

Voice-Over-IP Hype vs. Reality

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VoIP in the News

VoIP hype and Skype ([Peter Cochrane, 4/21/04](#))

“For telcos, many see the arrival of the Internet and Voice over IP (VoIP) as a parallel situation. While there is a lot of hype, exaggerated claims and oversimplification, the risks are real enough. This is an industry with over 100 years of history, an established infrastructure and a dedicated customer base often too lethargic to move. But it is also a highly competitive and deregulated sector struggling with rapid technology change--and it may be staring death in the face. “

<http://zdnet.com.com/2100-1107-5196322.html>

VoIP in the News

VoIP hype and Skype ([Peter Cochrane,4/21/04](#))

“In all of this there is an existence theorem for the tolerance of customers that says: No telco engineer or manager ever anticipated that so many would pay so much for such a poor service as that provided by a mobile phone connection. The fixed line network is one of strict quality control and the maintenance of extremely high standards but 12 years saw it rejected by customers that value mobility above all else. I think the Internet heralds yet another change in customer values as they seek and value a self-determined and unrestricted DIY world of low cost everything. “

<http://zdnet.com.com/2100-1107-5196322.html>

Noteworthy

Don't Believe the VOIP Hype

Yes, one day Internet calls will rule. But that's still a ways off.

"It takes time to roll out these products and get customers." In fact, VOIP has been around for several years, and today fewer than 200,000 residential customers in the U.S. use it for their primary communications. Consumers need to first sign up for broadband Internet access to get VOIP (only 20% of the nation's households have done that); transmission often isn't as good as traditional phone services (but often better than wireless); and if the electricity goes out, so does VOIP.

Julie Creswell, 12/29/03 Fortune,

<http://www.fortune.com/fortune/subs/print/0,15935,567668,00.html>

VoIP Hype?

- ◆ “Voice over IP is our foundation for the future” AT&T
- ◆ AT&T expect to have 1 million customers by the end of 2005
- ◆ “We believe VoIP will emerge as a viable, even necessary alternative to the traditional public switched telephone network”, Vonage

Outline

- ◆ Objectives
- ◆ What is VoIP?
- ◆ Market Size for VoIP
- ◆ Demand for VoIP
- ◆ Discussion
- ◆ Future Research

Objectives

1. What is VoIP?
2. Identify "Drivers" of VoIP
3. Use Variation of Contingent-Valuation Procedures to Estimate Demand for VoIP
4. Estimate Elasticities
5. Comment on Market Size and Market Potential

VoIP: A Brief Tutorial

◆ Circuit Switching

- Connection made between your telephone and the other party's line, opening the circuit.
- You talk for a period of time, hang up. At that point the circuit is closed, freeing your line.
- A 10 minute conversation consumes about 9.4 megabytes. Much of the transmitted data is wasted (one talks the other listens, dead air etc) -
- over 75% wasted

Packet Switching

◆ Packet switching

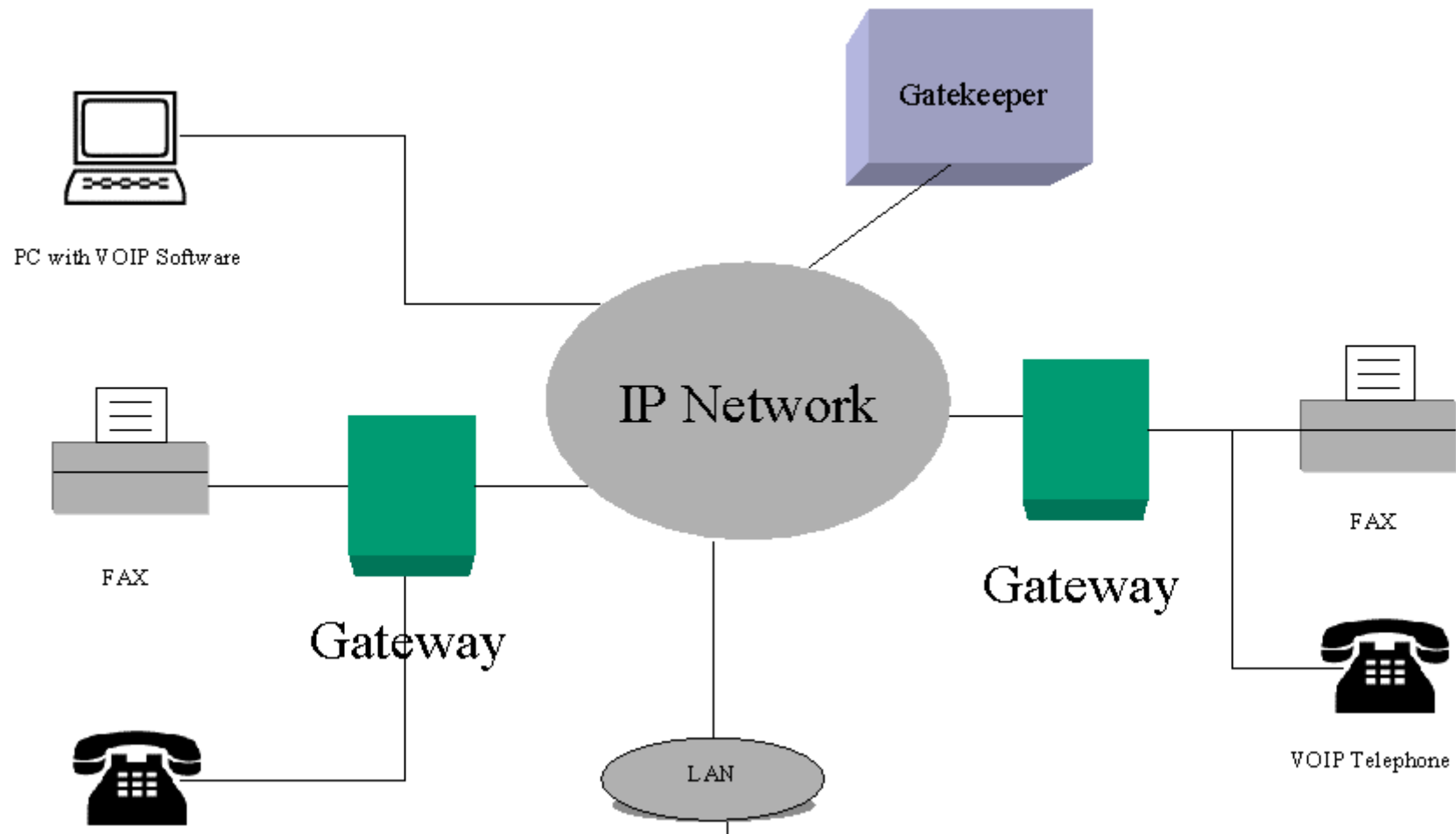
- Opens the connection just long enough to send small chunks (packets) of data from one system to another
- Minimizes the time the connection is maintained
- A 10 minute call now uses less than 1/3 the resources that a circuit switched call uses

Voice over IP Protocol*

- ◆ "Voice over Internet Protocol (VoIP) is a common term that refers to the different protocols that are used to transport real-time voice and the necessary signaling by means of Internet Protocol (IP). In another word, it allows the user to place a call over IP networks."

