VOIP

POTS SIP AND ALL THAT JAZZ

Welcome to CIALUG
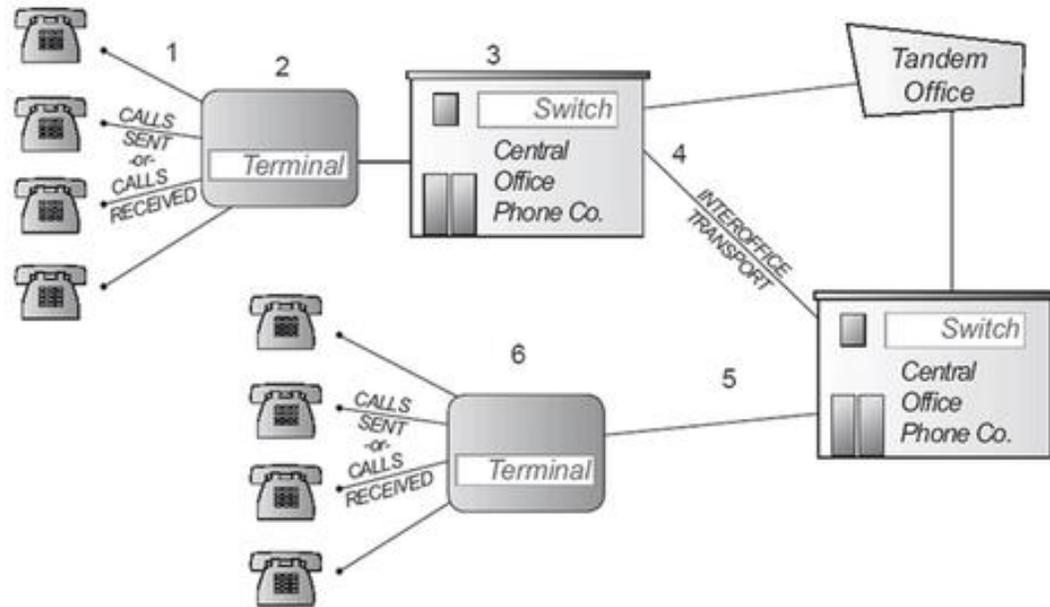
First a little housekeeping

- A little about me:
  - Andrew Denner (denner@gmail.com) (@adenner)
  - Slides will be posted tonight at http://denner.co
  - Not a telecom guy or expert in this so please don't hurt me!
- We have a mailing list and website (http://cialug.org)
- IRC
- Do you want to present on a topic kinda associated with Linux? This is your chance!
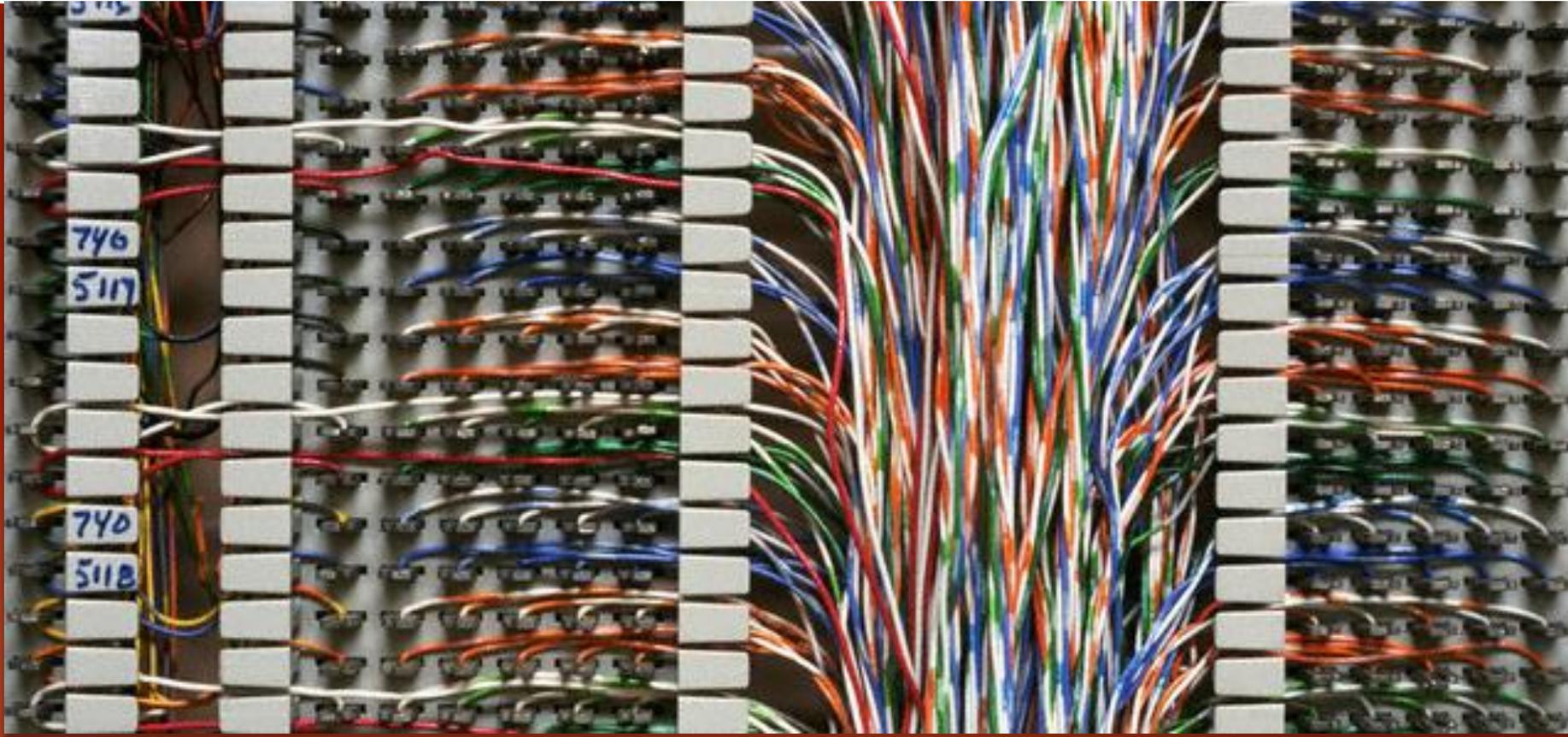- Tentative date for Joint Meeting with Des Moines Azure group in April… details to follow

