VoIP Deployments

Acknowledgment: much of the materials in these slides was developed by Prof. Campbell

Circuit Switching is Expensive

- Packet-switched networks are cheaper to deploy.
  - Instead of CO switches, deploy:
    - Routers
    - Gateways
    - Proxies/Gatekeepers
- But also -- plenty of marketing fluff
Let's Explode the CO

* Having decomposed the CO into components connected with an IP network, we can put the components anywhere we want.

Next Generation Networks

* Companies w/ all-packetized core nets.
  - Sometimes called NextGen telcos
  - [very poorly defined term]
  - Examples:
    - Level 3 Communications
      * http://www.level3.com
    - Traditional telephony carriers are headed the same way.

Next Generation Network
From "NGN Protocols"

NGN Protocol Stack
Network Layer Protocols
Vonage Assumptions

* To succeed, Vonage needs customers with:
  - Broadband Internet access
    - In practice, cable modem.
  - Willingness to pay
  - Willingness to buy a little bit of CPE
  - Willingness to put up with a few inconveniences
Here's How Vonage Works

**PSTN Side?**

- PSTN routes calls to LNP areas (including Athens exchange).
- Carrier that routes call into LNP area must do SS7 lookup to map number to correct LEC.
- Vonage uses CLEC to complete calls and to handle LNP (including SS7).

Why is Vonage So Cheap?

- Compare to local telco:
  - Vonage has no local loop expenses.
    - Customer pays CableCo for these
  - Vonage has little billing expense.
    - Credit-card debit only
  - Vonage gets break on regulated expenses.
    - SLC, USF, E911, etc.
  - No phone books, no operators, no techs
  - Vonage pays no access charges.