<http://www.personal.psu.edu/users/f/x/fxz122/project/voip.html>

Illustration





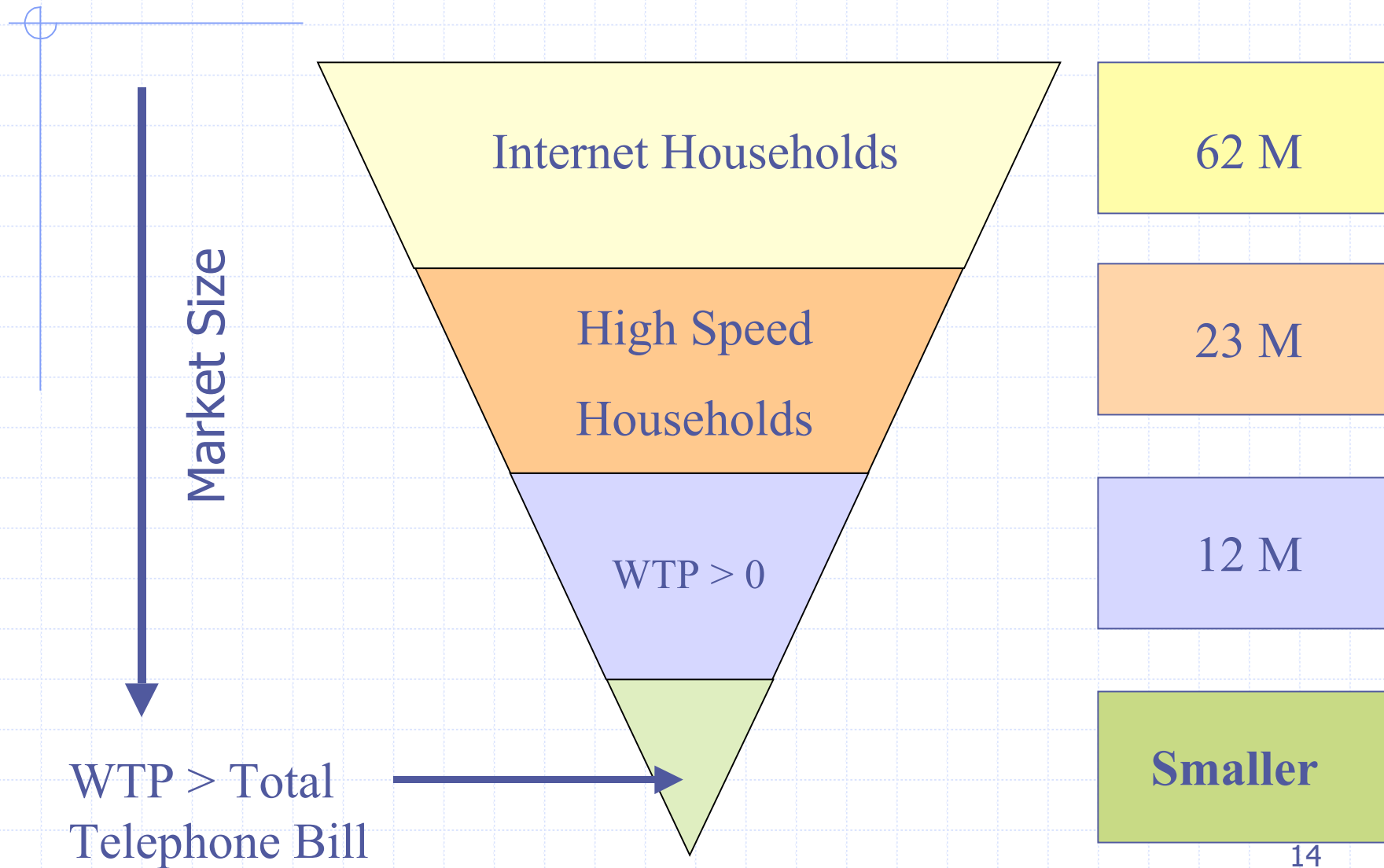
The Size of the Market

VoIP Forecast

- ◆ Frost & Sullivan estimates there will be 128,000 Canadian Internet telephony customers by the end of this year; 375,000 in 2005; 713,000 in 2006; 1.15 million in 2007; and 1.58 million in 2008. In the United States, subscriber growth is expect to jump to 1.16 million this year from 100,000 in 2003. By 2008, Frost & Sullivan forecasts there will be 16.5 million subscribers in the United States.

<http://www.canada.com/technology/story.html?id=9a558880-2bf2-4692-befc-4400c76a5e98>

How Large is the VoIP Market?



VoIP "Drivers"

