



VoIP Deployments

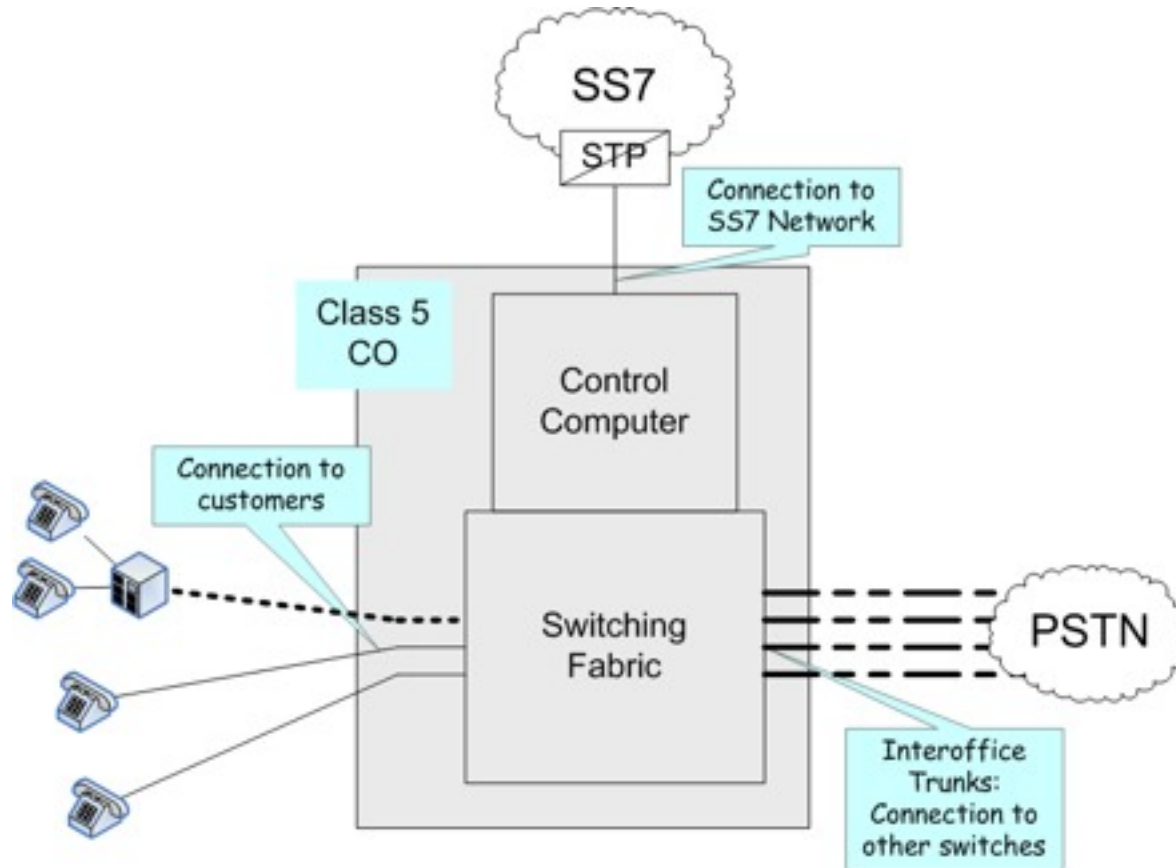
Acknowledgment: much of the materials in these slides was developed by Prof. Campbell

