

1           While still somewhat in its infancy, IP-  
2 enabled services are rapidly becoming a fixture as a  
3 tele-communications platform. Today, as we focus on  
4 the unlimited potential, we want to make sure we keep  
5 in mind the issues that address persons with  
6 disabilities.

7           The first individual we are honored to have  
8 with us today is Cary Barbib, who joined Galludet  
9 University Technology Access Program, or TAP, in 2001  
10 as a Senior Research Engineer.

11           His current research areas include  
12 assessment and applications of digital video  
13 communications, wireless telecommunications, and text  
14 or VoIP.

15           He has been an active member of the  
16 technical incubator of the Alliance of  
17 Telecommunications Industry Solutions TTY Forum. It  
18 is my pleasure to introduce Cary.

19           MR. BARBIB: Thank you. Okay, thank you for  
20 having me here today. I'm going to talk about some  
21 opportunities I see in relationship to VoIP or IP-  
22 enabled services, the IP world, we'll call it.

23           And some of you, you know, we can talk about  
24 some of the opportunities for growth in the future and  
25 areas that we can make improvement in. One is video,

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1 as you know.

2 Video is becoming a hot thing on the  
3 internet. The people can do video-conferencing from  
4 far away places all over the planet. It is very nice.  
5 You can feel like you're right there in the same room  
6 with somebody, and you can talk to your parents or  
7 whoever it is you would like to speak to.

8 Video relay services is an available service  
9 now throughout the United States and some other  
10 countries as well. And that's a nice service that we  
11 have available to the deaf community to enable quick  
12 and equivalent communication in phone calls with the  
13 use of interpreters.

14 But there is a lot of room for improvement  
15 and a lot of growth in the technology that's used  
16 there. For example, I envisioned that we could see  
17 the interpreter and the person that we are speaking  
18 with, the hearing person, so it's a three-way  
19 conference-call, so we can all see each other, just as  
20 if we were all sitting in the same room together.

21 That would be a nice feature to be able to  
22 have. That applies to conference-calls, forums, and  
23 various types of usages where you can, you know,  
24 people are talking with the interpreter, and, you  
25 know, you can be able to see the interpreter and know

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1 what's being said and keep up with them.

2           It also affects quality of service issues.  
3 One are where I've noticed that video sometimes lacks  
4 is the frame rates that you get if the internet is  
5 very busy or something.

6           Then we suffer from that because of the  
7 ability to get quality of service through the speed of  
8 our internet connection based on the number of users  
9 and the internet speeds that are being used at that  
10 particular time.

11           It does bring us up to more of a functional  
12 equivalency level with a regular phone. You know, the  
13 interpreter is able to operate at a much quicker speed  
14 and much more fluently and fluidly.

15           Broadband in the deaf community is somewhat  
16 equivalent to a dial-tone for hearing people, because  
17 being able to have that opportunity to use, you know,  
18 video services, and being able to see somebody on the  
19 screen that perhaps you could lip-read while making a  
20 phone call that's a video-conference phone call.

21           And those hard-of-hearing users could be  
22 able to hear and also use lip reading to be able to  
23 enhance their phone experience. Being able to use  
24 video services, you know, video on demand for people  
25 is an extremely popular thing at this point in time.

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1           And being able to have captions for phone  
2 calls, you know. It would help not only deaf and hard  
3 of hearing people, but hearing people in general, you  
4 know, because if you're in a noisy area or something  
5 like that, you could see the captions and be able to  
6 still understand what the person is saying.

7           If you are on an airplane or if you are in a  
8 bar where there's, you know, it's a noisy environment,  
9 and captions are giving hearing people access to the  
10 communication as well as deaf and hard-of-hearing  
11 people.

12           Another area would be the language of  
13 choice. So for me, if I would like to chose, you  
14 know, I would like to use sign language, or if I want  
15 to hear what the conversation, or if I want to have  
16 captions for the conversation, then it gives us  
17 functional equivalency and options.

18           You know, I can also maybe have both. Maybe  
19 if I don't catch something the interpreter says but  
20 there's simultaneous captioning of what the hearing  
21 person says, I can then, you know, catch the exact  
22 wording of what has been said for a particular  
23 conversation.

24           These services also give us choice, and  
25 allows us to have preference. And the technology

1 needs to tie everything together. And that's the next  
2 ting I'd like to speak about, is the opportunity  
3 there.

4           Have on-demand translations, you know, where  
5 we have interpreters in different languages, you know,  
6 between a deaf and a hearing person just with the  
7 click of a button we can connect to an interpreter for  
8 a different language, a sign language interpreter, a  
9 French interpreter, a Spanish interpreter or whatever,  
10 that is needed so that anybody can connect to each  
11 other and do that without barriers of language  
12 impeding.

13           Also mobile-IP applications like cell  
14 phones, pagers, and other devices that are used. That  
15 family of devices currently, you know, I can use my  
16 text pager to contact people from wherever I am.

17           You know, I'm not limited to where there's a  
18 payphone TTY or if I carry a TTY around with the cell  
19 phone. But, you know, now I'm untethered in what I  
20 can do with the wireless applications that are out  
21 there.

22           And that's great. But there are still  
23 issues there that need to be addressed as well. It  
24 would be nice if we had IP text messaging, so that  
25 that message could be received anywhere by any device,

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1 that every device supported that text-messaging, so  
2 that people could immediately connect to each other  
3 and be able to communicate through that mode.