Telephone Bill

\$42

Average local & LD bill

Broadband
Penetration

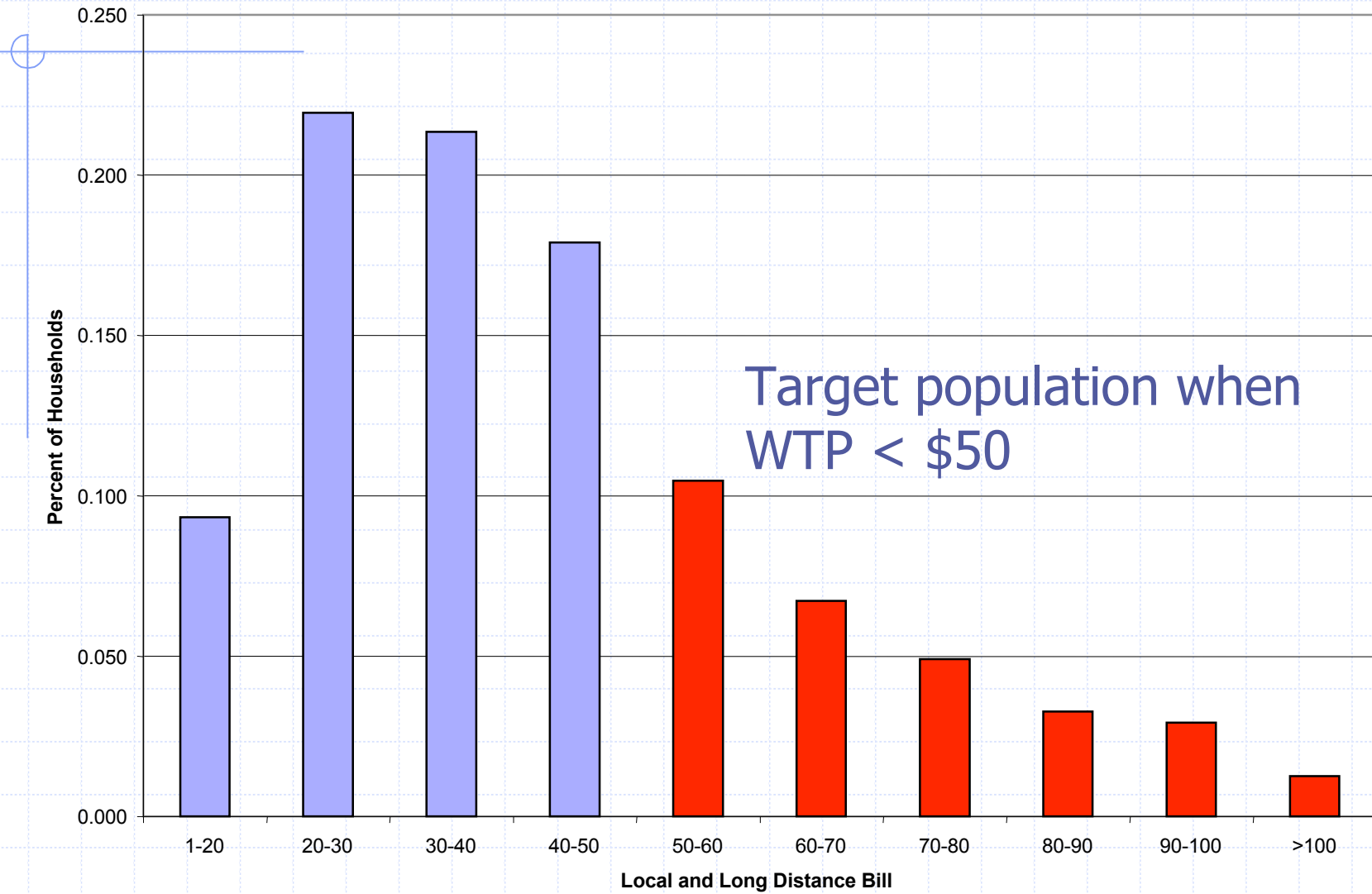
(23-24)%

Broadband % of households

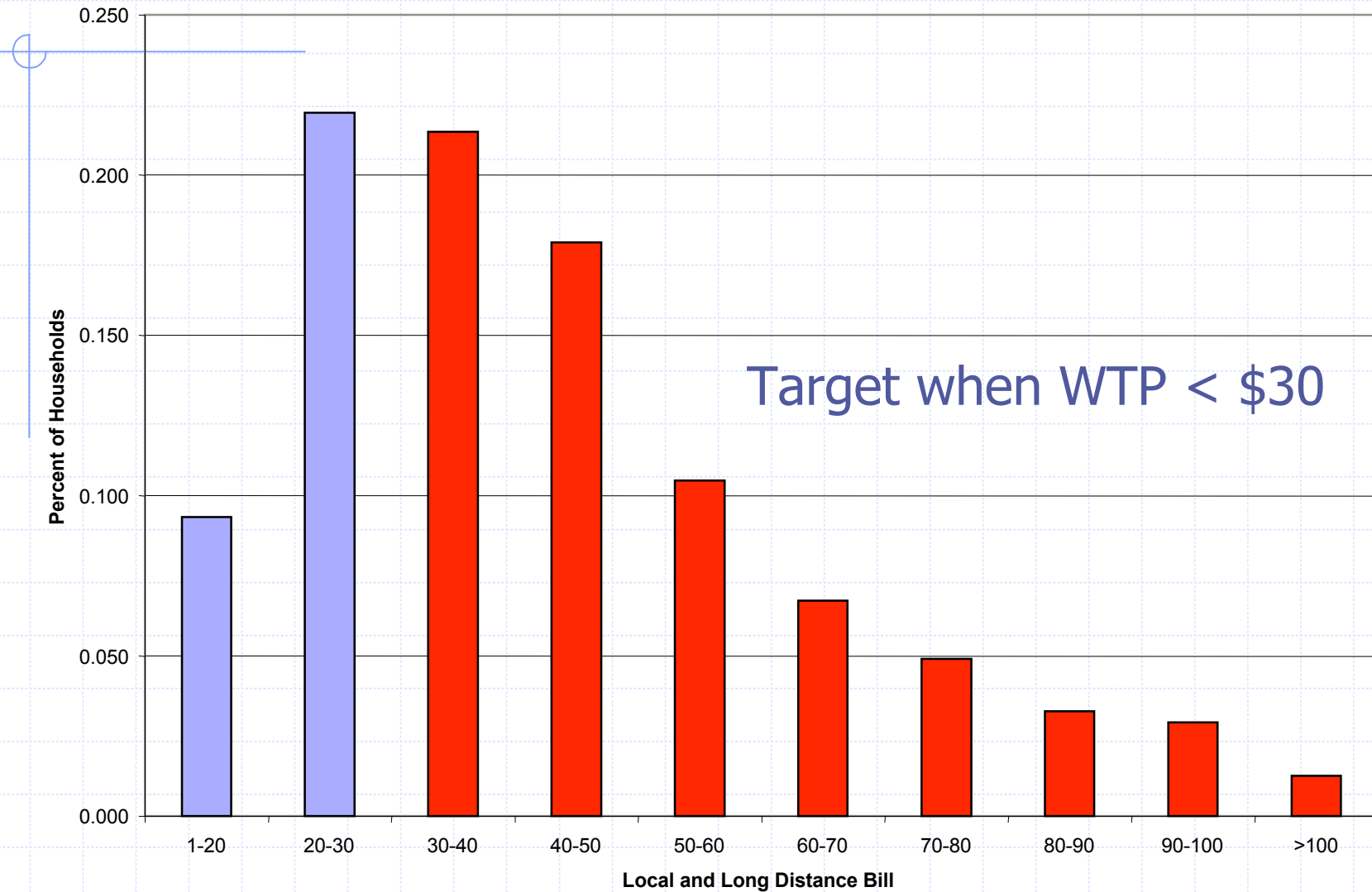


Distribution of Telephone Bill

Distribution of Total Telephone Bill - I



Distribution of Total Telephone Bill – II





Broadband Demand

Key Driver: Broadband Growth

◆ Broadband Availability

- An issue only for Best Practice VoIP

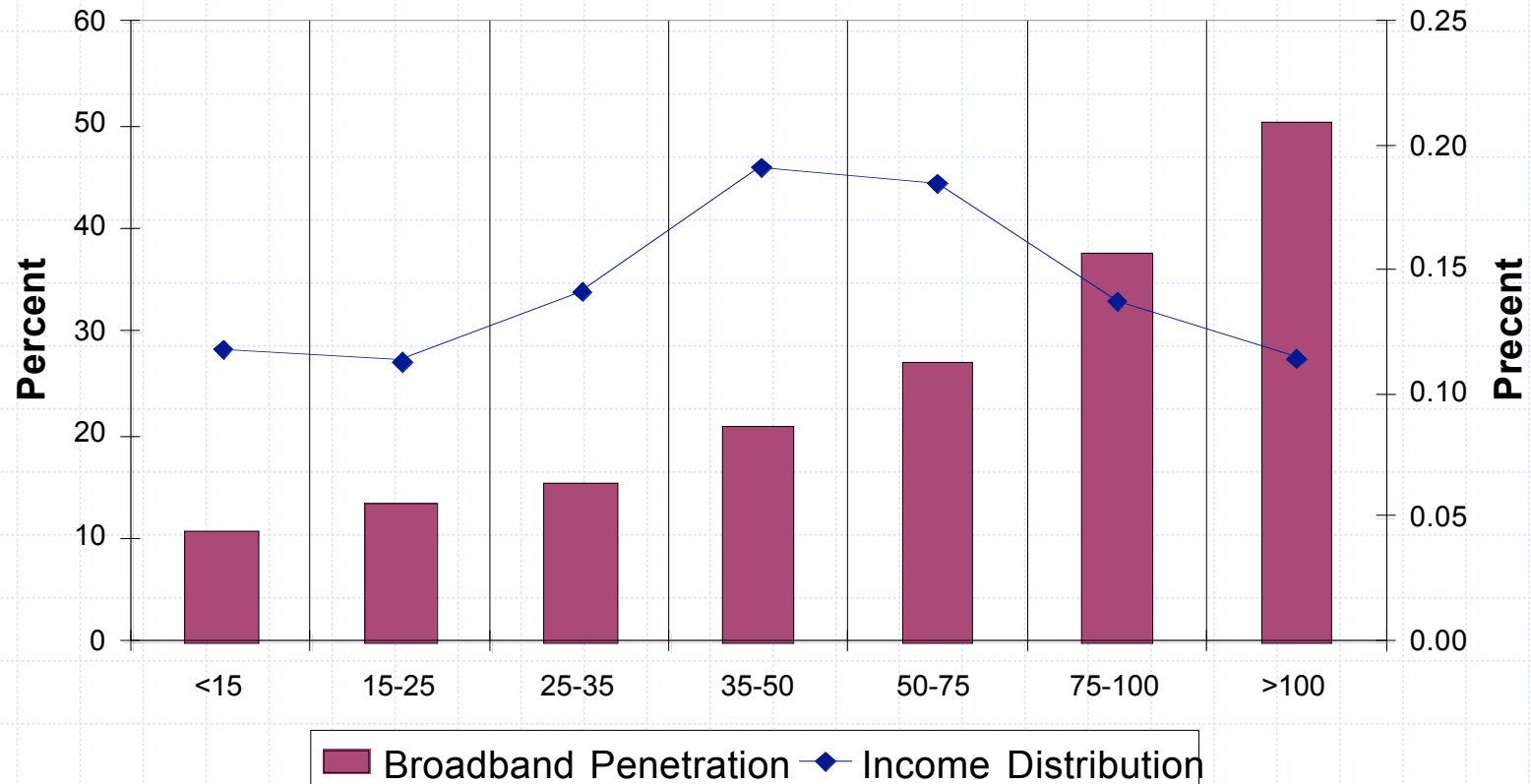
◆ What will Drive Broadband Growth?