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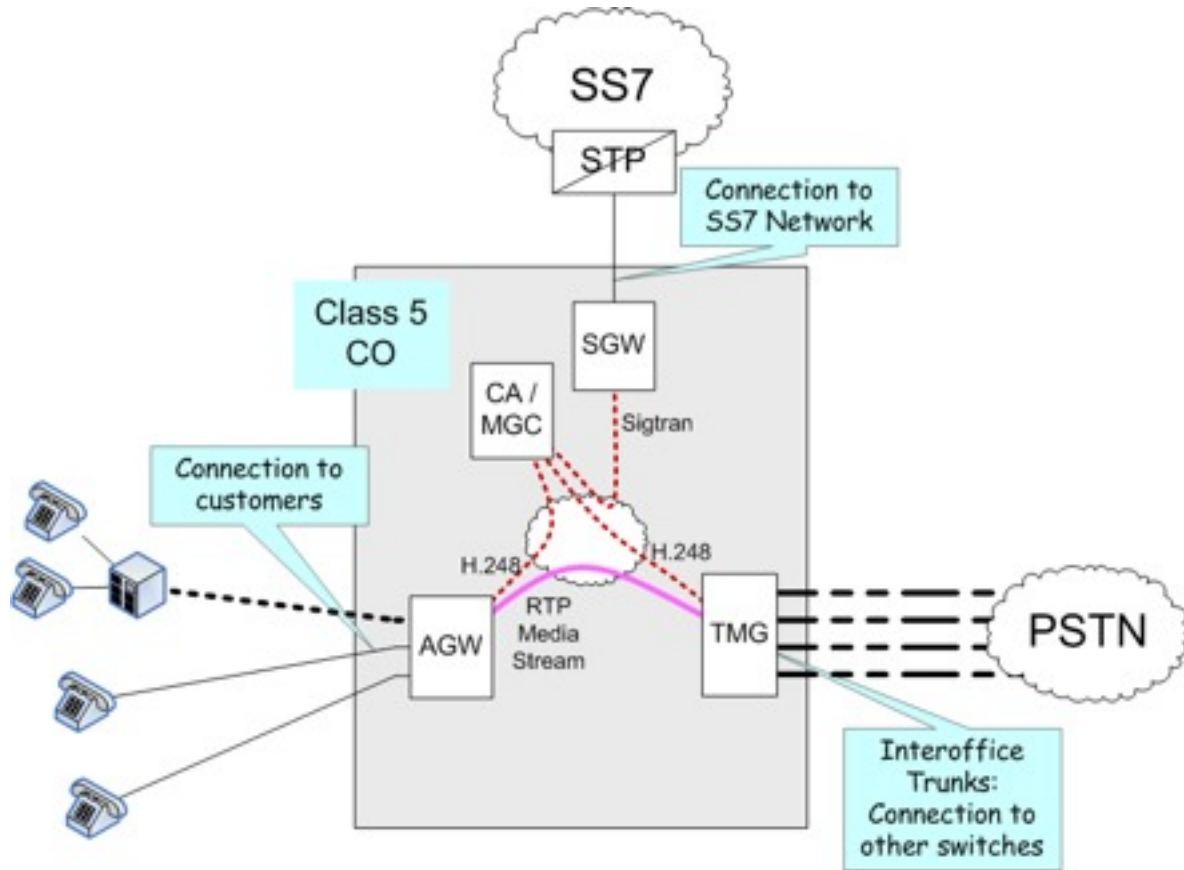
Circuit Switching is Expensive

- Packet-switched networks are cheaper to deploy.
 - Instead of CO switches, deploy
 - » Routers
 - » Gateways
 - » Proxies/Gatekeepers
- But also -- plenty of marketing fluff