4 It especially applies to 911 call centers,  
5 the PSAPs. If I could connect to that PSAP through  
6 my, you know, text pager without having to use a phone  
7 and a TTY.

8 You know, currently a cell phone requires a  
9 separate TTY to be carried around. So there's two  
10 devices. And if you forget your TTY, my cell phone  
11 then becomes worthless for calling 911 or calling  
12 relay because I can't get a hold of them.

13 They don't know where I am. They don't  
14 know, you know, who's making the call. There's issues  
15 to be addressed there. But if everything could be  
16 incorporated into, you know, where text is a  
17 possibility everywhere, then I could page 911 and get  
18 responses.

19 And I wouldn't have to go through a third-  
20 party vendor for that. Also, in relation to calling  
21 911, I think it would be nice that if we called 911 it  
22 would automatically be able to connect to video  
23 interpreters, you know.

24 When I'm using internet services that  
25 automatically the software would recognize that I need

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1 to connect to an interpreter, and those interpreters  
2 would be available for those emergency calls.

3 Location is important as well. You know, we  
4 need to be able to use GPS devices or technology  
5 incorporated within text pagers to be able to identify  
6 our location so that the 911 call centers know exactly  
7 where I am when I'm making this call or sending this  
8 message.

9 And that's the same technology that needs to  
10 be used for 911 centers connecting through the  
11 internet for video calls, using interpreters. The  
12 other thing is that we need to have an open platform,  
13 a platform with interconnectivity for all devices, not  
14 certain clients only connecting with each other, but  
15 an open platform so that everybody can take advantage  
16 of the devices that they have, and use those.

17 And open platform allows people to use their  
18 own software and be able to have developers  
19 continually developing that software, and improving  
20 it.

21 Technology is very important, especially as  
22 we move into the IP world to make sure that everything  
23 is functionally equivalent so that we can stop using  
24 some of the old technology that we are currently  
25 stippled with.

1           And it prevents the fraud and barriers that  
2 we face as well. Thank you very much.

3           MR. SNOWDEN: Thank you Cary. Next up all  
4 the way from Sweden is Gunnar Hellstrom, who  
5 specializes in accessible telecommunications and  
6 information technology.

7           He is the founder of Omnitor, a Swedish  
8 company devoted to consulting, product development,  
9 and implementing solutions in this area. Thanks for  
10 joining us Gunnar.

11          MR. HELLSTROM: Thank you, it is a pleasure  
12 to be here. I want to speak about a title I called  
13 accessibility raised to the power of three. The three  
14 are the media that we need to include in the calls  
15 now, when we have a chance.

16          Voice Over IP technology gives us very good  
17 opportunity to improve the personal communication. We  
18 can leave the inaccessible voice-telephony behind and  
19 include more media in the calls, including more people  
20 in the calls.

21          We can have video. Video can be used for a  
22 lot of things, for sign language, for lip reading, for  
23 recognition, for feelings, for showing things. Text  
24 character by character just as on the TTY, but with  
25 better speed and two ways, can be used for

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1 conversation, for addresses, and other exact  
2 information, for numbers, for spelling, and so on.

3 And voice, as e are used to, is also used,  
4 of course, for the conversation part. But if we  
5 include these three we open for a lot of opportunities  
6 and we establish services that would give very lot of  
7 benefits for us all and people with disabilities.

8 And we have a little picture with a possible  
9 user interface for this kind of communication with  
10 three media in the call. It is sign language and text  
11 in the bottom and also the possibility to have voice.

12 And that's the focus on what we should go  
13 with. One good example is the benefit for deaf/blind  
14 users. If you can -- you have many kinds of  
15 deaf/blind users.

16 But this one on the picture here is using  
17 sign language out, but can't perceive sign language  
18 in. So therefore she has a device where you get the  
19 text in and it comes out onto a Braille display.

20 So it is the same communication for all  
21 kinds of situations. And you can in that way open  
22 communication for all. Another example is between  
23 deaf and hearing persons.

24 If you don't go the relay, if you want to  
25 have direct communication, you need to go down to text

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1 for the main conversation. But the video will give  
2 you the opportunity to see each other, to acknowledge  
3 and recognize, and show things, and so on.

4 So, you can combine a lot of situations like  
5 this, and find that the video, text, and voice  
6 combination is really the thing that opens the  
7 communication world.

8 The picture here is a small computer with  
9 this kind of multimedia, total conversation  
10 application. It's connected to the 3G phone, in this  
11 case, so you go mobile with it.

12 The more wide-spread we get this new  
13 telephony, the more benefit it will be, of course, for  
14 all. And here is what you can do. With IP you have  
15 the good benefit that you have many kinds of access,  
16 many kinds of connection.

17 And you can use the same protocols. You can  
18 have wired connections in your office or your home.  
19 Or you can connect these mobile telephones. You can  
20 have wireless LAN in private or public settings.

21 You can have 3D wireless connections. And  
22 you don't need to always be on multimedia. You can  
23 also do subsets like the video phone, with only video  
24 and voice.

25 You can do voice phones, you can do text

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1 phones with the same protocols you get  
2 interoperability. And, talking about interoperability  
3 you also need to be interoperable with the old world,  
4 the telephones and the text phones, the TTYs.

