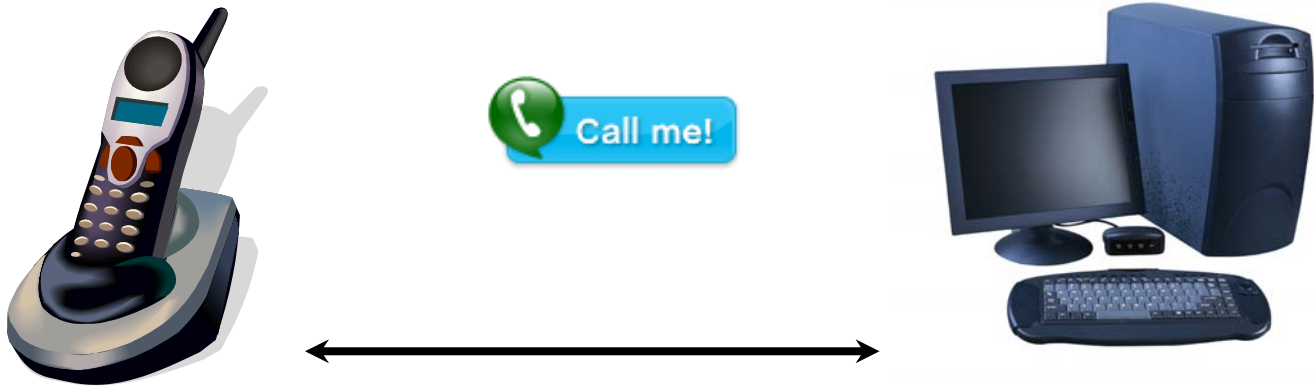


# Voice Over the Internet Protocol (VoIP)



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# Overview

- What is VoIP? How does it work?
- Policy History and the CRTC
- Who are the Players?
- The Key Characteristics of VoIP
- What does the Future Hold?
- Current Challenges that VoIP has
- How does VoIP affect the Phone Companies?
- Questions

# What Is VoIP?



- It is Voice over the Internet Protocol
- When you pick up the phone, the phone adapter converts your voice into data and sends it through the Internet like an email. The network sends the call where you want it and translates it back into voice.
- VoIP use to be restricted to computer to computer technology, but it is now expanded to allow the use of a conventional phone
- Vonage is Canada's most popular VoIP phone to phone service provider
- Skype Technologies, the world's most popular VoIP computer to computer calling service
- Conventional Phone/Cable providers, like Rogers and Bell Canada, are now breaking into the growing VoIP market
- the technology doesn't need the expensive wires and elaborate switching equipment required by traditional analog lines



# How it Works

Your call goes over the Internet . . .

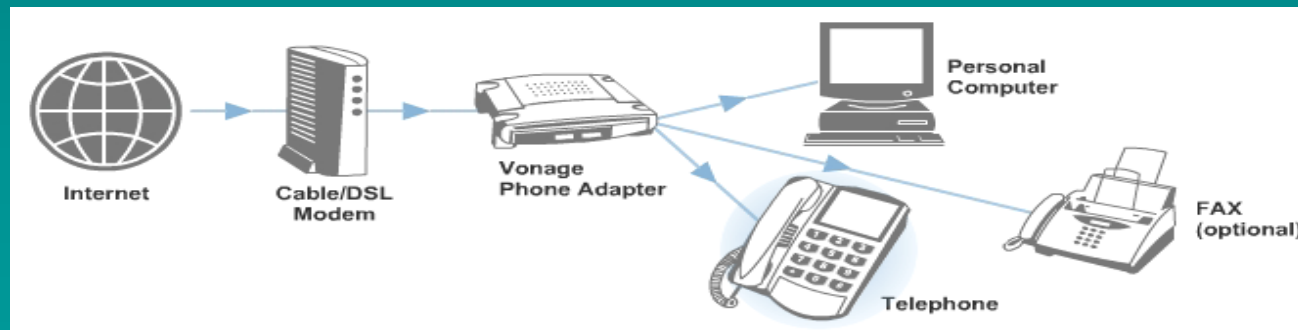
You place your call using your USB Internet phone and IP Phone Centre application.



... to the computer C with Personal Phone Gateway (PPG).

Your call is connected to your regular phone line by PPG.

OR



# CBC News Clip about VoIP

# A Timeline of VoIP

- **1995** — U.S phone company Net2Phone announces plans to release first PC- to-phone technology
- **1996** — Rogers Communications introduces First Cable Modem Service in North America
- **1999** — Canadian Radio-Television and Telecommunications Commission decides it would not regulate the internet
- **2001** — Jan 2001 Vonage founded in New Jersey
  - Mar 7-9 2001 ITU World Telecom Policy Forum: IP Telephony
- **2002** — March 2002 Vonage initiates service in the U.S
- **2003** — Skype begins to become a prominent pc to pc phone device
- **2004** — April 7, 2004, the CRTC said it sees essentially little difference between traditional phone service and internet-based telephony, suggesting that the new technology be subject to the same kind of regulations.
  - Primus launched Canada's first high-speed internet phone service in January 2004
  - Navigata announced in April 2004 that it had introduced VoIP service in eight cities in Alberta and British Columbia
  - Vonage Canada launches VoIP services in some Canadian markets in the spring of 2004
  - Cyber Security Industry Alliance formed
- **2005** — Bell, Telus and Rogers begin to enter the market