- Content – Gaming – Entertainment -- Shopping
- Multimedia and video

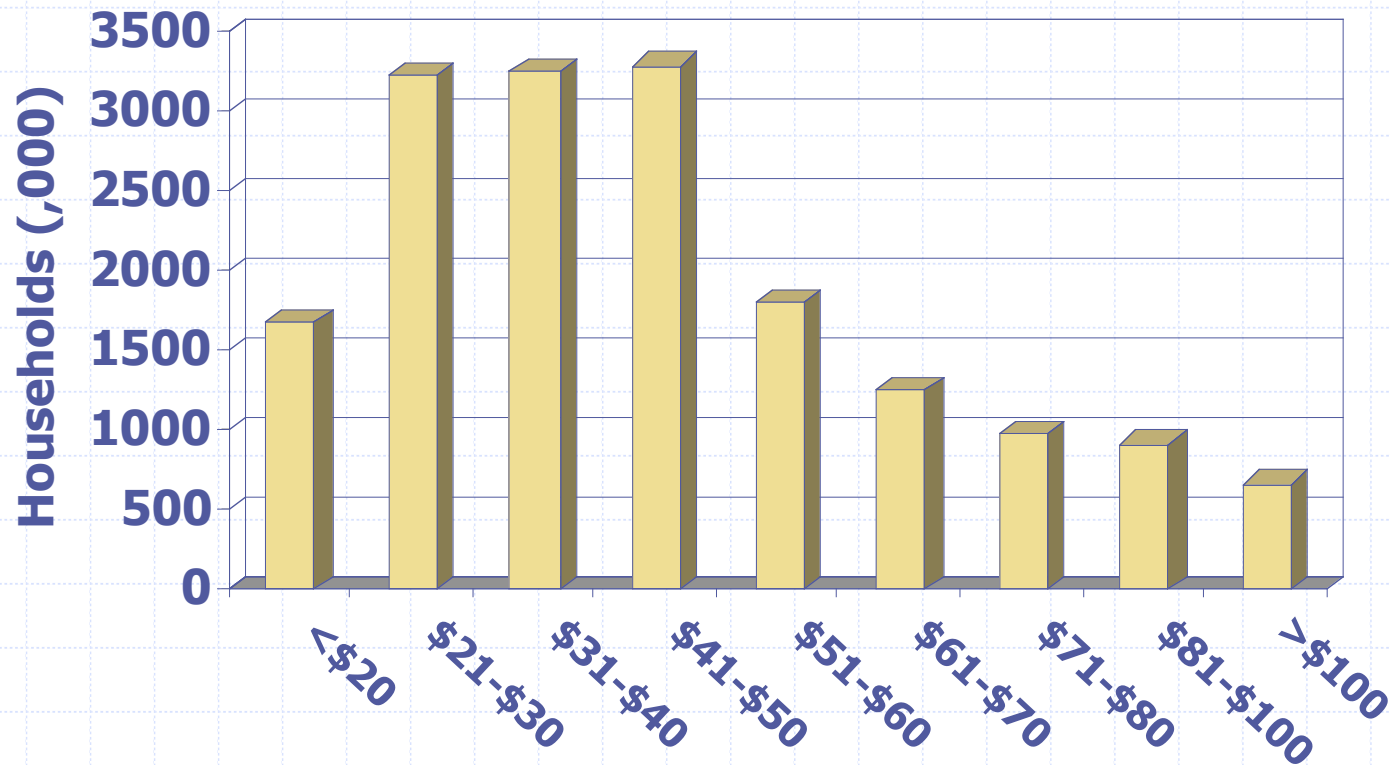
◆ Price

- Discounting
- Bundles
 - ◆ Triple Play (Voice – Video – Data)
 - ◆ Multimedia + Call Management

