Over-The-Top Systems

Adapted from Material Created by Phil Campbell
SIP Trapezoid

1. INVITE
2. INVITE
3. 100 - Trying
4. 100 - Trying
5. 100 - Trying
6. 100 - Trying
7. 180 - Ringing
8. 180 - Ringing
9. 200 - OK
10. 200 - OK
11. 200 - OK
12. ACK
13. BYE
14. 200 - OK

Alice

User Agent

RTP

Bob

User Agent

Registrar

Loc'n Server

Proxy

Proxy

DNS
Calling Carol

• Alice’s UA can set up a SIP trapezoid.
  – Corners:
    » Alice’s phone,
    » Acme SIP Proxy,
    » 3rd party SIP Proxy,
    » 3rd party gateway.
  – Requires working 3rd party.

• Enter Vonage…
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 It Works
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• Vonage is 3rd Party!

• SIP triangle:
  – Alice’s Vonage SIP router/gateway
  – Vonage’s SIP proxy
  – Vonage’s SIP gateway

• Proxy & gateway needn’t be close together.

• Alice’s CPE does SIP registration.
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.
Who Pays Whom? With PSTN:

Subscriber

Ordinary Local Bill
Subscriber Line Charge
Ordinary LD Bill

LEC

Access Charges

IXC

ITS 441 - VoIP

Sunday, October 25, 2009
With IP Telephony, OTOH

Subscriber

Nada – No monthly charges, No SLC

Fixed $ / Mo

LEC

ITSP / Cable Co

Nada – No Access Charges
Some Nice Things About Vonage Service

• Portability – throw your router in the suitcase…
  – Better yet, get a USB device.

• Get a number in a distant city.
  – You live in Dallas, whole family is in Ohio…
You Mentioned Inconveniences?

• Power at home
• Power at cable company
  – Backup requirements of telcos don’t apply.
• Cable companies traditionally less service-oriented.
• E911
  – They have a workaround, but portability defeats it.
Predictions

• Decline in telephone penetration rates.
  – Rural, poor consumers in for hard time.
  – Change in USF funding mechanism.
    » More welfare-like?

• Rise of full-service companies
  – Triple play: phone (local, LD), ISP, TV
  – Quadruple play: triple play + cellular
  – Why buy from Vonage instead of T-W?
Speaking of Time-Warner…

• They’ve gotta be similar, except:

• Your POTS phone plugs directly into set top box.
  – Plus: E911 task much simpler
  – Minus: You can’t take your router on trips.