

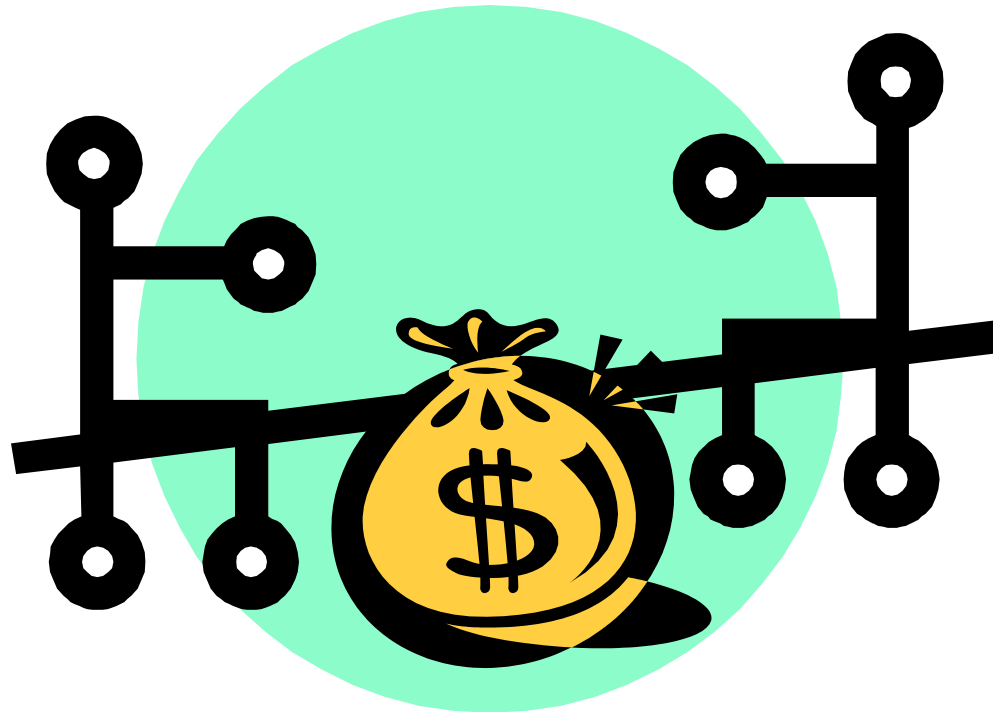
Who's on First? What's on
Second. I don't know is on Third.

The evolving networks of the telephone, cable, and wireless companies and the pursuit of the ultimate goal to provide the Grand Slam of services:

Phone, Video, Internet, and Wireless

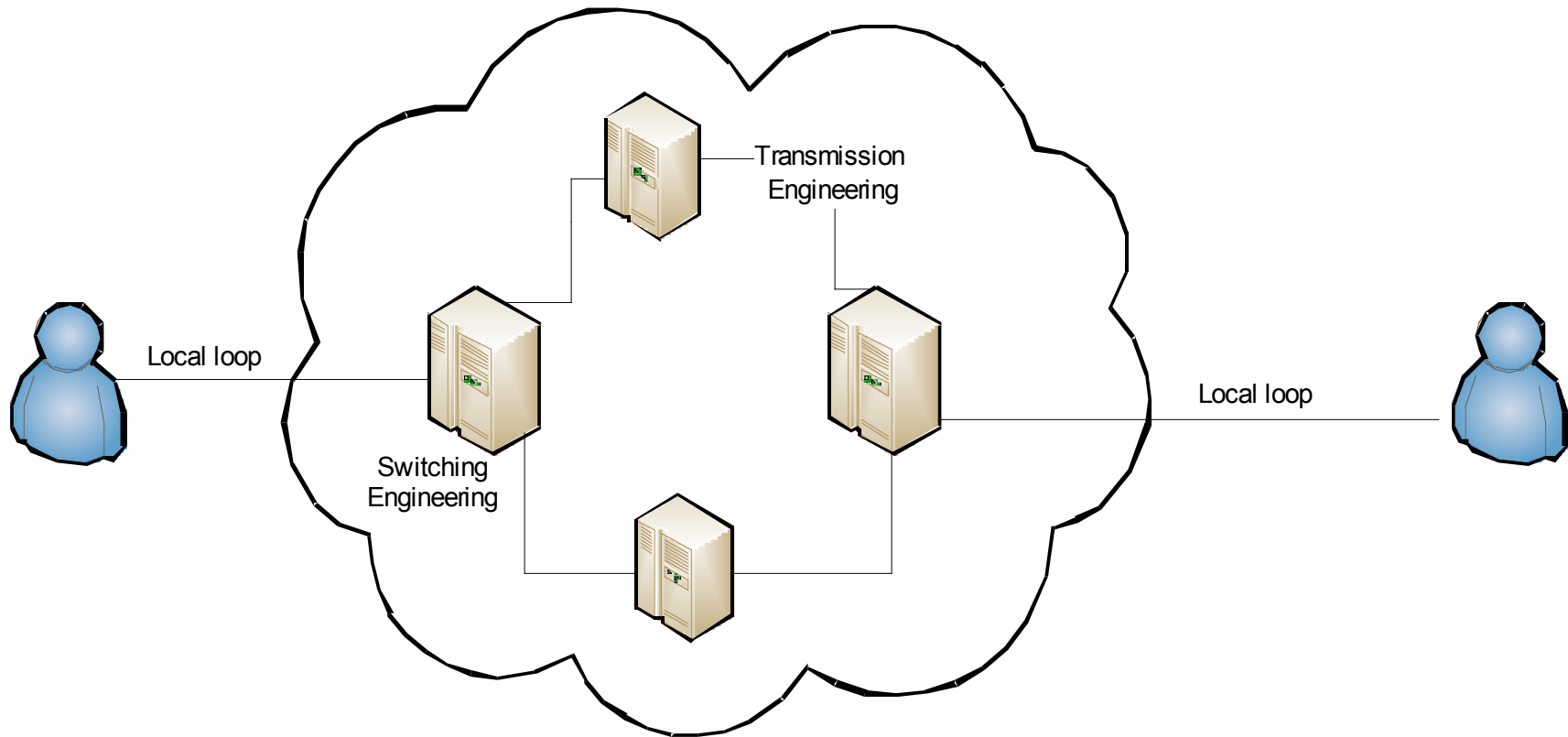
Oscar Libed, Clearwire

Optimize or Overlay?