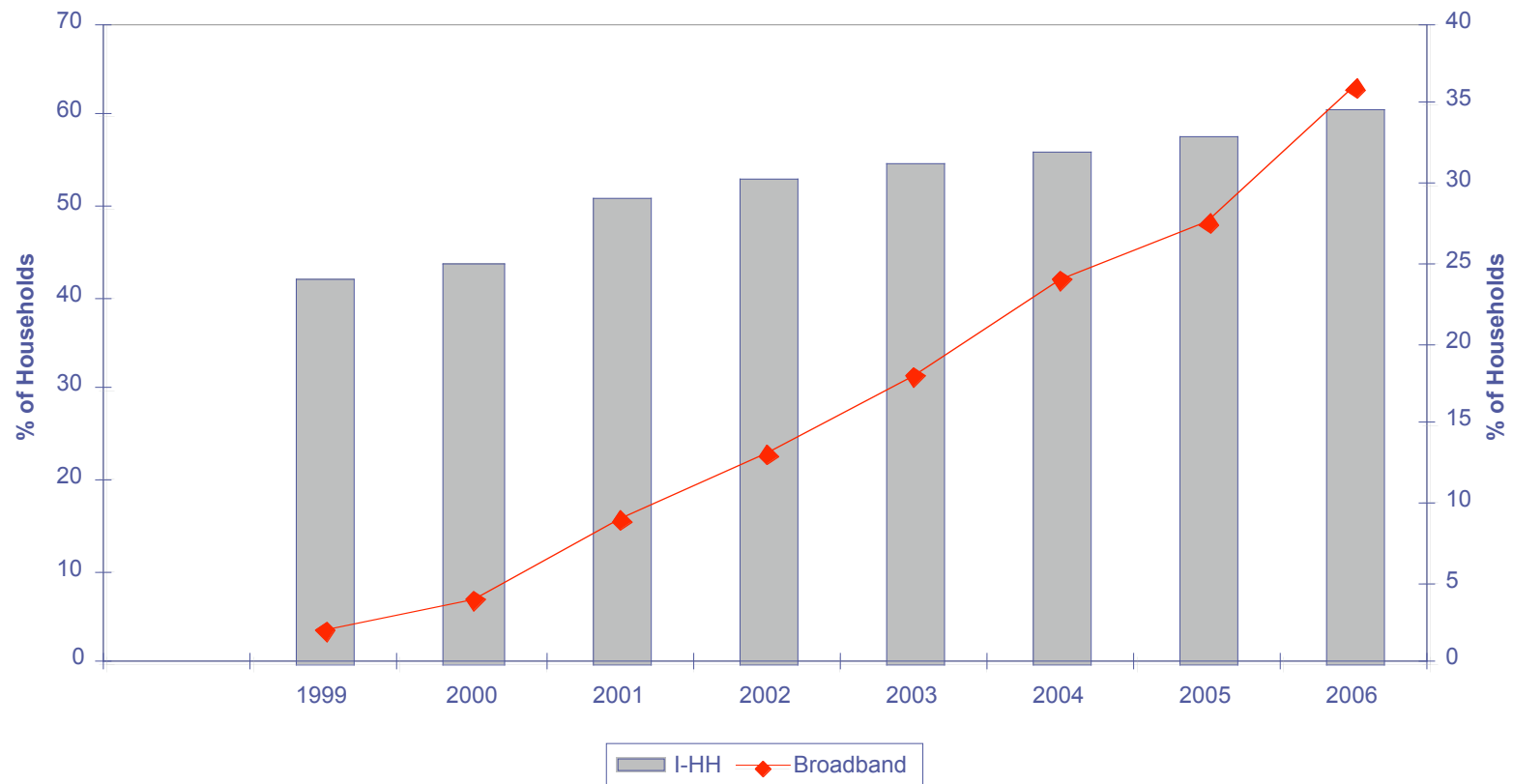
Distribution of Income & Broadband



Broadband and the Telephone Bill



Broadband Forecast

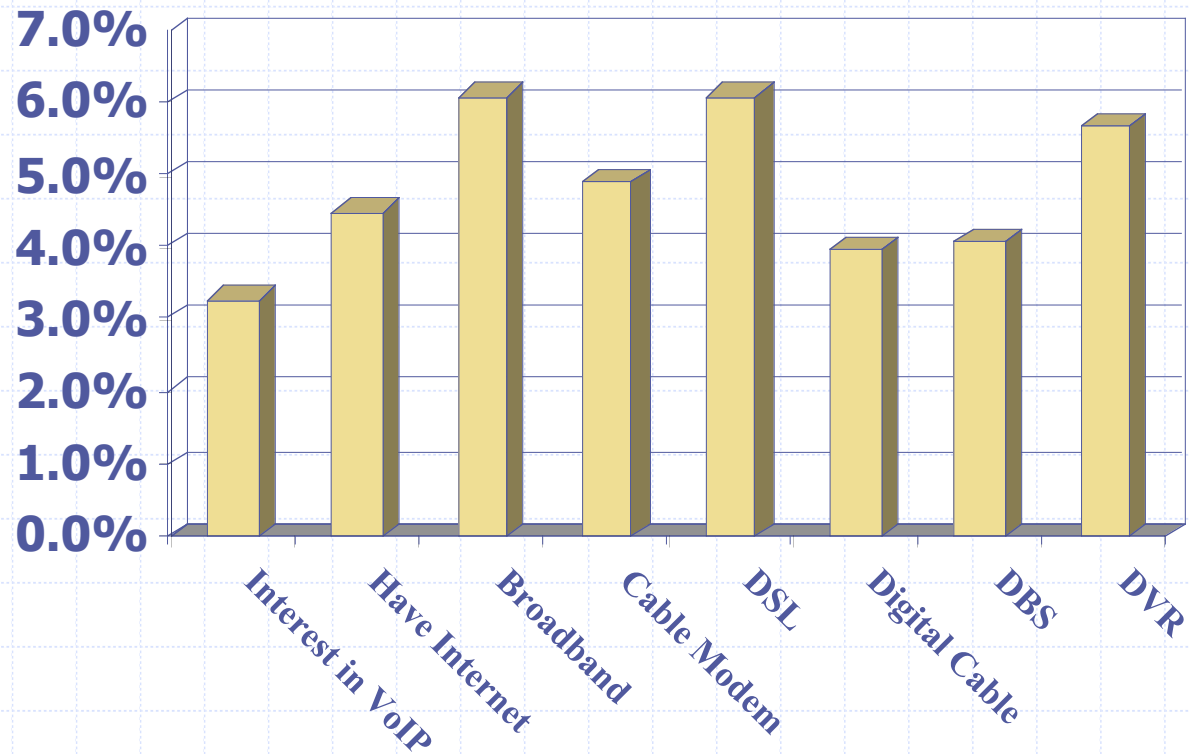


Source: CentrisPlus



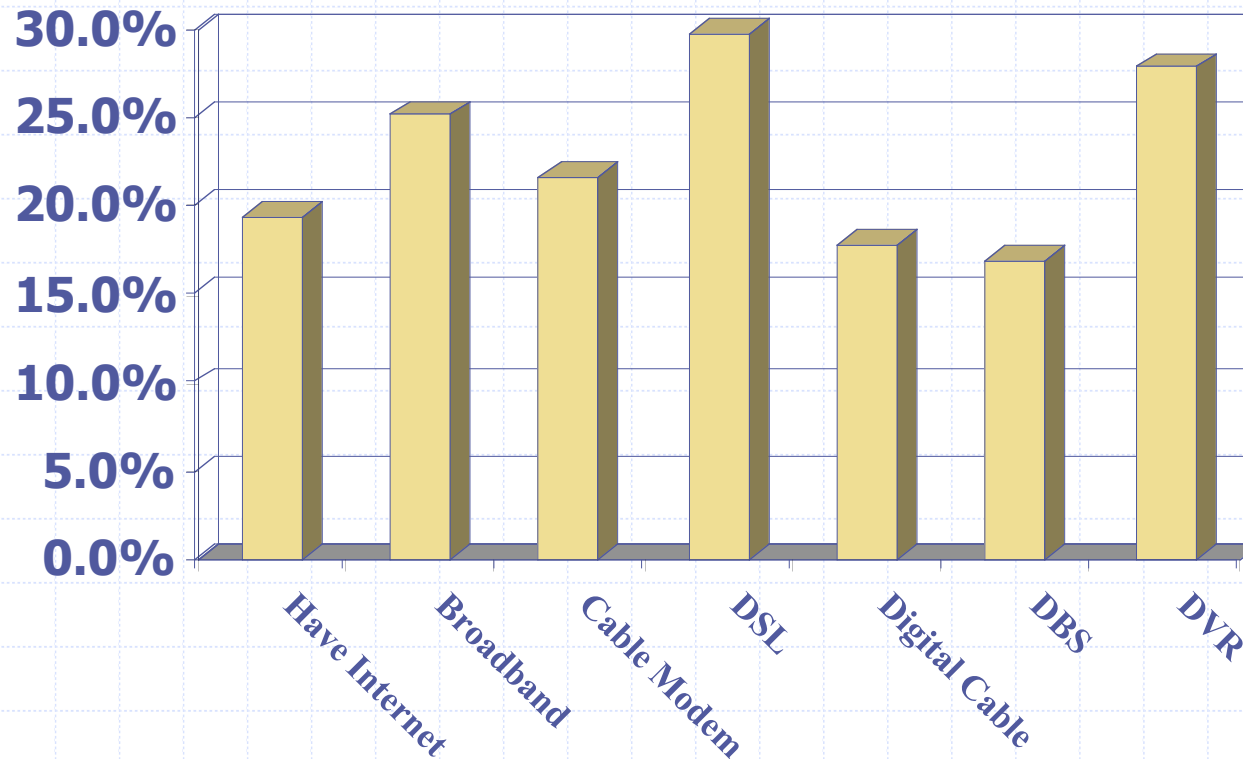
Interest in VoIP

Interest in VoIP "Very Interested"