5           And that has to be done through gateways  
6 into the old telephone network. And we should not  
7 forget to also link in the relay services. And one  
8 important reason to arrange for interoperability with  
9 the telephone network is for emergency access where we  
10 need to link the new way of doing text in IP with the  
11 old way of doing text on the TTYs.

12           So, voice gateways and text gateways are  
13 needed to connect this world. We cannot do this in an  
14 efficient way if we don't apply standards. And that's  
15 an area where I have been working quite a lot, to  
16 reach a reasonable good state currently with  
17 standards.

18           And we can achieve interoperability if we  
19 promote one preferred set of standards as the main  
20 ones. It seems that the text medium is the part that  
21 is usually lagging behind, or not getting that much  
22 implementation.

23           I would prefer that we can agree on using  
24 SIP for the goal as a preferred set of default  
25 standards, and then video, and T.140 for text, and

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1 audio standards.

2           And if we, as much as possible, go with  
3 these standards we will have easier to make  
4 interoperability. There is quite good situation.  
5 Many standards boards are working on this idea.

6           ITU, ETSI, TIA, all are working and know  
7 what each other are working with in this field. And  
8 it's the text part that needs to be checked, that it  
9 follows the pace of the others.

10           But it's a good situation. And we have the  
11 impact. Well, Paul will tell you more about the  
12 standards. We have to put the user in the center so  
13 you give one terminal to the user.

14           It can be different makes, different kinds.  
15 They must use the same protocol so that you can get  
16 interoperability, and the user can use the same  
17 terminal to access voice users, text users, signing  
18 users, text relays, and video relay services, and  
19 emergency.

20           And I would like all to join in this  
21 implementation of personal communication for all.  
22 That will benefit us if we harmonize it. Thank you.

23           MR. SNOWDEN: Thank you very much Gunnar.  
24 The next panelist will be Harold Salters. Harold is  
25 the Director of Federal Regulatory Affairs for T-

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1 Mobile USA, with responsibilities for various  
2 technical and operational issues, including  
3 interconnection, infrastructure access, network  
4 reliability, interoperability, digital TTY, and  
5 Section 255 implementation. Thank you, Harold, and  
6 welcome.

7 MR. SALTERS: Thank you, Dane. Good morning  
8 everyone. Thanks for coming. As our previous  
9 panelists have indicated, it's so important that we  
10 add the mobility dimension to IP-enabled services.

11 Adding this dimension is crucial to  
12 accessibility. It's important to note that although  
13 we talk a lot about future requirements, that mobile  
14 data devices today offer accessibility opportunities  
15 here and now.

16 And as noted, for instance, mobile data  
17 devices liberate individuals from the whatever  
18 inconvenience of the portable TTY hookup to the cell  
19 phone.

20 And, indeed, a significant portion of the  
21 market for handheld devices is the deaf and hard-of-  
22 hearing communities. I'd like to just show you for a  
23 moment some of T-Mobile's hand-held offerings.

24 Up there we have the Blackberry 7230, a very  
25 popular device both in the business community and in

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1 person communities as well. Next up we have the T-  
2 Mobile Color Sidekick, a very popular device in the  
3 deaf and hard-of-hearing communities.

4 It features AOL instant messenger is already  
5 loaded directly onto the Sidekick desktop, and in  
6 addition to text messaging and email. And also we  
7 have the Trio 600, which is an integrated PDA device,  
8 again, offering email and text.

9 It's important to note that a significant  
10 portion of the demand for these devices are the deaf  
11 and hard-of-hearing community. And also, that these  
12 devices work as an important bridge between the IP  
13 layer and the public switch telephone network.

14 As we saw from the example of Gunnar's cloud  
15 PowerPoint, it's very important that there be  
16 connectivity. Indeed T-Mobile is investigating  
17 multiple versions and options of IP relay services  
18 that would be free to the end user, specifically for  
19 the Sidekick.

20 So, again, this offer is an important bridge  
21 between legacy applications and future applications.  
22 Further, T-Mobile offers the Hotspot WiFi, which  
23 offers laptop connectivity to the internet.

24 What I would urge all of us to keep in mind  
25 is that, as we address these issues, is that we need

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1 to maintain a forward looking focus on IP and  
2 accessibility issues.

3 Right now there is a great deal of standards  
4 work going on in the international community, and  
5 domestically as well, on making those things happen,  
6 as Gunnar has alluded to.

7 I'm also proud to note that one of my  
8 colleagues, Jim Nixon from T-Mobile, is Chairman of  
9 the NRIC VII Focus Group on long term 911 issues. The  
10 network reliability and interoperability council's  
11 focus for the upcoming two year term is going to be on  
12 precisely 911 issues.

13 And I think it's so important that those  
14 issues are being highlighted. That would Focus Group  
15 1B. It's also important that we make the public  
16 safety community aware of the need to implement  
17 instant messaging access to 911.

18 Not only to PSAPs (Public Safety Answering  
19 Points) have to have PSTN connectivity, they have to  
20 have IP connectivity as well. It is encouraging that  
21 a number of public safety agencies are integrating  
22 today standards-based IP functionalities into their  
23 overall public safety communities systems in order to  
24 enhance their own interoperability and efficiency.