Traditional CO



The "New" CO



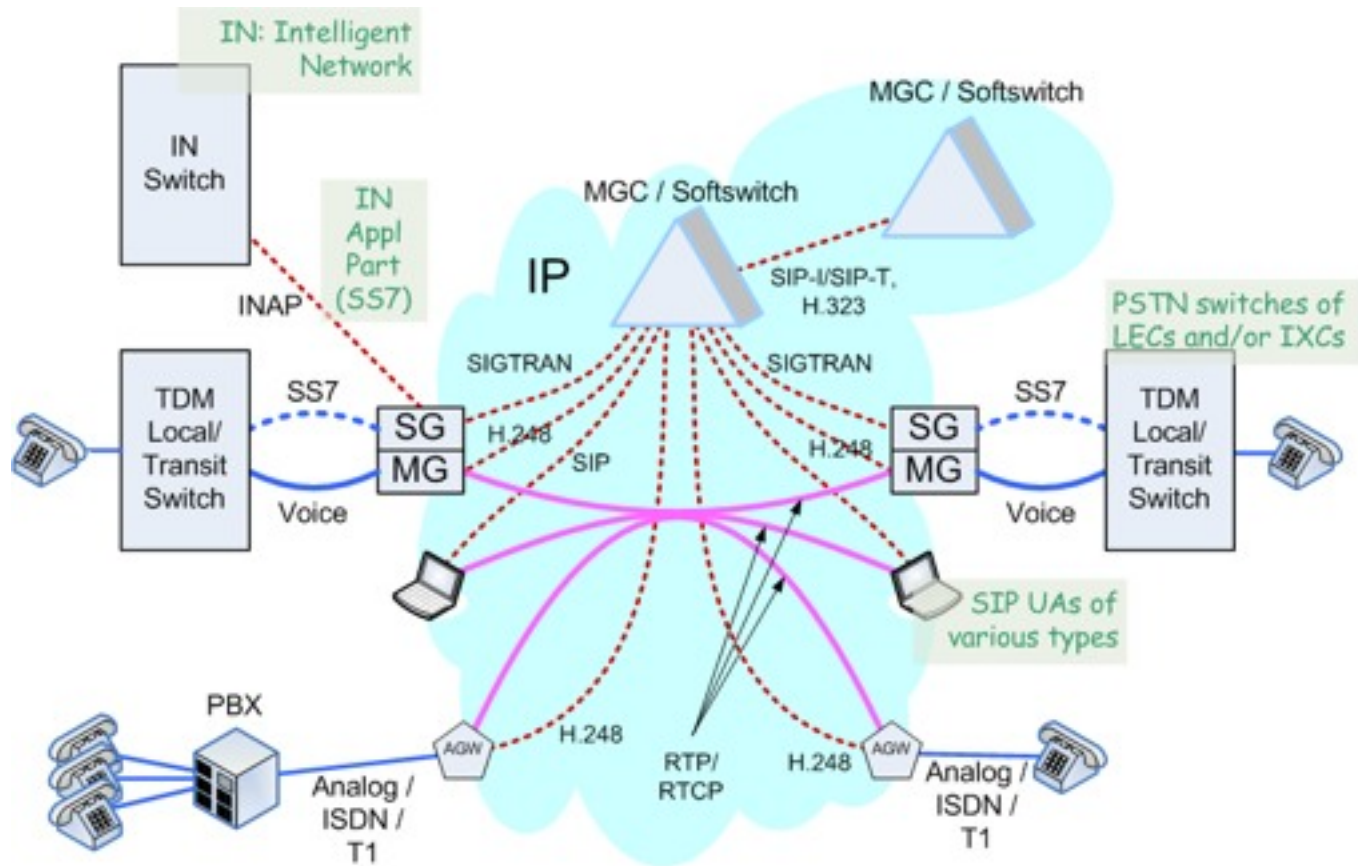
Let's Explode the CO

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

Next Generation Networks

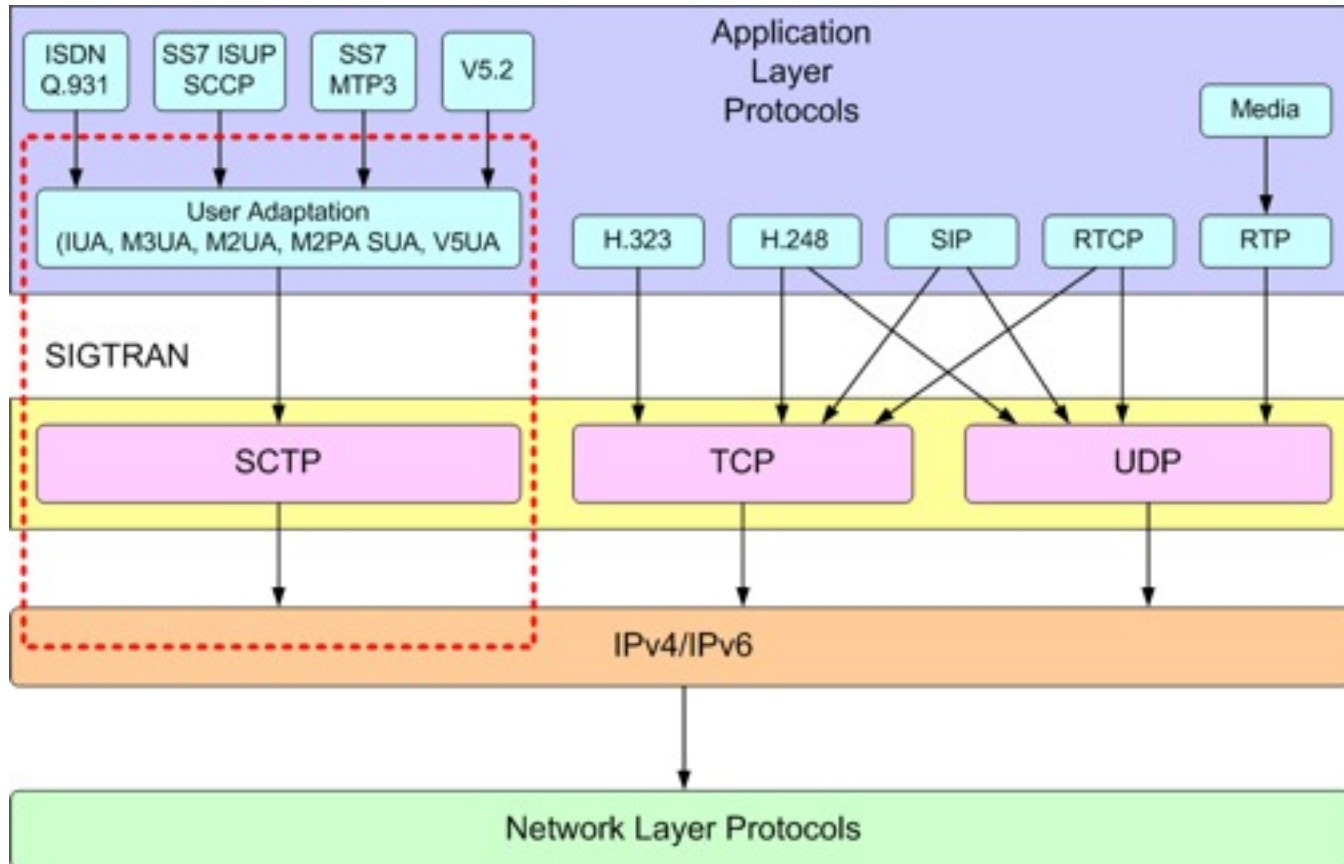
- Companies w/ all-packetized core nets.
 - Sometimes called NextGen telcos
 - » [very poorly defined term]
 - Examples:
 - » Level 3 Communications
 - <http://www.level3.com>
 - Traditional telephony carriers are headed the same way.

Next Generation Network From “NGN Protocols”