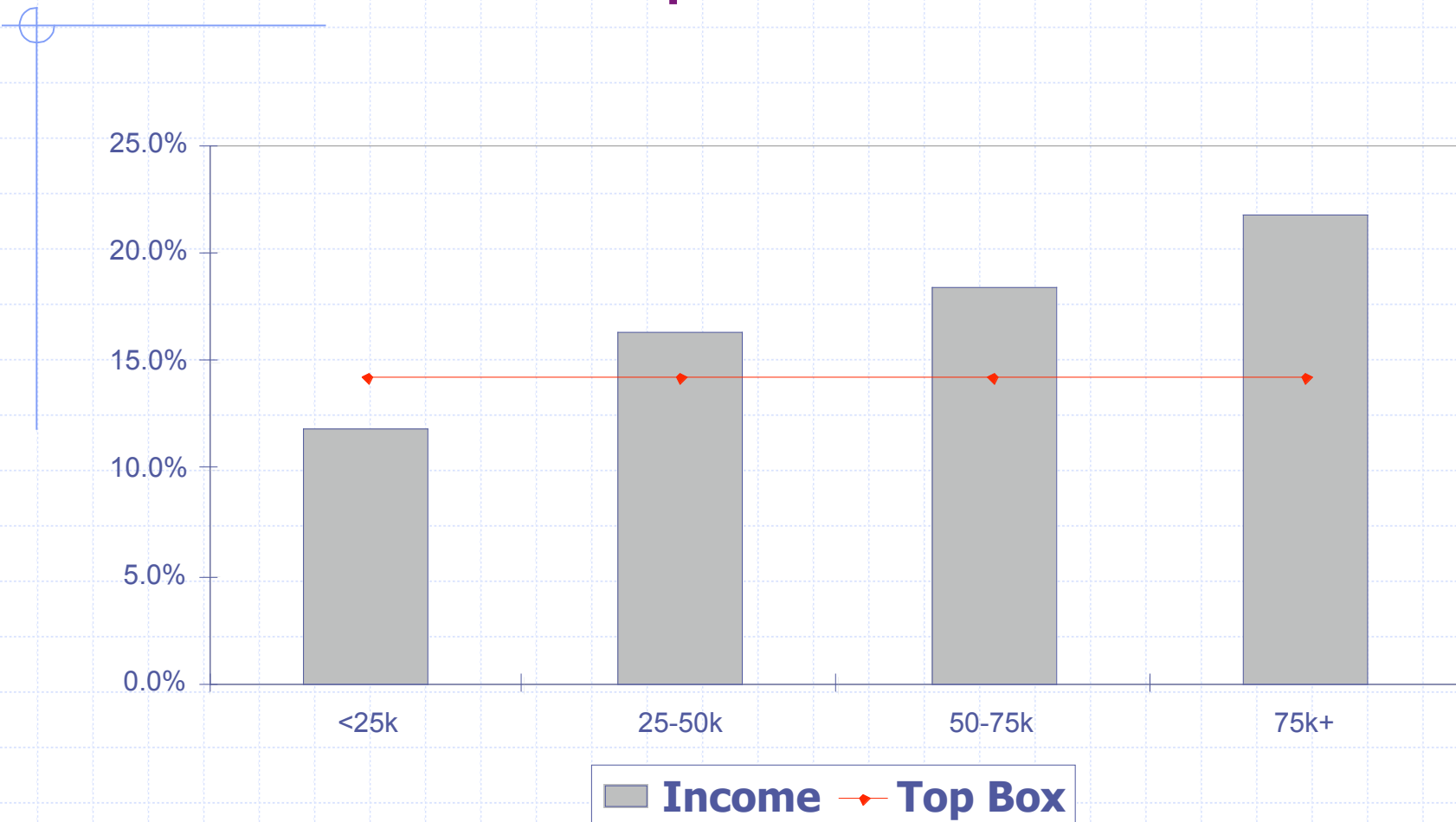
Source: WWW.centris.com

Interest in VoIP "Top Box*"



*Very Interested + Somewhat Interested

Interest in VoIP "Top Box*"



*Very Interested + Somewhat Interested



The Demand for VoIP

Willingness to Pay

Demand for VoIP Service

- ◆
- ◆ Focus is on the price of the service – thus economic value associated with a service is generally bounded
- ◆ Application is directed towards the estimation of price elasticities

Lognormal Demand Curves

◆ Let

◆ Then

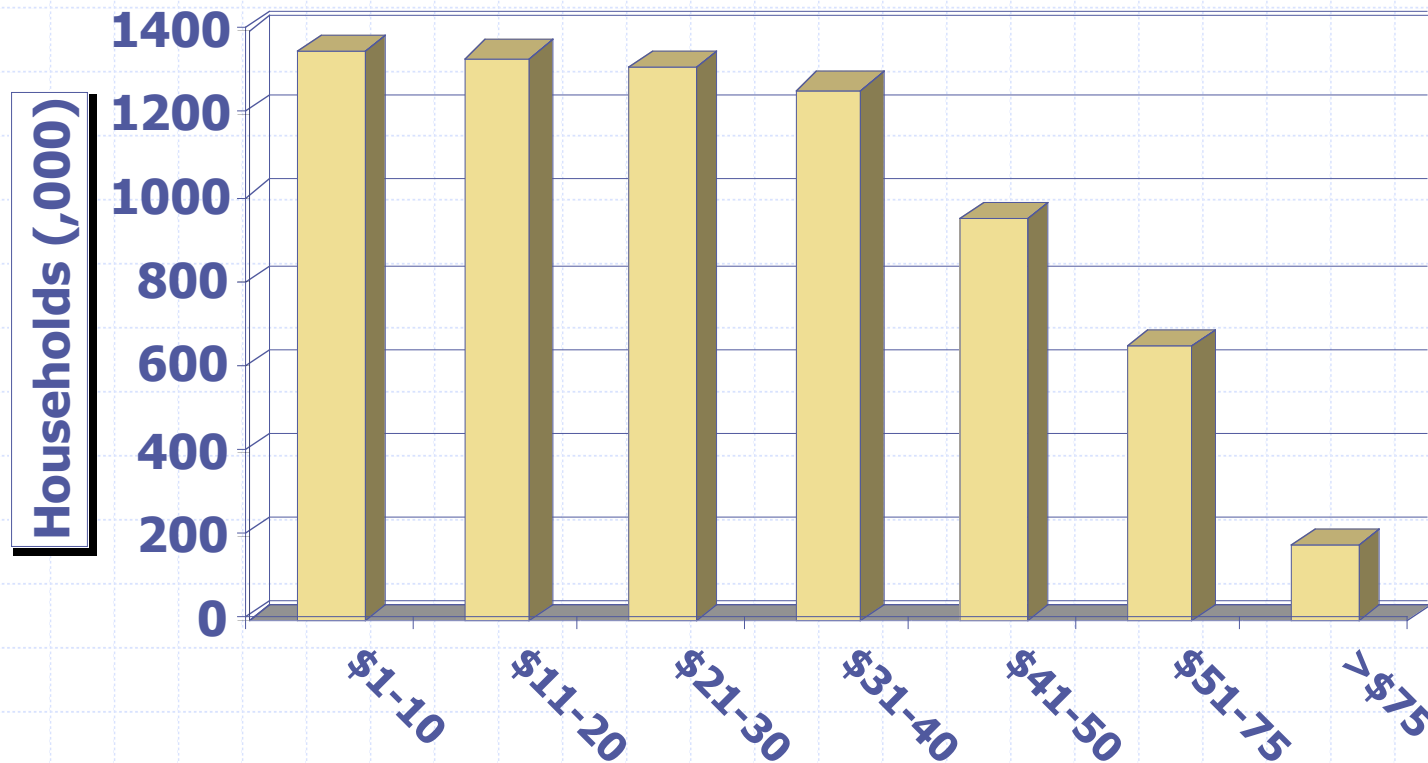
◆ Assuming that x is distributed as a lognormal with parameters

Lognormal Demand

We have:

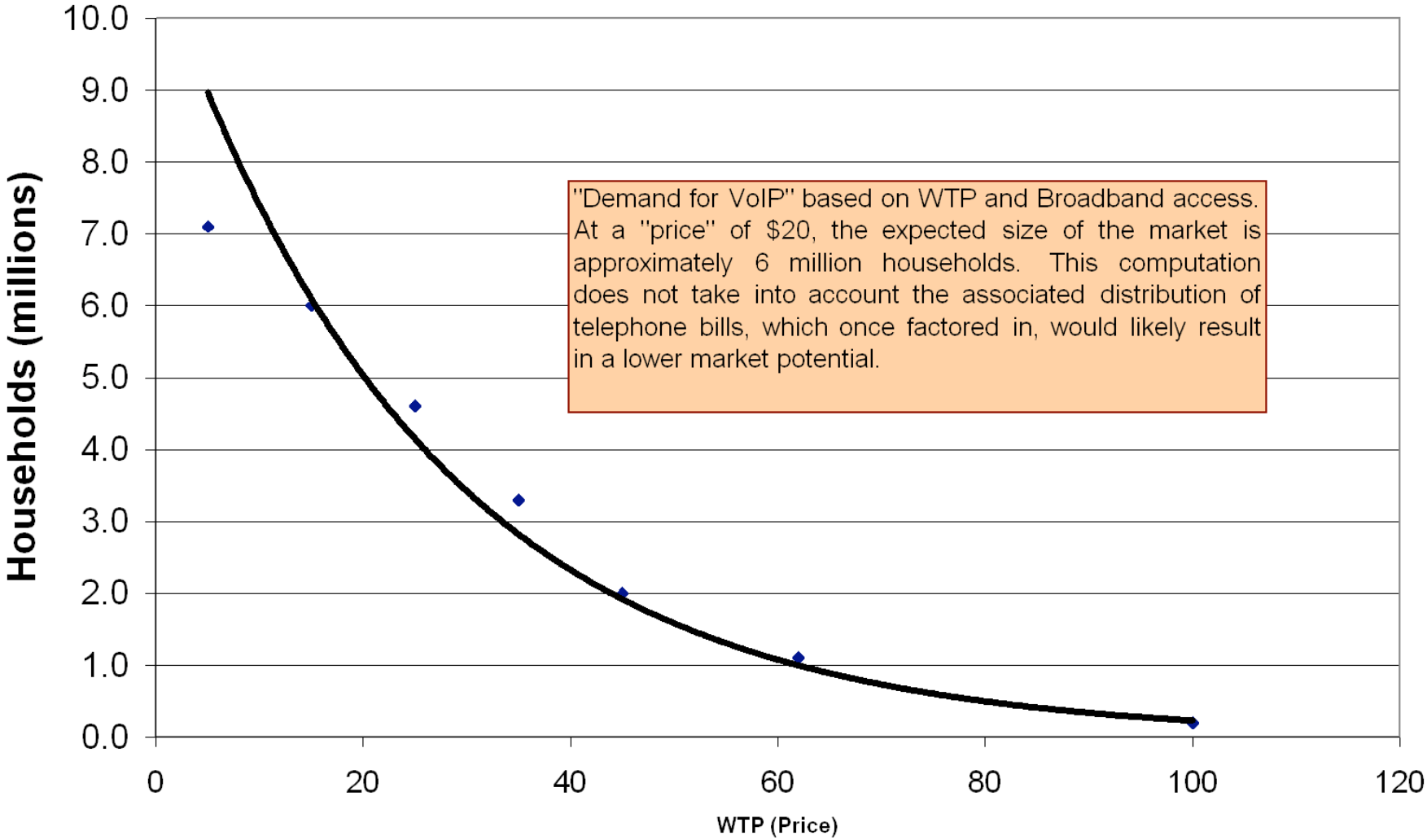
$$D = \mu \left(1 + \sum_{i=1}^n \alpha_i \epsilon_i \right)$$

