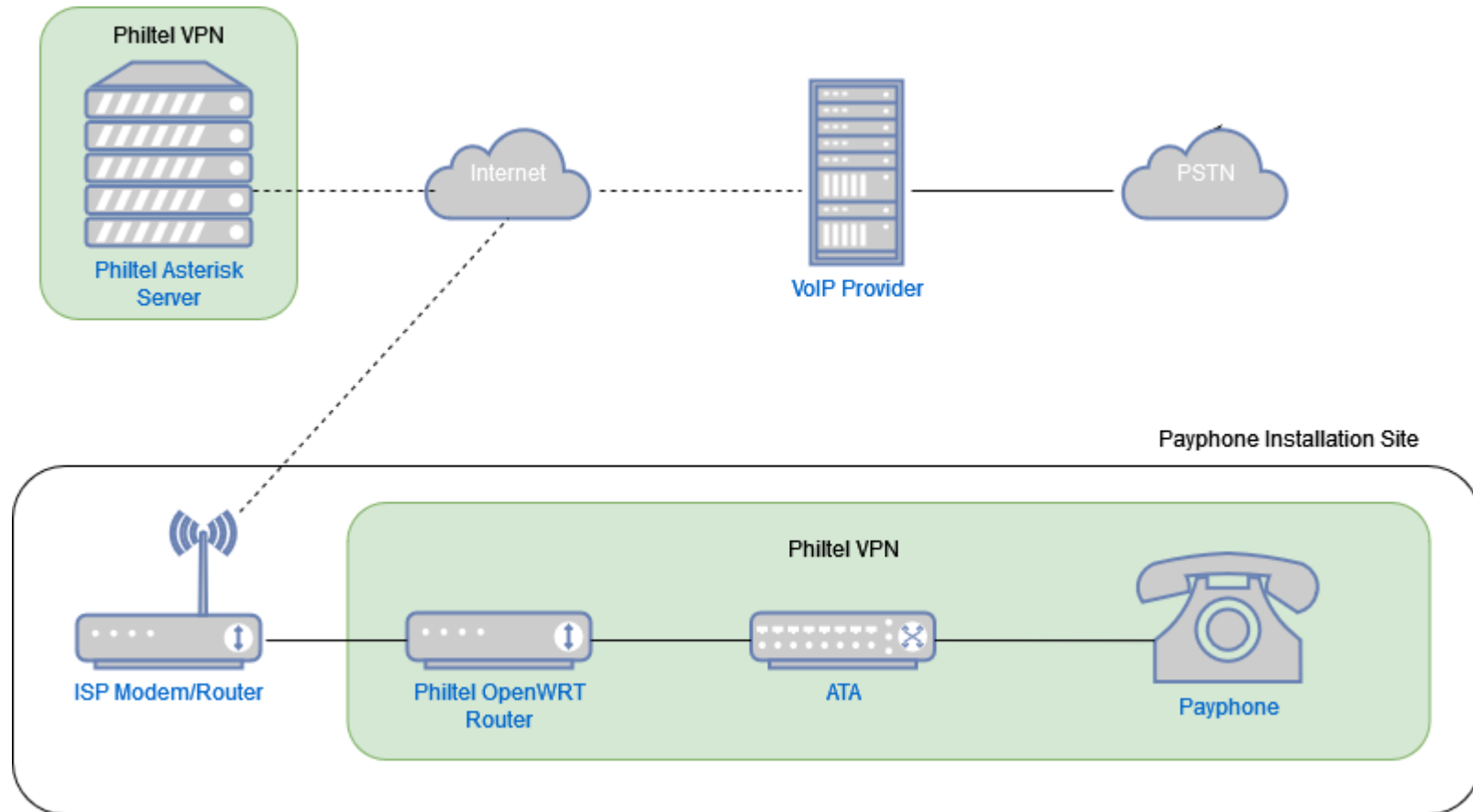
# Franklin T9 Hotspot (optional)