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NGN Protocol Stack

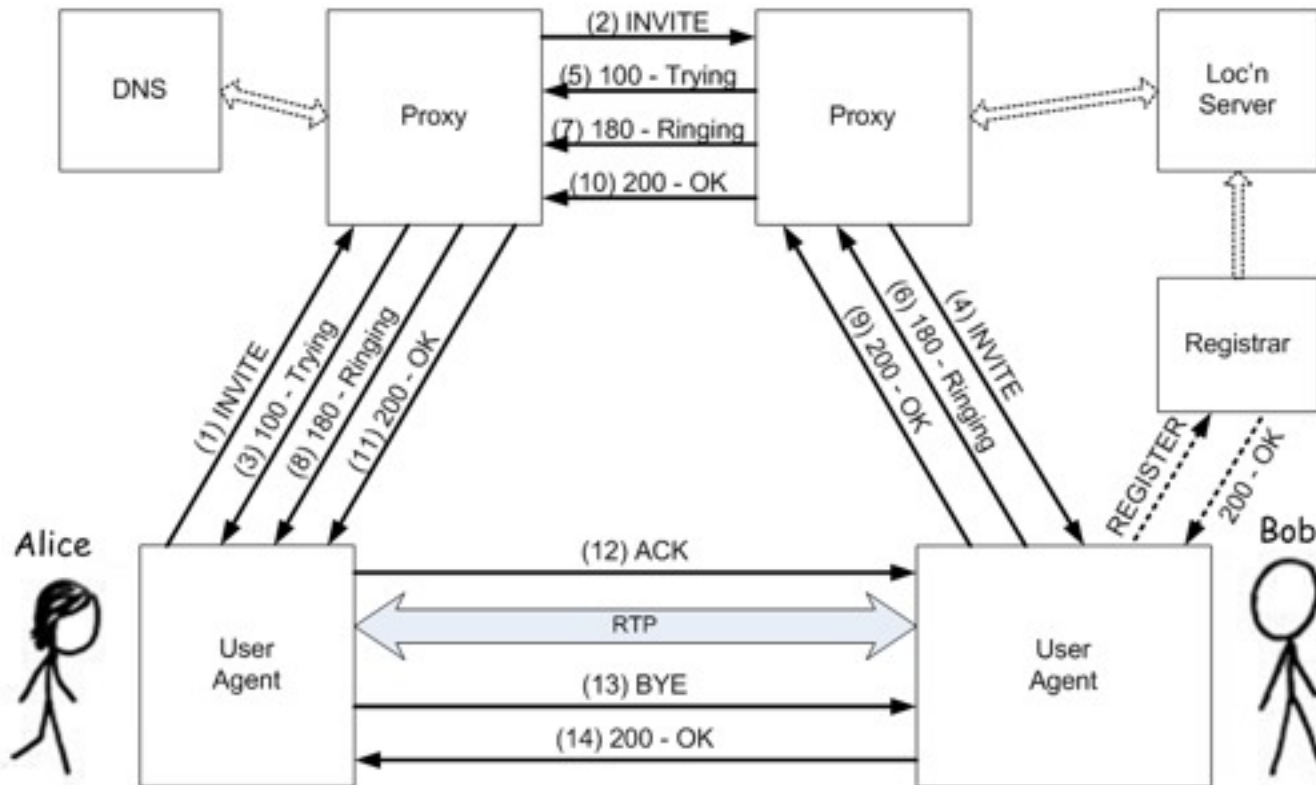




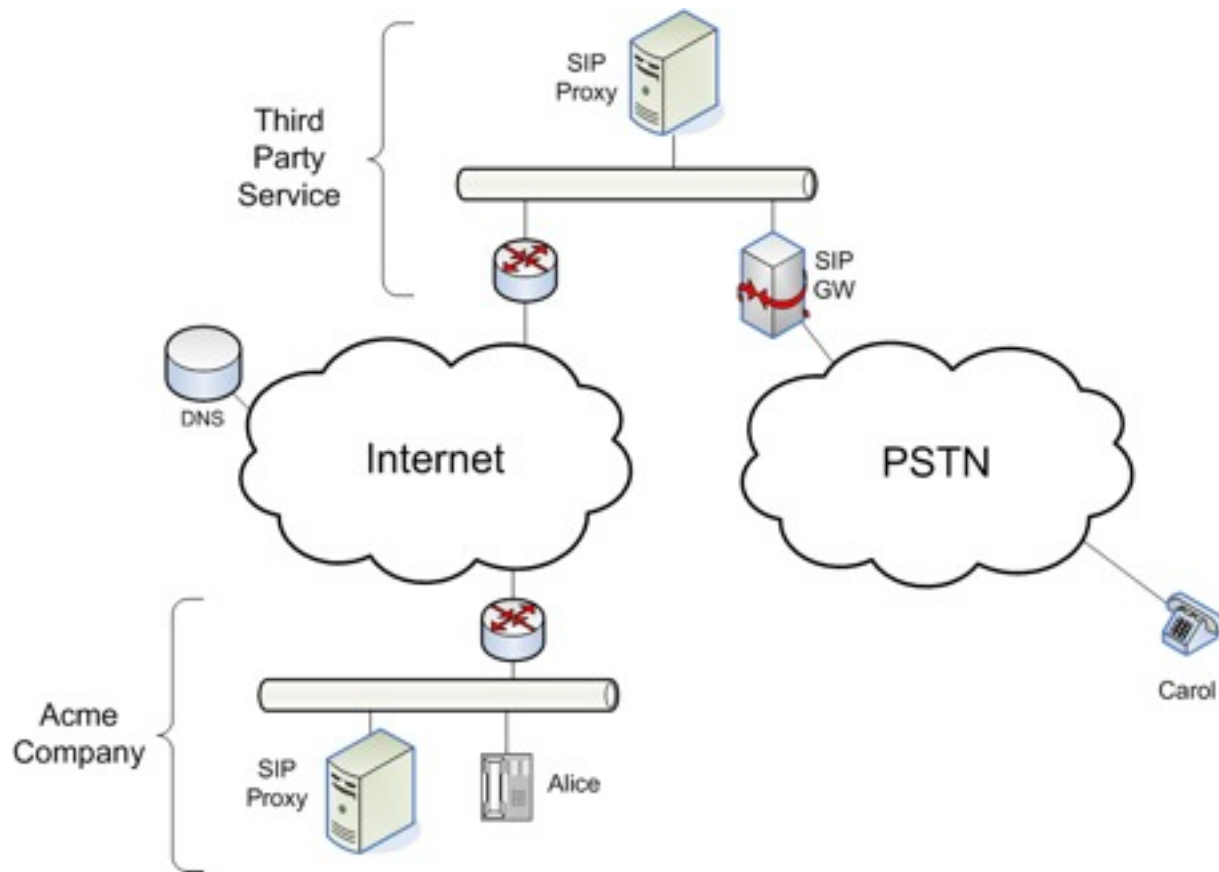
Over-The-Top Systems

