

Avaya Presentation, FCC Accessibility Solutions Summit, 7 May 2004

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Thank you for inviting Avaya to speak at this summit. We appreciate the opportunity to contribute.

In most cases, private industry prefers to rely on market forces, rather than government regulations, to guide decisions about the products it should offer. However, with regard to VoIP systems and services, it is clear that market forces alone will not protect the rights of individuals with disabilities. The history of Avaya's Intuity™ AUDIX® voicemail system may illustrate why some form of regulation is essential.

In 1993, I helped design and implement the TTY user interface for this system. A key feature, beyond the ability to do simple TTY messaging, is that callers may select whether they wish to be prompted in voice versus TTY format. This means that the same phone number can be given to voice and TTY callers. Regardless of the prompting format that is selected, callers may leave voice or TTY messages.

I want to emphasize two points. The first is that this TTY interface is a standard feature in our Intuity systems. It is not an add-on. There is no license fee or right-to-use fee. The only thing a system administrator needs to do is turn it on. The second point: Despite our best efforts to encourage accessibility, we are finding that the vast majority of Intuity systems do not have TTY support activated.

It is clear that many organizations do not understand the need to provide accessible communication to their employees and customers. In this environment, we cannot expect that market pressures alone will ensure that VoIP systems are accessible.

Before I discuss the type of regulation that may be appropriate and beneficial, I think it's important to describe a few technical differences between VoIP and traditional telephone systems.

When you have an active call on a standard residential telephone, all transmissions are carried on a single audio channel. This would include your voice, as well as touch-tones and modem signals. Many traditional assistive technologies – notably TTYs – rely on the telephone system's ability to transmit audio information reliably and without distortion.

In the present regulatory environment, VoIP audio channels – by that, I mean the mechanisms by which VoIP systems transmit voice – are *not* required to support reliable TTY communication. This is a significant problem because the voice-optimized audio compression commonly employed in today's VoIP environments can decrease TTY accuracy to the point it becomes unusable.

An exciting aspect of VoIP technology is that, even while a call is in progress, all sorts of non-audio information may be transmitted via parallel data channels.

Avaya is already using this capability to provide reliable transport of Baudot TTY signals on VoIP wide area networks. Rather than transmit the TTY tones via the voice channel in a VoIP telephone call, a *description* of the tones is sent via a parallel data channel, with a command to the receiving device to reconstruct the original audio tones for the TTY device at the other end. For the benefit of any engineers in the audience, the descriptions are in the format specified by RFC-2833, and are sent redundantly to compensate for packet loss. It works beautifully.

The mechanism I just described brings our VoIP systems up to parity with traditional telephone systems. VoIP technology allows us to do considerably more.

A good example is a software adjunct for Avaya IP telephones, provided by Avaya for free, called Universal Access Phone Status. It takes advantage of capabilities that are present in our IP telephones, not available in traditional phones, to provide by voice output all of the information that is presented visually to sighted users – such as which lines are available and which are in use, whether the phone is forwarded, whether there is new voicemail, whether someone on hold has disconnected, and so on.

Mindful of the time, here are three high-level recommendations regarding regulatory control of VoIP:

First, regardless of how the FCC eventually comes out on the issue of “Is VoIP a telecom or an information service,” Avaya supports the idea that, at a minimum, the current accessibility requirements for traditional phone systems should be applied to VoIP systems. These regulations need to be implemented at the federal level to preclude manufacturers from having to deal with multiple standards and regulations that may be developed by the different states.

Second, we believe that a communication barrier might develop between VoIP users and the users of traditional phone systems and assistive devices if the need for interoperability and backward compatibility are not addressed by new regulations.

I regard my third point as being the most important. We believe that, if accessible VoIP systems cost more than inaccessible equivalents, the FCC may be unable to guarantee the rights of individuals with disabilities *regardless of whether VoIP regulations are adopted*. Previous accessibility statements from the FCC demonstrate that they have been reluctant – appropriately so, in my opinion – to require capabilities that are not readily achievable. A key component of how the FCC defines this term addresses the cost of the incremental action.

The Avaya accessibility solutions I described today are included in our products without additional charges or fees. We are able to provide these solutions for no additional cost to our customers because, in all of these cases, accessibility was provided by taking advantage of capabilities that already existed in our systems. For example, our TTY-on-VoIP solution uses a mechanism that was implemented originally to transmit touch-tones. Our TTY messaging uses software that was written originally to support multi-lingual *spoken* announcement sets.

This style of engineering, in which we try to “piggy back” onto existing capabilities, has a very important benefit. Keep in mind how the phrase “readily achievable” is defined. If accessible systems cost more than inaccessible equivalents, this could lead to discrimination in the provision of services and in opportunities for employment in organizations that are unable, or unwilling, to cover the extra expense. However, by re-using capabilities that were already present in the system, Avaya is providing accessible solutions for VoIP that are readily achievable.

Realistically, it is not always possible to include accessibility within a standard product for no additional charge. However, one thing you can count on is that Avaya will always try. We look forward to working with the FCC and with the community in general, to ensure that *everyone’s* needs are respected and accommodated.

Thank you.