Willingness to Pay Given Broadband

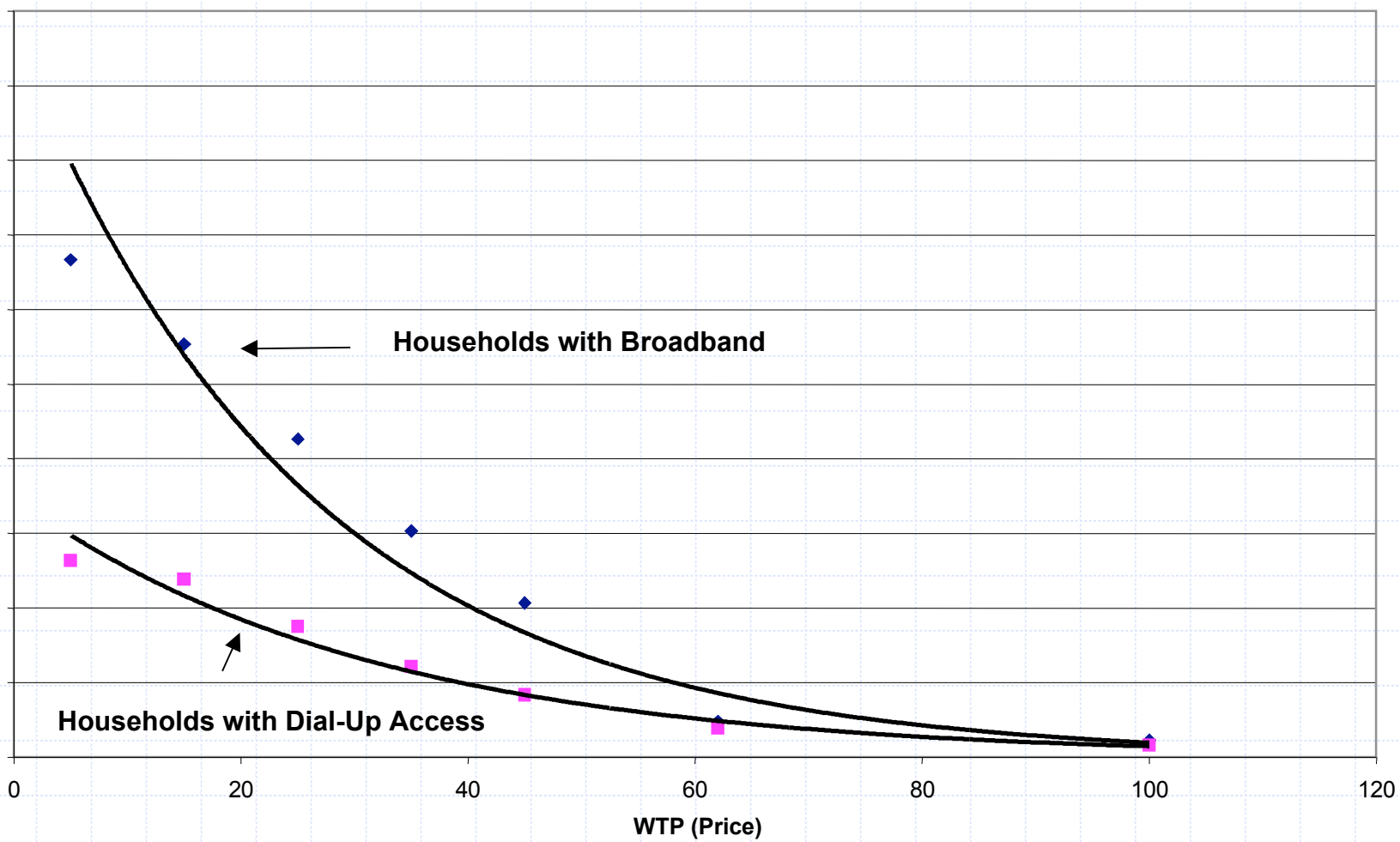


Source: WWW.centris.com

Willingness to Pay for Voice-Over-IP



Willingness to Pay for Voice-Over-IP



Sample

- ◆ 8,000 survey responses for from Q1, 2004
- ◆ Based on CENTRISSM Omnibus survey
 - National RDD sampling
 - CENTRISSM tracks over 75 communications, entertainment and technology areas on a daily basis, at the household level

www.Centris.com

Elasticities

WTP	Broadband Households	Non Broadband Households*
\$1-\$10	-0.20	-0.80
\$11-\$20	-0.59	-1.12
\$21-\$30	-0.98	-1.44
\$31-\$40	-1.37	-1.76
\$41-\$50	-1.76	-2.08
\$51-\$75	-2.54	-2.72