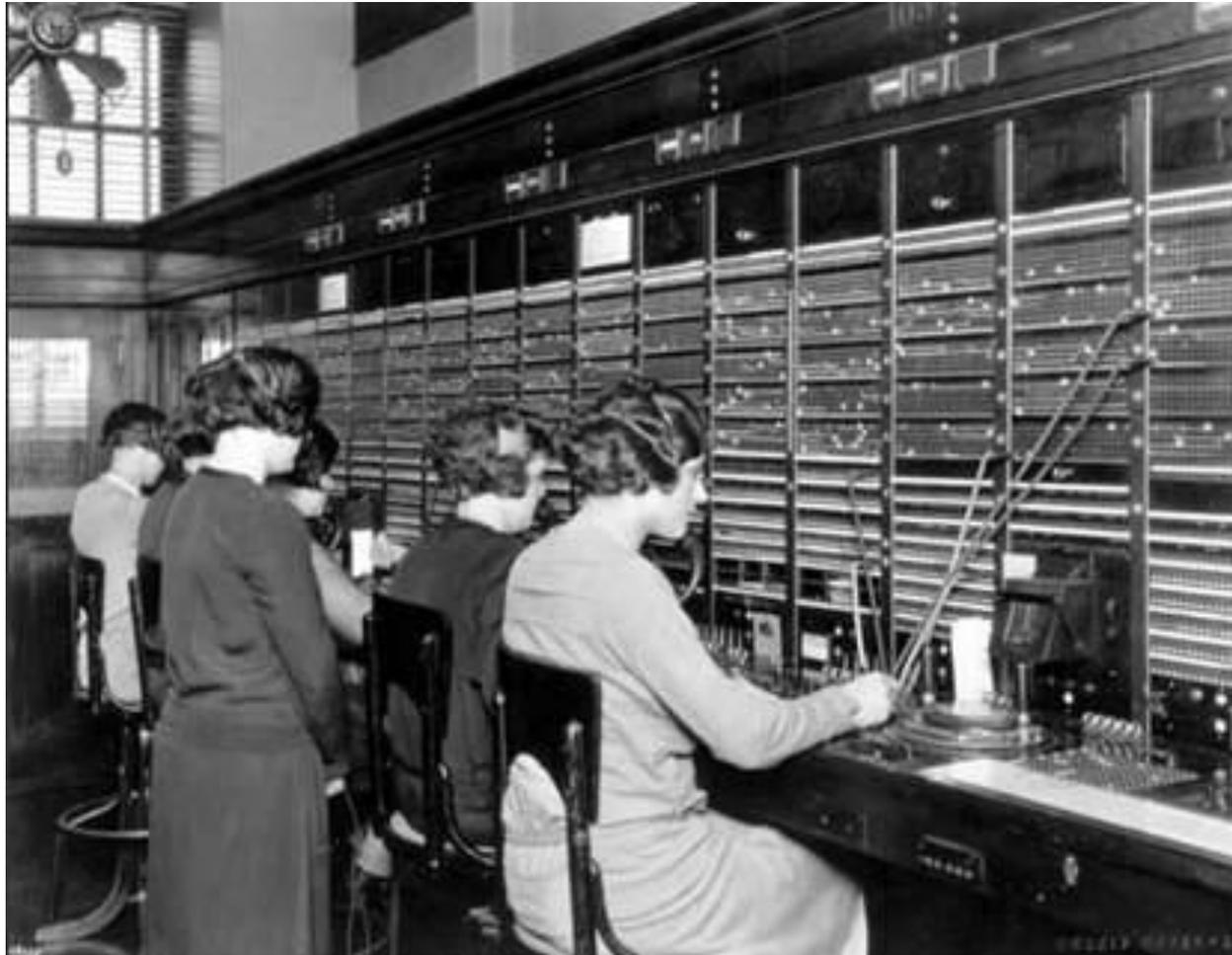Now, on with the show

Plain Old Telephone Service (POTS) Networking

POTS

One wire, one path from point to point

OK IT'S NOT REALLY LIKE THAT ANYMORE... NOW EVERYTHING IS SWITCHED AGGREGATED AND FIBER...

PBX

PRIVATE BRANCH EXCHANGE

Slightly newer hardware… still expensive and inflexible! There's got to be a better way!

The Asterisk Project

- 1999 Mark Spencer was Comp E student at Auburn
- During the .com bubble
- Linux was big but there was no support
- Mark decided to fill the niche and opened the company "Linux Support Services"
- It became popular and they needed a "real phone system" $$$$$$$$$$