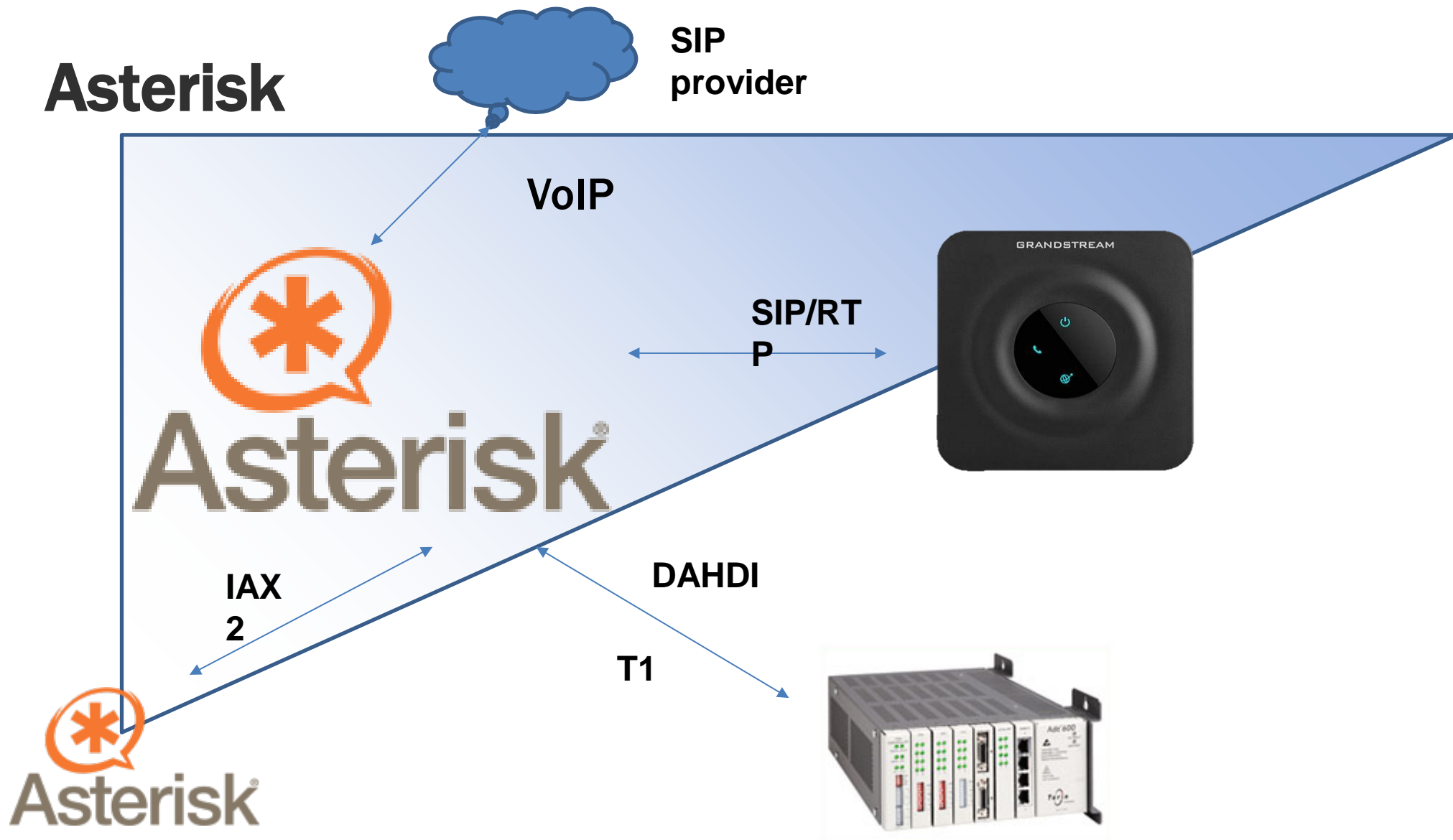
- T-Mobile used to give these away for free!
- Stock, it works for T-Mobile or any carrier that piggybacks on T-Mobile.
- Easy to SIM unlock for other carriers: `echo -n "${IMEI}simlock" | sha1sum | cut -c1-8`
- Fairly easy to root, many hidden/debug pages