25 The challenge before us is to get the public

1 safety community to also recognize that this ongoing  
2 IP work needs to also be done to enable text and  
3 instant messaging access to 911. Thank you very much.

4 MR. SNOWDEN: Thank you very much, Harold.  
5 Next we will have Tom Wlodkowski who is Director of  
6 Accessibility at America Online. In this role he  
7 drives employee awareness of issues that prevent full  
8 access to the internet and the development and  
9 implementation of requirements and technological  
10 solutions to enhance the accessibility of AOL products  
11 and services to people with disabilities. Welcome  
12 Tom.

13 MR. WLODKOWSKI: Thank you. It is my  
14 pleasure to be here today. Before we get into looking  
15 at opportunity, it seems to me that one of the things  
16 that we really ought to do is take a look at where  
17 things are currently today, in terms of how we are  
18 leveraging IP.

19 Certainly mobility seems to be the  
20 underlying theme throughout the panelists'  
21 presentations. And I couldn't agree more with that.  
22 Untethering individuals with disabilities from PCs  
23 where they have traditionally had access to access  
24 technologies.

25 You know, when I go to traveling down to my,

1 you know, parents house or whatever, I don't always  
2 have the laptop with the access technology. So what  
3 we really want to do, then, is make sure that there  
4 are IP-enabled solutions that will allow someone, for  
5 example, to access their email without need of a  
6 screen reader, if you are talking about someone who is  
7 blind or visually impaired, and making sure that an  
8 individual who is deaf can get instructions, driving  
9 directions, using mobile devices.

10 Today AOL has a few different services that  
11 we believe provide this mobility. AOL by phone is a  
12 phone based email system that is available today where  
13 you can read, reply, and initiate an email message  
14 simply by recording a voice message.

15 That message is then sent to the recipient's  
16 mailbox and they can either pick it up through the  
17 traditional means of accessing email through their PC,  
18 but they can also, you know, call AOL by phone and  
19 hear the message that way.

20 Again, we believe that is an experience that  
21 brings folks away from total reliance on the PC to  
22 benefit from the most popular feature today on the  
23 internet, email.

24 AOL for Broadband over the past six months  
25 recently launched streaming closed captions on select

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1 video content, as did our KOL service, and online  
2 channel that is target for kids six to twelve.

3 Today kids can log on and watch a ten  
4 episode cartoon series titled Princess Natasha with  
5 closed captions. The captions are off by default, and  
6 there's a little button on the video window where they  
7 can enable the captions.

8 AOL for Broadband is streaming six daily  
9 feeds of a CNNJ Quickcast, which is a three minute  
10 news stream produced and provided by CNN. What we do  
11 there is use some automated technology that can  
12 actually take the script of the newscast and sync it  
13 up with the video.

14 And we are able to deliver in an automated  
15 fashion these six daily streams. Automation is  
16 critical, particularly where, at least from where we  
17 stand, in that media shops are relatively small,  
18 particularly in the internet space, where we are a  
19 content aggregator.

20 And so we are dealing with multiple  
21 partners. And much of the content is produced  
22 exclusively for streaming only. And so some solutions  
23 were done in the area of automation and ways of  
24 syncing text with video would certainly be welcomed.

25 And we'd be happy to be a part of that

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1 environment. Looking ahead, certainly AOL Instant  
2 Messenger has recently announced and launched video  
3 capability.

4 So it is now possible for individuals with a  
5 webcam to get into a video chat, as aim is pervasive  
6 throughout many devices, from the PC through mobile  
7 devices, as you just heard, available on the T-Mobile  
8 Sidekick device.

9 Looking at how we can leverage instant  
10 messaging to enhance accessibility. And the immediate  
11 concept that comes to mind is using instant messaging  
12 as a gateway to relay and video relay services.

13 And we are now actively looking at ways of  
14 doing this with relay partners and hope to have  
15 announcements in this area very shortly. Again,  
16 looking for partners is the best way to advance these  
17 solutions.

18 So I want to just, in closing, thank the  
19 folks here at the FCC for assembling this panel. And  
20 I feel that certainly a Voice Over IP is an emerging  
21 technology, and hope to use the remainder of the day  
22 to learn actually more than what we can present now,  
23 and hope that we can come back in years to come with a  
24 continuing brightening picture, thank you very much.

25 MR. SNOWDEN: Thank you, Tom. Next Paul

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1 Jones from SYSCO Systems. Paul has been involved in  
2 research and development of protocols and systems  
3 architectures in the area of multimedia communications  
4 including voice, video, and data conferencing over IP  
5 networks. Welcome Paul.

6 MR. JONES: All right, thank you. Just to  
7 let everybody know, I was a little bit late getting my  
8 presentation to the FCC. So we did not have Braille  
9 copies available.

10 If anybody needs a copy in Braille, let me  
11 know and I will get that to you. So, a lot of people  
12 so far during this session have been talking about the  
13 things that we need to do.

14 And certainly there still are a lot of  
15 things that we do need to do. But I will, I guess,  
16 put a little bit more positive spin on things. We are  
17 doing things.

18 We are doing a lot of stuff. So the topic  
19 of my presentation is on total conversation through  
20 ITU and IETF standards, and specifically sign-type  
21 speak.