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SIP Trapezoid



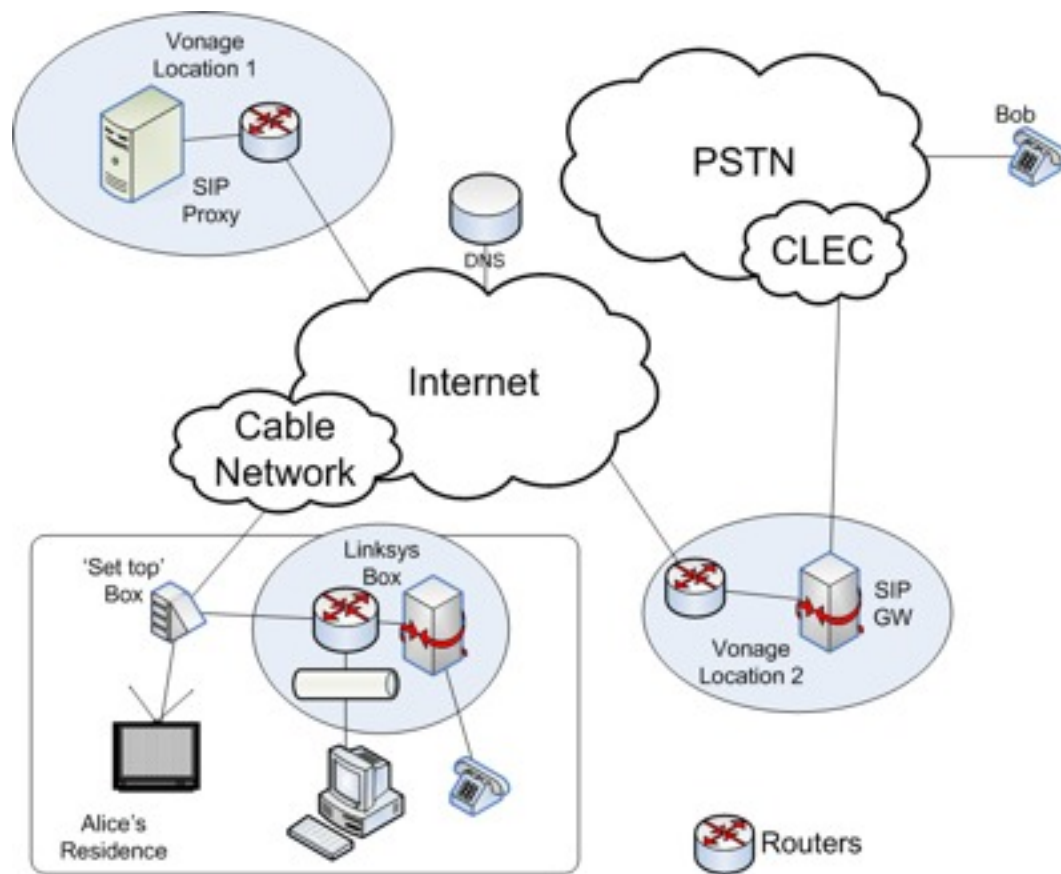
Calling Carol



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.