- So Mark wrote his own... and open sourced it
- In 2001 LSS became Digium

If you really want to go down the rabbit hole…

The sky is the limit…
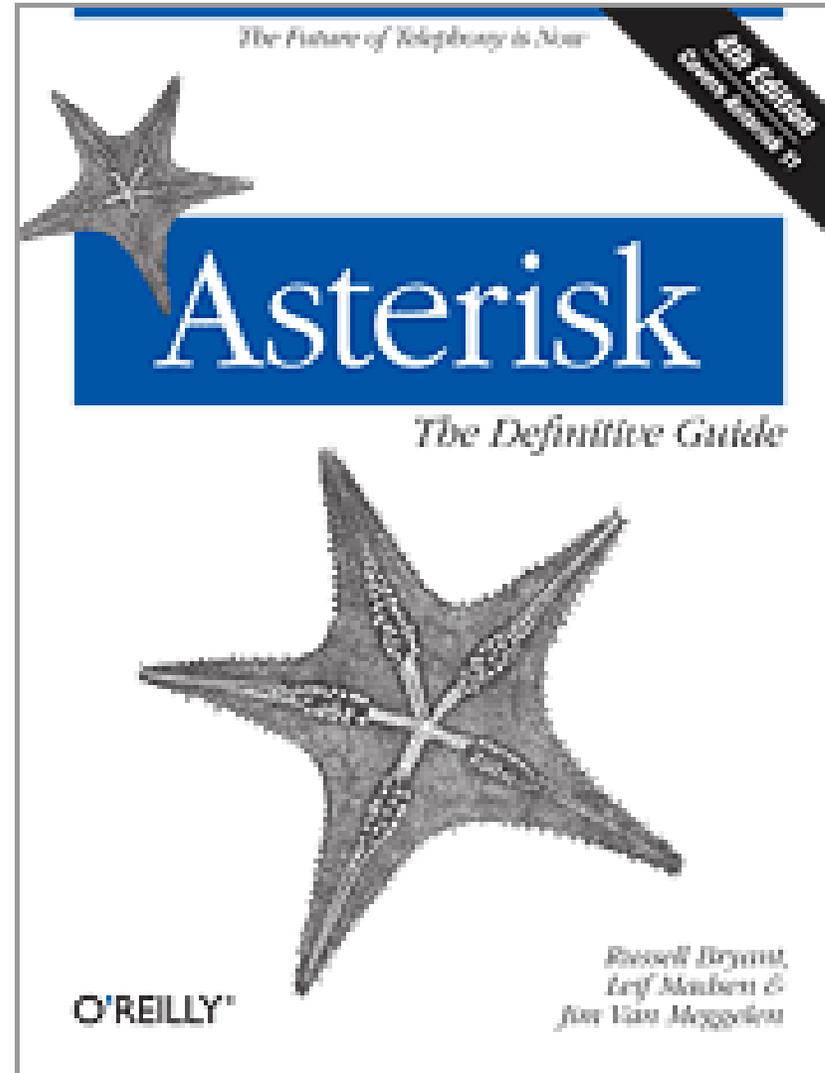
VOIP Codecs

- G.711 dates back to 1972 Low processor, high bandwidth at least 128k

- G.722 twice range of frequency bandwidth adaptive can be better then PSTN

- iLBC Low Bitrate Codec Acquired by google popular with open source

- Speex-Low bandwidth

- SILK/OPUS-Designed by skype used by others like whatsapp

Best advice is to figure out how much bandwidth you have to use, what your upstream provider can do, and what sounds the best but YMMV

So you want to talk to the world…

- ► You can do direct connections between voip servers
  - ► Firewalls and NAT are [hard](#)…