22 You Decide, is the title. So as you know,  
23 the TTY was introduced roughly in 1964. And that  
24 device really opened up communications for the deaf  
25 and hard-of-hearing. It allowed them, for the first

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1 time, to be able to communicate with people over a  
2 telephone that, in the past, had been limited only to  
3 people who had hearing ability.

4 So the introduction of the TTY really  
5 changed things for the deaf. And things really didn't  
6 progress too much beyond the introduction of the TTY.  
7 Since that time, the TTY device has stayed basically  
8 with the same technology.

9 Different countries around the world have  
10 adopted different protocols. And they have tried to  
11 make improvements on the TTY device. And Mr.  
12 Hellstrom in the panel here was one person who has  
13 tried to do a significant amount of work to try to  
14 improve on the TTY device.

15 But I do think we have a unique opportunity  
16 with IP to make a huge step forward. So part of the  
17 work that I have been doing for quite a while now has  
18 been focused on multimedia conferencing, specifically  
19 things related to voice, video, and text integration.

20 I have been doing that within the ITU and  
21 the IETF. And I think that, if you bring these things  
22 together, you will better enable everybody to  
23 communicate, not only the people that are deaf or  
24 blind, but everybody.

25 And I think that's the ultimate goal. We

1 want to have total conversation as part of our  
2 communications experience. So the ITU had defined a  
3 set of multimedia service specifications.

4 The ITU then set out and -- actually in  
5 parallel -- also defined multimedia conferencing  
6 protocols, most notably H.323, H.320, and H.324. And  
7 those different protocols have different applications  
8 basis.

9 But they are largely interoperable. The  
10 IETF worked on the protocol called SIP, which is not  
11 quite as interoperable as some of the H.300 series  
12 protocols, but is a multimedia protocol intended for  
13 use over IP networks.

14 So one of the issues I think that we faced  
15 early on was that those multimedia systems were  
16 focused on voice and video. In fact, they were  
17 focused on room-based video conferencing systems.

18 So, when the IP came along, -- I think it  
19 was about the mid 90's when IP really started to take  
20 off around the world -- people started looking at  
21 turning this into a Voice Over IP technology, not just  
22 a room-based video-conferencing technology.

23 And there was not a focus on text, per se.  
24 So the ITU took the task to try to raise awareness on  
25 accessibility issues. We focused on the needs of

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1 improving video for sign language.

2 We also started to add things to the  
3 multimedia protocols to support text properly. So,  
4 again, Mr. Hellstrom worked on T.140, which is a very  
5 important piece.

6 This allows us to actually relay text, or to  
7 send text between multimedia systems. The IETF RFC  
8 2793 is a document that describes how to take T.140  
9 and transport T.140 over an IT network between two  
10 systems.

11 H.323 and SIP both can utilize that  
12 protocol. So there's an ongoing initiative at the  
13 moment called ToIP, or Text over IP. And the focus of  
14 this is to allow the bridging of two PSTN networks.

15 This is to allow character by character  
16 communication, which is the preferred mode of  
17 communication, allow simultaneous two-way  
18 conversation, along with voice and video.

19 There are inherent limitations with the  
20 existing PSTN. Obviously we can't do simultaneous  
21 voice, video, and text if we are also interworking  
22 with the PSTN.

23 But it is an important component to be able  
24 to do the PSTN interworking. And we have a  
25 standardized character set based on Unicode, so all

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1 languages of the world are supported.

2 We want to support all of the TTY devices  
3 that exist today. So we don't want to leave somebody  
4 with a legacy device behind moving on to an IP  
5 network.

6 We want to enable different device types to  
7 communicate to each other. This is actually a barrier  
8 internationally. People from one country to another  
9 can't communicate with their TTY devices.

10 We are going to try to figure out a way to  
11 remove that barrier with IP. And we want to enable  
12 the legacy PSTN devices to communicate with all the  
13 newer devices.

14 So there's a link on my slide deck to a  
15 website that I have been creating. It's not fully  
16 fledged out, but it has some information on ToIP.  
17 There's RFC, I mentioned, 2793, which describes how to  
18 convey Text over IP.

19 And you will see on this slide here we have  
20 a V.21 device in UK talking to a Baudot device in the  
21 United States. RFC 2793 can serve as the bridge for  
22 that.

23 We also have along with us the ability to  
24 bring in additional devices. We can have endpoints  
25 that are PCs, endpoints that are IP phones bridged

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1 with endpoints are traditional TTY devices, everything  
2 interconnected over the IP network.

3           There are some numbers on this slide that  
4 talk about the number of users who are using Instant  
5 Messaging short messaging system. Those are actually  
6 forecast numbers, looking at the years 2006, roughly  
7 in that time frame.

8           But you can see that text is going to be a  
9 very, very important component. So the ultimate goal  
10 is total conversation, to all text, to be able to work  
11 with voice video, and allow everybody to communicate.  
12 Thank you.

13           MR. SNOWDEN: Thank you very much Paul. Tom  
14 said something that I thought was very striking. He  
15 said he also wants to learn. And that's something  
16 that we here at the FCC want to do.

17           And before we open it up to questions from  
18 the audience to the panelists, I wanted to ask the  
19 panelists a question. And if each of you want to take  
20 it, or some of you, or none of you -- hopefully one of  
21 you will.

22           As we at the FCC evaluate the policy  
23 approach that we should take for VoIP, what do you  
24 consider to be the most critical issue that we  
25 consider as we go forward?