# Putting It All Together

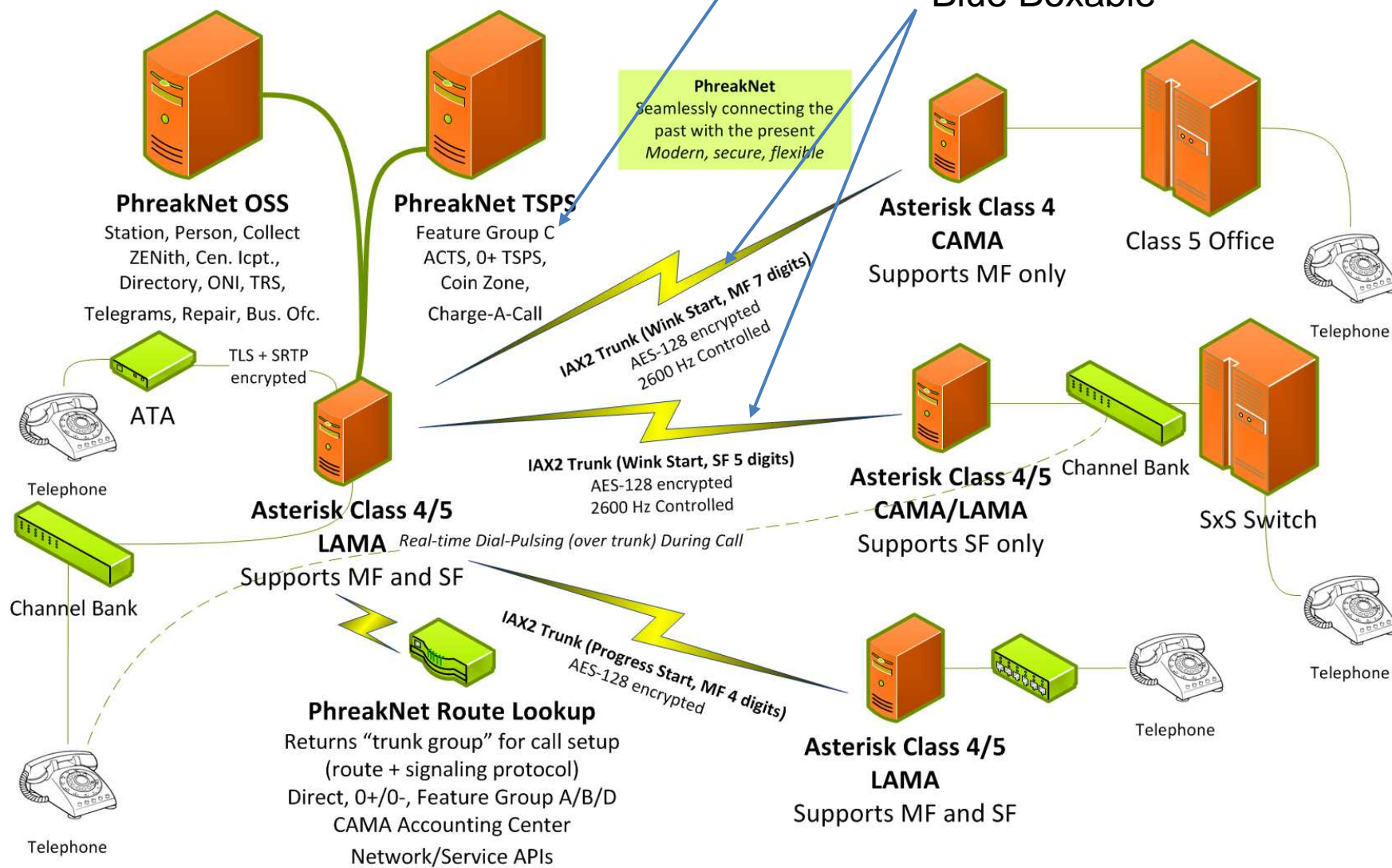




# PhreakNet

Red Boxable

Blue Boxable





# Billing

Business office addresses are shown in front of telephone directory.

