



Don Proctor
Vice President and General Manager for the Voice Technology Group
Cisco Systems, Inc.

Testimony on Voice Over Internet Protocol to the
California Senate Energy, Utilities and Communications Committee

January 27, 2004

Thank you Chairwoman Bowen for the opportunity to discuss Voice over IP with you today.

The rich multi-media services based on the technology we call **Voice over IP** are already starting to deliver on their potential for **transforming** both the **nature** and the **economics** of how we communicate and share information with each other. Broadband consumer telephone service is **just one** of the contexts for VoIP.

Today, the biggest users of VoIP are in fact not consumers, but **large enterprises**, small and mid-sized **businesses**, **educational** organizations, and **governments** that have deployed “**IP telephony**” systems based on VoIP technology. Cisco Systems provides a broad range of VoIP products and services for these customers.

IP telephony systems are capable of much more than traditional phone calls. A Cisco **IP telephone** is a **multimedia communications device** that features an LCD screen that can be used to access Internet applications, provides full directory functions, and is capable of high-definition voice (like HDTV compared to standard TV). IP telephony supports communication between IP telephones, traditional telephones, and IP telephony software running on PCs or other devices.

IP telephony allows organizations to **reduce the total cost of ownership** of their communication networks and enables **innovative new capabilities**, such as integrating email, voicemail, and Instant Messaging systems with corporate telephone and videoconferencing systems. Businesses that have

deployed IP telephony have seen a **significant increase in the productivity of their workforce** due to more effective communications.

Today, there are approximately **5 million** business users of IP telephones, in markets such as health care, education, retail, manufacturing, hospitality, financial services, and multiple levels of government. In fact, IP telephones represented approximately **30 percent** of new business telephones shipped in the US PBX market in 2003. Cisco has supplied the IP telephones for approximately half of those 5 million users, including large enterprises such as **Safeway**, small businesses such as **Humboldt Bank**, federal government agencies such as the **US Department of Commerce**, and local governments such as the **County of Sacramento, California**.

The **Town of Reston**, Virginia represents one of the most innovative uses of IP telephony to date. Using VoIP technology, the municipal telephone system has been connected to the statewide **Amber Alert** system. Today, the **IP telephone** on the desk of every city employee can display the picture of a missing child **within minutes** of an alert being issued, along with relevant information and even a picture of the suspected kidnapper.

Today, it has been estimated that **fewer than 1%** of US consumers use VoIP. But as consumers get more and better broadband access from their cable, DSL, or wireless providers, they will increasingly turn to VoIP as their voice application of choice. The deployment of **always-on, broadband** network access and the **exponential growth** of the global Internet over the past decade have created a new communications infrastructure in which **everything is connected to everything, all the time**. This new paradigm will fundamentally **change the foundation** on which public communication services are based.

The implications of this change are huge. Over the next decade, VoIP will:

- **Improve and enhance** the services available for human communications from the home;
- **Fundamentally change** the economics of providing voice services to the consumer;
- **Alter the fundamental economics** upon which telephone companies are based; and

- **Increase competition** in the consumer voice services market by enabling both traditional and non-traditional service providers to offer voice services over broadband networks.

VoIP changes the fundamental way in which communications networks function. Unlike the traditional circuit switched network, it is impossible to determine whether a VoIP call crosses state—or even international—borders. Because VoIP is an **Internet application** just like e-mail, Instant Messaging, and the World Wide Web, it is virtually impossible to separate which bits are voice communication and which bits are data communication.

VoIP is not simply a way of transmitting **cheaper phone calls**—it enables **more efficient** and **higher quality** voice services. It is one element in a **range of Internet applications** that will combine voice, data and other communications media to provide users with new, innovative and compelling communications choices. As the technology grows, it will grow not as cheaper telephone service but rather will integrate other **non-voice applications** as part of a richer set of communications services.

In the home, VoIP will enable exciting new capabilities: Examples will include:

- Availability of **multiple lines** or phone numbers, without the requirement for additional copper lines;
- **High-definition voice** – pleasant for everyone and important for people who are hard of hearing;
- Enhanced services for **people with disabilities**;
- Integration of **instant messaging** and **email**;
- Ability to have “**presence**” information incorporated into telephony for follow-me capability;
- **One number availability** for wired and wireless phones, regardless of location or device;
- High quality **video telephony** between homes; and
- Voice-enabled **online video games**—if you have teenage children, you may already know that the latest version of Microsoft’s Xbox now supports on-line voice chat.

And much of this technology is being developed here in California by companies like Cisco. A significant number of Cisco’s 15,000 employees in California are involved in developing the technologies that make VoIP services possible.

VoIP is **transforming** the telecommunications market. VoIP technology provides huge **efficiencies** and **significantly lowers** the cost of providing voice services to broadband subscribers. As the capital required to provide voice services declines, so will the revenues based on this capital.

As more service providers adopt VoIP technology, the basis for **charging subscribers** will also change, shifting permanently from being based on **time and distance**, to charging for **bandwidth and services**. As an example, cable subscriptions do not charge customers based on **how long** they watch the TV or **where** the programming originates, but rather for a basic connection and for **enhanced services** such as HBO, Pay-per-View, cable modem, etc. **Bandwidth and services** will be the **new business model** for traditional communications carriers as well.

As I talk to our customers in all segments of the service provider market, they understand this shift and are **concerned** by it. Yet, they know that they **must evolve** in order to improve **lower their operational costs** and build

the basis for **new services** that will enable them to maintain their revenue base. The announcement by **Verizon Communications** on January 8th that they would spend **\$3 billion** to implement VoIP is further evidence of this trend.

As the shift to VoIP occurs, we must ask whether the current regulations—and the historical premise of these regulations—will still be appropriate in this new world. Remember, VoIP is fundamentally tied to the availability of **broadband services** to businesses and consumers, yet it is a very small component of the services that these broadband connections carry.

Singling out one Internet application—VoIP—for regulation would serve as a **serious impediment** to the availability of this important new resource. It would:

- cause both service providers and technology companies to **significantly reduce their investment** in the development and deployment of these services;
- drive VoIP service providers targeting US customers to **other countries**;
- reduce the range of options available to consumers; and
- be **virtually impossible** to detect and enforce.

Regulating VoIP today would be like imposing a surcharge on the use of environmentally-friendly **hydrogen power** in automobiles while the distribution infrastructure is still in its infancy, and then enforcing the regulation by **randomly sampling** the exhaust of every car on the highway. Such an action would clearly **not** represent the best interests of either the economy or the consumer.

Today, the United States ranks in the bottom tier among developed nations in per-capita deployment of broadband services. While countries like South Korea, China, Belgium, Sweden, and Canada are taking advantage of the **dramatically increased access to information and services** enabled by broadband, the United States has fallen behind. Without broadband services, none of the innovative new capabilities we have discussed are possible.

In this new environment it seems appropriate to **shift** government focus toward the **universal delivery of broadband services** to consumers, and to recognize that VoIP is just one component of a larger set of information services that deliver lower costs, higher quality, and new, innovative features.

In summary, VoIP is a key **transformational technology** that delivers real benefits to **consumers**, to the **economy** of California and to the **global**

competitiveness of our country. We need to **embrace**, not inhibit, investment and innovation in this important new service.