# Policy History



## Telephone

- **Definition**
  - regulatory bargain between the government and the telephone company which requires the company to provide a high quality and reliable telephone service at affordable rates.
- **Technology**
  - Traditional Circuit-switched services
- **Regulatory Framework**
  - Directory listings geographically and alphabetically listed
  - Equal Access, no discrimination
  - Message Relay Service
  - 911 dialing, direct to emergency services, no regulation needed

## VoIP

- **Definition**
  - voice communication services using Internet Protocol [IP] that use telephone numbers that conform to the North American Numbering Plan [NANP] and that provide universal access to and/or from the Public Switched Telephone Network [PSTN]
- **Technology**
  - IP technology enables packet-switching
- **Regulatory Framework**
  - Directory listings no geographically based listings
  - Equal Access to all Canadians
  - Limited access for disabled
  - Eligibility of VoIP services to receive subsidy from Notional Contribution Fund
  - CRTC requires VoIP users to put a sticker with the phone number on it
  - Can't regulate the Internet

# CRTC Involvement

- It sees essentially little difference between traditional phone service and new internet-based telephone.
- Because it tries to be neutral when it comes to technology, it would apply the same rules that now regulate traditional telephones services.
- it would continue to restrict the dominant companies while letting new competitors operate without regulation to set prices and offer services.
- internet-based local phone service would be regulated in order to build “sustainable competition” in local telephone service
- The CRTC would like to receive the public notice on a few of these things
  - Applicability of existing tariffs and requirements to file Tariffs
  - Provision of 911 and enhanced 911 service, MRS and Privacy safeguards
  - Applicability of national contribution collection mechanism as introduced in changes to the contribution regime



# The Players

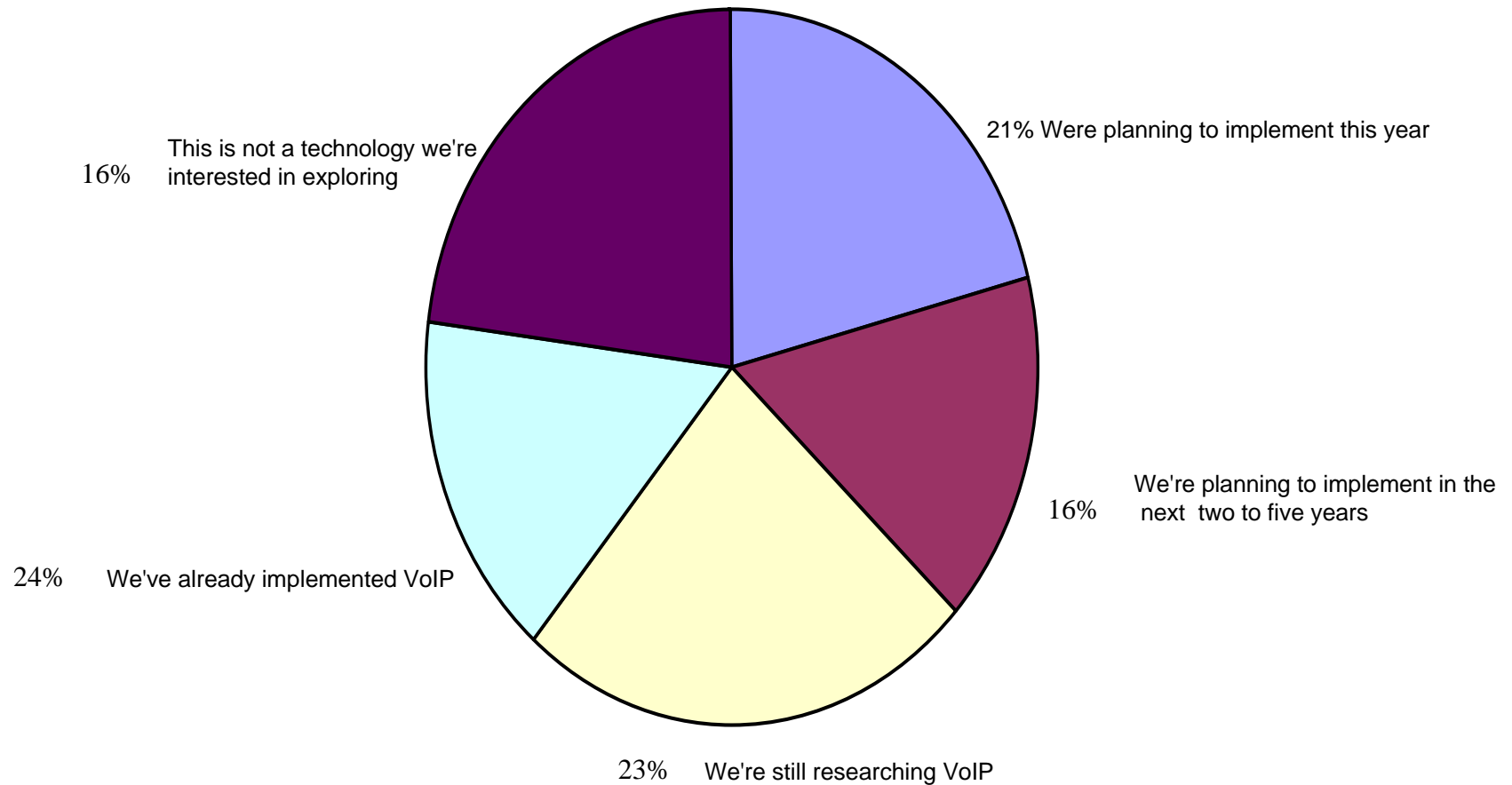
- **Bell Canada**
  - The country's largest telephone company, wants to have all of its phone traffic carried on a national internet protocol backbone by sometime in 2006.
- **Telus Corp**
  - Canada's second-largest telephone company with revenues of more than \$17 billion, asked the CRTC in June 2004 to let it launch national VoIP service.
- **Primus**
  - launched Canada's first high-speed internet phone service in January 2004, providing basic phone service for as little as \$19.99 a month to its broadband customers.
- **Navigata**
  - announced in April 2004 that it had introduced VoIP service in eight cities in Alberta and British Columbia
- **Rogers**
  - Canada's largest cable company, said in February 2004 that it hopes to launch VoIP service to about 1.8 million homes and businesses, mainly around Toronto, beginning in the middle of '05
- **Shaw Communications Inc**
  - which provides cable television and internet services in Western Canada, also hopes to roll out VoIP by piggy-backing it on its high-speed internet connection
- **Other competitors**
  - Vonage Canada – which launched VoIP services in some Canadian markets in the spring of '04
  - Yak Communications, which began offering them in September.