## RATE CODES

### DIRECT CALLS

1. Day Rate
2. Evening Rate
5. Night Rate
6. Weekend Rate
9. Late Night Rate

### PERSON CALLS

3. Person Rate
4. Night Rate

### STATION CALLS

7. Station Rate
8. Night Rate

### COLLECT CALLS

0. Collect Rate

### SERVICES

- T. Telegrams
- C. Custom Local Area Signaling Services

[MORE INFO](#)

IF YOU PAY BY MAIL  
PLEASE RETURN PUNCHED CARD WITH YOUR PAYMENT  
IF YOU PAY IN PERSON  
PLEASE BRING BOTH THIS BILL AND PUNCHED CARD  
FOR BUSINESS OFFICE DIAL

811

DATE	PLACE CALLED	C	TELEPHONE NO	MINS	AMOUNT
09 27	MEMPHIS TN	2	383 1677	45	16 18
10 02	MEMPHIS TN	2	383 1677	56	20 14
10 08	MEMPHIS TN	6	383 1677	32	11 37
10 11	MEMPHIS TN	2	383 1677	43	15 46



**Mountain Pacific Telephone Company**

OFFICE HOURS 9 A.M. TO 5 P.M. MONDAY THROUGH FRIDAY

307 2 270 2122

NAVEEN ALBERT  
PAGE 1

307 2 270 3203

NAVEEN ALBERT  
PAGE 5

OCT 15 23

<b>Service and Equipment</b> — Residence Private Line	\$4.40
<b>Message Units</b> — For one month	0
<b>Calls Outside Local Area</b>	4
<b>Telegrams</b>	0
<b>Other Charges or Credits</b> — Explanation enclosed	\$2.18
<b>United States Fee</b>	\$6.31
<b>Directory Advertising</b>	\$0.00
<b>Balance From Last Bill</b>	\$0.00
<b>PLEASE PAY THIS AMOUNT</b> →	\$76.04

## OTHER CHARGES OR CREDITS

<b>Touch-Tone Service</b>	\$3.18
<b>Employee Discount</b>	\$-1.00

# Flagship Phone @ IffyBooks

- Installed December 17, 2022  
(and reinstalled in January)
- Had a party, hackers and phreakers showed up



# People seemed to like it

NEWS > PHILADELPHIA

## Philadelphians welcomed PhilTel's first free public phone as a small way to resist big tech

PhilTel's founders hope the phone installed Saturday is the first of many and will help restore the city's "public communications infrastructure."



The Washington Post

Sign in

## Remember the pay phone? This man is bringing them back at no cost.

"There are lots of people who can't afford a cellphone or a phone bill," PhilTel co-founder Mike Dank said