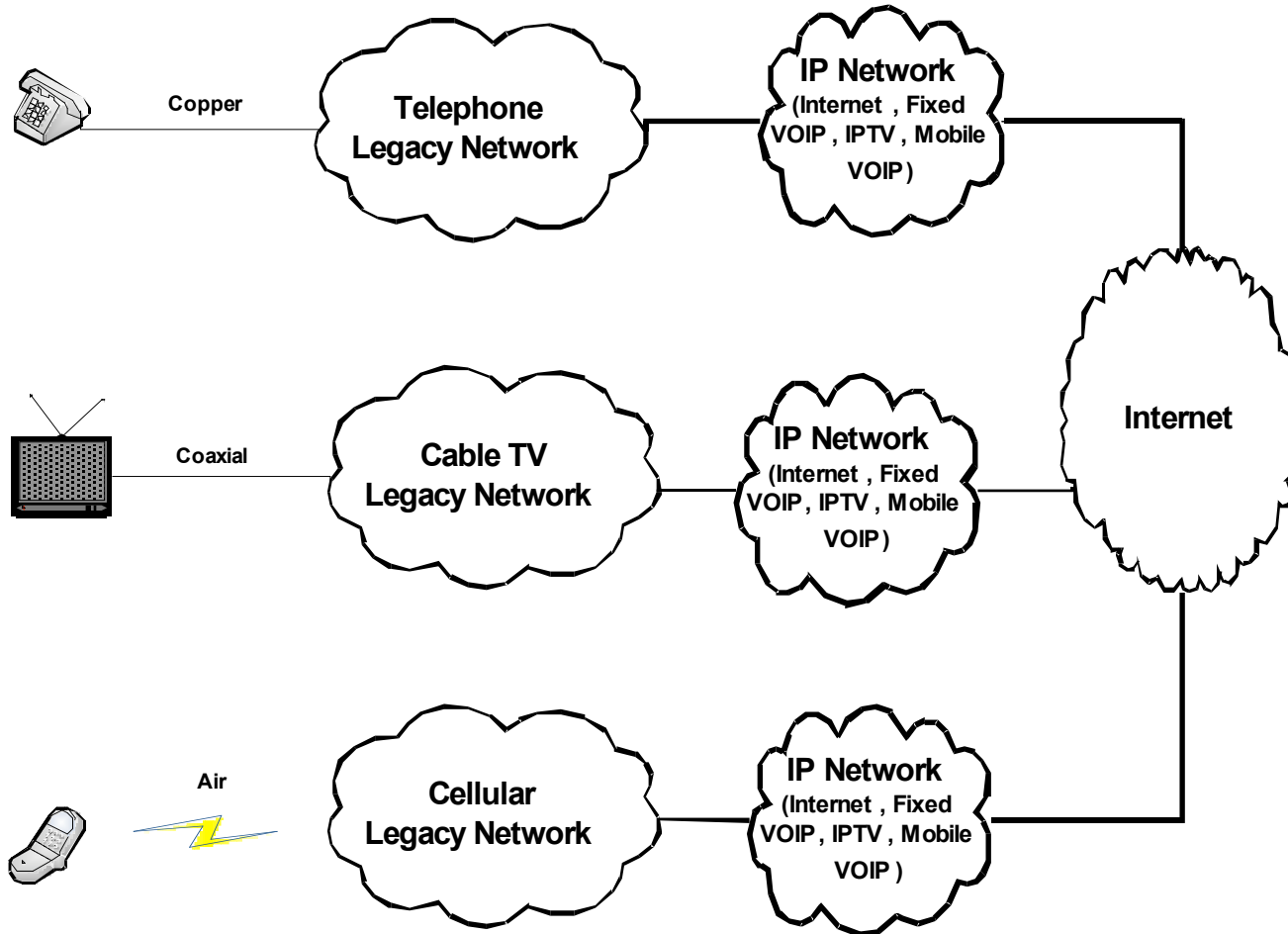


Optimize existing network or overlay new network?

What is a network?