1           And then what is the solution that you see  
2   in your mind, if there is one at this point, that  
3   should be thought through here at the FCC? And I will  
4   open it up to anybody who wants to take that first.  
5   Harold?

6           MR. SALTERS:     Thanks Dane. That is an  
7   excellent question. I think that I would say to the  
8   FCC that the most important thing is to keep a forward  
9   looking focus.

10           And, although it is important to have a  
11   bridge between the legacy technology and the future  
12   technology, I think the focus has to be more on the  
13   future, rather than the specifics of the linkage  
14   between legacy and IP.

15           So I would say that to focus on the  
16   specifics of it would probably detract from the future  
17   focus.

18           MR. SNOWDEN:    Thank you, anyone else?  
19   Gunnar?

20           MR. HELLSTROM:   Be encouraging, invent  
21   regulatory measures that are encouraging, stimulating  
22   for the industry in some way, not that much chasing  
23   and punishing.

24           Be international.    Look at what voice  
25   telephony is internationally. You can call anywhere

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1 with voice. And we need to have the same thing with  
2 accessible communication.

3 MR. SNOWDEN: So if I understand you  
4 correctly, you are saying get out of the way?

5 MR. HELLSTROM: Did I?

6 MR. SNOWDEN: Make sure that we don't  
7 inhibit the growth the IP related services?

8 MR. HELLSTROM: No, but you can really act  
9 positively and be encouraging, buying services, buying  
10 development.

11 MR. SNOWDEN: All right. Harold.

12 MR. SALTERS: Dane, just to elaborate on  
13 what -- to follow up on what Gunnar said, I think he  
14 made an excellent point when he said don't chase and  
15 punish.

16 And I think that is -- I think in looking in  
17 terms of future regulation, it should be more of an  
18 enablement focus, than an enforcement focus, per se.

19 MR. SNOWDEN: Anyone else on the panel want  
20 to address that before I open it up? Cary?

21 PARTICIPANT: Again, I think that the FCC  
22 needs to spend more of a focus of emergency access. I  
23 mean, in the IP world we -- the emergency world and  
24 the IP world are not really connected.

25 And we need to look at what technologies are

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1 available so that we can make these kind of quick  
2 calls. So we need to think especially about the PSAPs  
3 and how to get them connected.

4 I mean, there are other areas of improvement  
5 needed. But I feel in particular the emergency  
6 services needs to be tied in so that we can, you know,  
7 pull people away from the TTY.

8 Because, up to this point, they are still  
9 tied to the TTY in an emergency. But if we are  
10 talking about functional equivalence, we want to  
11 untether them.

12 So we would like to move faster in that  
13 particular arena.

14 MR. SNOWDEN: Thanks Cary. Other comments  
15 from the panel before I open it up? Any questions  
16 from the audience here? Yes, sir. If you could  
17 remember to state your name.

18 MR. BAILEY: All right, thanks for having us  
19 here, it is a great show at the FCC. My name is Bruce  
20 Bailey. I am with the U.S. Department of Education.  
21 We have be actively migrating the VoIP almost entirely  
22 for cost savings reasons.

23 And it has gone very, very well. And one of  
24 the things that has gone well is the accommodations  
25 that we are providing to our employees that are deaf

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1 or blind.

2 We have very good TTY access. We are very  
3 pleased with how the progress is going so far. And if  
4 there is anyone here that wants to contact us to ask  
5 about that, we would be more than pleased to share our  
6 progress.

7 My question is really for Cary Barbib, or  
8 maybe for Harold Salters. We are also using a lot of  
9 the Blackberry, so Mr. Salters showed us the  
10 Blackberry.

11 So my question is can you speak to if the  
12 accessibility of the Blackberry, in terms of access  
13 for people with mobility impairments, TTY access, or  
14 some other equivalent facilitation for folks who are  
15 blind, because that's an update probably on any of  
16 those accommodations at this point?

17 And then for Cary, I was wondering kind of  
18 along the same lines, why don't you think there's been  
19 a consumer TTY sell device at this point? I mean, it  
20 seems to me at this point cell phones are so  
21 inexpensive, market forces should be able to support a  
22 cellular TTY. Thank you very much.

23 MR. SALTERS: Thanks, I will take that, the  
24 first Blackberry question there. I think with the  
25 Blackberry and with all the data devices, the

1 compelling application is text itself.

2           And it's just very liberating. I've seen  
3 estimates, for instance, from the Sidekick, that ten  
4 percent of the market for the sidekick is exclusively  
5 people who are deaf or hard-of-hearing.

6           And that's amazing, in an area of the  
7 economy where things don't tend to be market-driven.  
8 It's really remarkable that you have, you know, ten  
9 percent of the market being persons with disabilities.

10           So I think in terms of going forward it has  
11 to be, with the Blackberry and the other devices, it  
12 has to be can you contact the 911 PSAP? And I think  
13 the concept of equal access and functional equivalency  
14 brings us to the imperative to get the public safety  
15 communities, which are using VoIP the same way the  
16 Department of Education is to rationalize and better  
17 their internal processes, to take some of that VoIP  
18 and focus it externally at how citizens and consumers  
19 can contact them using those IP-enabled technologies.

20           PARTICIPANT: Again, this is Cary. In terms  
21 of cellular TTYs or having TTY functionality in a  
22 Mobile device, right now we are looking at it in a  
23 third party type of way.