By Cathy Free

December 16, 2022 at 6:00 a.m. EST



Audio Live TV Log In

## A volunteer collective is setting up free pay phones in Philadelphia

By Zoe Sottile, CNN

Published 10:04 AM EST, Sun December 4, 2022

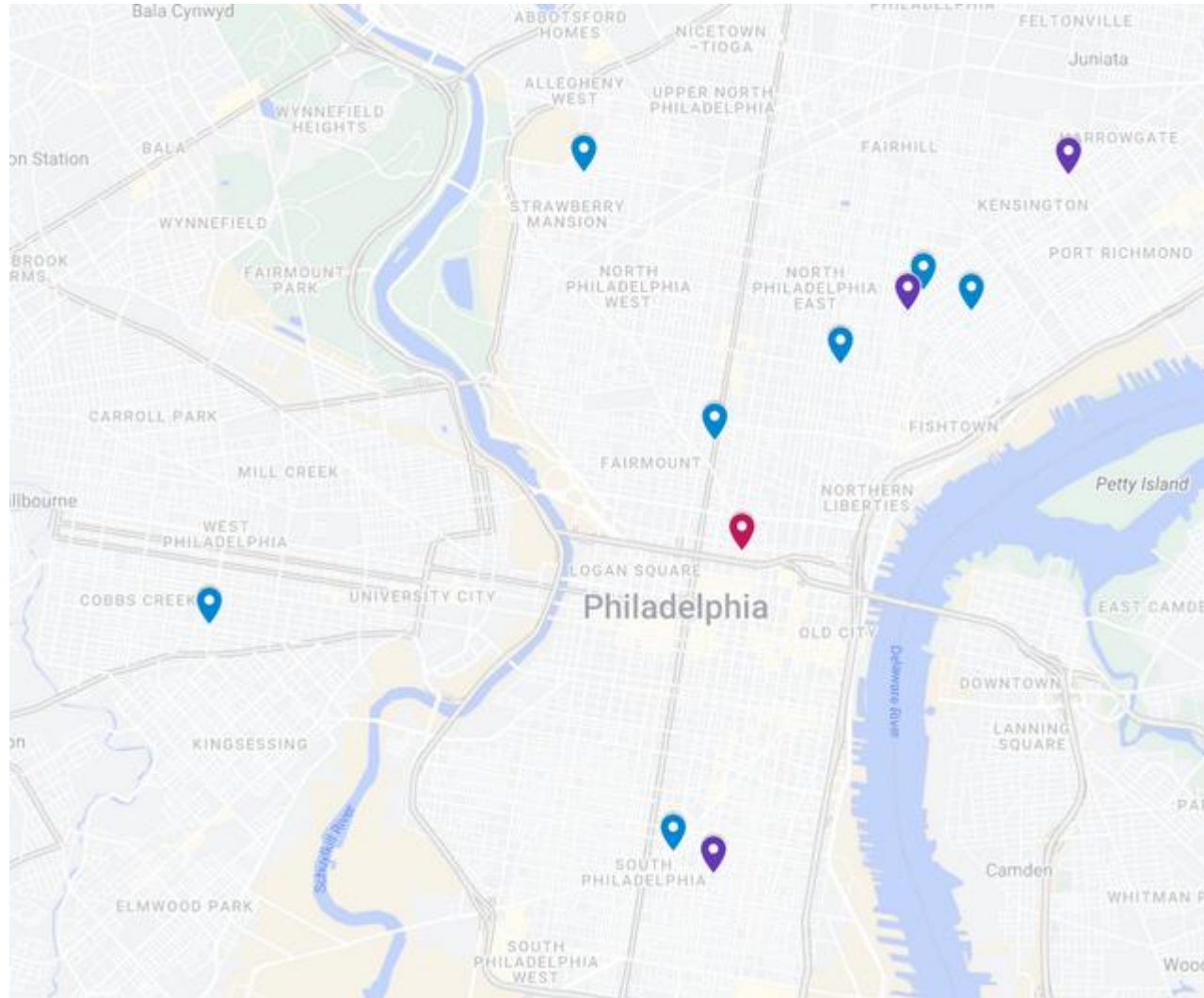


Courtesy Mike Dank





# Future: More Installations



# Future: Free COCOT Programming Line, Archaeology & Archiving



# Questions?

## Mike

- [mike@philtel.org](mailto:mike@philtel.org)
- Famicoman (Libera IRC)
- <https://famicoman.com>
- <https://github.com/Famicoman>

## Naveen

- [interlinked@philtel.org](mailto:interlinked@philtel.org)
- InterLinked (Libera IRC)
- <https://interlinked.us>
- <https://github.com/InterLinked1>

**We have payphones set up here at JawnCon!**

**Give them a call: (267) 876-4900**