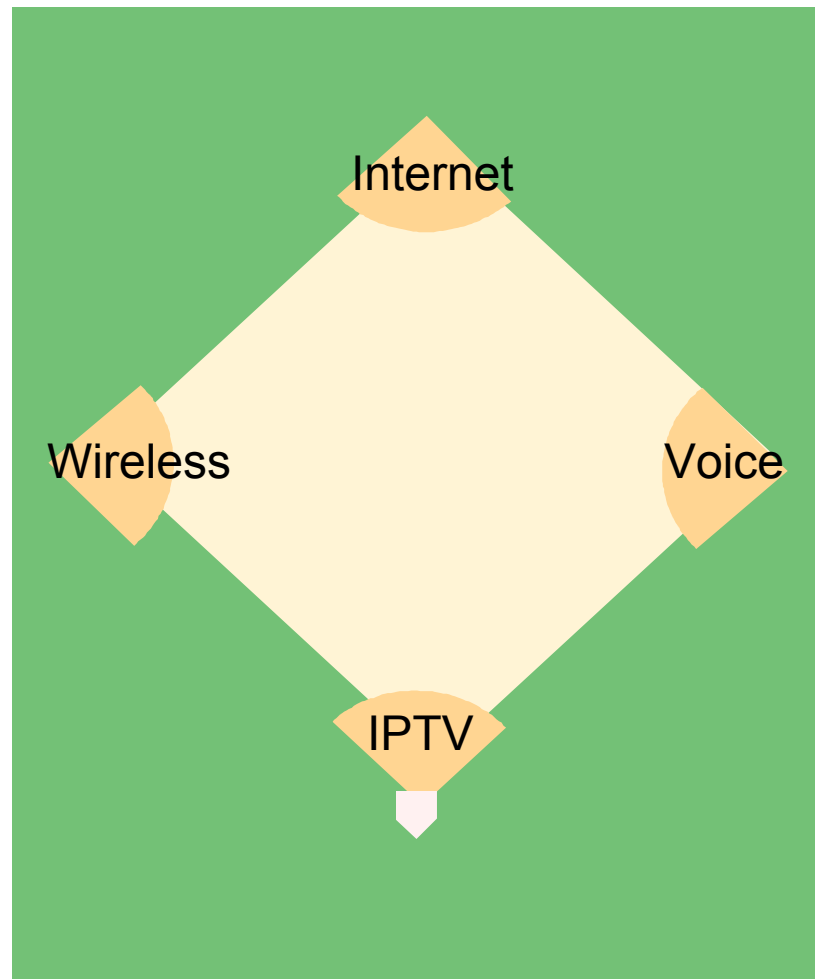
Existing Legacy vs. IP Network



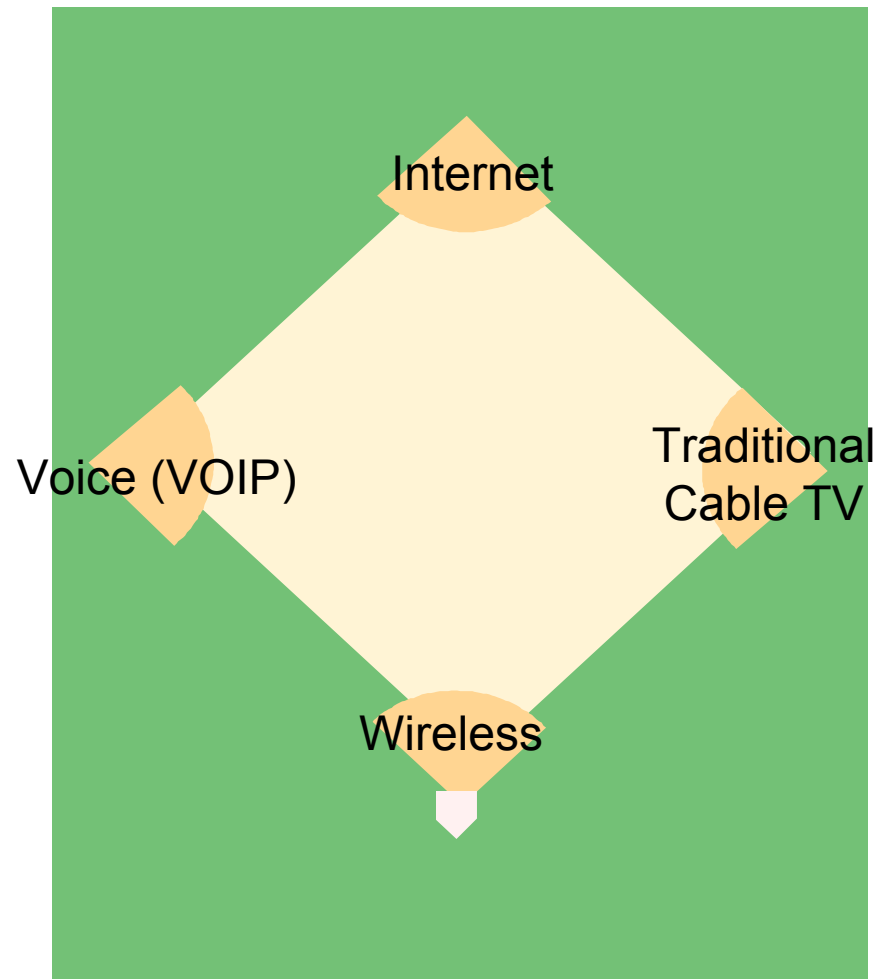
What is the Grand Slam?

- A home run with runners on all the bases.
- Voice
- Video
- Internet
- Wireless

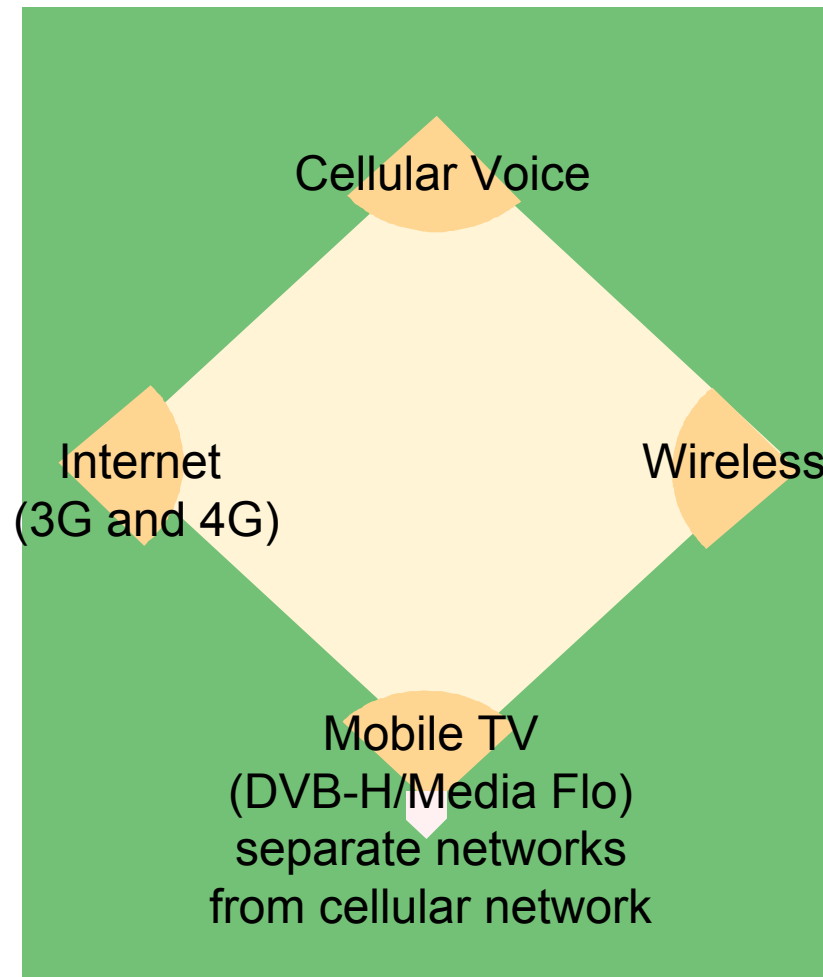
Telephone Network



Cable Network



Wireless Cellular Network



Building a new house

Is there a single network that can provide the Grand Slam?

What is WiMax?

- Worldwide Interoperability for Microwave Access
- IEEE 802.16 standards based
- Like Wi-Fi, but faster speeds, greater distances, and highly secured.