# Key Characteristics of VoIP

- telephone companies – which have already seen their markets eroded by the rise of e-mail and low-cost competition in the cellular phone and long-distance businesses – are racing to beat the 3rd party providers
- Bell Canada said it would appeal the CRTC decision to the federal cabinet.
  - "IP is a disruptive technology that is changing the telecom industry and the way it enables the Canadian economy"
- VoIP technology is simpler than conventional analog lines, and is cost-effective.
- Bell Canada, the industry's largest player, intends to channel all of its phone traffic through the internet within 2 years
- From an industry standpoint, VoIP can be considered "disruptive" because a lot of business models that are in place today are going to go away and they're going to be replaced by new business models



# Is VoIP a Priority for Your Company?



Companies: 24% have already implemented it, and only 16% planning to implement it in the next two to five years. It'll take a while

# What Does the Future Hold?

- VoIP in general is still in its infancy, even in the U.S. which is a VoIP battleground
- 70% of Western European consumers have not heard of VoIP. Only 1% of Europeans use VoIP for nearly all their calls from home
- A growing number of Canadians are also turning to non-traditional suppliers of local telephony
- The savings could translate into lower prices to lure consumers, who can typically expect to save 25 to 40 per cent on monthly phone bills when calling through the internet.
- The IP Centrex market is expected to grow from 13,000 lines in 2001 to 10 million lines by 2008.
- regulators may need to review obligations regarding universal telecommunications service as more companies offer telephone services over the Internet without having a physical presence in a country.
- Fixed phones lines are decreasing in OECD countries, this is a trend that has continued since 2003.



# Some of the Challenges that VoIP Technology is Facing:

- Power outages
- Problems with your internet connection
- Call clarity and reliability
- The emergence of new technology made to block or de-prioritize VoIP calls
- Problems with or inability to make 911 phone calls

# An Important Problem: Making 911 phone calls

- VoIP service rang to the administrative line of the PSAP
  - not staffed after hrs and is usually not staffed by trained 911 operators
  - redirected to PSAP call into low priority administrative lines
- Emergency service providers don't always automatically get your location or telephone number when you call them
- Customers can move VoIP service therefore giving the wrong location info to emergency services
- Does not work during power outages
- Doesn't work when the broadband connection goes down or is congested

# Effects on the Phone Companies

- Companies like Rogers and Bell are now relying more on bundling their services to keep up with their declining revenue
- Big companies like Bell Canada and Telus are scrambling to get into the VoIP market
- CRTC wanting to boost competition and protect consumers who have chosen to regulate VoIP prices of large companies
- CRTC allows new entrants into the market to set their local VoIP rates as low as they want, something big Corporations like Bell and Telus don't have the advantage of doing



# Questions



- Do you feel that the conventional use of the telephone is becoming useless?
- Do you think that the CRTC should continue to regulate big companies like Bell and Rogers, and not regulate the new entrants into the market?
- Due to VoIP being over the internet, how do you think privacy should be approached?
- Do you think the CRTC's regulation of voice-over-internet-services is really a positive step? Do you think it'll enhance and promote competition or stifle it?