- ► For PSTN you need a provider
  - ► I have had good luck with vitelity.net costs ~$0.014 a minute dropped $20 in an account ages ago and don't use it that much so it lasts almost for ever…
  - ► You can also get a DID number so that others can call you

FreePBX

▶ Tonight we are using a pre-packaged system called Free PBX

▶ Why?

　▶ Easy

　▶ Quick

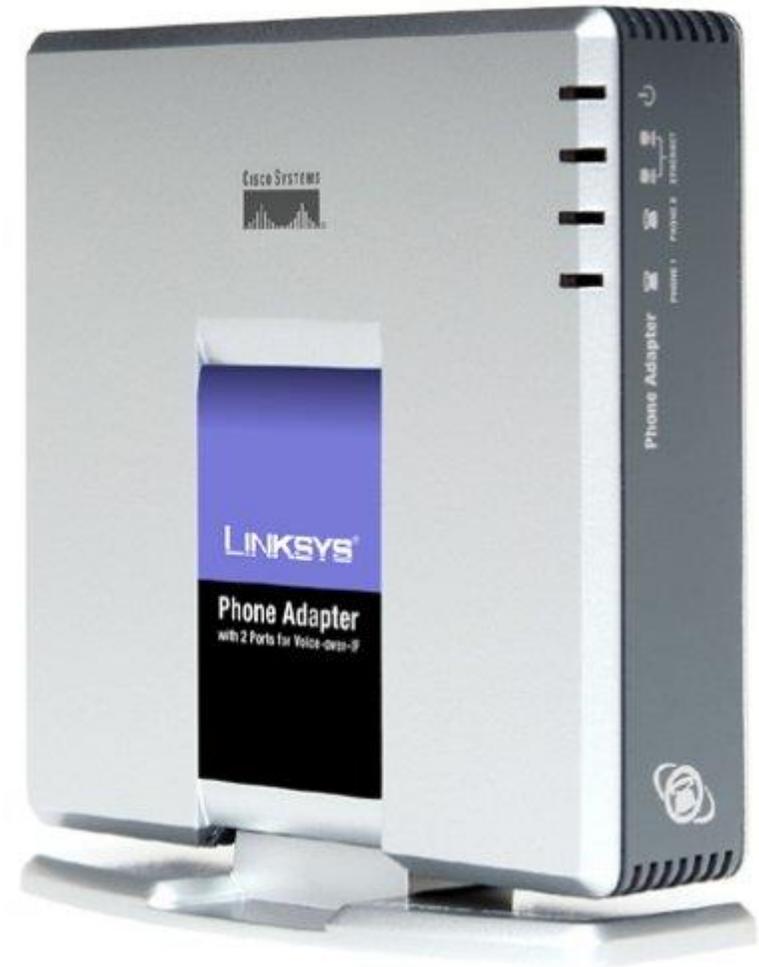　▶ GUI-Web page based configs

▶ http://freepbx.org

PAP2

Currently what I have running at home

Mostly used as a "Where is my cellphone"

No DID

It's worked for 5+ years directly connected to vitelity and I don't want to break it

Cisco 7960

▶ Was originally going to use, but ran out of time

▶ TFTP is hard…

Ekiga soft phone

▶ Apt-get install ekiga

▶ Free, cheep, easy…

Demo time