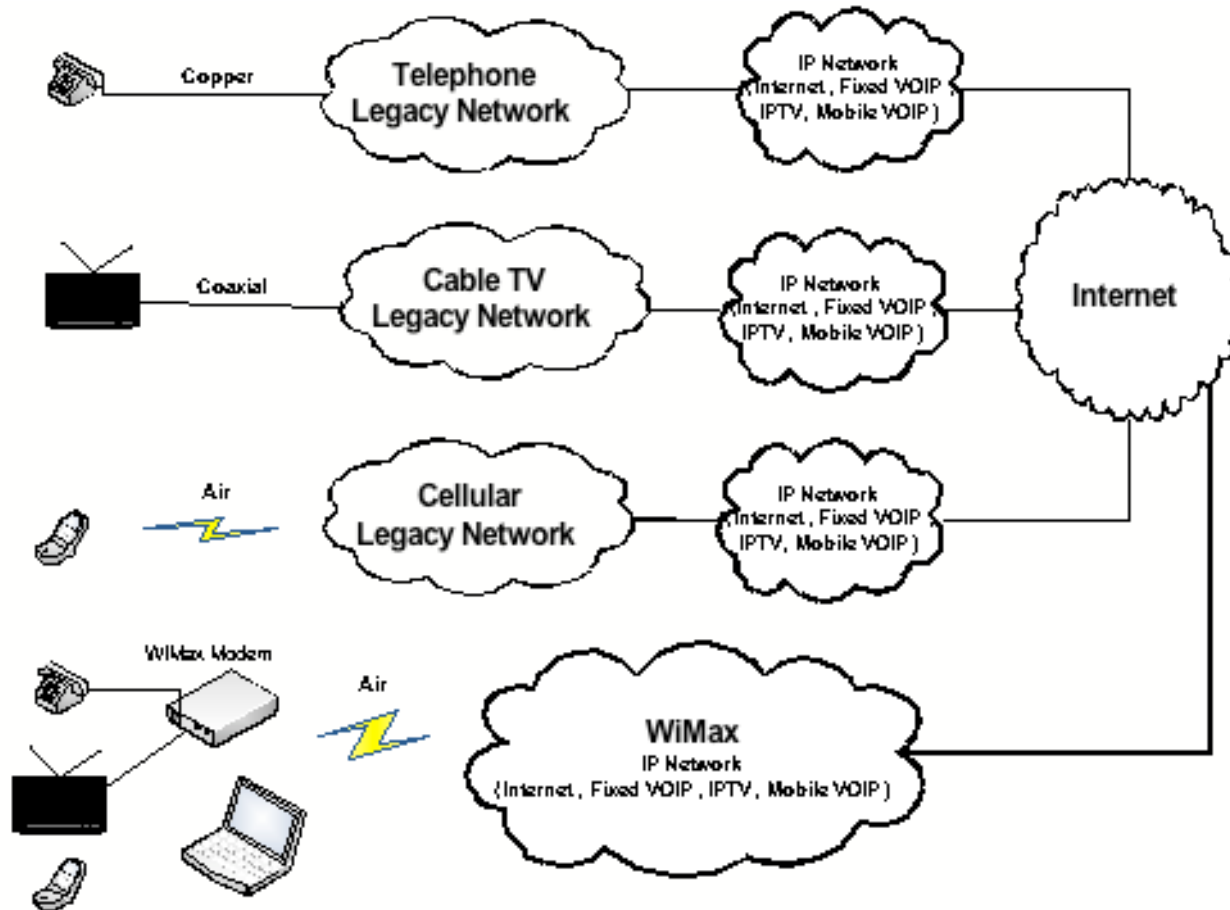
72 Quadrillion codes

- 1 quadrillion = 1 followed by 15 zeroes (million, billion, trillion, quadrillion)
- Pick a number between 1 and 10.
- Pick a number between 1 and 72 quadrillion.
- 72 quadrillion seconds is 2 billion years.
- In June 2003, the US Government announced that AES (Advanced Encryption System) may be used for classified information.