24           But there is a push to incorporate all these  
25 services into one device. There are some services

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1 that ride on the data networks so that we can connect  
2 to our relay services, we can connect through instant  
3 messaging through the relay service.

4 But there is however no current device that  
5 uses a voice channel. And I think that is the key.  
6 That especially will help us tie into the 911  
7 services.

8 Going via the data service, we cannot  
9 connect directly to 911 unless the PSAP itself accepts  
10 data connections through IP, for example. Then we  
11 would be able to connect directly.

12 But up to this point we have not had any  
13 devices where that's built in. So, you know, I really  
14 couldn't tell you why that's not happening, why they  
15 are not available.

16 And, in terms of other people with mobility  
17 disabilities or visual impairments, I really couldn't  
18 respond for them. But I do know that the sidekick is  
19 not accessible for people who have low vision because  
20 there is not audio feedback, or other types of  
21 feedback.

22 Maybe the keyboard is too small for some  
23 individuals to use. But there are some other phones,  
24 however, that have audio feedback, but not that one  
25 that we as the deaf community are using specifically.

1 MR. SNOWDEN: Thank you, Cary. Other  
2 questions from the audience? Yes, sir. If you could  
3 come to mic.

4 MR. CROWDER: Hi, I am Chuck Crowder out of  
5 VIA Inc. You know, I want to respond. I want to make  
6 a statement. But I think I want to make this  
7 statement more because I happen to be a citizen of the  
8 United States.

9 And that is that I agree that you shouldn't  
10 have regulations that punish people or get in the way,  
11 but I do think that this is so important that you do  
12 need a federal regulation to make sure that people do  
13 what they should do.

14 Because it's so easy for companies to say I  
15 didn't do that because of the cost. And they can use  
16 that as an excuse at every instance. So you do need  
17 federal regulation.

18 And I want to be very clear about that,  
19 because I don't want this notion of oh gee, you know,  
20 you're going to create a barrier, you're going to get  
21 in the way, and so I'm not going to do what's right.

22 And so that's my point. I want to make sure  
23 that we're very clear about that. We need to do  
24 something in this area. And it is achievable. And we  
25 need to make sure that there is a regulation that

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1 imposes that upon corporations. Thank you.

2 MR. SNOWDEN: Thank you. To Echo what Bob  
3 Pepper was saying, if you would like to stay in your  
4 seat, we have a roving mic as well that if you just  
5 raise your hand we will send someone over to bring a  
6 mic to you. Yes, sir.

7 MR. FREDRICKSON: I have a question I would  
8 like to address to Gunnar Hellstrom.

9 MR. SNOWDEN: Could you state your name too,  
10 sir?

11 MR. FREDRICKSON: Oh, I'm sorry, apologies.  
12 Mark Fredrickson from the company MBurst. Mr.  
13 Hellstrom, I was wondering if you could -- what has  
14 been mentioned many times as the importance of  
15 connections to E911 or emergency services.

16 I was wondering if you can tell me, from  
17 your experience, if there are any lessons in the  
18 international community of how other countries have  
19 connected people with accessibility issues to their  
20 various emergencies.

21 Are there any lessons to be learned from  
22 other countries that we might adopt here?

23 MR. HELLSTROM: I know at least about how  
24 it's arranged in different countries, mainly for the  
25 deaf and hard-of-hearing, for the text access to

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1 emergency services.

2           And I don't think that any solution is  
3 perfect. In Europe we have a strict policy that all  
4 emergency access should go through the emergency  
5 number 112.

6           But, if you look at the situation for text  
7 phone access, it is not done that way in many  
8 countries. Sweden does it so that the text phone goes  
9 through the regular emergency access centers where the  
10 calls are too few.

11           So it is a great risk that they are not  
12 handled well. Other countries like the UK have a  
13 special number that takes all text calls into one  
14 central location where they are more knowledgeable  
15 about handling text calls.

16           But then it's a load on the user to remember  
17 that strange, different number. Many countries do not  
18 at all have any emergency access for other than  
19 hearing voice users.

20           So it's not very much to learn. There has  
21 been an interesting committee in Europe called InCom,  
22 working with the regulatory recommendations for  
23 accessibility last year.

24           And they definitely stressed that the  
25 single-number access for text and voice and, in the

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1 future, video users, is the goal.

2 MR. SNOWDEN: Thank you. Other questions?  
3 There's a hand back here.

4 MR. ODOM: Hi, my name is Jesse Odom from Go  
5 America. And I had a question for Paul. Paul, you  
6 and I talked one not too long ago about text over IP  
7 going through the PSTN.

8 And you showed the slide with all the  
9 different protocols that you are working through the  
10 ITU to get standardized. What is it going to take for  
11 the actual PSTN implementation of this so people  
12 understand what the road blocks may be in actually get  
13 some of these things through for use?

14 MR. JONES: Thank you. I don't think that  
15 there are any issues for the PSTN at this point. It  
16 is pretty fixed. So we look at that as a fixed  
17 network.

18 Everything that has to be done is on the IP  
19 side. So I think the biggest hurdle is understanding  
20 all of the various TTY types that are out there in the  
21 world.