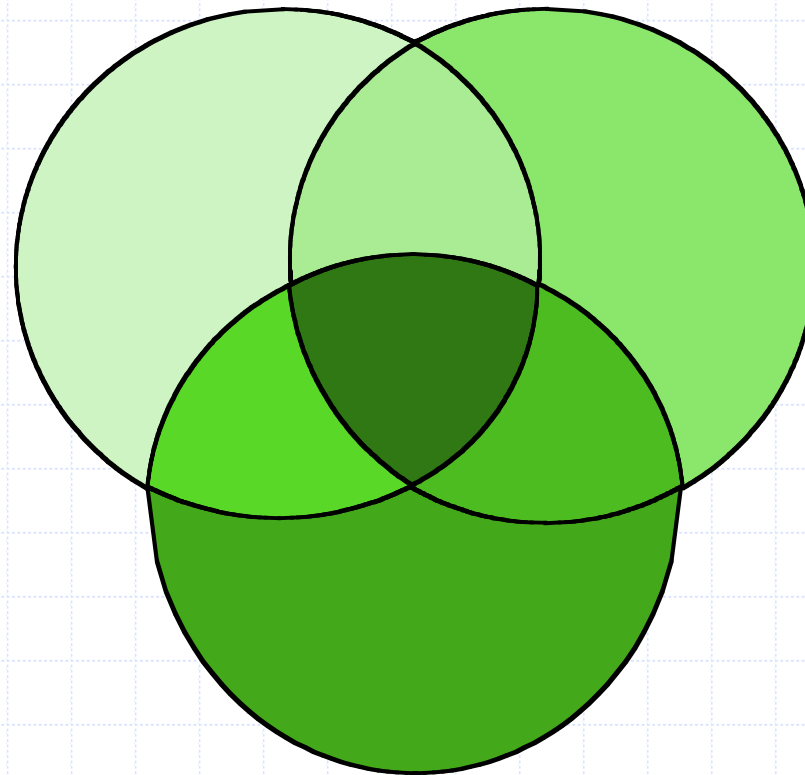
* Assuming \$20 month for broadband



Market Simulations

Market Potential - I

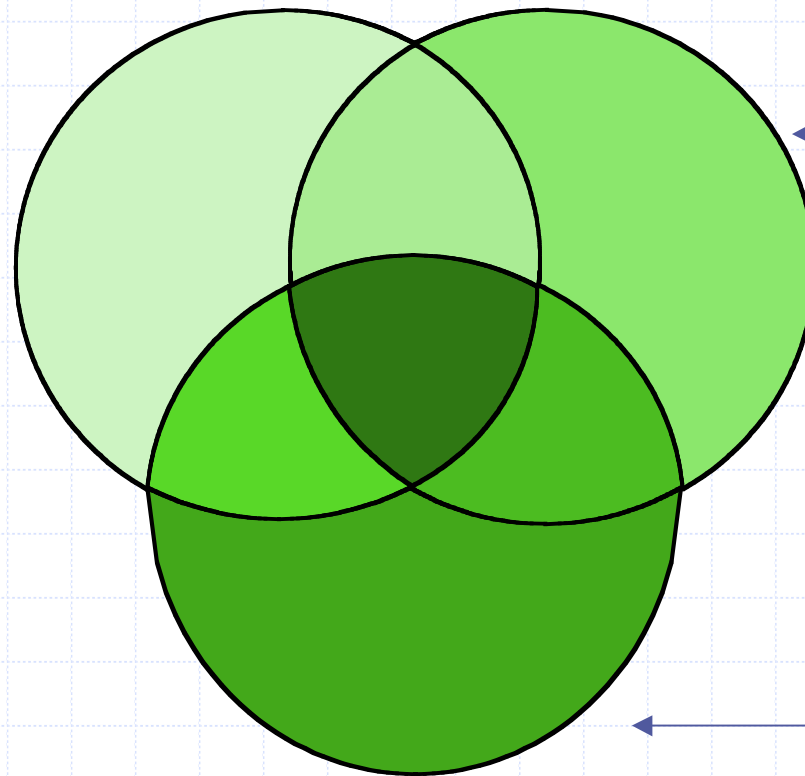
Price (WTP) <\$40 12 million households Telephone bill >\$40 about 41 million households



Broadband
24 million households

Market Potential - II

Price (WTP) <\$40 12 million households Telephone bill >\$40 about 41 million households

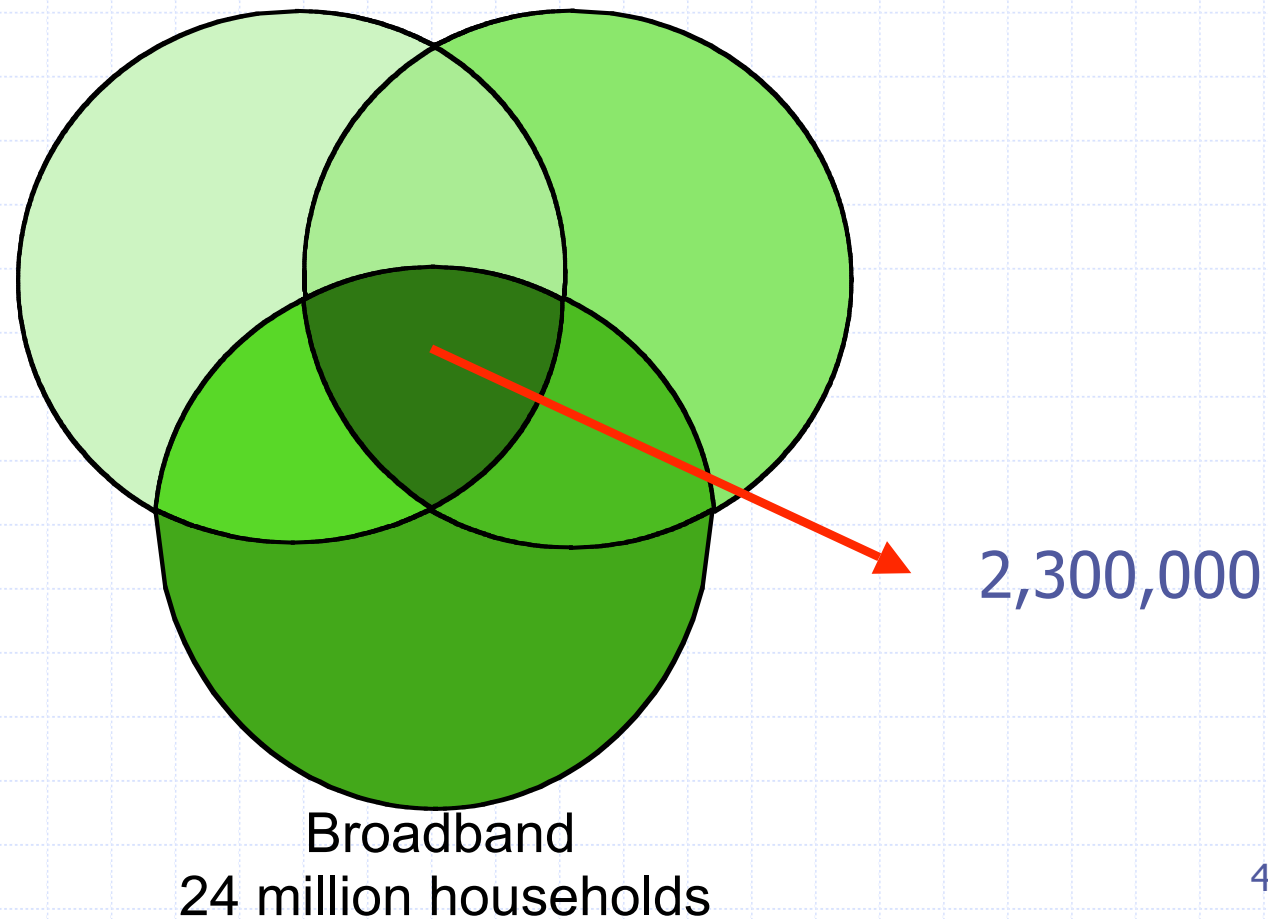


Broadband
24 million households

8,952,000

Market Potential - III

Price (WTP) <\$40 12 million households >\$40 about 41 million households Telephone bill



Discussion

- ◆ **Price clearly matters**
- ◆ **Broadband penetration matters**
- ◆ Focusing simply on “interest in VoIP” leads to significant over estimation of market size
- ◆ Insight requires understanding the relationships between “price” and the distribution of telephone bills and between “price” and the distribution of income

Discussion

- ◆ Quality of service not addressed
- ◆ Focus was only on VoIP delivered over the Internet
- ◆ Security: Virus, Trojan Horse, Worms and Spam
- ◆ Competitive RBOC responses not incorporated into the demand model (e.g. Verizon's Freedom plan)

Discussion

◆ Regulation

- Classify VoIP as a telephone service
 - ◆ USF obligations
 - ◆ Access charges
 - ◆ 911 requirement
 - ◆ Licensing, taxation policies
- State and Federal regulation

VoIP References

◆ Service Providers

- <http://www.voip-calculator.com/directory/search.htx?page=1&category=1>
- <http://www.voip-info.org/wiki-VoIP+Service+Providers>

◆ FCC

- <http://www.fcc.gov/voip>

◆ General Reference

- <http://www.voip-info.org/tiki-index.php>
- <http://www.voip-info.org/wiki-VOIP+sites>

◆ Tutorials

- <http://www.iec.org/online/tutorials/vfoip/>
- http://www.cse.ohio-state.edu/~jain/refs/ref_voip.htm
- <http://computer.howstuffworks.com/ip-telephony5.htm>
- <http://www.nact.com/documents/VoIP%20Tutorial.PDF>

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