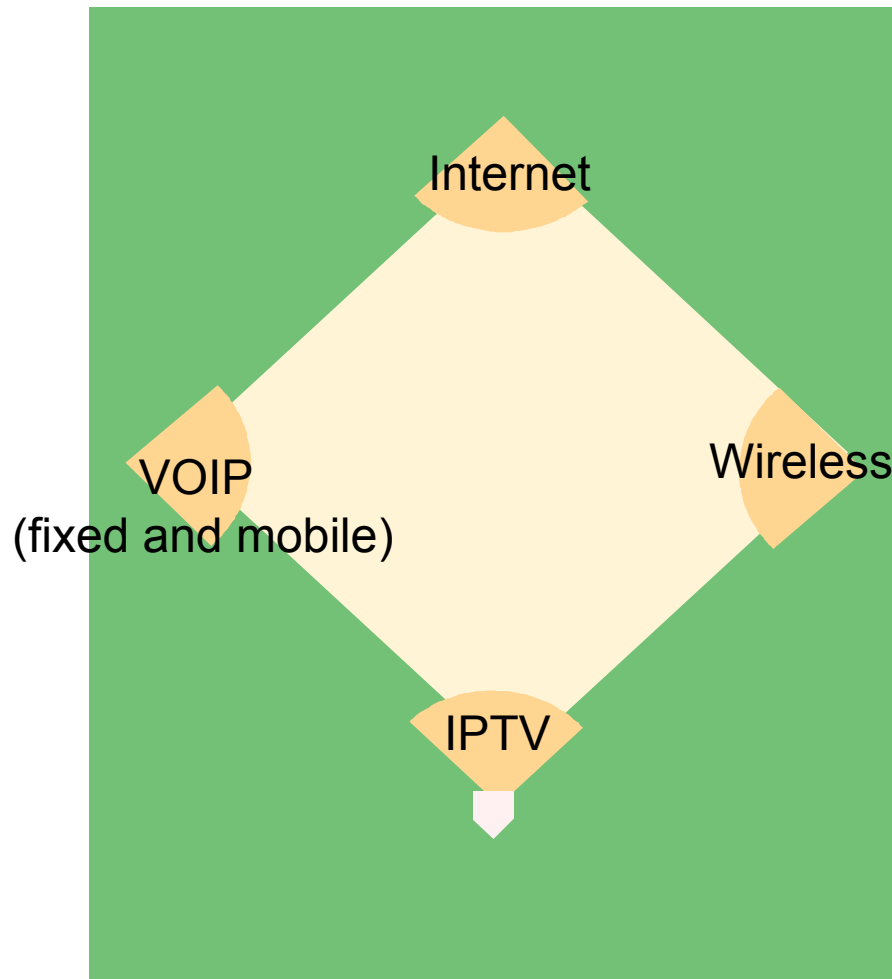
What is WiMax?

- Laptops to be “built-in” with WiMax chip like Wi-Fi chip; maybe cameras?
- “All IP” network; single platform network
- The “Third Pipe” (vs. cable and DSL modems)