22 In the United States, I guess we are  
23 fortunate, and maybe unfortunate, that we primarily  
24 have Baudot. But not only Baudot, there are actually  
25 some proprietary protocols that are also being used by

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1 the deaf.

2           This is a concern. How can we bring those  
3 proprietary protocols over? We can't standardize  
4 them. This is an issue. So we are focusing on, in  
5 the standards bodies, of just Baudot at this point.

6           Of course, for the rest of the world, we are  
7 also focusing on every TTY type that's being used in  
8 every other country. For the U.S. it is a Baudot only  
9 focus.

10           So I think the hurtles are, if you speak of  
11 just the U.S., it's getting Baudot's support on the  
12 gateways to interface between the PSTN and the IP  
13 networks.

14           For the rest of the world it is the same  
15 thing. But it's whichever protocol is being used in  
16 each country. For manufacturers such as SYSCO, we are  
17 building gateways for deployment in every country in  
18 the world.

19           Of course that makes it much more difficult  
20 in that we have to focus on -- we have to be able to  
21 put the functionality into the gateway to support  
22 every one of those protocols.

23           And that takes time. It's actually not as  
24 easy a task as I had thought it might be when I set  
25 out working on this. But it's certainly something

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1 that we're driving hard toward. Did that answer your  
2 question?

3 MR. ODOM: I think so, thanks a lot Paul.

4 MR. JONES: Thank you.

5 MR. HELLSTROM: I can add that, did you see  
6 the cloud diagram in my presentation with the IP  
7 network and the PSTN network and connected with the  
8 text and voice gateways?

9 That is a real network. We have it up and  
10 running. And we have been in a European project for a  
11 mobile communication for the deaf where we implemented  
12 a small gateway for text telephony into IP form of  
13 text standard.

14 So it's doable. And we have done it. But,  
15 of course, it needs to be upscaled, and we need further  
16 projects to do things. And we have other projects  
17 going on.

18 The real challenge is to go into the major  
19 IP gateways to get them to understand TTY, which takes  
20 some power of their processors.

21 MR. SNOWDEN: We will take one more question  
22 from the back of the room here.

23 MS. ROSE: I'm Ms. Rose, Department of  
24 Veteran's Affairs. This is for Tom Wlodkowski from  
25 AOL. I am a line person myself, and I was assisting

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1 another new customer to load version 9 of the AOL  
2 software on their PC.

3 And though I was able to do it, the  
4 installation was somewhat difficult, really would  
5 require someone with some intermediate screen reader  
6 experience.

7 And then we tried to use the email and found  
8 that not to be particularly accessible. So I was  
9 thinking I could possibly use another mail product  
10 that I know works better with screen reader programs.

11 But when I called your technical support  
12 they said this was not possible. So I was just  
13 curious to ask you is that true, or are they getting  
14 ready to put out another version of the email that  
15 would work better with the various screen readers that  
16 are out there? Thank you.

17 MR. WLODKOWSKI: Well thank you. Certainly  
18 you can now use other email clients to get at AOL. We  
19 just announced that last week. We have opened it up  
20 to Outlook and Outlook Express and other email  
21 clients.

22 WE can certainly talk offline and get that  
23 information over to you. I would also be curious to  
24 hear what the issues were with 9.0. Certainly I use  
25 the mail program as a blind user, probably

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1 affectively.

2           And no others do as well. And so, perhaps  
3 there was a screen reader issue in terms of version  
4 that you were using, or what have you. But, basically  
5 our rule of thumb right now is working with the latest  
6 versions of Jaws and Window Eyes with the latest  
7 version of the AOL software.

8           We are furthest along with Jaws at this  
9 point. And it is still very much a collaborative  
10 effort where we retain consulting services from an  
11 organization like Freedom Scientific to literally  
12 build the customization that's necessary.

13           I think later this year you will actually  
14 find a product that's coming out to support our  
15 broadband initiatives. You'll also be able to use it  
16 in dialup.

17           That will really bring us into parity with  
18 some of the other email clients that you mentioned.  
19 And that's going to be beta here in the next four to  
20 six weeks.

21           And then it will release later this fall.  
22 So hopefully we can catch up offline and I would love  
23 to get you or your colleague up and running helping us  
24 test that product.

25           MR. SNOWDEN: Thank you Tom. One more

1 question.

2 MR. OBREY: Ronald Obrey with Hands On video  
3 relay service. I'd like the FCC to take into  
4 consideration to maybe encourage and enhance providers  
5 that are coming into the market, as far as 3G and  
6 other broadband wireless services that will enhance  
7 people that use sign language as their primary mode of  
8 communication.

9 So they'll have an alternative to text-based  
10 messaging. Most of the deaf people that use sign  
11 language as their primary mode of communication I  
12 think are very excited to see some of the other  
13 countries in the world have the speeds that enable  
14 wireless devices to do sign language, thank you.

15 MR. SNOWDEN: Thank you. We want to take a  
16 quick seven minute break so we can stay on schedule.  
17 But before we do, how about a round of applause for  
18 our panelists here. We will re-adjourn at 10:45.

19 (Whereupon the above-entitled matter went  
20 off the record at 10:35 a.m., and went back on the  
21 record at 10:47 a.m.)

22 DR. PEPPER: We heard on the first panel  
23 some of the opportunities. And we also began to hear  
24 some of the questions that are being raised about the  
25 move to IP-enabled services and Voice Over IP.

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