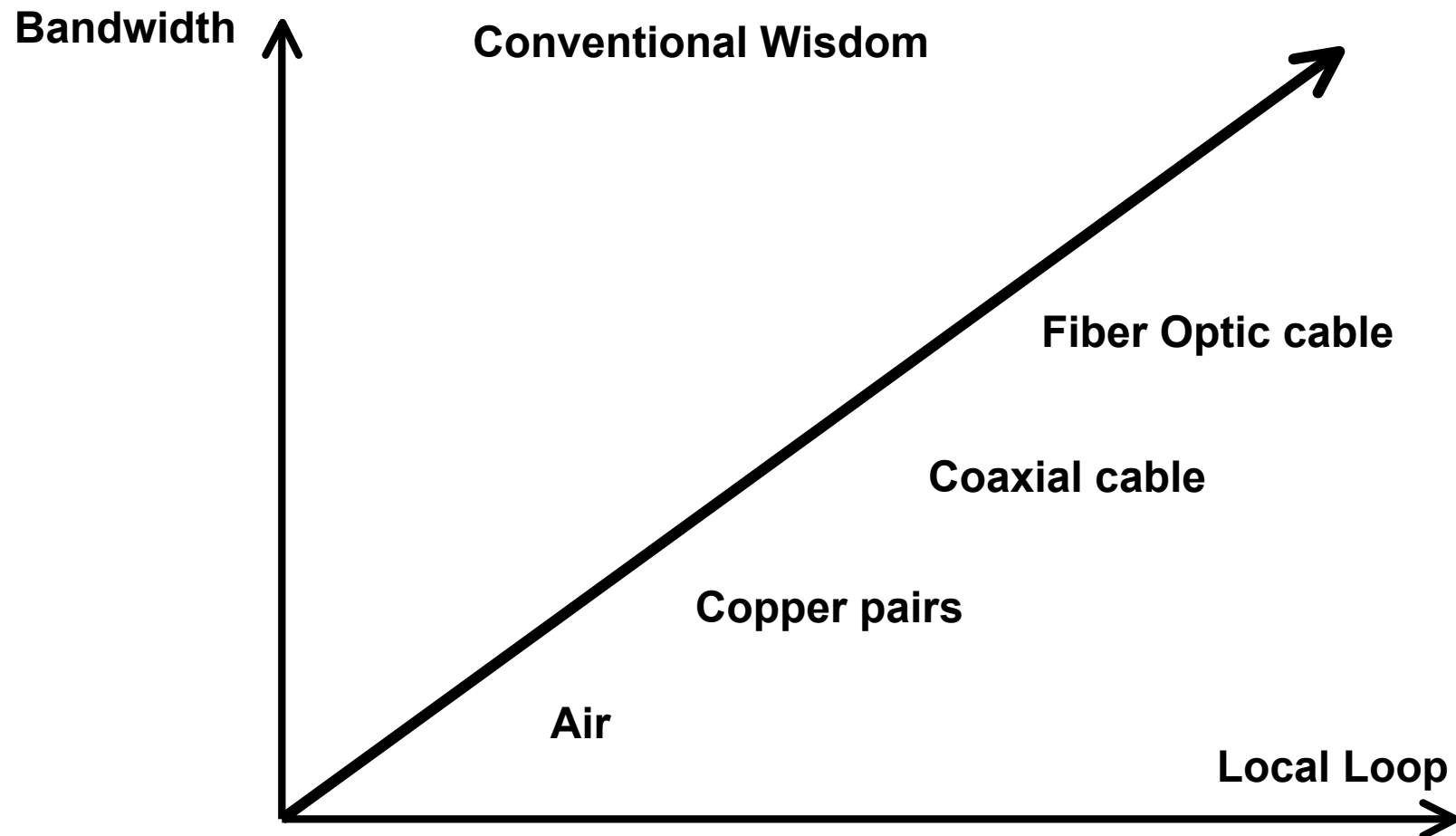
WiMax Network



WiMax Network



WiMax: A disruptive technology



WiMax demo in Chicago



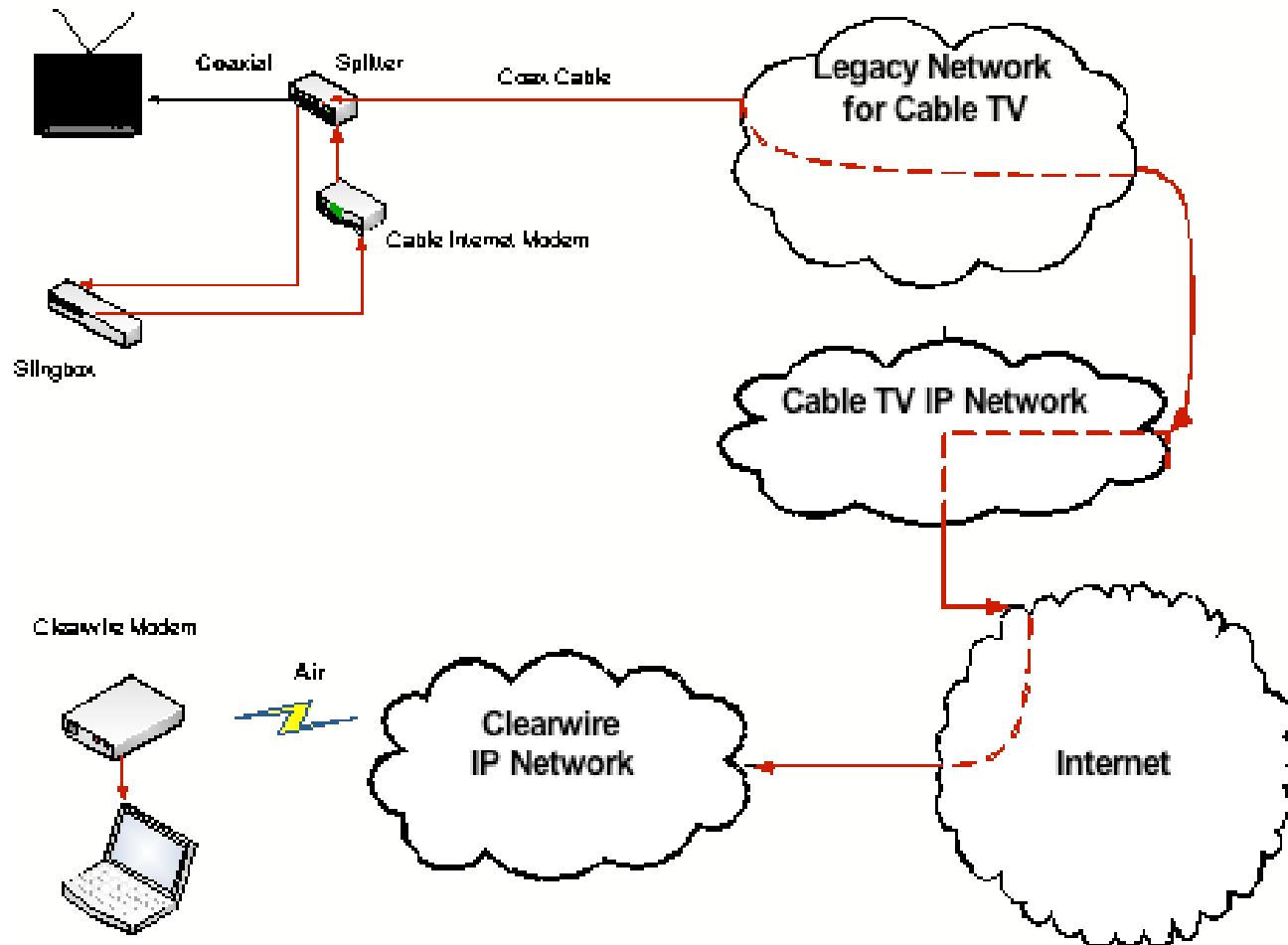
WiMax: Hype or Reality?

- Will wireless Internet replace landline Internet like how cellular phones replaced landline phones?
- Will wireless TV replace landline TV?
- Will mobile VOIP phones replace cellular phones?

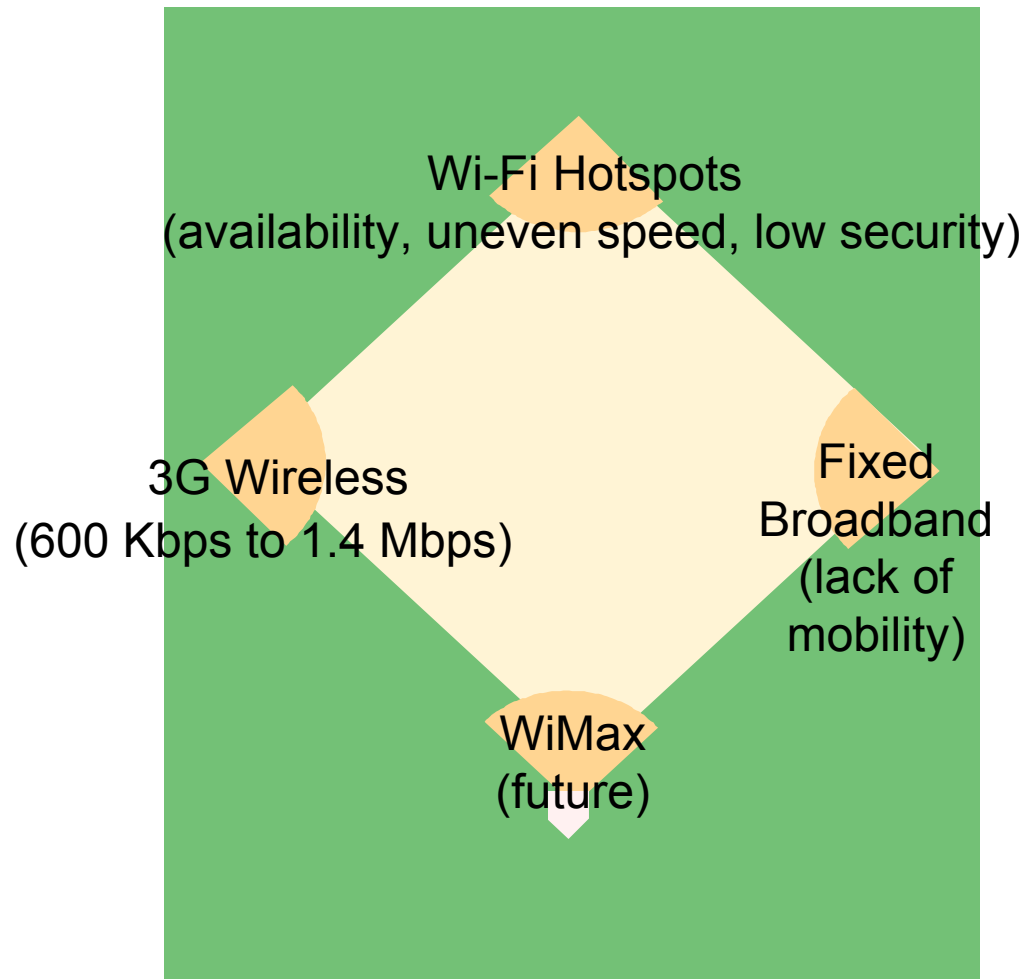
WiMax: Hype or Reality?

- What is the speed of WiMax?
- Is it everywhere?
- Is it priced competitively?
- When will it be available?
- Who is providing it?

Mobile IPTV



Broadband Evolution



Form Factors



Wi-Fi vs. Clearwire

- We did 3 tests in room 309 at the Capitol this afternoon. Here are the results in Kb/s.

- Built-in WiFi

	Download	Upload
• Test 1	170	23
• Test 2	234	54
• Test 3	139	88

- Clearwire card

	Download	Upload
• Test 1	1576	112
• Test 2	1214	140
• Test 3	1145	133